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FROM THE CHIEF EDITOR'S DESK

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Dr. Madhu Gupta

Editor-in Chief, (REX)

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The role of nano-particles in contaminated water and its application

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Abstract-Nano-particles has played special role in pollution of water has been founded many research in this area since last five years. Nanoparticles plays important role for their vital properties and makes nano-particles highly seminal as sorb. According to various factors nanoparticles are different than other particles due to large surface area this concept is totally depend upon on mass. They possessed highly large surface area due to this factor its property is totally different than other particles like macro moiety. They can increase their property by changing concentration of doping material with various percentage concentrations to increase its chemical ability towards the pointed compound. Filtration technique in a field of nanotechnology is widely used for removing positive ions i.ecations, organic by products which is very harmful, organic matter found from nature. Biological contaminates organic pollutant materials, chloride, phosphorus, sulphur, fluoride, and also heavy material and arsenic from drinking water in source of ground water and tap water in form of surface water. Nano-membranes which is exactly like a natural membrane which stop down the impurities in porous plugs of membrane these are used for treatment of contaminate contain water by filtration and separation technique. In other quality of nano particles that is Nano-sorbent which are widely using in field of a separation technique for water purification and to eliminate the inorganic, organic polluted from contaminated water. During last few years , the nanoparticles is titanium dioxide have imaging property photo-catalysis to removal of impurities and to purify water .Consequently, Many methods are using to formed nano materials and Researcher has adopted many methods like , chemical methods which is mostly used by researcher that is chemical precipitation others are sol–gel. And by vapor deposition, thermal solvosis and last one was solid state reactions types etc. For purification of water mostly metal oxides nano-particles are prepared. To synthesis some nano-structured mix oxide, which could be very effectively using for drinking water in source of ground water treatment. Nano materials agglomerates of mixing of oxides are Fe-Ce (iron cerium) , Fe-Mn (Iron–manganese) , (Fe- Zr) Iron – zirconium ,Fe-Ti (Iron- Titanium) , Fe – Cr (iron–chromium), Ce – Mn) cerium-manganese, (Al- Ce) have been prepared and the characterized by in the sophisticated instruments that is FTIR ,XRD SEM, TEM,UV-VISIBLE, AFM these are successfully developed and for the water treatment analysis. In all the given technologies for water purification, the adsorption technique is the best technique due to easy use and at very cheap cost with effective and good efficiency. Due to contaminate water many health issues come play important role to damaging our health condition and one of the major problem selection of instrument to purify the water. To select the best technique to purify the water need to be successful if the collaboration physics, chemistry, nano-particles, material science, biology branches and geology takes research in one common field.

Keywords: Nano-particles, Membranes, Contamination, Filtration, Adsorption, Pollutin.

1. INTRODUCTION:-Water is the important for existence; in several other terms we can tell that we cannot imagine our survival minus water. Sustainable to the availability with distilled water that is important for living organism wellbeing, also at ecosystem economy. In the present days, human civilization is facing major problems difficulties for the increasing need of clean drinking water To reach clean the water supplies which is induce to reduce and due to the people day after day, and shortage, insulation water quality status safe to drink water which is origin of ground water but it is also decreasing the consistency of fresh water. Owing to the relentless flooding demanding and the rising demands in various area. Water is the main and important organic sources. Due to a simple human necessity and local citizens duty does have to be its use requires proper preparation, growth and management. The increase in population combined with unsustainable usage of groundwater and surface water from over past several decades has led to H_20shortageat different areas on the planet. Level of pollution in water rises dramatically but without adequate care and conservation steps, drinking water sources are contaminated. An urban sprawl leads to an increase in water for each person. India is a vast nation with a broad range of ecosystems, habitats and topography, resulting in a variety of groundwater conditions in various areas regions throughout the nation. Persistent utilization for energy and rampant usage involving chemicals, harmful-fertilizers, and agricultural waste fail to threaten the purity levels of water available below the ground and for instance stand at an increased risk of getting heavily contaminated by effluents released out of industries, waste material from urban and rural housing source. Significant water polluting materials involves microbes (such as intestinal bacteria including stuff which is infested with virus & other waste organisms), including other metals which ate hard (such as Nitrate content and phosphate), including some of the ultra-heavy metals with the likes of even heavier metals where the Pb, Arsenic & Mercury are the major contributors and some of the other artificially developed chemical substance made by man constitute Solvents harmful matter as DDT and some of the nature-identical lubricants, gasoline, heat residues. Almost all industrial and processing sectors generate emissions as unwanted items. Heavy metals will contaminate the aquifer and thereafter accumulate human tissue and other living items.

If the numbers are to be discussed here, it is a known fact that close 0.1 bn population comprising of countries like Bangladesh and India are putting up in areas where the concentration and accumulation levels of Arsenic are at their peak levels where almost 9 to 10 districts of the state of West Bengal are included where around 80 districts including 3000+ villages are plagued by the world's most contaminated sewage [2]. Pollution will take years to enter the environment; however, after it enters the streams of water sources, it is extremely challenging and highly expensive affair to extract related contaminants. A very high percentage amounting to >80% waste generated on the land of developed countries was released devoid of any adequate maintenance just to further contaminate the networks of rivers, reservoirs and marine bodies [3]. In the current sense the recent developments in Nano scale science and engineering open the path to the unknown and novel production and application of water purification systems in line as compared to the standardized parametric values. Nano science can best be described as analysis for the practice & usage of matter at chemical, cellular, & ultra-macromolecular proportions, in which the features vary substantially from those at higher levels [4]. Nanotechnology is the construction, construction, manufacturing and usage of buildings, equipment and systems by regulating the dimensions associatedwith nanometer scale. During

yester-years, much focus was directed towards deployment and usage of renewable products such as adsorbents or catalysts to extract hazardous contaminants and risks from polluted water [5]. The special characteristic quality particles known as the Nano-particle has tremendously earned exponential interest and attention vis-à-vis from some of the previous decades because of its different properties than other materials. Including different Nano compounds, which are uni-metal or the oxides components that are doped metal are typically of considerable concern as such kind of matter have a wide degree of volume range, sophisticated magnetic properties, unique photographic properties and more [6]. As a consequence, different approaches viz. chemical rainfall, sol-gel, vapor injection, thermal, reaction in terms of state that is in solid form etc. was followed into the mixture for specifically listed oxidized components by different staff [7]. Nanoparticles related various innovative products have already been rolled out publicly and are available for market driven activity and usage. Nano filtration actually appears to be the most mature and friendly system and most are on the road to growth and deployment. The natural and toxicity of every substance are crucial problems in selecting water purification products. Nanotechnology though undeniably superior vis-à-vis similar technological advancements available for effective decontamination of water-enabled sources, knowledge of natural end, transports and toxicity of nanomaterial is not enough. The greater are of total surface under scope and recycling relative to granular types allows nanoparticles to handle multiple materials at a high pace and with low output of dangerous goods. Scientific developments in Nano scale research indicate that certain existing problems concerning water safety may be overcome or significantly minimized with the usage of Nano sorbents, Nano catalysts, or in better sense some of the categories of nanoparticles which fall under the category of being termed as bioactive , or the membranes which are in nanostructured form along with being catalytic in nature , nano-tube kind matter, the nanomaterial products that are magnetic in nature or more precisely, the granular level nano-matter, granules, the total area of surface for metal side or some of the particles who have an exceptionally higher level of size which fall between the range of 9 to 10 nm measurements comprising fragments, macromolecules, the nano-material & its related colloids are capable enough of creating a proportional impact on the under target water of the natural scope [8]. A distinguishing characteristic of nano-mattercan comfortably be termed as one of the instruments capable of de-polluting the water where the size of the available particle is known to be extremely small, falling between the range of 1 to 100nm and when compared to a cell of bacterial level, which comes out to be around 1000 nm if measured from the diametric side. The flow of groundwater source is another major way of transferring the particles of Nano-matter [9].

The unique capability of nano-particles is defined by their ability to remain suspended for a considerable period of time and can be on standby anytime to be released into the in-situ area where treatment has to be initiated. The resultant consequence states that theseparticles may get stuck withinstrong-matrix as traditional products deployed for water decontamination with the names of either zeolite or carbon in activated form. These mentioned methods are considered as advanced ones for decontaminating water [9].

2. Nano-particle use for disposal of water and its decontamination:-Nanomaterial quickly appeared as people pursuing water treatment instead of traditional technology which, despite their efficacy, is sometimes very costly and time consuming. This will, in particular, be of immense value to developing countries such as India and Bangladesh where the expense of introducing any new elimination mechanism can be a crucial factor in deciding its

effectiveness. Properly articulated nanomaterials may be supplemented by traditional materials that need more materials, have greater processing potential or are considered to damage the ecosystem. Applying raw chemical concepts in the manufacture of nanoparticles will contribute to substantial reductions in waste production, fewer toxic chemical products, and entirely safe chemistry. However, to prove these arguments further evidence is required and that the incorporation of conventional synthetic materials with nanoparticles results aslesser level of energy and use of matter and the avoidance for unintentional including unintended ill-effects could also lead to controversy which is not the purpose of research here. At present, a lot of widespread concern regarding the protection of nanoparticles and their possible effects on the climate. It is hoped that this advance state of technology i.e. nano-technology should bring about a very cost-friendly, reliable and long-term solution across.

While looking at the flip-side of the situation a lot many, possible harmful consequences of these particles are still neglected. For eg, the composite function of a nanoparticle may be helpful when used to damage impurities, but it can produce some toxic substance on doing reaction with cells. Therefore it is never the best option to be considered here while foreseeing some of its unfavorable consequences leading to a difficult worldwide adoption that is universally consistent but it is a better option as compared to other prevalent methods that are in present existence. If the aforementioned view is to be believed, the use of nano-particles will go a long way by acting as appropriate catalysts to be deployed directly to degrade the chemical pollutants and their varieties for instance a zerovalent metal deployed for removal of contaminants via nanofltration membranes.

3. Forms to extract impurities from dirty water using nanomaterials:

Nano-filtration:-Gastrointestinal methods including those of Nano filtration (NF) arise as main constituents in water decontamination . Nano-filtration (NF membrane) is commonly used in the preparation of fresh water for drinkable water or for handling wastewater. That is a low-pressure device that distinguishes artifacts with a micro-meter scale of 0.001-0.1- The NF membrane is a pressure-driven membrane with characteristics such as between the methods where osmosis is followed in the reverse direction or filtration which is done at a very high level molecules where the primary range of size of pores lies between 0.2 to 4 nm on a scale comprising of nanometers. The membrane of Nano filtration is capable of extracting humidity, micro-organisms & ions for such compounds as Ca& Na. These are being used to smoothen contaminants (reducing water hardness), elimination of dissolved species and monitoring toxins in surface-water, management of pollutants (elimination of natural & abnormal chemicals as well as organic carbon) but mostly regenerative ocean water remediation. Brugen along with his Co-author,Vandercasteele (2003) researched on usage of microfiltration typicallyfor large scale extraction forcations, some organic material, toxins that are biological in nature, industrial pollutants comprising of hard metals like arsenicin addition to nitrated that are found in numerous sources of water body [17]. During the same period, great researchers like Favre-Reguillon, Mohsen, Peltier researched heavily in the same area and brought astonishing results on the techniques of nano-filtration [18, 19,20] where it was capbable of removing the limit of U (VI) to a great extent and similar such techniques deployed in large water decontamination houses where the trend seems to be pretty much common now for the masses.

Nano tubes are a resultant and live example of how this technique is in widespread use at present state. USrivastava et al. (2004) have recently published on the performance of the filters made out of carbon and based on the concept of nano-tubes [11]. To better explain this, the new filter systems that are being explored here consists of hollow shaped cylindrical structures that are imbibed with walls made up of carbon nanotubes where a great level of success was achieved because it was capable of killing Bacteria (Escherichia-coli and Staphylococus-aureus) out of the deeply polluted water body. The contaminants get stuck inside the walls and advanced techniques like autoclaving or for instance ultra-sonification which are capable of removing the contaminants. The filters which are nano-ceramic are composed of nano-alumina fiber also composed high density glass can hold negative charge, capable of trapping bacteria, efficiently trap heavy metals to decontaminate the water sources [4].**NanoscaleZerovalent Iron:-**Those nano materials which include Iron in their composition are extremely effective in the direction of Nano remediation. A Nano scale based formation of Iron from Fe (II & III) extract followed by using a catalyst known as boro-hydride which acts the the exact fit for such kind of a reaction. The length of metal ions that fall under the category of zero-valent size of ions metal is between 10 to 100 nm while the structure of such is very close to that of a shell. It can be attributed very easily to look like a valent that is either of metallic iron or a mixed format oxide which is a resultant of oxidizing procedure of the ore of iron.Nano scaleZerovalent Iron is also chosen for the processing of Nano remediation owing to the wide topic that covers study of nano-matter and a greater amount at active places when compared to smaller matter&have two areas of exposure and the reaction that is reducing in nature [12]. Notwithstanding to say but the Nano-scale Zerovalent Iron or popularly abbreviated as nZVI is one of the most explored and relied upon techniques for decontamination of water sources whether for ground or surface water sources. This tool which is very closely linked to Nano-technology in its natural form is well known and tested. Nanoscale metallic iron has been shown to be extremely efficient in removing different contaminants such as chlorine methane, bromine methane, trihalomethanes, chlorine ethenes, or for benzenes which are in chlorinated state, miscellaneous hydro-carbons, insecticides, etc.[9]. The major caused to include environmental erosion:

$$2Fe0 + 4H + + O2\ 2Fe ++ + 2H2O\ Fe0 + 2H2O\ Fe ++ + H2 + 2OH-$$

nZVI has many reduction capabilities where it has shown extraordinary sorption power when compared to a standard set by the granular steel. It has the capability to minimize inorganic anions which comprise of arsenic related matters, chromatic, selenite, nitrates or sulphates while also being capable of taking out liquid metallic substances like Nickel or Pb from the solution under target. These are reduced to zero-valentmetals under a lesser oxidation state [13]. It is very common to adjust nZVI with the deployment of sodium borohydride where it acts as a main reducing agent. In the sample scope, around 0.2M of this was applied to FeCl3.6H2O (0.05 M) solution with an equal ration of Volume. The following reduction reaction explains the concept accurately and precisely [14]:

$$4Fe3 + + 3BH4- + 9H2O \rightarrow 4Fe0 \downarrow + 3H2BO3- + 12H + + 6H2$$

Permeable Reactive Barrier or more precisely abbreviated as PRB is a class of technology that is capable of conducting physiochemical cleansing of groundwater and frees it from the hard-metalcontaminants [15]. nZVIhas very actively been deployed across various regions in the world for lot many years now and efficiently caused a removal of organic as well as aquatically dangerous contaminants [11]. In recent years nZVI has found a position as a candidate to draw consumers of this technology. Synthetic products are put in underground trenches that compel them to move through and in doing so, the waste is handled without digging water. In addition, this is an extremely cost-friendly technological innovation that is harmless for the environment and ecosystem overall compared with other known methods.

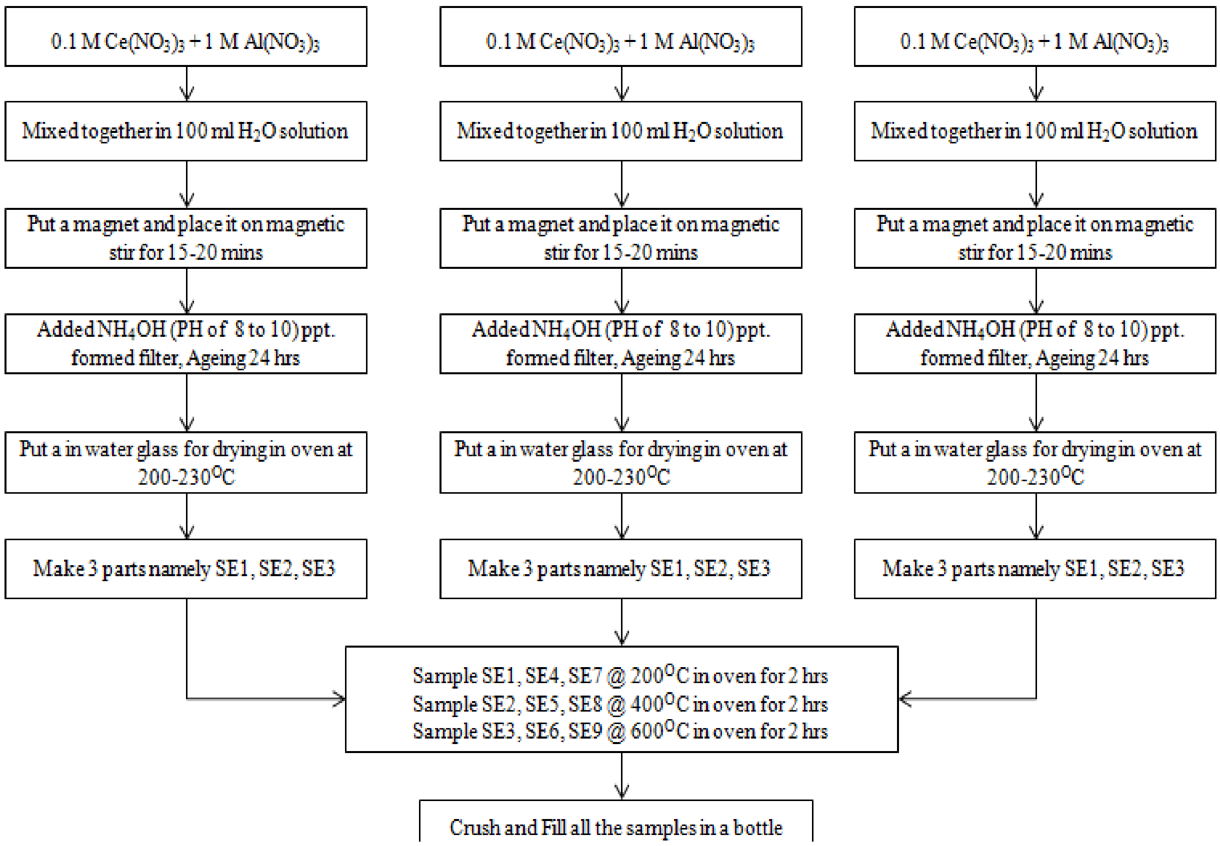
4. Re-movement for nanoparticles during cleansing process of water:-Constructive usage of nano-materials for natural activities would often contribute towards a discharge of such matter considering the current environmental setting. Analyzing their possible environmental threats includes knowing their activities, biological, toxicity and longevity. None is understood regarding the potential toxicity of marine and terrestrial organisms of these particles when mixed with the environmental products of soil including water. Fast-paced increasing usage for synthetic nano-matter towards many industries and its unique capability for large scale treatment of polluted water make it a really attractive offer on the table and completely unavoidable stance to ignore its growth. While on the other side, common methods deployed in form of oxidation or filtration has been vague and provided results to a certain degree of improvement.

It is a definite need of the hour, hence to develop broader categories of such particles as the speed of sedimentation is pretty low which actually makes the process very slow and the desired results are not obtained timely. There is hence a complimentary solution that is needed to nullify the toxic effects of nano-particles in water. Flocculation is a popular technology to eliminate toxic nano-particles from water but there is aneed to pursue new solutions to this issue. To date, membrane filtration (eg: Nano filtration which is also popularly known as reverse osmosis) has been used to elimination for contaminants out of water.

The process hence makes a really strong case for removing the nano-particles in order to nullify its ill effects on purification. Much of the nanomatter for science purposes currently function spontaneously so experiments using new nanoparticles might not be sufficient in evaluation of efficiency for particles already used.

A commonly known technique, i.e. Functionalization can minimizethe aggregation and thus improve particle movement. Unfortunately nothing is learned thus far regarding the behavioral effect of such unique particles at the current situation

5. Formation of metal oxide Nano-particle by co-precipitation method



Flow chart for the preparation of (Al - Ce) doped Nanostructured

Experimental technique of metal oxide Nano stuff (XRD): -At first, the XRD of the Nano stuff is prepared metal oxide experimentally the Nano stuff samples of varying concentrations of dopant moiety's were subjected to different types of characterization techniques to find out the shape, size, properties and behaviors of the formed Nanoparticle. The first step was to find out the structural identification and phase property of experimentally formed Nano particle metal oxide which was analyzed by a technique named P-XRD which is the nomenclature used for the powder. Following the above step, an X-ray diffraction was carried out by a Rigaku diffraction meter using in the K alpha radiation. This is a very well knows diffraction method that was carried out. The wavelength of the radiation provided during this experiment was 1.546 A^o. Formationofnano metal oxide doped stuff containing 30% concentration of dopant (Cerium) calcinated at 600^oC for 2 hours.

Sample X = SAlCe A62 = 30% at 600^oC for 2 hours

(2θ) = Position of the peak

28.944, 33.477, 47.937, 56.739, 59.455, 69.933, 77.346, 79.184

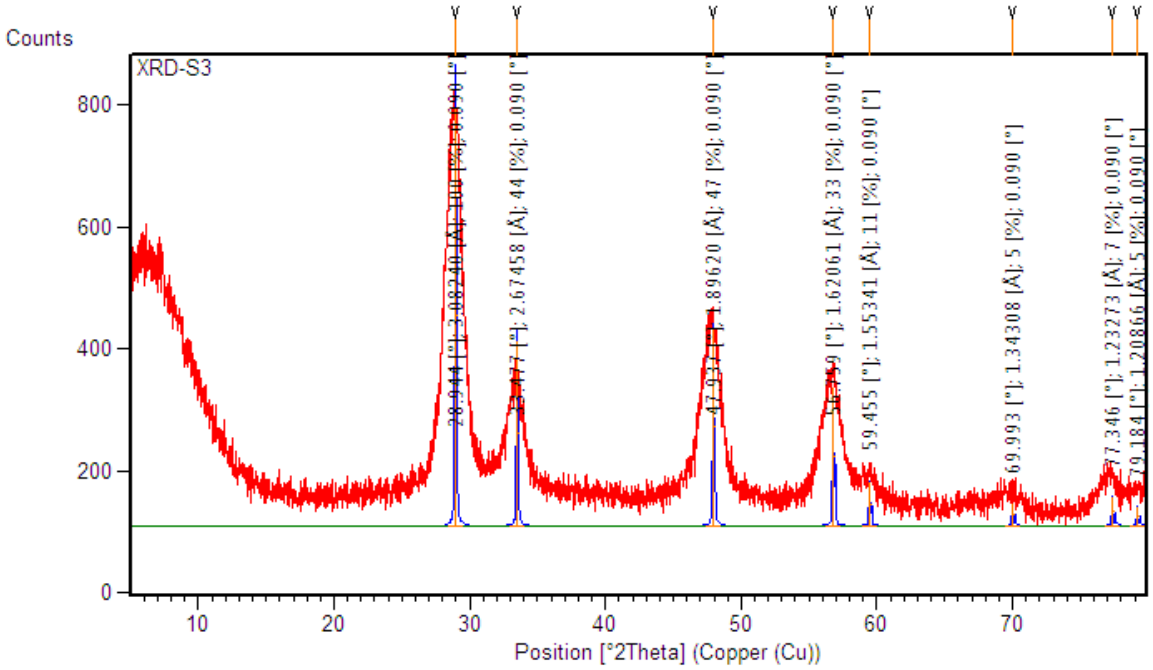
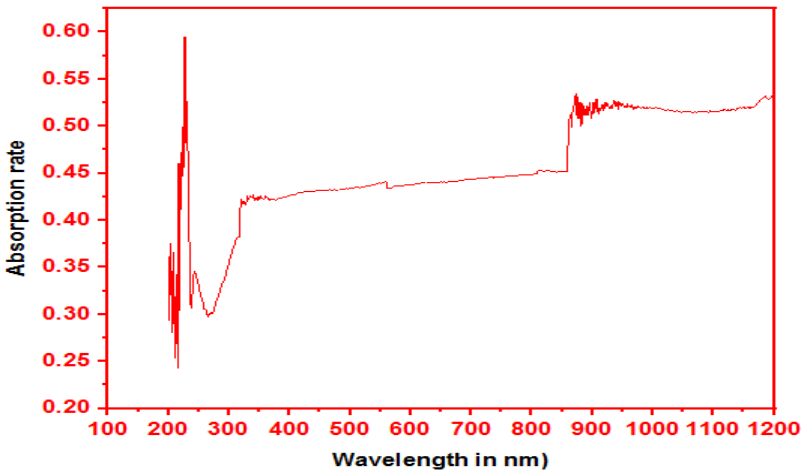


Fig 6.7.3: XRD graph for sample X

The main peaks were exhibited for Ceria at 28.944, 33.477, 56.759, 69.993, 77.346 and 79.184. After matching with standard reference card no. J – (00-004-0787) showed that alps were at 44.016, 77.346, formation of the formation of γ-Al_2O_3 and Aluminum is incorporated inceria and after matching card no. J – (34-0394), the peak was observed at 28.944, 33.110, 56.759 and 77.346 presenting CeO_2 in form of Ceria. The peaks at 47.937, 59.455 shows merging behavior of CeO_2 and Al_2O_3.

Experimental technique of metal oxide Nano stuff (UV):-The place where it was carried out is named as Sophisticated Analytical instrument facility, SAIF, Punjab university, Chandigarh with the spectrometer named Perkin Elmer UV win lab using the chemical $BaSO_4$or Barium sulphate from a wavelength ranging between 200nm and 1200 nm to calculated the energy band of the formed Nano stuff material of metal oxides firstly at a constant temperature while simultaneously changing the various concentration of the dopants and secondly by maintaining a constant concentration of dopants and changing the temperature.

UV spectroscopy:- By co-precipitation method, after formation of doped metal oxide Nano stuffs put in various characterization techniques to detect the various types of information regarding that chemical. UV visible technique has to be used for this Nano stuff. The specimen is investigated by using double beam UV spectrum-photometer.



UV results for Sample SU1

Approach: Firstly for sample SU1, Nano stuff which exhibited 30% doped cerium at calcinated at 600^{o}C. The UV visible graph scale showed 200-1200 nm various constructive and destructive behavior seen in between the scale due to noise. The Nano scale range 200-400 nm magnified the graph of various experimental samples. The graphical representation showed a sharper peak at 238nm that indicating towards the formation of Nano-materials. The size of bacteria is in size of Nano-material scale that showed the absorption in the range of the Nano-scale which is helpful for use as bacteria site in water decontamination and treatment.

E= 1240/ λ = 5.210 (SAlCe A62, 30% conc. at 600^{o}C for 2hrs)

The sample showed a wavelength of 238nm at 30% concentration indicated formation of a Nano stuff.This shows a nearly insulator behavior.

6. Conclusion:-Although the term nano-technology comes out as a modern buzzword by many in the science world, the specifics of this topic remain widespread and scattered due to the same technical advances. But the increasing trends of researchers mentioned so far have made it evident that nanotechnology has the ability to turn into the most effective water management method of the 21st century. In reality nanomaterial and their different births are the guiding factor behind the evolution of nanotechnology. The study and research of Nanoparticles is not only defines an important and revolutionary technological step in the field of water cleansing and treatment but in different fields, branches and areas of environmental science which is an impactful step in itself however, a number of wastewater treatment innovations, like nanotechnology, have so far been studied only in the scientific labs and in theory and yet there is an unlikely to replace the existing technology innovations to solve water problems, out rightly. We need to be mindful that an investment in this area of technology is economically viable and hence it is impossible to predict the next steps in regards to this modern technology. And the use of nanomaterial in current water treatment setting seems to be another major hurdle. The specific reason for RO and NF purification systems makes business sense and hence it is in widespread use for household, industrial and other business purposes due to their versatility, manageability, simplicity, durability and cost-friendliness. Therefore a lot many pilot tests, lab investigations and research in this area is required to bring about a structured and

standard solution that is at least at par with the existing technologies in the market. There is a lot of reconstruction and redesign needed in order to build and develop robust technological interventions. Notwithstanding to say that although nano technology is one of the rarest techniques to enable purification of water but it's a double-edged sword where it can also pose danger to the ecosystem through the production of toxic residues. Therefore a thorough evaluation of the opportunities and risks of nanotechnology in terms of their environmental effects is needed. No comprehensive study on the safety of nanomaterial in environmental and engineering environments has been carried out to the best of our understanding. Fortunately, because of their very high efficacy with high precision and specificity, nanoparticles can be produced to be appropriate for water treatment and can lead to addressing potential problems in the field of water treatment technology. Nanotechnology also has many promises in the production of groundwater and in this case there is much to study and development. Moreover the role of Nano-particle in water decontamination, the bacteria size is compatible with Nano-stuff size hence its application is useful in removal of bacteria from water.

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Quality assessment for ground-water in rural & urban areas of Haryana

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Abstract-The ranking of the state of subsurface water in cities and villages of Haryana (India) is studied and the results. This is accomplished to counteract the backdrop of its present ranking, inclination, and recognizance of tenors improper disposal of the ranking of urban subsurface water and feasible alternative steps in North-Eastern Haryana. Haryana is indeed a state with a significant requirement of water for cultivation, industry and household activities. Regionally Haryana does not have the luxury of the stream (excluding the Yamuna in the eastern part) flowing through it and thus has to depend heavilyon surface water. Analyzes have proven that North-Eastern Haryana shallow groundwater ranking is discarded of by the geology & geochemistry of the environment, the movement of urban development, industrial development, recycling leachates, toxic substances, microbiological pollution, and influence of weathers. Alterative measures told comprise protection of aqua sprig, appropriate disposal of wastes and construction of sanitary landfills, control of all field usage sullying operations, and solution of aqua until is implemented for daily use. Continued analysis of subsurface water rating is necessary to preoccupy any despicable outcomes. The aim of this paper is to analyze the status of freshwater quantity and efficiency, challenges and study requirements in Northeast Haryana, India based on existing literature.

Keywords: Ground-water, Ranking, Analysis, Challenges, Pollution, Disposal

1. INTRODUCTION-Water seems to be the essence of life of all plants or animals. It comprises upwards of 75 percent of the body mass. Subsurface liquid is one of the most important natural commodities of the earth Today with numerous applications as a significant supply of new water on the earth. The cumulative fresh water accessible on the Planet in liquid state is 10.7 M km3 from which groundwater comprises around 98 percent ,(Oudtshoorn 1997). (Oudtshoorn 1997). Groundwater is also an economic advantage and even more than 85 percent of the municipal water sources are collected from wells. The groundwater has played a crucial role in rising food output and ensuring food stability in India. The value of groundwater in Agriculture sector can be measured from reality that more than 50 percent of the totalirrigated region is based toward groundwater. Moreover, about 60 percent of food output from irrigated areas relies upon groundwater (Shah et al. 2000). (Shah et al. 2000).There has been a terrible increase in demand for pure aqua owing to intense growth of the population and an increased pace of industrial development (Tiwari and Nayak 2002). (Tiwari and Nayak 2002). The condition of water is a consequence of the inartificial, significant and compositive process. Aqua, in its physical/inartificial nature, is exempt from pollution, however as man intervenes with aqua bodies, it sacrifices its inartificial circumstances (Asadi et al. 2007). (Asadi et al. 2007). Any improvement in its consistency is a productof anthropogenic operation (Rafi and Venkateswaran 2011). (Rafi and Venkateswaran 2011). These will alter the relative contributions of the inartificial triggers of variations and also add the impacts ofcontamination (Mazac et al. 1987). (Mazac et al. 1987). According to WHO (World Health Organization), approximately 80 percent of all illnesses in people are induced by polluted aqua (Murali et al. 2005). (Murali et al. 2005).

National Water Policy 2012 defines the needs of mankind for water for different uses and prioritizes them as water for drinking and domestic requires, water for irrigation and water for industrial use. Aqua pre-eminence research is one of the most important and basic facets of subsurface studies. Assessmentof groundwater efficiency on drinking water levels have been carried by many researchers (Rout and Attree 2016, Rout et al. 2013, Sharma et al. 2011, Gupta et al. 2009; Umar et al. 2009; Haritash et al. 2008; Raju 2007, Rao et al. 2005;Howari et al. 2005; Daskalaki and Voudouris 2008). (Rout and Attree 2016, Rout et al. 2013, Sharma et al. 2011, Gupta et al. 2009; Umar et al. 2009; Haritash et al. 2008; Raju 2007, Rao et al. 2005;Howari et al. 2005; Daskalaki and Voudouris 2008). Besides physicochemical substances, the issue of toxicity of groundwater due to the existence of heavy metals has also created questions all over the Globe and the findings recorded by numerous researchers have been troubling (Leung and Jiao 2006, Demire 2007, Nganje et al. 2007; Shinkai et al. 2007; Rout et al. 2011). (Leung and Jiao 2006, Demire 2007, Nganje et al. 2007; Shinkai et al. 2007; Rout et al. 2011). The result of the tasks carried out by researchers is detailed in subsequent papers As groundwater is a very valuable yet scarce and fragile resource, all attempts should be made to ensure groundwater quality as secure as possible. Unfortunately, owing to shortage of strict and rigorous controls, virtually no water quality-governance and inadequate management of water resources have culminated in groundwater pollution in many sections of our world. The present paper gives the findings of a regional analysis carried out in the haryana to track the condition and viability of water in the era of growing industrialization and urbanization. It is imperative to stress the Haryanais a predominantly agricultural society with a growing foundation of industrialization. For surface water, it has a limited share from river Yamuna and river Sutlej by canals. To satisfy its huge demand for farmland, industry & domestic needs, it has to rely largely on the groundwater.

2. STUDY AREA – SCOPE:-Haryana is indeed a land-locked region in the northwestern of India and is situated within 27° 39′ and 30° 35′N latitude between about 74°27′ and 77°36′ E longitude of only 1.37 percent of the overall geographical region and less than 2 percent of India's population. Groundwater has contributed greatly to the development of annual harvest production in the state of Haryana. Out of 3.5 mn-hect. of gross nurtured area in Haryana, 98 percent is drained by tube-wells. On the same line, the North-Eastern Haryana comprises of Panchkula, Yamunanagar, Ambala, portions of Karnal & Kurukshetra regions are often primarily drained through tube-wells. The natural land slope is typically around northeastern to southwestern, the course where most of the waterways run. From out total area of 44 lakh hectares in the province, about 50 percent land is seriously impacted by the problems of flooding, salt content, acidification and flooding. An region of 2.32 lakh hectares is plagued by the issue of salinity and 2.55 lakh-hectares of acidification and waterlogging. The situation is also exacerbated because of pollution from heavy metals, toxins, and perhaps other manmade dangers. Thus around 3766 sq km region in Haryana is interblended by freshwater groundwater. In Haryana, the ratio of urbanization represented by sublimate community concentration, expanding technological and pre-dial operations. It normalized with circumambient degeneration and irresponsible dispersal of the all the option with contaminants are comprehend to pretense solemn pollution intimidations with all its associated possibly the best perils on groundwater land, especially in urban regions. This fear has exerted the eventual interest of pioneers in different sections of Haryana urban& rural areas. This varies on the assurance that the popular or mass water source is abstruse to a massive rate of rural dwellers, and even where is available the service is intensely inadequate, incredible and desultory in South area. Hereof, there is a

significant reliance on unregulated groundwater sources abstracted by water taps and tube wells schemes. Pursuance to Kanwar and Manchanda (1964) industrialization subvenes the well before and magnitude of fundamental groundwater while originally changing the posture and proportion of replenishing, adding fresh embolization systems and contrarily influencing the pre-eminence. In this paper, an attempt is convened to implementing pulmonary studies can be carried out through Haryana underground water before the with both the view to researching the present conditions, tendency and plausible protection and corrective praxis. It is predicted that it would be of savor to explorers, aqua guardians, morality makers, as well as the belonging to the genus demos as aqua is implemented by everyone.

3. GEOLOGICAL ANALYSIS AND POLLUTION OF GROUND-WATER:-Seepage, leakage of contaminants and oils into the soil, as well as groundwater pollution, are all induced by a variety of different factors in India. A great majority of groundwater contamination arises from numerous sources and factors, but developed areas, manufacturing activities, and farming practices are nevertheless significant sources of groundwater pollution. The impact of industrial contamination on water quality and human health are important. Environmental harm is done when pollutants that have not been treated are released, such as sewage wastewater, heavy metals, acids, alkaline compounds, and gases. It has an incredibly detrimental impact on the shore, land underwater, environment, infrastructure, inhabitants, and even livestock. More than 80% of India's water supplies are used for irrigation. Although reducing freshwater resources is a downside, delivering fertilizer and pesticide to the groundwater-reservoir helps to replenish it. Eutrophication as well as groundwater pollution are related to fertilizer and manure overuse. This is a big concern, because it becomes greater in situations where the soil's adsorptive potential is smaller. The application of pesticides to these soils is less successful because of the reduced capacity to bind added pesticides and thereby avoid pesticides from escaping into the groundwater. The soils are extremely permeable, and pollutants and pesticide water will easily pass through the field into the groundwater. A poisonous metal is also regarded as a hard metal. Pesticide manufacturing, battery manufacturing, alloy processing, electroplated-metal manufacturing, textile dye manufacturing, steel manufacturing all result in the creation of heavy metals. Examples of base metals, transition metals, certain metalloids, lanthanides, including actinides make up the form of heavy metals. Two-thirds of thirty-five metals that may pose major public health threats related to toxicity in the workplace or residence are known to be heavy metals. Paradoxically, minute to moderate levels of these elements are contained in our atmosphere, and they are considered to be an important part of a well-balanced diet. But, in abundance, these elements are able to induce toxicity that is acute or chronic. Toxicity after toxic metals can contribute to issues in the central and peripheral nervous systems, as well as health effects that result in severe damage. As seasonal and regional differences in water quality and quantity impact agricultural production, so too do the temporal, spatial, and vertical-variations within a given year. Primary soil salinity of soils will only be measured if the chemical content and consistency of water supply is assessed. The amount of degradation depends on the way the property is treated, the quality of vegetation, the type of vegetation, and the amounts of salts in the water supply, the water table, etc. The processed wastewater and industrial-waste from untreated or improperly managed sewers flow back into the groundwater through unsealed drains. The rise in wastewater allowed it to pollute and contaminate the groundwater. It only by understands of the fundamental geography of the atmosphere that we are able to reach water below the sea. Geology plays a vital position in the action of subsurface water. The components of the reef environment, the basic yield of the aquifer, and the aquifer's preservation, are

regulated by the atmosphere's geology (MacDonald et al. 2005b and Brassington 1988). Sajjad and Rahim (1998) reported that the impact of hydrological processes as well as geochemical & natural processes predominate over anthropogenic activities in terms of water pre-eminence, and that the form, range, and length of anthropogenic sources on water pre-eminence are determined by the chemical and natural systems as well as the hydrological state (Matthess 1982). Because subsurface water is produced by the patterns present throughout the Earth's crust, several studies have examined the importance of subsurface water's predominance in an opportune atmosphere. Residual ions in feculent and enigmatic areas are distinguished from the sea water in that they exhibit homologous amounts of sodium, potassium, magnesium, and chloride. Geographic bias was not discussed on a topical level, and the lithosphere is said to mirror that. The ion composition in feculent areas is as follows: sodium > calcium > potassium > magnesium or bicarbonate > chloride > sulphate. Husbandry and watering are connected to the alkalescent North Area Subsurface Water and the circumlittoral aquifer, all of which are healthy subsurface water. Physical attenuation of toxins, their position of devolution, and ultimately their emergence into the subsurface water are all influenced by notable stratigraphic transition in the topical geology. Under current hydrogeological conditions, Lagos' adsorption or conception of pollutants makes adsorption & propagation of contaminants in the aperture spaces, rendering it more challenging to forecast possible leachate expansion. Many of the pollutants contained in groundwater aquifers are present in trace quantities, but at concentrations that are far below the background concentrations of contaminants in Haryana's aquifers. Four of the major ions profusely found in the order of presentation are sodium, calcium, potassium, magnesium, aluminium, and phosphorus. Selenium, manganese, zinc, nickel, cobalt, lead, copper, chromium, antimony, and bicarbonate are the anions of the following acids: carbonate, nitrate, sulphate, phosphate, and bromide. The anthropogenic rationale for the tenor has measured quantities of Pb, Cr, and Sr that may appear preposterous to the naked eye.

4. GROUND WATER POLLUTION DUE TO RAPID URBANIZATION:-In a metropolitan area, there are generally variations in the volume of waste and pollutants as well as their characteristics. One of the most major contributors of toxins, wastes, and heavy metals in water in metropolitan environments is the huge number of vehicles and associated industries. Additionally, untreated and improperly handled waste that is low of dissolved O2 and excessive in nitrates, ammonia, and fecal contamination bacteria is a substantial source of toxins in water. Contaminated water remains rich in nitrate content even though it has been cleaned. Urban groundwater contamination is heightened by the vast volumes of refuse, solid waste, and polythene found in towns. Surface & Ground water bodies in South Asian towns have a long tradition of supplying fresh water. Preeminent decay and abundance of surface aqua due to enhanced urbanization and industrialization is blamed for the enormous cost of constructing new embankments on the waterfront, and preeminent decay and abundance of surface aqua due to enhanced urbanization and industrialization is held to be a safer option (Adelana 2008). This gain, however, has huge repercussions on groundwater use, as well as waste management and the development, conservation, and groundwater use in an urban atmosphere (Eni et al. 2011).

5. GROUND WATER QUALITY SCENARIO:-The consistency of groundwater (water contained underground, usually, but not generally in a stream or lakebed). Under differing environment factors, such as rainfall and surface structure, water with multiple salinity ratios is spread in different areas. The pH of the stream water is usually in the region of 7.0 to 8.0, and EC in the range of 0.1 to 0.6 dS m−1. According to Minhas and Gupta (1992), during cycles of low

flow, alkalinity limits of river water are found. Monsoon rains and ice melt are the main causes of water in reservoirs. Canal water is usually of high quality and canal networks derive from rivers. The consistency of the groundwater differs since it varies with yearly and seasonal sequences, as well as spatial including vertical variance. A groundwater survey and data collection has been done in order to understand various agro climatic, surface, and hydrogeological zones of the region (Bhumbla et al. 1971; Handa 1983). Waters in arid and semi-arid areas are of lower to medium quality, whereas those in eastern regions of heavy rainfall are of higher quality. The consistency of groundwater in marine regions is inadequate due to seawater infiltration. Along with other domestic applications, studies have shown that underground water absorption is significant when it comes to anxiety. That because the practice of water use is in effect.

6. CONTAMINATION OF GROUND WATER DUE TO LAND WASTE:-General issues have included appropriate monographs on and the management of urban sub-surface water in Haryana cities. Landfills was not planned properly or designed to follow waste dumping requirements. Because of this, the crap discarded at these dump sites would have bio-degenerated and could also contain leachates, which might happen from the spread of any form of pollution. The Leachate production rate and characteristics are influenced by a range of variables such as the forms of solid waste, particle structure, water water vapor, site hydrology, age of the landfill, and mixture temperature (Ogundiran and Afolabi 2008). Groundwater quality characteristics in Haryana were assessed by CGWB (2013) and found to have elevated levels of NO3, NH3, COD, Al, As, Cd, Cr, Fe, Pb, Ni, and total coliform levels that surpass the WHO-defined safe limits for drinking water. Since landfill leachate contains high amounts of these components, we can detect their existence in bottom sediments. Kaushik et al (2002a) discovered that industrial spill introduced pollutants into the subsurface water sprout of the Gurgaon industrial area. Water samples comprising elevated amounts of elements exceeding WHO-prescribed limits in pH, CO3−2, HCO3−, Cl−, SO4−2, RSC, SAR, and cations arising from industrial wastewater are discovered. Among the water samples obtained near waste dumps, the amounts of EC, TDS, Na+, K+, Mg2+, NO3−, and Cl− were found to be the maximum. This is the immediate product of sewage sludge from a landfill site. At some turbidity, an alkalinity, pH, calcium, nitrate, magnesium, zinc, phosphate, and coliform concentrations, detectable sign of leachate contamination was detected in the well near the dumpsite. To accommodate for leachates, extra samples taken were secured within the vicinity of the landfill.

7. NITRATE AND IRON AS MAJOR POLLUTANTS IN GROUND-WATER:-A poisonous metal is also regarded as a hard metal.- Pesticide manufacturing, battery manufacturing, alloy processing, electroplated-metal manufacturing, textile dye manufacturing, steel manufacturing all result in the creation of heavy metals. Examples of base metals, transition metals, certain metalloids, lanthanides, even actinides make up the form of heavy metals. Two-thirds of the 35 metals that may pose major public health threats related to toxicity in the workplace or residence are known to be heavy metals. Paradoxically, minute to moderate levels of these elements are contained in our atmosphere, and they are considered to be an important part of a well-balanced diet. But, in abundance, these elements are able to induce toxicity that is acute or chronic. Toxicity after exposure to heavy metals can contribute to issues in the central and peripheral nervous systems, as well as health effects that result in severe damage. As seasonal and regional differences in water amount and quality impact agricultural production, so too do the temporal, spatial, and vertical differences within a given year. Primary salinization of

soils will only be measured if the chemical content and consistency of irrigation-water is assessed. The amount of degradation depends on the way the property is treated, the quality of vegetation, the type of vegetation, and the amounts of salts in the water supply, the water table, etc. Certain metals and metal products that may have a notable effect on human well-being are considered heavy metals. Heavy metals with harmful environmental effects include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and platinum. Decrescent products, including carbon dioxide, frequently remain in the environment at low amounts that rise from human activities. More frequently than not, people come into contact with these metals by ingesting or inhaling them (Martin and Griswold 2009). The introduction of these metals could derive from physical sprigs absorbed from rocks and soils, or from anthropogenic sprigs, which are the product of human ground line & industrial contamination. Environmental pollution issues are on the rise due to the growth of human practices, which have raised the amount of animals in the environment and triggered a decrease in a large variety of marine species due to the mining of metals from the biota and flora. Since they did not bio accumulate, these trail metals became dangerous (Abolude et al. 2009). There are reported consequences related to the toxic influence of metal ions in drinkable water in these places. The seething neutralization of Pb and batteries' meagre Black-Gold products culminated in the Pb, Cu, and Fe amounts in the subsurface water to becoming markedly smaller. The seasonal and endemic variance in the concentration levels indicates the source of pollution is most likely from a single point source. In a separate report, Kaushik et al., (2002a) identified water sprig at Panipat & Hisar districts in Haryana to be elevated amounts of heavy metals. While arsenic (As), lead (Pb), iron (Pb), and zinc (Zn) amounts were discovered to be the highest in both surface and sub-surface water sprout in Yamunanagar, all of these toxic elements were also found to be prevalent in surface and sub-surface water sprout from several other places as well (CGWB 2013). In the metropolis of Ibadan, Laniyan et al. (2015) find that there is a higher amount of arsenic (As) in quartzite scalps (shards). More than 80 separate chemical quantities, including iron, copper, cobalt, nickel, gallium, arsenic, silver, tin, lead, strontium, zirconium, and molybdenum, were found to be beyond the WHO's guide level for drinkable water. As a consequence of becoming pervasive as a consequence of workplace processing and its poisonous existence, it is dubious if Pb is found in water-sprig. The results of studies on the amount of lead (Pb) in numerous water samples indicate that quite a number of the samples collected showed amounts of lead (Pb) that met the WHO guidelines. The greatest proportion of lead was identified in industrialized and mechanical regions in the city, where the well is situated. the Fe abundance in Yamunanagar district's tube wells with respect to various circumstances was discovered by CGWB (2013). For drilling to follow the ferrugence of the creation, drilling techniques, features of water pumping, and well before of pipes introduced in the dispensation, the sprig of Fe in all of these tube wells is to be traced to the geography of the ferrugence, which is defined by the mineral ferroginite.

8. SEASONAL IMPACT OVER GROUND-WATER SOURCES:-Physicochemical & microbiological below of water sprig may be caused by pollution season. Several researchers have researched the seasonal commutation of physicochemical constituents in tube wells in North-Eastern Haryana, including Chawla (1972), Lal and Singh (1974), Paliwal and Gandhi (1976), and Dhankar et al. (1986). In the case of medium textured dirt, the result demonstrates groundwater containing high sodium or low salt concentration effectively utilized. During the dry season, there was a lack of TDS. They find that it is not only the chemical content of the water that determines the consistency of irrigation-water, but other influences such as the form of soil, condition of the crop, environment, and irrigation management play a role as well. According to

Dhir (1977), which reports that 300 mm of average rainfall totally leaches the sodium in a sandy soil sand soil that has developed up during previous wheat growing seasons, yearly rainfall of this amount fully eliminates the salts from the sandy loams sand soil. A manchanda and Chawla (1981) research recorded that the salts deposited over the winter due to irrigation-water of ECiw 15–19 dS m−1 were neutralized after 500 mm of rainfall during the monsoon (EC, 14, 14–33.6 dS m−1). According to Kanwar & Kanwar (1969), irrigation water that has a higher SAR has increased pH, EC, and soil with each year that passes. In Gurgaon, water or electrical conductivity of 15,050 micromho cm−1 has no harmful impact on soil molecular structure, according to Kanwar et al. (1964). The most possible explanation is that this agricultural water is negated by the plentiful rainfall during the rainy season. During the rainy season, the levels of pH, turbidity, EC, Cl−, Fe, Ca2+, Cr, BOD, and faecal coliform type bacteria were all large. As temperature (T), turbidity, TH, Cl− , Mg2+, EC, Na+, NO3, rise in the arid season, these substances demonstrate the greatest amounts.

9. SUMMARY AND CONCLUSIONS :-North-eastern frontier of Haryana's water availability is largely dependent on under-ground water supplies. Recent decades have seen an intense use of sub - surface water supplies in the study region, primarily due to increased agricultural irrigation, industrial development, the movement of urbanization, and the growth of tourism. This article has conducted out and addressed a study analysis of the current literature. Geology as well as the geomorphology of the environment, the acceleration of urbanization, dumping sites leachates, toxic substances, biologic contaminants, and the effects of seasons pose major threats to water quality in the North-Eastern Haryana urban and rural watersheds. Additionally, the enhanced physical accumulation of fertilizer owing to Accelerated fertilization has contributed to groundwater primacy deterioration, as demonstrated by shifts in the chemical composition. Non-point origin pollution causes that can cause groundwater degradation include leaked sewer pipes in metropolitan areas. If there are no plans in motion to fix this, the possibility of using the underlying drinkable water is immense. It is essential to resolve both groundwater quality and quantity for Haryana as a whole, as well as for North-Eastern Haryana, specifically.The groundwater sustainability of the area is important as Haryana is predominantly an agrarian economy.With the exponential development of the tourism sector, which is combined with emerging technologies that helps it, there is now a greater reliance on high-quality groundwater. This is s usually applicable to drilled wells and boreholes where handpicked dug wells and handpicked boreholes have been identified and chosen because they would exclude groundwater pollutants, heavy metals, iron, landfill and dumpsite waste, and nitrate emissions on a wide scale.

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A STUDY ON METRICS USEFUL TO ANALYSIS OF RELIABILITY

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ABSTRACT:- In today‟s era quality of an item is very important concern for most of us whether the item may be any product, software or system. We want all these items that matter in our life should be of good quality. Reliability is most important key attribute of quality and sometimes either we say that something is of good quality or is very reliable both are same. To purchase a product of certain category buyers want a quantitative guarantees on the reliability of that product. This paper presents the reliability metrics with their mathematical formulation those are very useful for quantitative assessment of reliability.

Keywords:- Reliability, Faults, Failure rate, Reliability Metrics.

INTRODUCTION:-Quality of any product is described by different attributes that may be internal such as size and complexity or external such as reliability and portability. In general people‟s quality expectation for a system they use rely upon two folds: First one that they must do what they are supposed to doi.**e.** they must do right things and Second one is they must perform these specific tasks correctly or satisfactorily i.e. they must do the things right. From last three decades there have been remarkable progress in the applications of reliability principal in industries and government departments in all developed and developing countries.The first measure committee on reliability was set up by the US Department of defense in 1950. This was later called the Advisory Group on Reliability of Electronics Equipment‟s (AGREE). During 1950‟s,other countries such as Britain and Japan began to take interests in the applications of reliability principles to their products. In 1961, the National Council for Quality and Reliability was formed with the main objective of creating an awareness of importance of achieving quality and reliability in the design, manufacture and use of products. Amrit L Goel (1985) provides a critical analysis of underlying assumption, limitations and applicability of software reliability models. J.D.Musa et al.(1987) revealed software reliability measurement, prediction and application. Xiaonan Zhang et.al presents a new method on software reliability prediction(2013). Several methods regarding assessment and investigation through Metrics, models and tools have been introduced (Rawat et al.,2015). Etzkorn and delugach proposed different semantic metrics to assess software reliability. Adlakha et.al.(2017) revealed about the reliability analysis of a system used for communication through satellite. So lots of work has been done on reliability. Because of its importance in day to day problems, the element of reliability has become a subject of repeated discussions among researchers from different areas.This paper structure is as follows: Section 1 introduces the literature review of reliability. Section2 includes need, importance and reliability Analysis approaches. Section 3 includes the key concepts of reliability like error, fault, failure, failure rate which are necessary to understand it more clearly and the last sections presents reliability metrics useful to analysis of reliability with detail description and finally conclude the paper.

RELIABILITY ANALYSIS

There have been different Approaches to Reliability Analysis

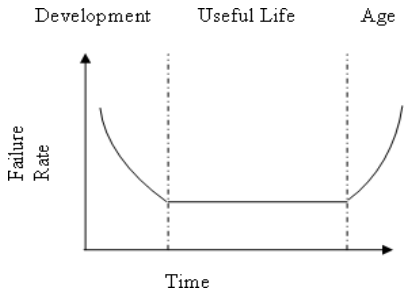
1.Human reliability

2.Hardware reliability

3.Software reliability

Human Reliability: Human reliability comes in different situations like designer, operator and maintenance personnel etc.

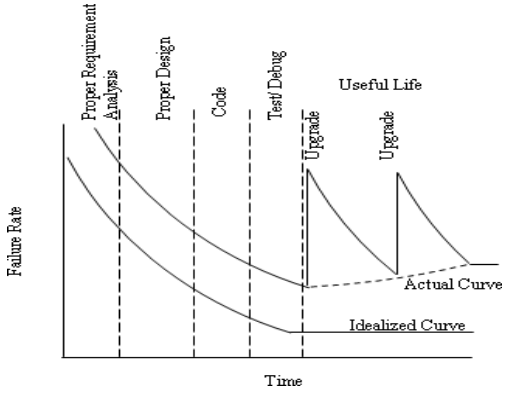
Hardware Reliability: Most products (as well as humans) exhibit failure characteristics as bathtub. An idealized reliability bathtub curve, with the three major life regions: early, useful and wearout. Hardware reliability is not direct function of the time as shown below in figure 1.



(Figure 1: Hardware Reliability Curve)

Software Reliability: Software Reliability becomes an important measure to help software managers with quantifying system behaviors and allocating test resources. The goal of measuring the software reliability is to improve possible software errors during design process prior to releasing the software to public. According to ANSI, "Software Reliability is defined as the probability of failure free software operation for a specified period of time in a specified environment". Software reliability is different from hardware reliability as the probabilistic function comes with the notion of time as probabilistic function as shown below figure2.

acceptable limits). All are described as infigure 3.1.



(Fig.3. Software Failure curve)

In the useful life phase, frequent releases are made, which soars the overall failure rate, hence dropping the reliability of the system.

3. KEY CONCEPTS IN RELIABILITY

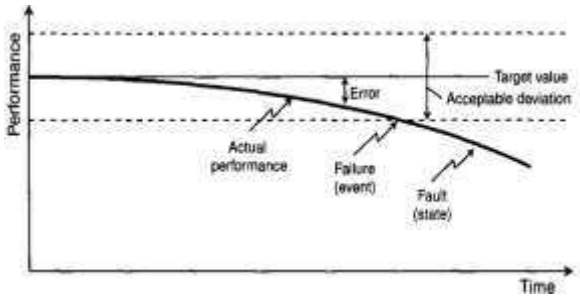
Error: Error is a "discrepancy between a computed, observed or measured value or condition and the true, specified or theoretically correct value or condition." An error is (yet) not a failure because it is within the acceptable limits of deviation from the desired performance (target value). An error is sometimes referred to as an incipient failure

Fault is "the state of an item characterized by inability to perform a required function, excluding the inability during preventive maintenance or other planned actions, or due to lack of external resources." A fault is hence a state resulting to a failure.

Failure is the event when a required function is terminated (exceeding the acceptable limits). All are described as infigure 3.1.

(Fig: 3.1: Error, Fault and Failure)

Fault and failure are the main terms of reliability. The distinction between failure (or fault) and



error is essential in failure analysis, because this describes the borderline between what is a failure and what is not. So Figure 3.2 gives the illustration of the difference between error, fault, and failure.

(Fig 3.2: Illustration Difference Between error, fault and failure)

FAILURE RATE

To describe the failure in a system concept of failure rate is very useful. It is defined as the probability that a failure per unit time occurs in the interval, say, $[t, t+\triangle t]$, given that a failure has not occurred before t. In The hazard rate is an instantaneous rate of failure at time t, given that the system survives up to t. In particular, the quantity z(t)dt represents that a system of age t will fail in small interval [t , t + dt]. There is a slight difference in the definition of hazard rate and failure rate. Sometimes they are used interchangeably.

Mathematically Evaluation of Reliability Reliability in the broad sense is the science aimed at prediction, analyzing, preventing and mitigating failures over time. Reliability in the narrow sense is the probability that a device will operate successfully for a specific period of time and under specified conditions when used in the manner and for the purpose intended. The

reliability assurance or improvement is an integrative process during development, production, field phases that must be implemented according to the internal standards for each designed product. In other words, Reliability is defined as: "The ability of an item to perform a required function, under given environmental and operational conditions for a stated period of time". If T is the time till the failure of the unit occurs, the probability that it will not fail in a given environment before time t is R(t)=P(T>t)

Thus reliability is always a function of time. Its numerical values always lies between 0 and 1, i.e.,
R(0)=1, R(∞)=0
Thus R(t) is a non increasing function between these limits. The R(t) function also called survivor function.

Mathematically;

Let random variable T is the time to failure then probability of time to failure in some interval (t, t+△t)

P (t ≤ T < t+△t) = probability that t ≤ t+△t The above probability can be related to the density and distribution functions, and the
results are

P(t ≤ T < t+△t) = f(t) △t = F(t+△t) – F(t)(10)
Where F(t) and f(t) are cdf. and pdf. (forthe failure density function) respectively.

If we divide by △t in Eq. (10) and let △t->0, we obtain from the fundamental definition of the derivative the fact that the density
function is the derivative of the distributionfunction:

$$f(t) = \frac{dF(t)}{dt}$$

clearly, the distribution function is then the integral of the density function

$$F(t) = \int^{t} f(x)dx$$

Note this function is equivalent to the probability of failure by time t. since the random variable T is defined only for the interval 0 to ∞.from Eq.(10) we can derive

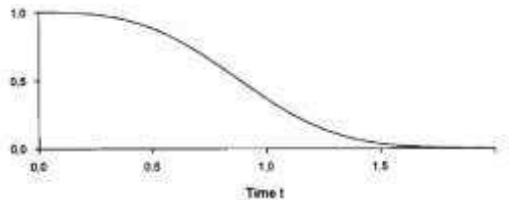
$$F(t) = P(0 \le T < t) = \int_0^t f(x)dx$$

One can also define the probability of success at time t, R(t), as the probability that the time to failure is larger than t i.e. T > t:

$$R(t) = P(T > t) = 1 - F(t) = \int_t^{\infty} f(x)dx$$

Where R(t) is the reliability function.

Graphically , reliability function R(t) is as shown below :



(Fig.4.1: The reliability (survivor) function R(t))

in the interval, say, [t, t+△t], given that a failure has not occurred before t. In other words, the failure rate is the rate at which

failures occurs in [t, t+△t]. That is,

$$\text{Failure Rate} = \frac{P(t \leq T < t+\Delta t) | T>t}{\Delta t}$$

$$= \frac{P(t \leq T < t+\Delta t)}{\Delta t\, P(T>t)}$$

$$= \frac{F(t+\Delta t) - F(t)}{\Delta t\, R(t)}$$

The hazard rate is defined as the limit of the failure rate as the interval approaches zero i.e. △t▪ 0. Thus we obtain the hazard rate at time t as The hazard rate is an instantaneous rate of failure at time t, given that the system survives up to t. In particular, the quantity z(t)dt represents that a system of age t will fail in small interval [t , t + dt]. There is a slight difference in the definition of hazard rate and failure rate. Sometimes they are used interchangeably.

RELIABILITY METRICS:-No field can really mature until it can be described in a quantitative fashion. The quantifiable metric of quality that is commonly used in software engineering practice is software reliability. This measure has attracted considerable attention during last fifty years and continued to be employed as a useful metric. To express over all reliability of a software product quantitatively, reliability metrics are very useful in software reliability engineering. One of the crucial step in measuring reliability is to identify and selection of the reliability metrics. Reliability metrics offers an excellent means of evaluating the operational performance of software product. Following reliability metrics are used to quantify the reliability of software product**.**

Mean time to Failure (MTTF) Mean time to failure is the expected life or the expected time during which the system will function successfully without maintenance or repair. If f(t) is the probability density function for failure rate over time t. MTTF is defined as

MTTF= $E(T) = \int_0^\infty t f(t) dt$

In terms of reliability function

$$MTTF = \int_0^\infty R(t) dt$$

If probability of failure rate is exponentially distributed then MTTF is given as:

$$MTTF = \int_0^\infty e^{-t} \, dt = \frac{1}{}$$

MTTF is actually the average time between two successive failures, observed over a large number of failures. An MTTF of 100 means that one failure can be expected every

100 time units. The time units are totally dependent on the system and it can even be specified in number of transaction, as in caseof data base query system.

Mean Time to Repair (MTTR)

MTTR is a factor expressing the mean active corrective maintenance time required to restore an item to an expected performance level i.e. the sum of corrective maintenance times at any specified level of repair, divided by the total number of failures within an item repaired at that level, the downtime of a particular system.

Mean Time between Failures (MTBF)

A basic measure of during a particular interval under stated conditions. This includes activities like trouble shooting, dismantling, replacement, restoration, functional testing but shall not include waiting times for resources [AMRIT GOEL]. In software, MTTR measures the average time it takes to track the errors causing the failure and then to fix them. Informally it also measures reliability for repairable items: the mean number of life units during which all parts of the item perform within their specified limits, during a particular measurement interval under stated conditions. MTTF and MTTR can be combined to get the MTBF metric:

MTBF = MTTF + MTTR.

In this case time measurements are real time and not execution time as in MTTF.

Thus MTBF of 300 hours indicates that once a failure occurs, the next failure is expected after 300 hours.

Mean Time to System Failure (MTSF)

It is defined as the expected time for which the system is in operation before it completely fails. Let f(t) be the probability density function of life time

then we have

MTSF = E(t) = $\int_0^\infty t f(t) dt = \int_0^\infty R(t) dt$

Also,

$\lim_{s \to 0} R^*(s) = \int_0^\infty R(t) dt$

MTSF = $\lim_{s \to 0} R^*(s)$

Probability of Failure on Demand (POFOD)

POFOD measures the likelihood of the system failing when a request is made. Unlike the other metrics discussed , this metric does not explicitly involve time measurements[rajib mall]. A POFOD of 0.010 means that 10 out of a thousand service requests may result in failure. POFOD is an important measure and should keep as low as possible. It is appropriate for system demanding service at unpredictableor relatively long time intervals. Reliability for these systems would mean the likelihoodthe system will fail when a service request ismade.

Rate of Occurrence of Failure (ROCOF) ROCOF measures the frequency of occurrence of unexpected behavior (i.e. failure). It is measured by observing the behavior of a software product in operation over a specified time interval and recording the total number of failures occurring during the interval [rajib mall]. It is relevant for system for which the focus is on the correctdelivery of services like operating systemsand transaction process in systems. Reliability of such system represents the frequency of occurrence with which unexpected behavior is likely to occur. a ROCOF of 1/100 means that 1 failure are likely to occur in each 100 operational timeunits this metric is sometime called thefailure intensity.

Busy Period of the Server

Let B(t) be the probability that a server is busy with the system in the interval (0, t], then in the long run the total fraction of timefor which a server is busy is given as:

$B(t) = \lim_{t\to\infty} B(t) = \lim_{s\to 0} s\, B_0^*(s)$

Expected Number of Visit by the Server Let N(t) be a random variable representing the number of times, the server has visited the system in the interval (0,t], then the expected number of visits by the server of the system in (0,t], is E[n(t)] and in the long run this number per unit time is given by

$N = \lim_{t\to\infty} \underline{E[N(t)]}$

CONCLUSION:-A lots of work have been proposed for evaluating reliability but still problem of making system reliable is still unsolved and customer of system are unstill unsatisfied. Metrics have potential to improve the quality of the system. This study gives a better understanding of reliability metrics to the researchers and academicians. In this paper we presented an in-depth study of software reliability metrics which are essential tool for developing reliable software system..

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Diversity of Avifauna from Shindewadi Water Lake Near Sangola, Dist-Solapur (M.S.)

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Abstract :-Present study was carried out to prepare checklist of Avifauna found in & around Shindewadi lake taluka Sangola, district Solapur exhibits wide range of diversity. Total (21) Avifauna species are recorded from study area belongs to (6) orders & (10) families. Study reviles that out of these (21) species Pelecaniformes was dominant order recorded (7) species, followed by Passeriformes & Charadriiformes recorded (4) species of each, Anseriiformes are recorded (3) species, Coraciiformies are recorded (2) species, & minimum population was recorded in Grusiformes only (1) species respectively. Out of these birds some birds are migratory & winter visitor.

Key words- - Water Lake, Avifauna, diversity, migratory, & winter visitor.

Introduction: One of most important ecological metrics for assessing habitat quality is avifauna. majority of birds are beneficial to humans. Birds are prominent & important member of ecosystem, occupying variety of trophic stages in food chain, from consumers to predators. Birds are important animal community in environment that play functional role in ecosystem & are hence appropriately referred to as bio-indicators. Having knowledge on diversity & composition of bird communities is also crucial to determine health status local ecosystem or regional landscapes urbanization leads to significial changes in urban landscape which leads to development of urban bird communities in direction of bad succession. Insect eating birds, ground nesting or tree-hole nesting birds etc. Many species become extinct & most species are struggling for their existence. Realizing global problem. Bird's life International in 1996-1998 (IBA) program. In India this program is coordinated by Bombay Natural History Society. In near future this initiative will be successful attempt for great cause of avifaunal conservation in our country. North East is thus bio-geographical 'gateway' for much of Indian's fauna & flora which make it one of richest in biological values. India harbors about 1237 species of birds, out of which 580 species are found in Western Ghat, report 568 species of birds, 83 families from Maharashtra state recorded, total of 93 bird species from gogte salt plant which is sub urban parts of Mumbai Birds are very useful as destroyer of pests. Big proportion of birds diet consists of insects (and their larva), including many that are highly injurious to man. Large number of birds feed on rodents & mice, both very destructive for farmers all over world. Vultures, Crows, Kites & Egrets feeds on carrion & waste in garbage dumps. These birds play invaluable part in keeping our Environment clean & disease free. Most commonly eaten species is domestic chicken (a descendant of Red Jungle Fowl & its eggs, although geese, pheasants, turkeys & ducks are also widely eaten. Other birds that are used for food include partridges, grouse, quails, pigeons, emus, ostriches & doves. Along with bees, birds such as Purple Sunbird are important pollinating agents. Birds as seed dispersers play essential for propagation of many species of trees & plants. Other examples include Homing Pigeons to carry messages, Falcons for hunting & Cormorants for fishing, Chickens & pigeons are used in experimental research in biology & comparative.

Material & Methods:

Study region:-Sangola is one of 13 talukas of Solapur district considered as drought prone area where rainfall is scanty & ill distributed. Since last 4-5 years in Sangola region drought was occurred which leads to deceases in water level from all reservoirs. Complete drying of major water reservoirs was observed during summer. But during present study period water is present throughout year because of plenty of rain in all over Sangola Taluka, Which leads to filling of major water reservoirs. Present study was carried out from Shindewadi Water Lake to study diversity of birds in taluka Sangola, Dist- Solapur. (M.S).

Collection of Information & Identification of Birds:-The birds are observed & recorded at various locations from study region natural water bodies & adjacent area. Birds noticed were recorded by regular visits. Birds were observed, sighted by using binoculars & spot identification was done by using field guides & after confirmation of identity those species are reported during study were identified by using book. Book of Indian Birds, by Salim Ali & Birds of Maharashtra by Satish Pande, Pramod Deshpande & Niranjan Sant. Then checklist is prepared. Status of bird is categorized as residential (R), Migrant (M), and Winter Migrant (WM) .Photography was carried out by Cannon DSLR-700 D Camera.

Table No.1 Check list of Birds recorded from Shindewadi water Lake, Taluka Sangola, Dist. Solapur.

Sr. No	Name	Scientific Name	Order	Family	Food	R/M/ W.M
1	Black headed Ibis	Threskiorinis melanocephalus	Pelecaniformes	Threskiornithidae	Fish , Amphibian	R
2	Grey heron	Ardea cinerea		Ardeidae	Frog, Fish	R
3	Egret (Intermediate)	Egretta intermedia			Fish, Frog	R
4	Little egret	Egretta garzetta			Insect,Fish,Frog,Small reptile	R
5	Great egret	Egretta alba			Fish, Frog	R
6	Little cormorant	Phala crocoraxnigar		Phalacrocoracidae	Fish ,Ampibian	R
7	Purple Heron	Ardeidae		Avdeidae	Frog, Fish	R
8	Black Drongo	Dicrurus macrocercus	Passeriformes	Dicruridae	Insect, Flower, Nector	R
9	Yellow wagtail	Motacilla flava		Passeridae	Insects, aquatic invertibrates	M
10	Black& White wagtail	Motacilla alba			Insects, aquatic invertibrates	M
11	River tern	Sterna aurantia	Charadriiformes	Laridae	Fish, crustaceans, tadpoles & water insects	M
12	Red lapwing	Vanellus indicus		Charadriidae	Insects, grubs, molluscs	R

13	Yellow lapwing	Vanellus malabaricus		Charadriidae	Insects, grubs	R
14	Polver	Dubius		Charadridaee	Invertebrates, Insect	M
15	Sand Piper	Scolopacidae			Mollusca, Insect	M
16	Common coot	Fulica alai	Grusiforms	Rallidae	frogs insects	R
17	Spot billed duck	Anas poecilorhundig	Anseriformes	Anatidae	Aquatic invertebrates , Fish	WM
18	Pintail	Anas acuta		Anatidae	Aquatic invertebrates , Grass	WM
19	Brahminy duck	Tadorna ferruginea		Anatidae	Aquatic invertebrates , Insect	WM
20	White Throated Kingfisher	Haloyon smyrnensis	*Coraciiformes*	Alcedinidae	Fish, tadpole, lizard, grasshopper	R
21	Bee eater	Merops orientalis		Meropidae	Insects	R

R- Resident, WM- Winter migratory, M- Migratory

DISCUSSION:_ In presence study 21 species of birds belongs to 6 orders 11 families were recorded large no. of birds were recorded from order-Pelecaniformes include 3 families & 7 species. Order- Passeriforms & charadriiforms consists of 4 families & include 2 & 4 species respectively., In order - Grusiforms only one species belongs to family rallidae was recorded. In present study out of 21 species, 14 species are resident bird, 4 species of migratory bird, 3 species are winter migratory. Migratory bird recorded during study were Purple heron, black & White waigtail, Sandpiper, Winter migratory bird recorded were, spot billed duck, Paintail, Brahminy duck.

M.N. Harisha & B.B. Hosetti (2009) investigated avifauna of Lakkavalli range forest in Bhadra wildlife sanctuary in Western Ghats of India. During study time, 132 species of birds from 34 families & 11 orders were observed, with 112 species being resident & 12 being winter migratory. There are seven local migratory birds & one summer migratory bird. In present study bird common 32, uncommon 24, fairly common 24, & 16 are rare species. In this birds are classified into 6 groups based on food. In this 66 are insectivorous, 14 are omnivores, and 12 are carnivore, 6 frugi-nectarinsectivorous, 1fruigi-insectivorous, 4 granivorous, 2gravi-insectivorous, 8grani fruigivorous, 4- fruigivorous & 15 frugi-insectivorous.

Puri SD & Virani RS (2016) studied diversity & status of Avifauna from Bodalkasa Lake in Gondia district. Maharashtra. India & observed during study period 69 bird species including water bird & land bird. In this 33 families recorded .in this 69 species 52 species are resident &

12 species are winter migratory. & 3 species are summer visitors & 2 are passage visitor's .in this observation maximum species are recorded during winter season, & followed by summer & monsoon season respectively.

Deepak et al. (2017) investigated avian richness of BASAI wetlands in Haryana, India: During study time, 128 species belonging to 15 orders & 37 families were found at IBA site. & also recorded 15 orders. maximum number of species is Passeriformes 40, followed by charadriiformes 20, Anseriformes 15, ciconiformes 15, falconiformes 7, Gruiformes 7 , coraciiform 5 , pelecpaniformes 4, columbiformes 4, Galliformes 3 , cucliformes 3 , psittaciformes 2, & also minimum number of species are podicipediformes 1, phoenicopteriformes 1, & piciformes 1 .

Giri & Chalise (2008) investigated seasonal variation & population status of water birds in Phewa Lake, Pokhra, Nepal, & discovered 39 species of waterbirds belonging to 17 families. Out of which 15 species were winter migratory, 10 are resident & 4 are winter migratory & observed highest population in February calculated by Shannon's index method & lowest during June & also observed Simpsons index was dominance species found to be highest in June & lowest in February. ISSN 2278-7666

Roy et al. (2012) conducted avifaunal diversity analysis in 3 different regions of North Bengal, Ind., & discovered 117 bird species belonging to 42 different families. Includes 11 winter visitors & this family corvidae contributed highest number of species 16 & followed by family picidae 9 are recorded where also recorded 22 families represented by single bird. Highest bird diversity was recorded in GNP with total 87 Bird species, followed by RBWC 75 & BTR 68

Puppalwar & Telkhade (2017) studied avian diversity in & around Moharli Lake from Chandrapur (M.S.) India & stated that birds are found throughout world. Bird are pest controllers in gardens, farms & other places & recorded during study time 65 species of birds out of which 48 species are resident & 12 are resident migrant & 5are migrant & further stated that present study survey higher diversity of birds are found because more diversity of plants which give more choice for food preference of birds species.

Pawar (2011) investigated diversity of bird species in mangroves in Uran (Raigad), Navi Mumbai, MH, Ind. & reported 56 species of birds representing 46 genera, 29 families & 11 orders & observed Passeriformes are dominant species it was recorded by 11 families & followed by order Ciconiformes with 5 families & also recorded 33 resident, 20 winter visitors & 3 occasional migratory & further stated that loss of biodiversity in mangrove due to urbanization, industrialization & pollution caused by discharge of transporting materials along with industrial effluents.

Patel & Acharya (2015) studied diversity & abundance of wetlands birds at Gota Lake in Ahmadabad, Gujarat, & found 30 species of wetlands birds belonging to 5 orders & 11 families, with Ciconiformes being most dominant order. Out of total 30 species, 20 were resident & 10

were migrant species, with exception of Lesser Whistling Duck, most of migratory species being winter migratory. Based on frequency of Sighting, Red- Wattled Lapwing (Vanellus indicus) Black headed Ibis (threskiornis melanocephallus) Black Ibis (Piegadibia Papillosa), Glosy Ibis (Piegadis Falcinellus), Ardeola grayii (little cormorant), Mesophoyx intermedia (cattle egret), Ardeola grayii (Indian Pond Heron) (phalacrocorax niger) most common birds in this pool were common moorhen (Gallinula Chloropus) & white breasted water hen (Amauronis Phoenicurus), while white-wagtails were Yellow- Wagtail (Motacilla Flava) & White- Wagtail (Motacilla Flava) (motacilla alba) Pheasant-tailed Jacana (hydrophasianus Chirurgus) Darter or Soake Bird (Anhinga melanogaster), Lesser pied kingfisher (ceryle rudis), & light Blue kingfisher (ceryle rudis) are both uncommon (Akedo atthis).

Conclusion-The result of present study indicates that record of avifauna showed diverse & rich due to availability of water during rainy season even though study region comes under drought prone area of Maharashtra, There is urgent need to protect this aquatic ecosystem & is high time to bring awareness among local people but sustainable utilization & conservation of ecosystemm.

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Study of Zooplankton Diversity From Shindewadi Water Lake Near Sangola, Dist-Solapur (M.S.)

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Abstract:-The present study was carried out to record diversity of zooplankton and their composition from Shindewadi Water Lake near Sangola Dist- Solapur (M.S.), during study period total 23 species were recorded. Out of these, 15 species were belongs to order rotifer, followed by cladocera invlurded 03 specie. while copepod includes 04 species. The maximum number of zooplanktons belong to order rotifer were dominant.

Key words- Zooplankton, Shindewadi Lake, diversity, rotifer, cladocera, Copepoda,

Introduction:-Zooplanktons are the microscopic animals' components of aquatic ecosystem. It includes protozoan, rotifers, cladocerns and copepods. Zooplanktons constitute an important link between primary producers and higher consumers in aquatic food webs. They occupy the intermediate position in the food web and mediate the transfer on energy from lower to higher tropic level. The zooplanktons abundance and their diversity are used to determine the health of aquatic ecosystem(marine biology organization MBO 2007).The zooplanktons act as bioindicator changes in water quality status, because it quickly responded to changes in environmental condition. Study of zooplanktons community have significant role for accessing biodiversity and health of aquatic ecosystem. So, present study was carried out to understand the diversity of zooplanktons from "Shindewadi water lake near Sangola" dist-Solapur, Maharashtra. (India).

Material and Method

Study region:-Study of zooplanktons community have significant for accessing biodiversity and health of aquatic ecosystem, So, present study was carried out to understand the diversity of zooplanktons from "Shindewadi water lake near Sangola" dist-Solapur, Maharashtra.(India).

Sample collection:-For the collection of zooplanktons, plankton net which is a ring tricot net 60 micron mesh/mm was used. A total of 60 liters of water was filtered through plankton net and the filtered water was collected in 125ml reagent bottle. The plankton was preserved in 5% formaldehyde solution on the spot and was brought to the laboratory for identification.

Sampling and analysis:-Plankton samples were examined under digital microscope and identified up to genus and species. Zooplanktons were observed at 40X and images were captured by using digital microscope under 100X. Zooplanktons were identified by A Simple guide to common zooplanktons of freshwater areas of Chesaoeake Bay, Hand book of freshwater zooplankton of the Mekong River and its Tributaries, Report prepared by Mekong river commission, April, 2015

Results:

Table No. 1 Checklist of Zooplanktons recorded from Shindewadi water lake. Tal. Sangola. Dist. Solapur

Kingdom : Animalia					
Phylum	**Class**	**Order**	**Family**	**Genus**	**Species**
Rotifer	Monogononta	Ploima	Branchionidae	Brachionus	diversicornis
					urecolaris
					falcatus
					forficula
					.calyciflorus
					.urceonaris
				Keratella	Kcochlearis
					tropica
					cochlearis tecta
			synchaetidae	Polyarthra	vulgaris
			lacanidae	Lecane	leontina
			Trichocercidae	Trichocerca	simillis
		Flosculariacae	Filoniidae	Filinia	opoliensis
					terminalis
					camasecla
Cladocera	Diplostroca	Brachiopoda	Moinidae	Moina	macrocopa
					.macleayi
		Calanoida	Temoridae	Eurytemora	affinis
Copepoda	Maxillipoda (copepdoda)	Cyclopoida	Diaptomidae	Mongolodiaptomus	botulifer
			Cyclopoidae	Microcyclops	varicans
				Thermocyclops	crassus
				Cyclops	strenus
Protozoa	Lobosa	Testacealobosa	Difflugidae	Difflugia	accuminata

In present study zooplanktons belong to four phylum includes. Rotifer, Copepoda, Cladocera and protozoa were recorded (Table No. -1). The rotifer was dominant consists 15 species belongs to 06 genera and 05 families. The genus branchionus consists of 06 species, followed by keratella and filinia consists of 03 species of each, while genus Polyarthra, Lecane and Trichocerca recorded 01 species of each., in gen moina consist of 3 species, and genus Eurytemora consist only 01 species. Respectively. Phylum cladocera consists of 02 families belongs to 02 genus having 01 species in each. Phylum copepod includes 02 families and 04 species belongs to 04 genus. In phylum protozoa only 01 species was recorded it was D. accuminata.

Discussion

Gholap (2014), Species diversity indices of zooplankton from Sadatpur reservoir, Ahmednagar, Maharashtra, recorded total of 25 species of zooplankton belonging to different taxonomic groups. Among these 6 species belonging to protozoa, 10 species to rotifer, 5 species of cladocera, 3 species to Copepoda and 1 species from decapods. The numerical superiority of zooplankton revealed that 81.8% frequency occurrence of some protozoa and rotifer. Sarwade and Kamble (2017), studied, Plankton diversity in Krishna River, Sangli, and Maharashtra recorded variety of zooplanktons included, Cladocera, Rotifer, Protozoa, Nematoda, ostracoda, and Copepoda as major groups with 25 genera. Rotifer were dominating with 9 diversified species Shukla and Solanki (2016), Studied diversity and abundance of zooplankton in river Narmada from Jabalpur region (MP) and observed zooplankton composition, variety and diversity indices in river Narmada studied zooplankton is significant ecological parameters in water quality assessment and also reported the good indicator of water quality changes zooplankton are found four various groups such as copepod, rotifer, Cladocera and Ostracoda.

Telkhade et al., (2008), studied quantitative analysis of phytoplankton and zooplankton of Masala Lake from Masala Dist. Chandrapur, Maharashtra and stated that zooplankton play vital role in converting phytoplankton in to food, and useful for fish and aquatic animals are acquire significant in fishery research. The zooplankton are also play vital role in indicate the presences or absence of certain species of fishes on determine the population densities and also stated that, plankton are good indicator of water quality because they are strongly effect on environmental condition and due to their short life cycle. In present study similar might be the case where large number of zooplanktons were recorded indicated better quality of water for the survival of zooplanktons.

.**Conclusion:-**In the present study Rotifer, Cladocera and Copepoda formed the zooplankton population of Shindewadi wanter tank near Sangola dominated the zooplankton population. The protozoa were very low in number flowed by cladocera and higher number of species recorded from Rotifer. Rotifers are important group of zooplankton which can be considered as a valuable component of freshwater ecosystem. Their community structure can be used as bio-indicator of water quality assessment whereas their long-term changes need to be monitored. Presumably, the abundance of rotifers is strongly dependant on the tropic state of the water bodies.

Acknowledgment-My special thanks to Dr. Madhusudan Bachute, Principal, Sangola College, Sangola for giving me permission for research work in the Zoology laboratory. I am also very much thankful to Dr. Gadekar V. S. Head, Department of Zoology, Sangola College, and Sangola. For providing me necessary facilities of research work in the laboratory and for the valuable guidance and during research work. It's my duty to pay my gratitude toward my research guide Dr. Kamble V. S. for providing me valuable information which is very useful for this paper, My thanks and appreciations also go to my colleague, Dr. Miss. V.P. Mahajan, Prof. Bhosale A. M., and Miss. Bandiwar T. S. In developing the paper who has willingly helped me out with their abilities.

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Diversity and Density of Brinjal Insect Pests fromNazare region, India

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Abstact:-Brinjal *Solanum melongela* L. is a very important crop plant. They mainly cultivated in all parts if India subcontinent. Brinjal crop is mainly called as an egg plant (Mabberley). Brinjal crop have a various use as a rich source of food, vitamins, and medicinal values in Ayurveda also.This is the primary study to cheek the insect pest on brinjal pest.A total of 6 species of insect pests, namely Aphid Aphis gossypii (Glover) Grasshopper *Melanoplus differentials* (Thomas),Haddabeetle *Henosepilachna vigintioctopuntata* (Fabricius), Shoot and fruit borer *Euzophera perticella* (Ragonot), Whitefly*Bemisia tabaci* (Gennadius) Brinjal crop is mainly damaged by the varieties of insect pest such as fruit borer, stem borer, defoliator, sap sucker and stem girdlers etc. Review of literature indicates Fletcher(1722), Lall (1964), Sudhakar *et al.* (1993), Subba Rao *et al.* (1968, 1969), Katiyar et al. (1976), Deshmukh *et al*. (1977), Patel et al. (1988), Mall et al., (1992), Gapud & Canapi(1994), Dhamdhere *et al*., (1995), Roy *et al*., (1995),Shrinivasan (2009), Shivalingaswamy & Satpathy (2007), Sidhu & Datta. For control the insect pest to use the light trap method. This method is a beneficial and o any adverse effect on the environment.

INTRODUCTION:- The present study was carried out from Nazarae region of Maharashtra during the years 2016-17. Diversity, survey, and abundance of insect pests of S. melongena was studied by spot observations and by collecting insect pests which were associated with the above crop by quadrate search methods from different study spots from Nazare region. The collected insects were identified by consulting appropriate literature. The observations were continued through life span of crop at weekly interval. collecting various immature stages of pests from field and later rearing these stages on their natural food plant for adult immerging. Insect pest Observations were also taken on the abundance of pests with respect of rainfall, temperature, and humidity. A twig of 30 cm length was selected for noting the insects for seasonal abundance.

Materials and Methods:-Insects were captured at both dusk and down time. Collection of insect individuals at every week of Sunday. Insect captured by hand picking method, swipe net, force cep and with the help of light trap (from the 6:00 pm to the 9:00 and 12:00 pm to the 4:00 pm. Every week of Sunday at early morning at 7:00 am to 9:00 am and 5:00 pm to 7:00 with the help of a quadrate method (1*1 Meter). Capturing of insect species/ plant. Identification of insect pest individual with the help of an appropriate literature (AESA Based IPM. Department of Agriculture and cooperation Ministry of Agriculture of India 2014). Rearing of immature stages of insect for adult emergence. Quadrate method were used for the check the insect pest number and also uses the light trap for the to trap the control the insect pest from cultivation to the harvesting time. Light trap method is very beneficial method for to control the pest abundance.

Results

Table: -1 Classification of insect pest

Common name	Scientific name	Order	Family	Genius	Species
Aphid	Aphis gossypii (Glover)	Hemiptera	Aphididae	Aphis	gossypii
Grasshopper	Melanoplus differentialis Thomas	Orthoptera	Acrididae	Melanoplus	differentialis
Hadda beetle	Henosepilachna vigintioctopuntata Fabricius	Coleoptera	Coccinellidae	Henosepilachna	Vigintioctopuntata
Shoot and fruit borer	Euzophera perticella Ragonot	Lepidoptera	Pyralidae	Euzophera	perticella
Whitefly	Bemisia tabaci Gennadius	Hemiptera	Aleyrodidae	Bemisia	tabaci
Thrips	palmi Karny	Thysanoptera	Thripidae	Thrips	palmi

Table: -2:Name of insect species and their relative quadrate number in each month.

Name of insect	July	Aug.	Sept.	Oct	Nov.	Dec.	Total number on individual
Aphid	64	54	43	33	25	25	219
Grasshopper	5	6	10	3	4	4	31
Hadda beetle	6	1	1	0	1	1	10
Shoot and fruit borer	30	20	25	14	28	28	124
Whitefly	144	81	65	46	20	20	394
Thrips	138	77	82	44	59	59	440

Chart:-1Chart showing name of insect and their total number in6th month

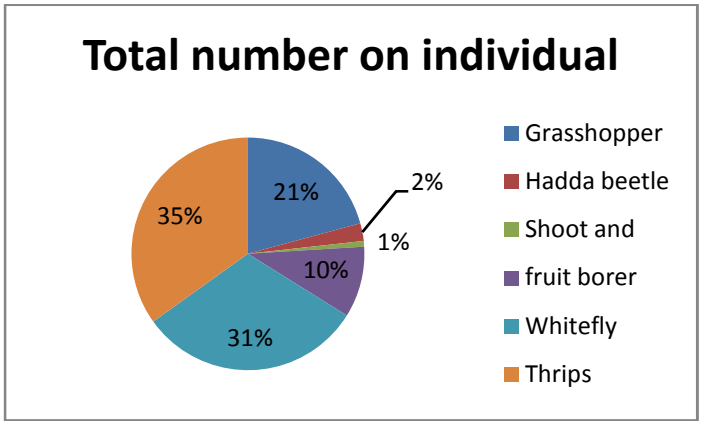


Table: -3Name of insect pest and their number per plant per week per quadrat

Month	Number of weeks	Number of Quadrats	Name of the insect					
			Aphid	Grass hopper	Hadda beetle	Shoot and fruit borer	White fly	Thrips
July	1	5	10	1	2	8	30	25
	2		15	0	1	5	25	24
	3		12	04	1	6	20	30
	4		10	0	1	4	14	35
	5		17	1	1	7	25	24
Aug.	1	5	15	2	1	5	26	28
	2		13	4	0	5	17	20
	3		9	0	0	6	18	19
	4		17	0	0	4	20	10
Sep	1	5	14	4	0	5	21	14
	2		5	3	1	5	15	17
	3		3	2	0	8	12	16
	4		3	0	0	1	11	20
	5		5	1	0	6	6	15
Oct.	1	5	9	1	1	5	14	14
	2		7	0	0	4	17	10
	3		8	0	0	3	8	10
	4		9	2	0	2	7	10
Nov.	1	5	7	2	0	5	4	19
	2		6	1	1	6	6	14
	3		7	1	0	9	5	14
	4		5	0	0	8	5	12
Dec.	1		8	0	0	2	7	7

	2	5	10	1	0	2	9	5
	3		14	0	1	2	9	6
	4		4	2	0	1	7	5
	5		7	0	0	0	6	5

Table: -4 Population density of brinjal insect pest.

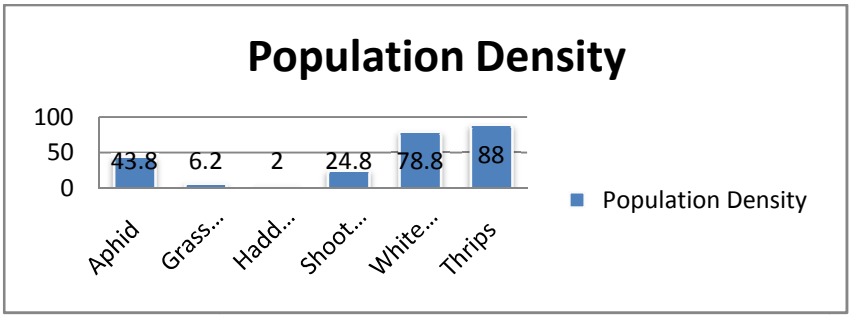
Month	Number of Quadrates (B)	Number of individual					
		Aphid	Grass hopper	Hadda beetle	Shoot and Fruit borer	White fly	Thrips
July	5	64	5	6	30	114	138
Aug.	5	54	6	1	20	81	77
Sept.	5	43	10	1	25	65	82
Oct.	5	33	3	0	14	46	44
Nov.	5	25	4	1	28	20	59
Dec.	5	43	3	1	7	38	40
Sum of individual(N)		219	31	10	124	394	440
Population Density (N/B)		43.8	6.2	2	24.8	78.8	88

Formula:-

Population Density (PD) = Sum of total individual

Total no of quadrate

Chart;-2 Population Densities



The present study was carried out monthly by using quadrate method to study the diversity of insect crop pest from brinjal vegetable crop. The total 6 species of insect crop were recorded **(Table No. 1)** belongs to 6 orders namely, Hemiptera, Orthoptera, Coleoptera, Lepidoptera, Hemiptera, Thysanopteraconsists of one species belongs to each order includes Aphid, grasshopper, hadda beetle, shoot and fruit borer, white fly and thrips**(Table No.2)**respectively.In present study white fly was recorded maximum in number in every month. Whereas Hadda beetle was recorded in minimum number as compare to other insect pest. He number of Thrip was followed by whitefly followed by aphid, shoot and fruit borer, and grasshopper respectively, consists of 388, 250, 133, 33, 10 species. From July to Dec.- span of crop).

The fruit borer and shoot bore Leucinodus *orbonalis (*Guen)., were found throughout theyear on Brinjal in Nazara region, A total of 6species of insects found attacking various parts ofthe crop. Out of 6species 1 were borer, 1 defoliator and 4 cell sap suckers. More population density of insect are Thrips and White fly, Aphid Shoot and Fruit borer, Grasshopper, Hadda beetle and their relative population density as 88, 78.8, 43.8, 24.8, 6.2, 2 respectively [Chart;-2].

Discussion:-Early stage of plat abundance of aphid is more and decreases up to the harvesting time of a egg crop (Rashid et al., 2013). Brinjal shoot and fruit bore rare at flowering stage and graduallyincrease to the stame stage (Shukla and Khatri, 2010). Insect abundance and population reported by Klein et al., (2007).

Conclusion:-This is the pioneer work to know the variety of insect pest and to understand their type of damage to the egg crop from the sowing to the still harvesting period. Also to cheek the diversity and population density in an studied area. Withthe help of this study applying the various strategies agents insect pest for chortle purpose.

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STRESS AMONG NURSING STUDENTS DURING COVID -19 PANDEMIC

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ABSTRACT:

Introduction: The outbreak of COVID-19created a challenging situation in the field of nursing education. The classes were moved from offline to online mode andso many students faced a distressing situation to cope up with the learning needs. The current study aims in finding the stress faced by the nursing students during the COVID-19 pandemic crisis.

Objectives: The objectives of this study aims to determine the level of stress among the nursing students during COVID- 19 pandemic and also to find out the association of level of stress among the nursing students during COVID- 19 pandemic with their demographic variables.

Materials and Methods:A descriptive Online Survey Approach was used to collect the data from all batches of GNM and B.Sc. Nursing students in selected colleges Ahmadabad using the tool having two sections of demographic variables in Section A and Structured questionnaire to assess stress as Section B. The score of stress was categorized into no stress, mild, moderate and severe stress.

Result: Out of the 103 participants, majority was females and was residing in the rural area (68.93). Most of the students were GNM (50.49).The maximum number of participants (55.34) got previous information related to COVID-19. The highest stress level was observed as mild stress with 60.19%.

Conclusion: This study shows that nursing students have mild stress with 60.19% and moderate stress with 15.54%. Hence it is vital to take necessary stress relief measures by the authorities so that the nursing students can lead a quality life.

Keywords: COVID 19, Pandemic, Nursing students, Stress

INTRODUCTION:-Nursing is the profession that provides holistic care for the client, families and communities to give quality health care. The profession Nursing has an adherence to the voyage of a patient to make him healthy and protect the needs of care.The nursing curriculum includes both the theory and practical exposure in the hospital and community areas. But unfortunately the COVID-19 pandemic changed the face of nursing education by social distancing, individual behavioral changes, fear, anxiety, stress, tensions of career, public place gatherings etc.The nursing students lacks the clinical practice due to the COVID-19 Pandemic lockdown and has stress due to the lack of professional exposure and skills as well as caring of patients. Stress is a stimulus, referred to as a stressor, that happens to the person or as a response characterized by physiological arousal and negative affect, especially anxiety. Richard Lazarus in his book Psychological Stress and the Coping Process (Lazarus, 1966) defined stress as a connection between the individual and the environment that is appraised as personally important and as taxing or beyond resources for coping.The entry to the college is a transformation from the school to college life, if they fail to adapt to the new environment and also to the academics it creates tension and anxiety especially during clinical practice, exams, assignment submission, assessment, interactions, and demonstrations. The journey of a nurse as a student faces, stressful situations that may encounter in the academics and clinical areas in this pandemic. Each individual difference makes them to behave in different way during the stressful situations. It is important that nursing student's stress should be focused as they are the future nurses who provide quality care for the patients.According to WHO Corona virus Disease

(COVID 19) Dash board 50,459,886 confirmed cases of COVID 19 including 1,257,523 deaths are reported. 8,591,730 confirmed cases with 1,27,059 deaths in India is reported as of 2020 November 10. As per report of Gujarat COVIDIndia.org (2020 November), the total COVID-19 cases reported in Gujarat (state level) is 1, 81,508 with 3765 deaths and that of Rajkot is 13,542 and death is 164.

Cheung T etal (2016) in their study revealed that the prevalence of extremely severe levels of depression, anxiety and symptoms of stress 39.9%. Female nursing students were more likely to report anxiety and stress symptoms, while male students were more likely to report depression than their classmates. The researcher concluded that clinical area, financial difficulties and lifestyle factors can increase nursing students' levels of depression and anxiety and symptoms of stress. Therefore it is essential to assess the stress of nursing students.

S Singh et al (2018) in their study titled Epidemiology of stress among Nursing Undergraduate Students to determine the risk factors causing stress revealed that 60 percent and 62 percent of total nursing student from Government College and private nursing respectively were stressed. The researcher concluded that stress occur in nursing students is due to various factors like gender, sharing of room, educational expenses, academic performance, mobile phone and harassment in college. Hence assessing stress in nursing students helps the teachers, college administration, and policy makers to reduce the stress among undergraduate students.

Chauhan J(2020) in their article titled, A descriptive study to assess the level of stress among the first year B.Sc. Nursing students at Manikaka Topawala Institute of Nursing, Charusat, Changa concluded that most of the students had moderate stress (90.2%), 3.9% having low stress and 5.9% having severe stress. The stress in first year of B.Sc. nursing also depended on the medium of schooling.The above studies show there is a need to focus on the areas stress among nursing students to keep their life run smoothly. This study provides further knowledge for upcoming students in nursing about common stress in different situations encountered during student nurse life.

OBJECTIVES

- To find out the level of stress among the nursing students during COVID- 19 pandemic
- To find out the association of level of stress among the nursing students during COVID- 19 pandemic with their demographic variables.

MATERIALS AND METHODS

Research Approach: Qualitative research Approach

Research Design: Descriptive Survey Design.

Study Population: Nursing students who are studying in selected nursing colleges in Ahmadabad.

Sample size: 103 nursing students.

Sampling Technique: Non Probability Purposive sampling technique

Inclusion criteria: Students from Basic B.Sc. Nursing and GNM course who is having android mobile phone and those students who are agreeable to take part in the study

Exclusion criteria: Nursing students who are studying in ANM course and are having any medical illness and are under medical treatment.

Data Collection Tool: Data was collected using the Online Questionnaire which contains2 sections:

- Section A: Demographic variables with 12 variables such as Age, gender, monthly income of the family, religion, residential area, type of family, course,No. of hours mobile or laptop

used during COVID-19 Pandemic per day, Have you done COVID duty, Whether you got infected with COVID 19, Is there any history of COVID 19 in your family and Previous source of information related to COVID- 19.

- Section B: Structured questionnaire to assess stress among the nursing students during COVID-19 Pandemic with 28 questions which was easy to understand, general and free in nature.

Ethical Consideration:- Permission and **a**pproval was obtained from concerned authority and the individual participants.Confidentiality was also maintained.

Delimitation:-This study is delimited to nursing students of selected colleges in Ahmadabad and it assessed the stress only once.

Statistical Analysis:- Data collection was done by online survey using structured questionnaire. Data was analyzed by organizing the data in master sheet and then collected data was analyzed using Descriptive and inferential statistics. The frequency and percentage of data was calculated for describing demographic variables.Percentage distribution of stress among nursing students was checked. Association of stress with the demographic variables was done using chi square test.Analyzed data was presented in the form of tables and graphs.

RESULTS:-A total of 117 student nurses from the selected college of Ahmadabad district were selected for this study but 103 students' data was taken for analysis according to the inclusion criteria. The purpose of the study was to assess the stress among nursing students during COVID-19 Pandemic.

Organization and presentation of the data

The data analyzed and organized and presented under the following sections.

- Section A: Distribution of demographic variables of nursing students
- Section B: Assess the level of stress among nursing students
- Section C: Association of stress among nursing students during COVID-19 Pandemic with the selected demographic variables.

Section A: Distribution of demographic variables of nursing students

This part deals with distribution of participants according to their demographic variables. Data was analyzed using descriptive statistics and was summarized in terms of percentage in the Table 1.

Table 1: Frequency and percentage distribution of selected demographic variables of nursing students

N=103

Sl no:	Sample Characteristics	f	(%)
1	Age in Years		
	a) 17-24	86	83.49
	b) 25-29	16	15.53
	c) 30-35	1	0.98
2	Gender		
	a) Male	25	24.27
	b) Female	78	75.73
3	Monthly income(approximately) of your family in rupees		
	a) <Rs. 5000	11	10.68
	b) Rs. 5,000 – 10,000	41	39.80
	c) Rs. 10,001 – 15,000	24	23.30

	d) Rs. 15,000 Above	27	26.22
4	Religion a) Hindu	57	55.34
	b) Muslim	27	26.22
	c) Christian	5	4.85
	d) Others	14	13.59
5	Residential area a) Rural	71	68.93
	b) Urban	32	31.07
6	Type of family a. Joint Family	35	33.98
	b. Nuclear family	59	57.28
	c. Extended family	9	8.74
7	Course		
	a. B.Sc. N	51	49.51
	b. GNM	52	50.49
8	No. of hours mobile or laptop used during COVID-19 Pandemic per day a. 1-3hours	8	7.77
	b. 4-6hours	30	29.13
	c. >6hours	65	63.10
9	Have you done COVID duty		
	a. Yes	73	70.87
	b. No	30	29.13
10	Whether you got infected with COVID 19		
	a. Yes	14	13.59
	b. No	89	86.41
11	Is there any history of COVID 19 in your family		
	a. Yes	17	16.50
	b. No	86	83.50
12	Previous source of information related to COVID- 19		
	a. Yes	57	55.34
	b. No	46	44.66

As per the Table 1, most of the participants were in the age group of 17-24 (83.49%). 78 were females and rest was male among 103 participants. The highest number of participants in the category of monthly income of the family Rs. 5,000 – 10,000 was (39.80%). Hinduism was the most common followed religion (55.34%). Majority of the students were residing in the rural area (68.93%). Highest percentage (57.28%) of students was having the nuclear family. Majority of the students were GNM (50.49%). Most of the students i.e.; (63.10%) were using the no. of hours mobile or laptop used during COVID-19 Pandemic per day was more than 6 hours. Majority of students (70.87%) has done the COVID duty. The maximum number of participants (86.41%) was not infected with COVID-19. Most of the students (83.50%) had no history of COVID 19 in the family. Majority of students (55.34%) got previous information related to COVID-19.

Section B: Assess the level of stress among nursing students during COVID-19 pandemic

Table 2: Stress level among nursing students during COVID-19 pandemic

Levels of stress	Scores	Frequency	Percentage
No stress	0-7	25	24.27
Mild stress	8-14	62	60.19
Moderate stress	15-21	16	15.54
Severe stress	22-28	0	0

As per the table 2 and the figure 1 Highest percentage of stress was 60.19% in nursing students with mild stress whereas 24.27% had no stress and 15.54% had moderate stress. No one had severe stress.

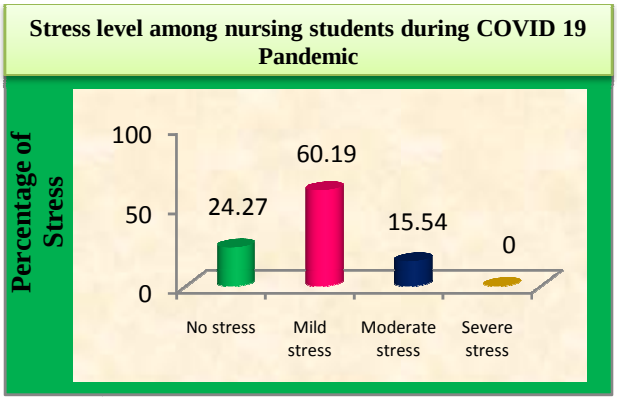

Figure 1: Stress level among nursing students during COVID-19 pandemic

Section C: Association of stress among nursing students during COVID-19 Pandemic with selected demographic variables.

The hypothesis was tested using chi-square test (χ^2). The value of chi-square was calculated to analyze the association between the stress with demographic variables.

Table 3:Association of stress among nursing students during COVID-19 Pandemic with selected demographic variables

Sl. No	Sample characteristics	Level of Stress(%)			χ^2	df
		No stress	Mild Stress	Moderate Stress		
1.	Age in years				3.14	4
	a) 17-24	21	51	14		
	b) 25 -29	4	10	2		
	c) 30-35	1	0	0		
2.	Gender				0.332	2
	a) Male	5	16	4		
	b) Female	20	46	12		
3.	Monthly income (approximately) of your family in rupees				5.19	6
	a) <Rs. 5000	4	5	2		
	b) Rs. 5,000 – 10,000	10	28	3		
	c) Rs. 10,001 – 15,000	5	13	6		
	d) Rs. 15,000 Above	6	16	5		
4.	Religion	18	32	7	4.16	6

	a) Hindu				5	
	b) Muslim	4	18	5		
	c) Christian	1	3	1		
	d) Others	2	9	3		
5.	Residential area a) Rural	14	45	12	2.613	2
	b) Urban	11	17	4		
6.	Type of family a) Joint Family	9	20	6	2.112	4
	b) Nuclear family	13	36	10		
	c) Extended family	3	6	0		
7.	Course				0.095	2
	a) B.Sc. N	13	30	8		
	b) GNM	12	32	8		
8.	No. of hours mobile or laptop used during COVID-19 Pandemic per day a. 1-3hours	2	4	2	3.15	4
	b. 4-6hours	10	15	5		
	c. >6hours	13	43	9		
9.	Have you done COVID duty				0.2166	2
	a. Yes	18	43	12		
	b. No	7	19	4		
10.	Whether you got infected with COVID 19				0.217	2
	a. Yes	3	7	4		
	b. No	22	55	12		
11.	Is there any history of COVID 19 in your family				0.496	2
	a. Yes	3	11	3		
	b. No	22	51	13		
12.	Previous source of information related to COVID 19				0.149	2
	a. Yes	13	35	9		
	b. No	12	27	7		

df 2=5.99; df 4=9.488;df 6=12.592,p=0.05, * = Significant (p<0.05)

As per the Table 3 there is no significant association between the stress among nursing students during COVID-19 with demographic variables.

DISCUSSION:-The pandemic situation like COVID-19 creates stress and anxiety in students. This study aimed to determine the stress among the nursing students during the COVID 19 pandemic. This study result shows that students had mild stress60.19%, no stress 24.27% and moderate stress 15.54% due to COVID outbreak. The crisis situation created life style changes which in turnlead to anxiety, stress, decreased interpersonal communication and fear. The result reveals that there is no significant association between the stress with any of the demographic variables. Kwob et al (2020) mentioned in their study revealed that 97% of the participants are worried about their learning needs and it affected their professional development and health negatively. This present study is in contrast with study by Sheroun D (2020) where high

Perceived Stress Score of 13.35 % while 82.67% had moderate perceived stress. This study focuses on stress among nursing students so that authorities can focus and provide the psychological support for the students.

CONCLUSION:-The study focuses on the stress among the nursing students during the COVID-19 pandemic who are already leading a stressful routine lifestyle. The result revealed that highest percentage of stress was 60.19% in nursing students with mild stress whereas 24.27% had no stress and 15.54% had moderate stress. There is no significant association between the stress among nursing students with any of the demographic variables. It is important to focus the stress among the nursing students and to provide psychological support and assurance so that students can triumph over the stressful circumstances to survive with it and can perform better in their profession.

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Conceptual Review on Kerala Based Publications about Covid 19

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Abstract:-Covid 19 is the surprise pandemic to the world started from China end of 2019 and spread around the globe in 2020. As it's a new form of diseases our system is not familiar with its specifications. Within short duration science totally concentrated to covid 19 related subjects. Kerala southern state of India got international appreciation for Covid 19 management. There is couple of studies also done in Kerala related to it. Objective of the study is to analyze Covid 19 related studies in Kerala. Secondary data analysis done and concluded as local body importance and Kerala modal Covid 19 management are most used subjects.

INTRODUCTION:-Covid out break is happened it's more than a year now still world didn't got free from the clench of the virus. There is no well established protocol or standard measure to prevent or get treat covid 19 because of the new form of pandemic to the world, lack of good knowledge about the virus even making human community to get free from it. After a year the vaccine came and now it distributing around the globe but still its not sure world getting free from it. Managing the pandemic situation is key factor to avoid the spread and death rate. As it's a new form of pandemic the modern science experts fails to give a proper direction to manage it. Such a situation a southern state in India named Kerala got appreciation around the globe by managing the pandemic in effective way and widely it called as "Kerala Model".Kerala is one of the southern state in India, comparatively small state having 38863km^2 having population of 3.36 Crores. The state famous for tourism and having good literacy rate compare to other states of India. This little state in the south-west shore of India has been notable for almost 50 years for its "model" or example of advancement that accomplished significant degrees of social and human turn of events what's more, quick decrease in ongoing neediness and endemic hardships in spite of low monetary development and income.The "Kerala model"3 that has been concentrated by analysts since the mid-1970s, is indeed in the information across the world as an overall example of overcoming adversity in containing the pandemic notwithstanding financial requirements and different weaknesses like its thick populace and steady openness to unfamiliar contacts. In fact, a portion of these eyewitnesses consider Kerala's to be the board as an unequivocal trial of the Kerala model. Nonetheless, this ended up being an untimely festival. Indeed, even the Kerala government and the lively media in the state assumed a crucial part in the marking of Kerala model of Covid 19 the executives and control as a "fruitful model" too soon. While everyone expected a third rush of Covid 19 contaminations following the arrival of individuals working abroad from different pieces of the globe, nobody predicted the threat of local area transmission and the exceptional spike in Covid 19 case load in Kerala. This stressing pattern has raised concerns in regards to the viability of the Kerala model of pandemic regulation and the executives

Need of the study:-Covid 19 situation is still active and authorities around the globe searching for a solution, lack of well known knowledge about the disease and its format is also making the people search for new ideas about it. It's a new form of pandemic a small information about it will make worthy for the community to avoid getting infected by it. Review about a well established model will helpful for all of them to study about it and execute it.

OBJECTIVES OF STUDY

- Analyze Covid 19research studies in Kerala under pandemic situation
- Review study conclusion about Kerala Model in pandemic situation

METHEDOLOGY:-Study Design; Conceptual review

Inclusion Criteria

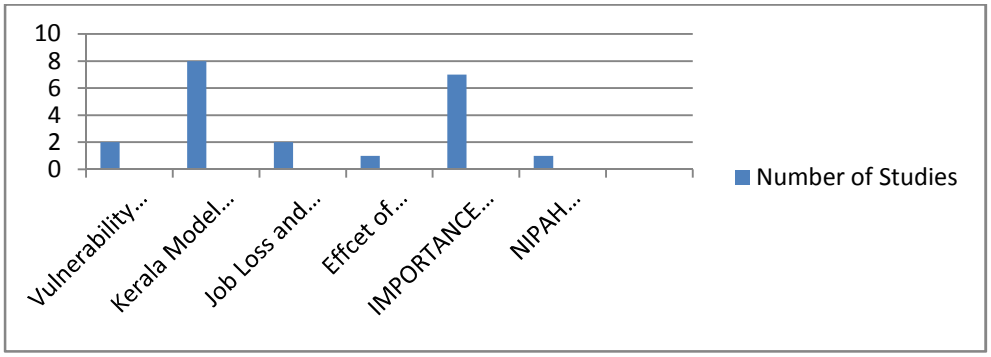
- Studies which held in the time of covid 19 pandemic
- Studies about Kerala Covid 19 management
- Studies about Kerala Covid 19 situation

Exclusion Criteria

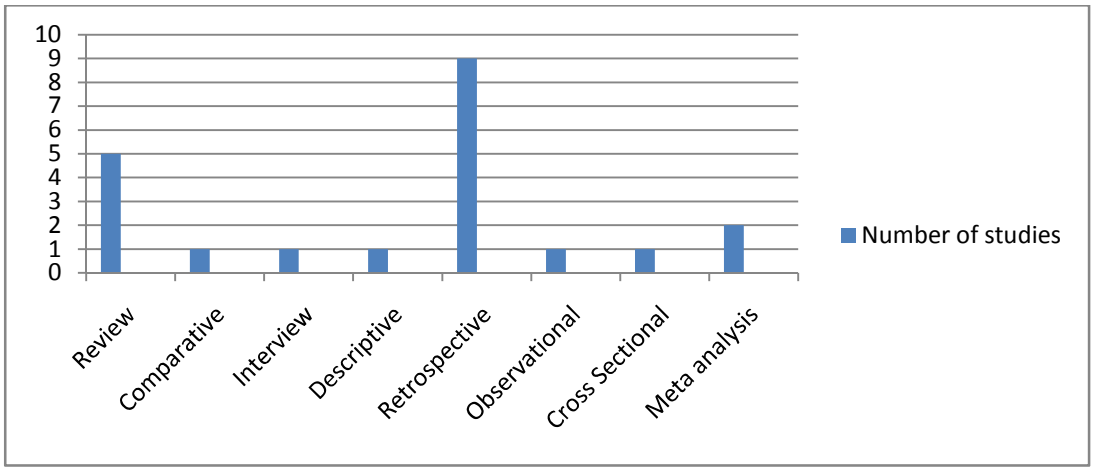
- Journals which full text is not available

METHOD:- The examination utilized online COVID-19 data set made accessible through different authority site under worldwide exploration on Covid infection (COVID-19) worldwide exploration information base as an information hotspot for distinguishing the significant writing on COVID-19. The data set is curating worldwide writing distributing on Covid since it proclaimed COVID-19 a worldwide pandemic. WHO says that the information base addresses an exhaustive multilingual wellspring of current writing on the theme. This data set concentrate data from different bibliographic data sets, hand looking, and the expansion of other master alluded logical articles and updates every day. The greater part of the distributions has made its COVID-19 information base accessible uninhibitedly and information can be sent out. The pursuit terms utilized for recovering the information were "Coronavirus" and "Kerala". The "title, theoretical and subject" alternative accessible on the information base site was utilized to recover the archives. The list items recovered 35 outcomes for the hunt term. The information was traded and done further refinement of information and examination. After completely auditing the information, it was discovered that there were not many repeatable titles and not identified with Covid 19 circumstance. Just articles written in English were remembered for the examination. Altogether 21 articles were considered for the last examination. Creators looked from commencement to fifteenth February 2021 to first March 2021.

RESULT



Mainly we classified studies in to six categories and in that Kerala Model appraisal and importance of local government and public participations studies are more 8 and 7 each.



Total eight types of studies happened retrospective studies are most nine numbers, review studies five meta analysis two and others one each

DISCUSSION

VULNERABILITY INDEX:-From the available literature first study about Covid 19 vulnerability is donebyRajib Acharya and Akash Porwal in their study aboutcovid 19 vulnerability status of 30 Indian states and 6 union territories published in July 2020 says Kerala is one of the state having medium range of Covid 19 vulnerability and the current number of cases may increase in future. Study evaluated over all vulnerability but also individual like socioeconomic vulnerability, demographic vulnerability, housing and hygiene vulnerability and health care status availability vulnerability. The overall vulnerability scoring varies from 0 to 1 which having low vulnerability for Sikkim and high for Madhya Pradesh and Kerala having the score of 0.314.

S. Udhaya Kumar et al done a review of Kerala 21st Century Outbreak in India, and reporting about 11 various infective diseases from 14th August 2001 to 30th January 2020 including Covid 19. In this list all of them listing as Cholera, Plague, Severe Acute Respiratory Syndrome (SARS), Dengue, Meningococcal Disease, Japanese Encephalitis, Avian Influenza, Chikungunia,Zika, Nipah and Covid 19 are reported in Kerala.

KERALA MODEL APPRAISAL :-Dr Kavumpurathu Raman Thankappan (Department of public health and community medicine Kerala), he reviewed 100 days experience about Kerala Covid 19 situation. He evaluated the covid 19 cases from April 1st week to May 1 st week of 2020, and found out there is 94% decline in the active Covid 19 cases. Study concluding that the decline is achieved by Kerala Pandemic managing model and its supporting factors. S Udayakumar et al in their article Kerala India's front runner in Covid 19 also reviewed effective containment of Covid 19 by immediate task force management and effective awareness programs by Kerala Government.

Study bay Jayesh et al by using Covid-19 data from January 30, 2020, to May 31, 2020, isused for this study. In this analysis, the cases in Kerala aredivided into three phases: first phase (January 30, 2020–March 9, 2020) first positive case by the medical student from Wuhan reached home , second phase (March 10, 2020–May 8) a family returned from Italy reported as positive andthird phase (May 9–May 31) the non Indian residents returning and reporting lots of positive cases. Covid 19 cases data is collected from various primary and secondary sources and

an exploratory data analysis is done to evaluate it. The findings says model raised by Kerala for fighting against Covid-19 can be considered as a benchmark for how the public health department can be utilised properly.

Jos Chathukulam , and Joseph Tharamangalam also apprising Kerala covid care model by comparing reports around globe. They concluding the article as they might dare to dream that the exercises gained from Kerala and different states and nations for their prescribed procedures during the Covid 19 pandemic will keep on reverberating with individuals of India and the world as they might be reexamining and rethinking a superior world for the post-Covid era.The early acknowledgment and brief wanting to confront the COVID-19 pandemic by the Kerala government has profited the state and nation enormously. The state demonstrated its whole COVID-19 technique on the profound foundations of decentralized nearby self-organization and intrinsic strength of the public medical care framework. The state embraced a forceful system of finding, testing, following and control, which has delivered rich profits. It sees the bend straighten, as India moves out of the a month of the public lockdown. Kerala is currently ready for staged unwinding of the lockdown from 20 April 2020by Vinod Rai in the article The Kerala Model to battle COVID-19

A proactive state government, chief and organization, alongside a solid general wellbeing framework supported by the local area cooperation is the thing that guaranteed a restricted spread in a thickly populated state like Kerala with a huge non-inhabitant populace. The arrangement of guaranteeing isolate and separation of all 'in danger' people and simultaneously securing the defenseless through 'ring fencing' has absolutely helped bringing down the case casualty in the state. The exercises from Kerala state underline the significance of a solid general wellbeing framework with dynamic local area support for the administration and control of COVID-19 pandemic by Jaideep C Menon et al by explaining about Kerala strategy’s towards Covid 19.

Sulaiman KM, Kerala revealed the first three instances of Covid in Quite a while in late January. Kerala, one of the India's most thickly populated states, which makes its achievement in battling the Covid-19 even more exemplary. Additionally, an expected 17% of its 35 million populace utilized or lives somewhere else, more than 1 million vacationers visit every year, and many understudies concentrate abroad, remembering for China. The entirety of this portability makes the state more defenseless against infectious flare-ups. What is the methodology behind the example of overcoming adversity? This paper thinks about the circumstance of COVID-19 pandemic in significant states and Kerala by the distinctive period of lockdown, and furthermore features Kerala's battle against the pandemic. We utilized freely accessible information from https://www.covid19india.org/and Covid-19 Daily Bulletin (Jan 31-May 31), Directorate of Health Services, Kerala (https://dashboard.kerala.gov.in/). We ascertain the stage astute period predominance rate (PPR) and the case casualty rate (CFR) of the last stage. Contrasted with other significant states, Kerala showed better reaction in forestalling pandemic. The condition for the Kerala's prosperity has been straightforward, focused on testing, far reaching contact following, and advancing social distance. They likewise forced solid controls, were upheld by a superb medical care framework, government responsibility, straightforwardness, public trust, social equality and significantly the decentralized administration and solid grass-root level foundations. The "proactive" measures taken by Kerala like early discovery of cases and broad social help measures can be a "model for India and the world".

Betsy Varghese et al. A cross sectional investigation was led among the COVID-19 patients revealed in Kerala till 31st March 2020. Contact subtleties of patients were acquired from Kerala State Disaster Management Authority (KSDMA). Patients were reached over telephone to

acquire agree and to gather data in regards to demography, contact and symptomatology. Among 202 patients in this investigation, 154 (76.2 %) were unfamiliar returnees and 48 (23.8 %) procured sickness by nearby transmission. The mean age was 36.5 (± 13.9) a long time and larger part were guys (80.2 %). The most well-known manifestations detailed were fever (n = 90, 45 %), hack (n = 54, 27 %), sore throat (n = 44, 22 %), loose bowels (n = 29, 14.5 %) and anosmia (n = 24, 12 %), while 39 (19.3 %) patients were asymptomatic. Hypothetical middle brooding period was 6 (IQR = 4) days and middle span of indications was 4 (IQR = 6) days. The extent of asymptomatic, gentle, moderate and extreme cases were 19.3 %, 68.8 %, 8.9 % and 3 % individually. Hypertension (changed OR = 3.5, (1.1 - 11.2), p = 0.03) and privately obtained contamination (changed OR = 2.8, (1.1 - 7.1) p = 0.03) were huge indicators of seriousness of the illness on calculated relapse. Case casualty rate was 0.99 %. Gentle and vague side effects and brief term of sickness ought not be disregarded in COVID-19 and high doubt ought to be kept up as an enormous section of contaminations are asymptomatic. The attention ought to be on protecting the old and those with comorbid conditions

Elizabeth Goult et al analyse the instance of Kerala, which got a lot of applause in the worldwide media for its accomplishment in containing the spread of the sickness in the early months of the pandemic, however it rised in the holds of a subsequent wave. They utilized a model to consider the direction of the sickness in the state during the initial four months of the episode. At the point when they utilized the model for a review investigation of measures taken to battle the spread of the infection, to assess their effect. In view of the abnormal parts of the Kerala case, they contends that it is a model deserving of a spot in the conversation on how the world may best deal with this and other, future, pandemics

JOB LOSS AND ECONOMIC IMPACT

Adil Ellikkal and S Rajamohan in their clear quantitative investigation done unbiased as comprehend the segment attributes of labor force in Kerala, discover impact of COVID-19 on various occupation areas of Malayalees across the world, and dissect the impact of COVID-19 on employability of graduates and non-graduates. discover the pace of occupation misfortune because of COVID-19 lockdown. by lock down. The impact of Coronavirus on business and occupations are not basic across various areas, age gathering, sexual orientation, and instructive level. A portion of the areas are as yet working and others are shut. Countless individuals can't meet their two closures. From this exploration study it is distinguished that work misfortune among the representatives matured over fifty years are higher than age bunch somewhere in the range of 20 and 25 years. Also, work misfortunes among male specialists are higher than female laborers. Another significant feature is that work misfortune among NRK's are higher, particularly individuals working in Gulf nations. Coronavirus pandemic infections are spreading across every one of the nations step by step. Besides, an unmistakable element of its effect can't be recognized, on the grounds that the circumstance are deteriorating each day and individuals losing their employment and others are enrolled for work particularly in medical services area. It is recognized through this review that 6.50 percent workers previously lost employment and 37 percent representatives are in the situation of cutback. Thus, government should make fundamental moves and restoration bundle to help workers in the state

All the microenterprise classifications under the Kudumbashree network have been affected altogether by the lockdown. On account of food based ventures like bread shops, the fundamental effect has been the misfortunes from spoiled stocks and ruined crude materials. Practically all organizations with an occasional spike in income during celebration times missed out on the chance while causing extra expenses in secured working capital. Indeed, even the

nutrimix units with a standard item crude material plan are making misfortunes as the ordinary inventory lines are influenced. A large portion of the business people covered by the investigation were seen unfit to meet their overheads in the wake of the lockdown. Many communicated worries on the plausible low interest for items and administrations past the lockdown time frame as well. Reimbursement of regularly scheduled payments of bank credits is another territory of concern. Occasion related business openings have been hit, antagonistically influencing endeavors those get their interest from them like providing food administrations and salons. Development bunches see a proceeded with droop sought after broadening much past the lockdown period. Acknowledgment of income against pre lockdown acknowledge deals just as installment against provisions made before the lockdown are disturbing various undertakings. While COVID 19 offered its own chances for a predetermined number of business classes like sewing of veils for the fitting units and creation of hand-sanitizers for the endeavors represent considerable authority in cleanliness items, the incomes from these are yet to figure it out. Likewise, units are not in a situation to address the nearby requests in these items because of the limitations forced by the lockdown

EFFECTS TO FARMING AND CULTIVATION:-There is study by Kudumbashree (Local gathering of House Wife's) about the impact of Covid lock down on their farming done at after first stage of lock down. Kudumbashree ranch vocation area has 68,388 Joint Liability Groups (JLGs) involving 3,38,202 ladies ranchers, developing in around 50,000 ha. JLGs are gatherings of ladies ranchers with 4 – 10 individuals from inside a ward or abutting wards in a panchayat. Kudumbashree cultivating model is called Collective rent land cultivating as 75-80 % of the complete developed region is rented. The workforce in these developed terrains are simply the JLG individuals (aside from a minor portion drew in for plantains) represented as one of the primary purposes behind the productivity, achievement and food of the joint cultivating bunches under Kudumbashree. Likewise being essentially natural, however not naturally guaranteed, the produce has high nearby interest across the state and gets top notch cost. According to their report 48940 JLGs were developing during the season. Out of this 31241 JLGs were prepared for reaping. Exercises of 4042 Joint Liability Groups in the state were influenced (12.93 % of the all out 31241 JLGs who were prepared to reap) by the lock down because of Covid-19. It had an extreme effect in 1201.65 Ha of land where these JLGs were developing. The report several areas as models too. They finish up it as An absolute deficiency of 3.6 crore (because of, not gathering of yields on schedule and promoting misfortune which incorporates collected however unsold and low deals cost) has revealed from different locale.

IMPORTANCE OF LOCAL GOVERNMENT LOCAL PUBLIC INVOLMENT

Anwesha Dutta , Harry W. Fischer. The local governance of COVID-19: Disease prevention and social security in rural India. A comparative study of Covid 19 situation in three different states of India and they are Rajsthan, Assam and Kerala. They done telephone interview with lower level bureaucrats, PanchayatPresidents, Kudumbashreeleaders, and heads of villages in the states of these states. Interview based on four elements formal responsibilities, duties, and modes of coordination between higher level and local-level governments, operationalization of subnational and local institutions for pandemic response in practice, actions of local governments and their decision-making processes and self-perceptions and reflections of the pandemic situation. Study conclusion says about the importance of local government and its role for situation like Covid 19 Pandemic

Anoop C. Choolayil and Laxmi Putran, explains by cross-sectional investigation of the COVID-19 control methodology in Kerala and features its underlying adequacy in the Kasaragod region,

the first to record a second stage transmission in the state with a bunch of cases from 23 March 2020 onwards. Notwithstanding its disappointing medical services framework, Kasaragod area figured out how to contain the transmission and record a 100 percent recuperation rate, demonstrating a promising model of disease control. Nonetheless, the area thusly surrendered to local area level transmission when another influx of positive instances of COVID-19 was identified among localized abroad residents on 7 May 2020. The article investigates the intersection of components that permitted the underlying effective recuperation from a second stage transmission and afterward inspects the elements that later prompted local area level transmission. Given the nearby associations of Kerala to different pieces of the world through movement, the article delineates how problematically the neighborhood is currently essential for the worldwide,via their study COVID-19, the local and the global: lessons from Kerala a study done one of the district named Kasargode Kerala.

In neighborhood administration around the globe are in emergency with COVID - 19 on nearby medical services and economy. The interaction enlarges the social-monetary issues and disparities. The nearby self-governments are in the bleeding edge to serve individuals, they have taken a few activities to forestall the spread and aiding patients who were tried as sure. In Kerala according to the evaluation 2011, there are "1200 Local Self Governments (LSG) in Kerala which incorporate 941 Grama Panchayaths, 152 Block Panchayaths, 14 District Panchayath, 87 Municipalities, and 6 Municipal Corporations." The absence of asset accessibility with expanded requirements making a weight of productive circulation through appropriate arranging yet the COVID - 19 cycle annihilated the entire interaction. At the neighborhood level, the public authority establishment proficiently dealing with the Quarantine habitats, Community Kitchen for COVID-19 contaminated people, and people in seclusion. The activities for Kerala Sannadhasena comprise of more than 2.5 lakh people groups, the individuals from the Army are prepared to chip in whenever of any calamity in the state. 100 individuals are prepared as a volunteer. The individuals from the military are 16-65 years of age. Their schooling or actual wellness doesn't block them from joining the military. The state and focal government need to give more mind to Local Self Governments during the time spent battling against COVID-19by Vimal V and Dr. Vipin Chandran K P.

Dr Biju T**,** explored about the role of Kudumbashree (JLG's- Joint Liability Groups)A progression of activities has been marshaled to shield the country India from panicky spread and regulation. A Kerala model of the executives and control of the pandemic is quite lauded and the female organization - Kudumbashree is helping the state in executing the thoughts and practices.Kudumbashree is the destitution destruction and ladies strengthening program carried out by the State Poverty Eradication Mission (SPEM) of the Government of Kerala The part of Kudumbashree in the State of Kerala in Indian subcontinent is depicted with its novel activities in this setting of pandemic. It offers a range of creative practices alongside the wellbeing and the rule of law work force in the state. The yield is excellent accomplishment with writes about pandemic administration in the midst of its weak openness with transient laborers around the world. The current paper features the job and adequacy of Kudumbashree in building confident country economy. It likewise acquires the imperative insights of Kerala regarding pandemic administration with in the initial 100 days since its originally detailed case.

Jyotsna Jalan and Arijit Sen study the Covid pandemic in the Indian province of Kerala, and record the state's noteworthy achievement in containing the pandemic's first wave. By recognizing Kerala's underlying conditions when it was hit by the pandemic, and various parts of the state's Covid strategy, we close: While being dependent upon asset limitations looked by an

Indian state situated in an administrative construction, Kerala contained its first Covid wave by preemptively defining an exhaustive arrangement of public activities—government activities that were upheld and supplemented by the state's residents. This was accomplished by utilizing and building up the resident's public trust in the state. In particular, the state's pandemic reaction contained strong measures to guarantee that helpless day to day routines were not set in opposition to rich lives; rather, the point was to ensure all lives and livelihoods.

Dr. Aarathi Ajayakumar et alKerala has on numerous occasions confronted different general wellbeing challenges, and has ably managed every one of them. The Covid-19 pandemic is the same. Kerala has had the option to bet on its verifiable experience, political will, enormous social capital, local area cooperation and shared concordance to battle this worldwide pandemic of exceptional extents. Kerala was the first state in Quite a while to have a Covid-19 positive case. The state had framed a reaction group even before this happened and was readied. This readiness has helped Kerala in straightening the bend. Despite the fact that the quantity of cases have spiked as of late with the inundation of exiles, Kerala has adequately figured out how to follow, isolate, test, disengage, and treat as was essential. The Alma-Ata statement of 1978 underscored local area interest just like a critical part to accomplish "Wellbeing for All"; the administration methodologies of Kerala emphasizes this reality. Albeit the wellbeing framework confronted a gigantic weight in sheer quantities of the cases to be dealt with, the bleeding edge laborers which included Kudumbashree, Sannadha Sena, the media, Kerala police, every one of them shaped a connective lattice, which is comprehensive of all people locally. This between sectoral joint effort is certainly one of the basic parts that different states ought to receive onto to their administration techniques. The accomplishment of the Kerala experience so far has been setting explicit. The interest into public medical care, schooling and a prepared social capital had started quite a while past. Albeit the entirety of the actions taken may not be replicable in different pieces of the world, the exercises acquired from the Kerala experience show the significance of straightforwardness, judicious judgment and neighborhood independence in compelling administration and setting long haul objectives over transient interests

Dr.Merin Dickson et al putting forward a negative report against saying that the local people’s by their attitude towards the Covid protocol. They say by ameta-investigation on the quantity of COVID-19 cases in Kerala and India, the information was recovered from different locales facilitated by the public authority bodies. The information for examination was gathered from May 2020 to July 2020. The normal number of days needed to arrive at each 5000 new cases were likewise determined utilizing this information. Coronavirus has influenced all the economy comprehensively paying little heed to monetary, conduct, or cultural angles Lifting of the lockdown in a bit by bit measure remembering the necessities for the country was an insightful demonstration, however individuals who mixed up this chance and didn't stay in isolate subsequent to coming from abroad was perceived as the purposes for the abrupt and uncontrolled ascent in the quantity of COVID-19 cases in Kerala, India. The public authority specialists had no other choice except for to lift the limitations to lessen the financial weights that had effectively influenced the every day wage laborer and ranchers provoking them to surrender their lives

NIPAH OUTBREAK CONTAINMENT EXPERIENCE

A study by Asma Ayesha Rahimand Thomas V Chacko says, Kerala was the first state in Quite a while to report COVID cases, it was decidedly ready drawing on its past experience in overseeing viably the Nipah flare-up and Kerala floods. It knew and started the actions needed for regulation due to its related knowledge with preparing local area based gatherings,

association of neighborhood self government in decentralized arranging, and investment in the control and alleviation measure just as a framework prepared wellbeing framework and foundation. The actions taken to "level the bend" that is interesting to Kerala and the determinants of achievement are depicted in detail as "what worked" utilizing the structure we created post the Nipah flare-up control insight. These are being imparted to the expectation that the bits of knowledge these actions embraced by the state give can be utilized somewhere else to decipher and imitate parts that work

CONCLUSSION:-Various forms of studies happened in Kerala Pandemic situation, but most of the studies focused on the local people involvement and local government activities. Other than it Kerala model of Covid 19 management also analyzed in a good way.

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A DESCRIPTIVE SURVEY STUDY TO ASSESS THE PROBLEMS FACED BY NURSING STUDENTS IN ONLINE LEARNING DURING LOCKDOWN AMONG SELECTED NURSING COLLEGES IN DHULE DISTRICT

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ABSTRACT

Introduction:- in India, of which about 34 million belonged to the tertiary level of education. The novel corona virus disease covid-19 first appeared in Wuhan city of china at the end of last year. Rapid worldwide spreading of covid-19 prompted the (WHO to declare it as pandemic on 11 March 2020 WHO 2020 Pelmin, 2020).Most of the governments around the world have initiated a common goal to curb the spread of this highly contagious disease by imposing lockdown, social / physical distancing, avoiding face to face teaching learning and restriction on immigration.

MATERIALS AND METHODS:-A descriptive survey study approach was use for the study. The study was conducted in selected nursing colleges of Dhule districts. Convenient sampling technique was adopted for sample selection. The sample size was 100.In this study by using survey method we identify various methods use by nursing students for attending online classes, problems faced by nursing students for attending online classes, are evaluated and analyzed.

CONCLUSION:-The descriptive survey study was done in selected nursing colleges of Dhule district .the present study highlights the problems faced by nursing students These research project of we are curriculum during the collection of review of literature.

Keywords:-lockdown, survey, Learning, Problems

INTRODUCTION:-The first covid-19 positive case has been reported in India (Kerala) on 30 January 2020. Currently, India has been experiencing sparkled growth in covid19 cases as of 15 February to 9 December 2020, INDIA has reported total cases are 9.74 Millions, recovered cases 9.22 Millions, and death cases are 141 Thousand (JHU CSSE COVID-19 DATA). [7] The government of India along with various states Government have initiated several strategies to control the spread of the disease. Since 25 march India has observed four phases of nationwide lockdown, which was extended up to 31 may 2020. The ongoing lockdown (5^{th} phase) is further extended till 30 June 2020 only in containment zone along with essential services are resuming in a planned manner starting from 8 June 2020. The closure of the educational institutions due to the outbreak of Covid-19 leads to an unprecedented impact on education. During the lockdown, teachers are instructed to teach through online learning platform.Online learning is the latest method of learning which encompasses the use of information technology in order to enhance the knowledge academic performance of an individual. Covid-19 has impacted all aspects of human life such as physical, mental economic, social, cultural and educational. Students study was also affected with covid-19 as they have to stay at home and needs to focus on self paced online learning material. [9]The ministry of human resource development (MHRD) is regularly emphasizing on E-learning with tagline as “let covid-19 not stop your learning continue with

SWAYAM" The concept of online classes are not new as it has been a part of many academic courses since a long time evidences indicates that worldwide many universities are offering online course for the learners. The problem related to online teaching and learning are the key reasons for less use of use online in certain part of our country includes skill deficit ,time ,cost, infrastructure, poor communication, collaboration, attitude and culture. Studies suggest that by developing strategies that ensure continues engagement of students throughout the online study help more to enhance performance of students. E-learning is categories as synchronized and non-synchronized E-learning synchronized learning is a teaching learning activity in which both the student and teacher will be online at same time and hence it's more social and avoids frustration by asking and answering questions in real time. Non- synchronized learning is offline learning. Online learning now days considered as the potential method of learning especially in undergraduate medical and nursing teaching. This pandemic has left no option in front of institutions other than temporarily shut the doors or shift online classes and student also acquired technological skill .Online classes have shown an aspect of continuing the academic education. What's app, zoom and Google meets are some of the apps used for conducting online classes.

OBJECTIVES OF THE STUDY:

1. To assess the demographic variable.
2. To assess the various method use by nursing students in online learning during lockdown.
3. To assess the various problems faced by nursing students regarding theoretical online learning.
4. To assess the various problems faced by nursing students regarding clinical online learning.

Methodology:-A descriptive survey study approach was use for the study. The study was conducted in selected nursing colleges of Dhule districts. Convenient sampling technique was adopted for sample selection. The sample size was 100.In this study by using survey method we identify various methods use by nursing students for attending online classes, problems faced by nursing students for attending online classes, are evaluated and analyzed.

RESULTS:-

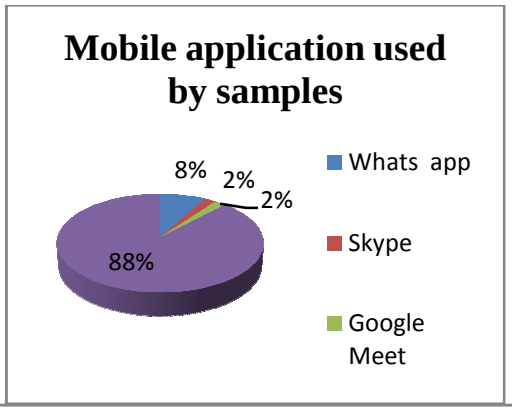
It shows that majority of app use by nursing students i.e. 88% samples use Zoom app, 8% samples used what's app, 2% sample used Skype and 2% sample used Google meet.

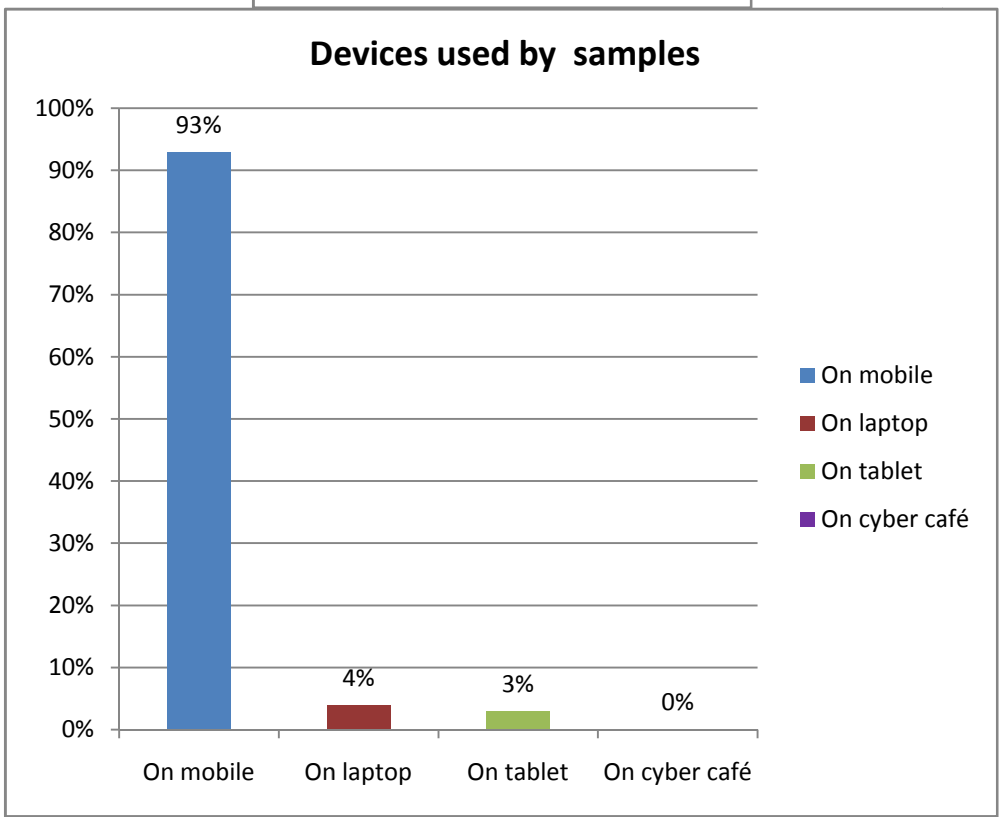
Its shows that majority of devised used by nursing students that is 93% students attend online classes on mobile, 4% attend on laptop, 3% attend on tablet, No one attend online ,classes on cyber cafe.

It shows that majority of nursing students i.e. 46% faced poor network connectivity, 29% students have fair network connectivity, 22% students have good network connectivity and only 3% students have no internet connectivity.

It shows that issues related to assignment completion and submission i.e. 51% students have it required more time for online submission due to poor connectivity, 24% samples faced issue related to assignment was too lengthy to complete and submission, 16% samples have issues related to assignment completion required detailed direction for submission, 9% students have insufficient resources for submission of assignment

It shows that major problem faced by nursing students i.e. 37% samples have inability to maintain time scheduled, 33% samples have burden of various subject and assignment at the same time, 20% samples have difficulties in asking question and doubt, 10% samples have problem in understanding of topic during online learning.


Mobile application used by samples
8%
2%
2%
88%
Whats app
Skype
Google Meet


Devices used by samples
100%
90%
80%
70%
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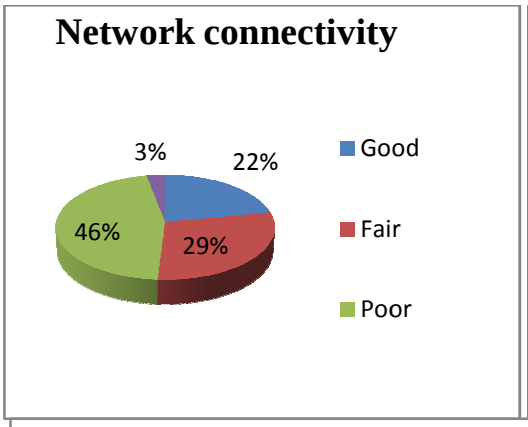
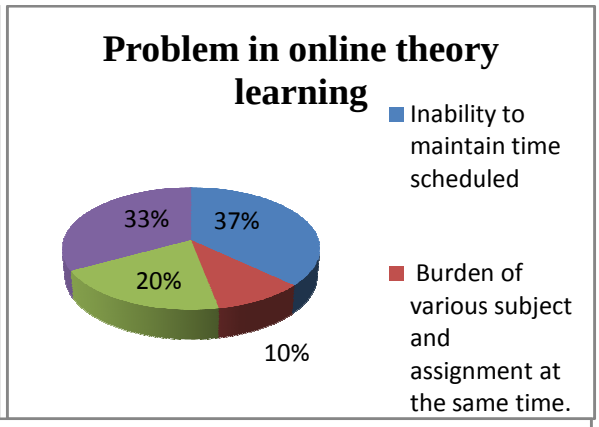
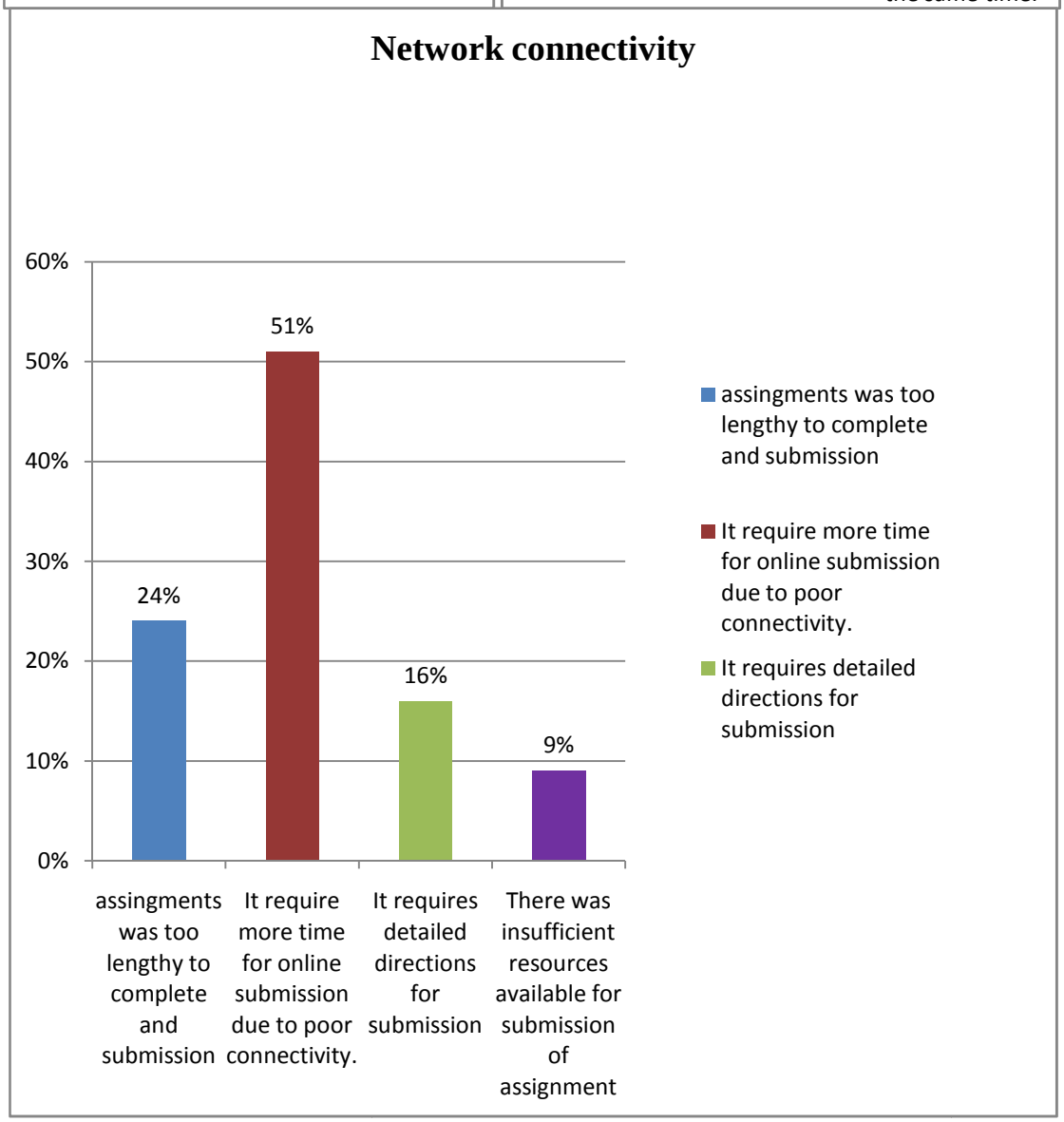
On mobile
On laptop
On tablet
On cyber café







Conclusion:-The descriptive survey study was done in selected nursing colleges of Dhule district .the present study highlights the problems faced by nursing students These research

project provided on opportunity to become familiar with step of research process with objectives of we are curriculum during the collection of review of literature.

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The Discovery Of Covid-19 Using Deep Learning In Chest X-Ray Images As A Classifier

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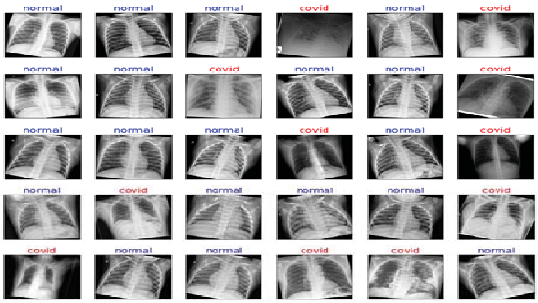
Prof. Dr Sabera Begum, Research Guide & Head, CSE Dept, KCTEC Kalaburagi.

Abstract: The common Covid virus which has appeared in China in an unknown cause has quickly spread to the world. To prevent further spread of the outbreak, it is important that positive cases are detected early. During the diagnosis stage, both RT-PCR (RTT-Polymerase Chain Reaction) is determined by radiological chest images. The ResNet50 was classified as a convolutionary neural network architecture with chest x-ray images detection in Covid-19. Image analysis of Chest X-Ray can be performed and infected people quickly recognized through artificial intelligence. In terms of computer-assisted use of pathology, the experimental results are encouraging. It can also be used in situations where there are insufficient possibilities and RT-PCR tests.

Keywords :- Chest X-Ray Images, Coronavirus, Covid-19,DeepLearning,TransferLearning

I.INTRODUCTION:-More quickly than expected, the coronavirus (COVID-2019) rapidly spread throughout the world and caused a worldwide catastrophe. Early detection of the Covid-19 infection is essential to control the infection's spread and to patients.The R-PCR test is done to identify Cov19 [4]. This test's drawbacks include long results and not being necessary in some countries. The obstacle posed by this disadvantage prevents case detection. For this reason, it distributes unhealthy and healthy individuals amongst the population. Most testing methods (e.g.g., clinical history, pathography, scintigraphy, computed tomography, etc.) are applied now. Diagnosis from images, beginning.Many AI studies have been conducted on the use of artificial intelligence in the detection of disease from chest X-rays. presented the analysis of chest x-ray images lin et al. conducted research in order to identify signs of pneumonia with the goal of catching it earlier and curing it In research, studies have ramped up the recognition of cases of chest x-ray of CoviD-19 It has been quite successful recently in the application of x-ray techniques. Abbas, et al. conducted a class decomposition in the form of the DeTra model, applying it to the classification of chest images they both designed the COVID-NET for human-human and machine-human collaboration These researchers have trained convolutionalnet 19 on pre-textual CNNs on chest images by Iannis et al.Images from multiple sets of chest X-rays were examined in this study. Augmentation techniques were required due to the small dataset size of the data. Covid-19 objects were categorized using the ResNet-50 model which had previously been convolutionaluated with pre-trained convolutional networks on the chest-ray model. Cross-19 from the 1, 2x2x, 2x, 3x, 3x, 2x, 3x, 1x, 2x, 1x, 2x, and 3x (predictors) were selected. correct classification, confusion matrix, good quality score, and ROC curve are available the remaining sections of this document are presented as follows The second section provides the relevant materials and sources, as well as images. Additionally, Section 2 describes the study methodology used in this experiment. They're presented in Section 3. The paper finally reaches the conclusion.



II.MATERIAL AND METHOD:-The first phase was known as "diagnosis", the second "prognosis" and the third phase was known as "cure". These datasets were obtained from four sources in the first stage. Then we augment the training images. Chest x-ray images are represented using the pre-the-trained ResNet-50 network's feature transformer.

A. Dataset

This pattern of CT images was sourced from Covid19 for the diagnosis. The data was assembled from a variety of sources. When complete data is combined in one collection, this information looks like the following; Italian Society of Medical Radiology (SIR) set [12], an open-source dataset [13], image database [data assembled from several sources] From the data in Figure 1, a specific image of a positive and negative x-ray technique, referred to as Covid-19 and Covid-22, is provided as an example.

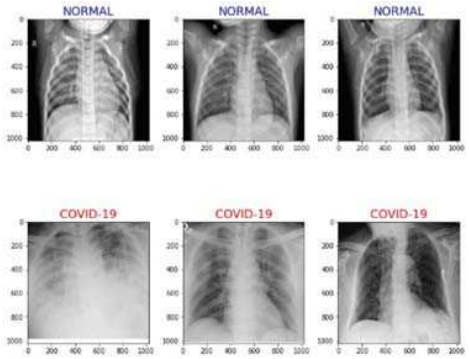
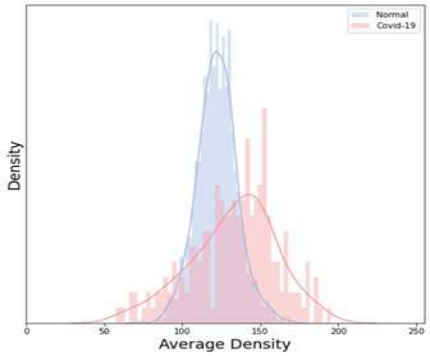


Figure. 1. Covid-19 and Normal (Non-Covid-19) Images

Two classes exist in the data set (Covid-19 and Non-Covid-19). The pixel density shown in Figure 2 is made available to these two classes of users: light users and heavy users. if we look at the distribution of the Covid-19 image class, we can see that it spans a wider area on the graph.

Figure. 2. Pixel Density Distribution of Covid-19 and Normal(Non-Covid-19)Images



B.ImageAugmentationTechniques:-Image amplification is a technique that can use for visual data augmentation, making it possible for the model to use data as a reference. Some signal processing techniques include: variation, rotation, reflection, and noise. during the convolutional neural network training, the number of data points is large and growing as a result of methods such as B-Spline are used Once image manipulations have been applied, Figures 3 shows our images.

C. ConvolutionalNeuralNetworks(CNN)

Many fields in which deep learning is utilised include anomaly detection, object recognition, and classifications in the biomedical realm Deep learning architecture is almost always consists of convolutionaluated neural networks. An important difference between convolutional and connection, besides having multiple inputs and multiple outputs, is that in a convolutional connection, the 'inputs' and 'leaves' are unconnected with each other whereas in a fully connected layer, the 'leaves' and 'are connected.' Next, the data is read, then features are extracted in each layer. Every new feature gets extracted from the next layer.

To grow effectively, a deep convolutionaluation neural network needs good hardware, along with a lot of data. time is roughly the same, regardless of whether you have fast or slow computers It affects both the functionality and performance results in proportion to the amount of data. the training of existing models on a large data sets and adapting their parameters with frozen weights is referred to as "transfer learning".

The Microsoft research team developed the ResNet-18 (Residual Network) with the ImageNet dataset to achieve the goal of derivational learning convergence. Creative Phrase:Creative Phrase: The ResNet-18 model is trained on more than one million images, and includes 1,000 classes from the ImageNet dataset. ResNet has proven to be a capable of reducing training time and ensuring the network doesn't degrade over time. Residual blocks are appended to the final results. Adding these blocks, namely input(x) and output(x), will be shown in Figure 4. Remember the old expression about insanity? To do the same thing over and over and expect different results.

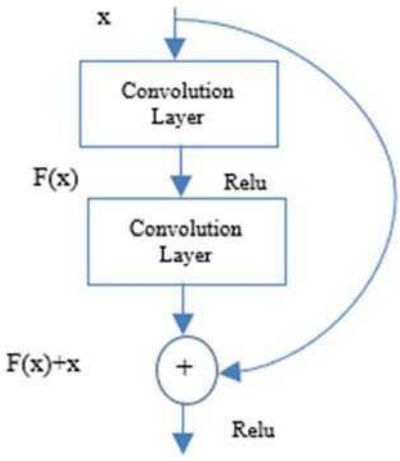


Figure.4.Residualblock[16]

The image class classification model trained with the ResNet-50 model was used on the ImageNet dataset. Learning rate: 0.3: Batch size: 32, hyperparameters: adam The results were assessed by cross-validation on the dataset, using a 5-fold cut-off value.

III.RESULTS:-After successfully classifying everything we've done, we reached an accuracy of almost total reliability. confusion matrix in Figure 5: only 2% of the images have images that are normally (non-false positive) classified, and only 1 out of 200 Covid-19 images have images (false positive).

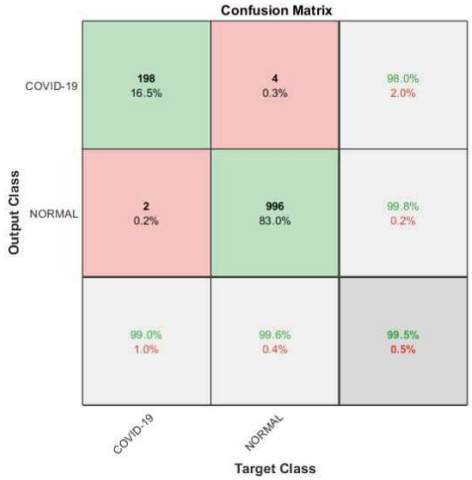


Figure. 5. Confusion Matrix of Covid-19 and Normal (Non-Covid-19)Images

False positives and true positives are critical to classifications in evaluating performance. This specification uses a Receiver Operating Characteristic (ROC) curve in evaluating performance, just like the one above. It is an area under the ROC curve where the addition of one positive point results in the area being incremented and the subtraction of one negative results in the decrease of the area Figure 6 shows the classification's Receiver Operating Characteristics (ROC) curve.

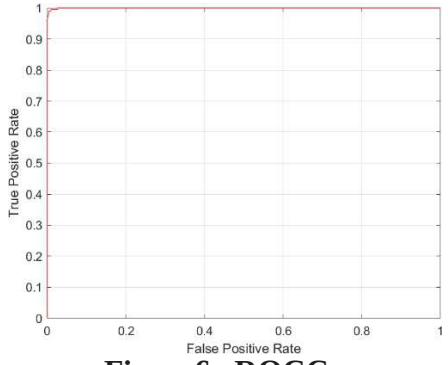


Figure6. ROCCurve

IV.CONCLUSION AND DISCUSSION

In order to minimise risk of infection and transmission, early diagnosis is important for both the patient and the doctor. A number of images of the chest were retrieved from both the Covid patients and non-Covid patients. Transfer learning is used to label these images with ResNet-50. In the 99.5% classification accuracy category, it's quite practical. as well, although the results are encouraging with regards to using computers in pathology Inventiveness may also be applied to situations where the options are few (RT-PCR test,doctor, radiologist).For future research, successful artificial intelligence (AI) models will become deeper. It also handles larger data sets.

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Drug Repurposing: A Study Of Drug Target Indication (DTI) Relationship With Machine Learning

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Abstract:-Today We have huge amount of data in the field of biological field, and we have also well-formed multiple machine learning algorithms, by this we can speed up the drug development process. This process may increase, or speed up, drug discovery and drug development process. It gives d help in planning to preclinical phase and also better understanding about drug target indication ane can take help in future. This automation of the drug production process may be the vital to solving the recent concern of low profitability rate in pharmaceutical companies. In this study, our main aim to find new interaction for existing drugs in order to minimize the expense and time of drug development. There are three ways to deal with look at drug repurposing: disease driven method, target driven method, and drug driven method. Disease driven method recognize comfortable associations between an old and another sign. A target driven philosophy interfaces a known objective and towards its set up drug to another sign and last drug driven methodology interfaces a known drug to another target and its related sign.

Keywords:-Drug discovery, Drug repurposing, Machine learning algorithm, Drug Target Indication

1. Introduction

An incredible assortment of test information, at a genomic-level and biochemical is accessible to promptly use for drug improvement. Summing up the tremendous measure of organic information close by into significant models, to get a handle on the full system of illnesses, appears to be increasingly hard. Nonetheless, frameworks science and AI approaches are persistently improved to speed up the way to proficient medication advancement. We will zero in on three critical related and intermixed questions that can be dependent upon robotization: discovery of drug, testing of drug, and repurposing of drug. Initially, this audit momentarily harps on the current setting in drug improvement afterward, I will audit nonexclusive AI calculations, and all the more explicitly, we will zero in on sequential learning calculations and recommender frameworks. These calculations have additionally demonstrated them helpful in other exploration fields, and are dynamic biomedical fields of innovative work.

1.1.Drug development Process

1.1.1. Present Condition in drug development:-This process takes long time for developing and discovering drug. To guarantee both the patient's security or safety and the efficacy of medications, prospective drugs must go through a lengthy process. Drug development can be defined into five stages.

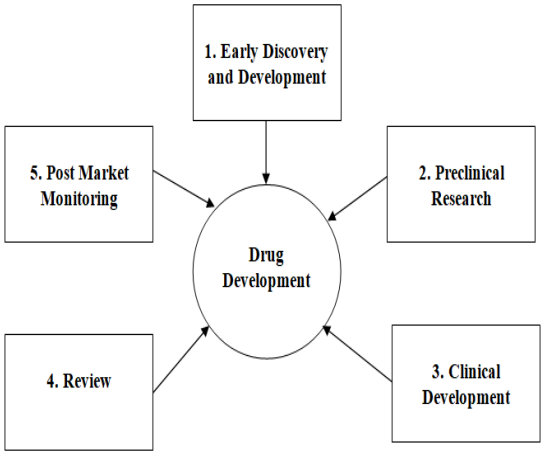

Fig 1: Five Stages for Drug Development process

Stage I; Drug discovery mean how can we discovered drug for new medicines.It assay basic research/drug discovery and development, that main focus to find the lead compound for the drug developing and then we can start the process of drug developing.

Stage II; after getting lead compound drug development start with preclinical research to check efficiency and safety of drug. In this phase researchers identify potential benefit, best dosage, side effect, effectiveness of drug by comparing the same type of drug and check the interaction with other drug. Pre-clinical process test on non -human to check efficiency and moments of drug in the body. Researcher can conduct this process in vitro and in vivo with non restricted drug dosages.

Stage III;once the preclinical process is done then they start clinical development process to study about expected cost, design and implementation related issue.

Stage IV; after completing of previous step, it go for FDA review. FDA reviews the process andcan approve or does not approve.

Stage V; after the review process monitor the drug marketing in this phase health workers, consumer and manufactures can report the problem with approved drug. See Fig. 1 that characterizes the entire improvement life cycle. This cycle requires at any rate 5 years to 15 years to be finished. The base measure of time needed to front of pre-clinical and clinical tests that is an ideal chance to arrangement, to select and pick individuals, to evaluate the outcomes. Each performs on genuine lab environment. Enhancement in clinical practice time has always been expanding. For affirmed drug ranging year 2005 to 2006, the normal measure of time for clinical improvement time was 6.4 years, though it consistently expanded up to 9.1 years for the year 2008 to 2012 medication compounds. That consistently characterizes an issue in evaluating drug results and advantages. On the other hand, the inordinate disappointment pace of medication advancement pipelines, it is consistently a basic issue for the last phase of medication improvement. In clinical process conducted of stage II and stage III ranging year 1998 to year 2008 have increased failure rate 54%. The main reasons for failure were a lack of effectiveness (57 percent of drug candidates failed) and safety concerns (17 percent).That builds the danger of death or of significant results, which were the main explanation of disappointment in stage II and

stage III in the time of 2012, and in the year 2019. For drug advancement measure beginning in year from 2007 to year 2009, the hole in assessed achievement rates in 2012 was especially inclination between stage II and stage III. This implies that stage II, which is near drug execution appraisal, is especially discriminative: just 14% of the medication up-and-comers that arrived at stage II, when contrasted with 64% of the medication pipelines arriving at stage III, were at last showcased [36].This can in any case be noticed for drug pipelines beginning in year 2015 to 2017. 25% of the medication contenders that showed up at second stage, appeared differently in relation to 62% of the medication pipelines showing up at third stage, were supported. At that point, full scale advanced expected cost of medication headway was evaluated at very high rate for supported medications in previous years, according to public drug store projects data set [32].

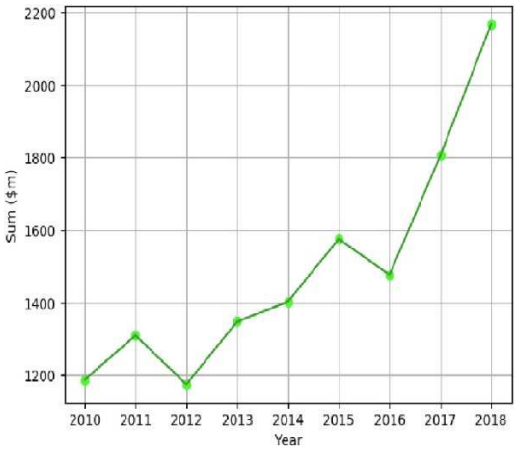

Fig 2: Average development cost chart of twelve major pharmaceutical companies from the year 2010 to year 2018 in millions of dollar. According to a recent study led by a group of twelve large pharmaceutical laboratories, total development costs per approved drug increased steadily ranging year 2016 to 2018 from $1,477 to $2,168 million and nearly doubled in 8 years ranging year to 2010 to 2018. (Seein Fig. 2)[31].

1.2. Succeeding of Drug Developing Process:-This setting has without a doubt changed the drug business in the range of ten years. Indeed, even the greatest drug organizations experience profitability issues, as far as number of endorsed atoms with respect to the quantity of medication applicants. Albeit a couple of political endeavors have been made to advance vagrant sickness research, the present circumstance has driven the drug business to zero in on the most beneficial illnesses. Somewhere in the range of 2017-18, the amount of dynamic medicine process for sickness therapy has increased about 7%, while the amount of threatening to infective medication has dropped about 9%. The most thought about ailments in recent years, to the extent number of dynamic medicine development process, are malignant growth in cancer, diabetes, and many more diseases. [32].

1.3.AI(Machine Learning) to automate Drug Development:-To re-contextualize research in drug advancement, we recommend perusing the initial piece of the accompanying research. Despite the fact that a completely mechanized medication improvement pipeline appears to be far off until further notice, the consolidated endeavors from science, medication, bioinformatics, software engineering, and math networks have all been used to improve various aspects of the medication development pathway, like drug disclosure through greater throughput of drug using genomic data analysis, genome-wide connection considers to reveal huge new medication

targets, and extending use of regular estimations from simulated intelligence. The usage of these procedures looks good in a setting where a gigantic sum and variety of curate the data is accessible about drugs and their helpful signs in the ailment segment targets, Protein based structure analysis, and quality regulatory coordinated efforts. Computer based intelligence recommender frameworks and reformist design in Software engineering, AI (ML) is a subfield of man-made knowledge rationale. Any computing approach, the observation from past exercises or choices, or past discernments, are utilized to upgrade expectations or future elements is alluded to as a ML computation.ML strategies are currently incredibly main stream in drug improvement as they permit robotization of profoundly dimensional, uproarious natural information examination.

2. Drug target interaction in repurposing of Drug-

A portrayal of medication target sign that considers the age of novel sane repurposing theories following the medication driven technique Identification of restricting in an exploratory setting Interactions can be troublesome and exorbitant. Computational approaches can for the most part be separated into structure and target driven approach, and based methodologies on AI. Structure and Ligand-based strategies anticipate the limiting fondness of structure by contrasting the up-and-comer ligand and mixtures that are restorative protein target is recognized to be volatile. Molecule knowledge based that are responsible for keeping the biological system together and dependent on the quantity of ligands that are considered to be dynamic in opposition to the target [9]. Target driven philosophies like docking and restricting usability are incredible tools for identifying new repurposing situations. [7]. AI approaches foresee novel medication target matches by distinguishing similitude among the two mixtures and targets. These methodologies are for the most part characterized into include vector-based AI what's more, likeness depends on AI. Comparability machine learning depends technologies can be additionally gathered into three classes: Portion depends methodologies, network factorization-based methodologies, what's more, network-based methodologies. A recommender framework extensively assigns a calculation which targets anticipating rating of a given client which tests a given item. A huge piece of the writing about recommender frameworks is inspired by business purposes.Different thoughts driving for the Drug repurposing process, the associations among drugs, targets and signs are tended to for the assorted prescription purposing thoughts. According to the receptor speculation, the association of a little atom drug with at any rate one targets has a couple of regular effects, which can be critical for a strong sign or may pass on undesired results. In jumble driven medication repurposing, a remedy's application is connected from the fundamental sign to a positively related one other sign. In target-driven solution repositioning, the undeniable proof of another sign is related with a grounded accommodating impartial and in drug-driven medication repurposing, as of late perceived medication target joins the medication to another sign.

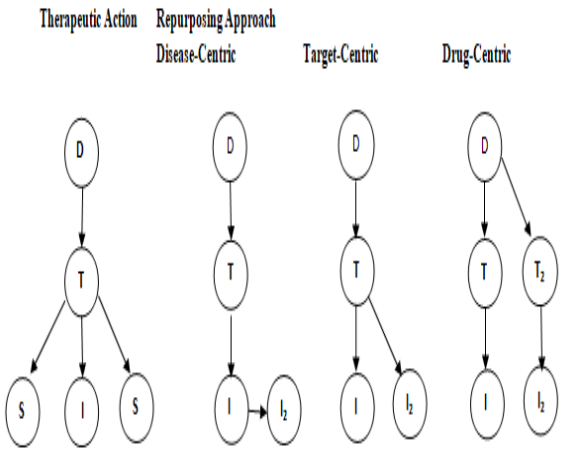

Fig 3: Drug Target Indications for Drug Repurposing

D-drug, T-target, I-sign, S-side affect

3. Some supportive idea of AI applied to drug evolution

3.1. Discovery of Drug:-Medication disclosure is typically viewed as primary phase for a medication improvement process, and advance research that targets revealing medication up-and-comers or quality causative or goals components, for a defined illness or a defined substance compound. An assortment of regulated gaining information strategies (for example, support Vector Machines(SVM) and Profound gaining information, elapse techniques and solo learning strategies applied to biomedical issues have been altogether explored somewhat recently, with a developing revenue in AI.An additional consideration for AI techniques in relation to medicate disclosure Applications may handle intriguing issues with regards to tranquilize disclosure: for instance, drug up-and-comer ID by means of atom mooring, to anticipate and preselect fascinating medication target communications for additional exploration and protein designing, that is, all over again sub-atomic plan of proteins with explicit expected restricting or theme capacities.

3.2 Testing of Drug:-When one or a few medication applicants are chosen, preclinical (Stage 0) and clinical turn of events from Stages I to stage III initiate. Medication category, identified with body to handlewith competitor atom, ought to be surveyed in beginning stages: retention, circulation, digestion and discharge, alongside the harmfulness levels[7].

3.3. Repurposing of Drug Process:-The challenges of developing new subatomic components and testing them at every stage of the clinical process have sparked interest in a more productive and efficient procedure known as drug repurposing or drug repositioning. These methodologies targets concentrating effectively accessible medications and synthetic mixtures to discover them new remedial signs.

3.4This system is helpful when repurposed drugs have all around archived security profiles that is, results and medicines are discovered. The problem of drug repurposing has been addressed using a variety of approaches. Some, for example, rely on pre-programmed handling of Electronic Health Records. To distinguish connections between medication atoms and quality or

protein focuses in writing, researchers used clinical preliminary information and text mining methods.

Advantage and Disadvantage of Drug Repurposing:-From the outset, illness driven repositioning may show up quicker furthermore, more direct than target-and medication driven repositioning. An illness driven repositioning theory depends on an immediate association between the medication and its sign, along these lines it supposedly maintaining a strategic distance from a profound comprehension of the physicochemical supports among medication and helpful targets. I analyzed the aggregate of the repurposed little molecule sedates that are dynamic against a protein target and present in the Repurposed medication Data repository that find on (http://www.drugrepurposingportal.com/repurposed drug-database.php). I played out a gathering of repurposed sedates according to the principles decided in the "Methods" territory. I decided the quantity of repositioning cases that could be relegated to the medicine driven strategy**.**Utilizing this methodology, it ought to be noticed that other portrayal models might be utilized to reveal insight into various qualities, resulting in unique findings from a similar data set. It is likewise imperative to determine that the data set doesn't contain any fleeting data on the repositioning draws near. The experimental result can be summarized as by the chart below [32]-

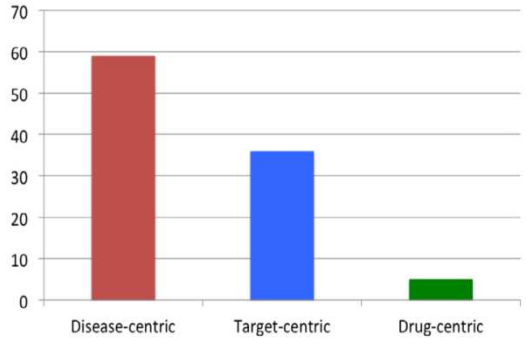

Fig 4 Drug Classification

Various datasets may be applicable regarding drug advancement and medication repurposing questions.As per our order, the bar diagram portrays the level of various sorts of repositioning draws near. The greater part of the cases examined (59%) were delegated infection driven. 33% of the Medications (36%) were allotted to target-driven repurposing cases. Just a little level of cases (6%) was named drug-driven, inferring repurposing.

4. Scope and Conclusion

Most rational drug repurposing strategies include the prediction of drug-target interactions. Several in the past, accuracy was achieved through the use of biochemical, physical, and mathematical methods. In this survey, I analyzed various successful drug- target indications. This observation has piqued the interest of many pharmaceutical companies and Machine learning and robotic technology is being utilized in labs to accelerate drug improvement and offer observational information for preliminary outcomes. Regardless of whether these endeavors just outcome in a humble decline in the pace of medication disappointment during clinical turn of events, this would be a cost-effective and scientifically useful improvement for medication development. Other face of drug repurposing, I need data accessibility and qualities

are key elements for the accomplishment of ML strategies. There are many online freely, can be facilitated independently to sedate improvement development process. The component assurance step, which picks and changes unrefined data to make important model data sources, has been shown to be of crucial importance to appreciate, and to get huge results from ML applications.In light of new difficult problems like designing algorithms that produce directed suggestions for accuracy medication and demonstrating drug responses as yields of a lot bigger framework, current AI techniques might be a valuable system to additionally improve drug advancement. That is used for much future work in the field medication.

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Research (Published/Done) by Wikimedia

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Abstract:-This paper aims to identify the research contribution of various Wikimedia projects. A content analysis of Wikimedia publishing research namely WikiJournal and Wikimania was conducted. Findings indicate that major features of articles that are published after proper peer review, passed through the plagiarism check and supported by proper attribution to the previous research. It is found that the reviewers and the members of the editorial board are composed of academicians, PhD holders from eminent universities across the world. This study tried to fill gaps in awareness of new development in research activities carried out by WikiJournal, Wikimania and Wikimedia Incubator as a laboratory of Wikimedia, where new Wikimedia projects are incubated. On these projects Wikimedia ensures research on various domains as well as research on Wiki Technology and Wikimedia projects also.

Keywords:-Open Access Movement, Wikimedia Foundation, Free Licensing, Creative Commons, Public Domain, Research, Wiki Journal, Wiki mania

1. Introduction:-Research is a systematic search for knowledge that adds/ modifies the existing theory or may disprove the existing theory. In short it is a journey from unknown to known. Clifford Woody explains the flow of research that goes “defining and redefining problems, formulating hypotheses or suggested solutions; collecting, organising and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.” As Kothari adds, Research is “search for knowledge through objective and systematic methods of finding solutions to a problem” including the methods “concerning generalisation and the formulation of a theory”. Thesis, dissertation, journal articles, conference papers are the primary sources of information that publishes the original research. Formerly, the prime purpose of Wikimedia (it’s first project ‘Wikipedia’, insisted to) was only to make the sum of all knowledge open for all. Followed by Wikipedia there are numerous projects that have been started by Wikimedia. It is strictly restricted to share the information or articles that adheres to the fundamental principles of Wikipedia. The principles of wikipedia are called as five pillars. These include, 1. It is an encyclopedia, 2. Neutral Point of View, 3. free to use, edit and distribute, 4. Respect each other, 5. It does not have firm rules. Core content policies of Wikipedia are: 1. Neutral Point of View, 2. No original Research and 3. Verifiability. So, these core policies restrict the publication of original research, as far as Wikipedia is concerned. To address this limitation and fulfill the need to publish original research that too, without any publication charges. One more pitfall addressed by many researchers about the anonymity of wikipedia. No credit is given for the contribution. WikiJournals, Wikimania Conferences give an opportunity to get recognition for contribution. The Wikipedia limitation of 'no credit' is surpassed in the project WikiJournals and Wikimania.

The projects availed by Wikimedia Foundation, support the researchers to perform research activities.

2. Research Activities in Wikimedia Projects:-For carrying out research activities, Wikimedia has introduced WikiJournal (as a sub-project of Wikiversity) and Wikimania, which availed a platform to publish original papers in journals and conference proceedings respectively. As title suggests, Wikimedia contributes at both the levels, the research activity promoted by Wikimedia by publishing through its projects as well conducting research. The term 'Wikimedia' has dual meanings, these are, the Wikimedia Foundation and Wikimedia Contributors also. Wikimedia is made of and by its contributors. Another project named Wikimedia Incubator, which is a Wikimedia Laboratory for incubating new Wiki projects, language editions of various Wikimedia Projects. The first journal, WikiJournal of Medicine, was started in 2014. It is observed that Wikimedia policies for the WikiJournal, Wikimania and Wikimedia incubator are practicing a kind of research, exploration by providing a platform for contributing research in various areas including the development of wikis in general and Wikimedia in particular. As far as the policies and principles of the projects are concerned, majority Wikimedia projects restrict the contributors from adding original content in the projects.

3. Purpose of the Study:-Most of the researchers publish their work with various commercial journals. They pay publication charges for the same. It is necessary to create awareness about the presence of an open publishing environment like WikiJournal. The Wiki Technology can better be explored if joined the Wikimedia Conferences that are known as Wikimania. Wiki Technology is the domain which the students of computer technology should explore. For exploring Wiki Technology Wikimedia Incubator is another project that can be experimented. Thus the purpose of this study is to create awareness among the academicians and motivate more participation in this open publication; to examine the terms of creative common licensing and to find out the research productivity of WikiJournal. The attention to the Wikimania and WikiJournal project in the research community is not yet received. Google scholar, Academic Social Networking Sites, online databases have been referred for conducting the review of past research on WikiJournal, Wikimania and Wikimedia Incubator. The findings of the study hopes to present a better understanding of the current trends, publication charge, creative common license for publishing articles in the WikiJournal. in Wikimedia.

4. Research Questions

How is Wikimedia promoting research?

What are the projects or platforms availed for publishing research?

How research is reviewed?

How research quality is ensured?

Who are the contributors?

What are the policies, instructions and norms for authors?

5. Objectives

The objectives of the study are:

1. To review the Wikimedia projects promoting research.
2. To observe the features of the chosen projects
3. To create awareness about the open research under Creative Commons Licensing

6. Scope:- There are numerous projects on Wikimedia. This study covers the projects promoting and producing research, viz. WikiJournal (a sub project of Wikiversity), Wikimania and Wikimedia Incubator which are hosted online by Wikimedia. For the same, the projects namely WikiJournal (a sub project of Wikiversity), Wikimania and Wikimedia Incubator are chosen. These projects are studied in the context of contribution to research in their scope.

The study has been limited in the following respect:

- The research findings of the study have been based on WikiJournal (a sub project of Wikiversity), Wikimania (a conference) and Wikimedia Incubator only.
- A potential for researcher bias exists since coding is done by one coder only.

7. Methodology:-In the present study, the three products of the Wikimedia project i.e WikiJournal , Wikimania and Wikimedia Incubator have been analyzed with the help of content analysis methodology. Neuendorf (2002), defined, "content analysis is a summarizing, quantitative analysis of messages that relies on the scientific method (including attention to objectivity, intersubjectivity, a priori design, reliability, validity, generalizability, replicability, and hypotheses testing) and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented." For conducting the study, the content of each aspect is studied to know the features and overall details of the projects. The features, policies, details of the online publications are analysed in the study.

8. Data Analysis:-The qualitative data analysis of Wikimedia Projects is as under:

8.1 WikiJournals: The WikiJournal is the sub project of Wikiversity. This project is funded by Wikimedia Foundation. As on date 3 journals are run under this project. Many renowned authors across the universities have contributed to the journals.

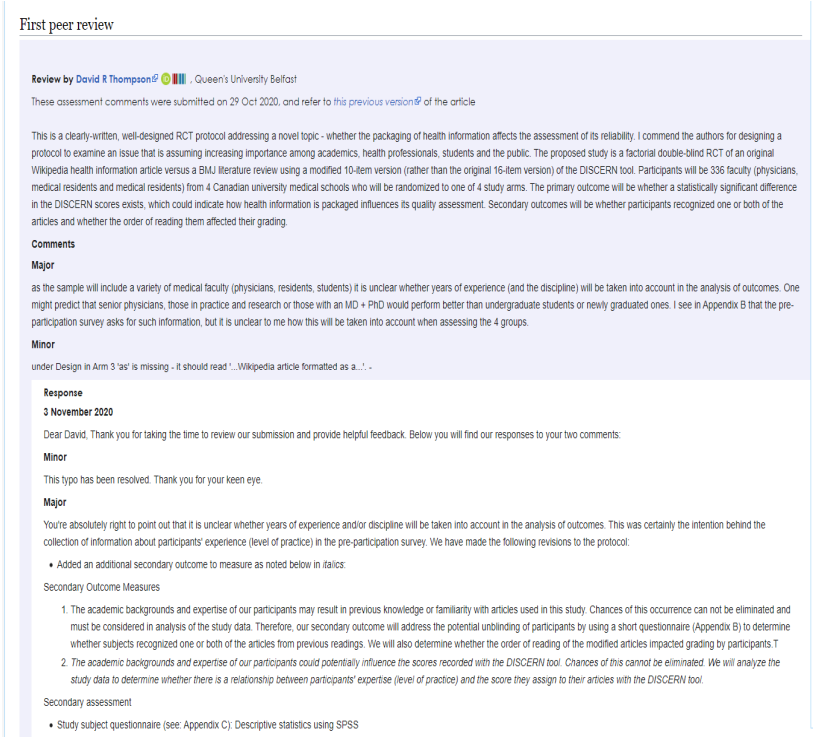
The journals published through the project are:

1. WikiJournal of Medicine (https://en.wikiversity.org/wiki/WikiJournal_of_Medicine)
2. WikiJournal of Science (https://en.wikiversity.org/wiki/WikiJournal_of_Science)
3. WikiJournal of Humanities (https://en.wikiversity.org/wiki/WikiJournal_of_Humanities)

8.1.1 Features of these Journals are:

a. Open access: All the above Journals are openly accessible. Public domain licence is marked for each article. The authors need to agree to the Creative Commons Attribution License. (Fig 2 Licence section and Fig 4)
b. Free to publish: There are no publication charges for the authors who wish to publish their research work in the WikiJournals.
c. Public reviewed: The journals are public reviewed and at least two reviews are compulsory for meeting the eligibility of an article. Public review, doesn't mean the articles are reviewed by non expert persons. There is a group of editors, who look after the quality of the content

of the articles. It is observed that the reviewers of the articles are academicians from Universities and educational institutions.



First peer review

Review by David R Thompson, Queen's University Belfast

These assessment comments were submitted on 29 Oct 2020, and refer to this previous version of the article

This is a clearly-written, well-designed RCT protocol addressing a novel topic - whether the packaging of health information affects the assessment of its reliability. I commend the authors for designing a protocol to examine an issue that is assuming increasing importance among academics, health professionals, students and the public. The proposed study is a factorial double-blind RCT of an original Wikipedia health information article versus a BMJ literature review using a modified 10-item version (rather than the original 16-item version) of the DISCERN tool. Participants will be 336 faculty (physicians, medical residents and medical residents) from 4 Canadian university medical schools who will be randomized to one of 4 study arms. The primary outcome will be whether a statistically significant difference in the DISCERN scores exists, which could indicate how health information is packaged influences its quality assessment. Secondary outcomes will be whether participants recognized one or both of the articles and whether the order of reading them affected their grading.

Comments

Major

as the sample will include a variety of medical faculty (physicians, residents, students) it is unclear whether years of experience (and the discipline) will be taken into account in the analysis of outcomes. One might predict that senior physicians, those in practice and research or those with an MD + PhD would perform better than undergraduate students or newly graduated ones. I see in Appendix B that the pre-participation survey asks for such information, but it is unclear to me how this will be taken into account when assessing the 4 groups.

Minor

under Design in Arm 3 'as' is missing - it should read '...Wikipedia article formatted as a...' -

Response

3 November 2020

Dear David, Thank you for taking the time to review our submission and provide helpful feedback. Below you will find our responses to your two comments:

Minor

This typo has been resolved. Thank you for your keen eye.

Major

You're absolutely right to point out that it is unclear whether years of experience and/or discipline will be taken into account in the analysis of outcomes. This was certainly the intention behind the collection of information about participants' experience (level of practice) in the pre-participation survey. We have made the following revisions to the protocol:

- Added an additional secondary outcome to measure as noted below in *italics*:

Secondary Outcome Measures

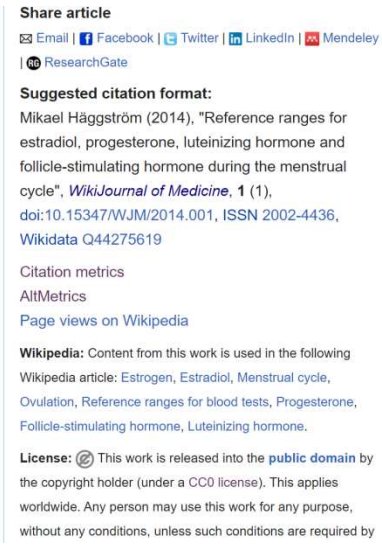
1. The academic backgrounds and expertise of our participants may result in previous knowledge or familiarity with articles used in this study. Chances of this occurrence can not be eliminated and must be considered in analysis of the study data. Therefore, our secondary outcome will address the potential unblinding of participants by using a short questionnaire (Appendix B) to determine whether subjects recognized one or both of the articles from previous readings. We will also determine whether the order of reading of the modified articles impacted grading by participants.T
2. *The academic backgrounds and expertise of our participants could potentially influence the scores recorded with the DISCERN tool. Chances of this cannot be eliminated. We will analyze the study data to determine whether there is a relationship between participants' expertise (level of practice) and the score they assign to their articles with the DISCERN tool.*

Secondary assessment

- Study subject questionnaire (see: Appendix C): Descriptive statistics using SPSS

Fig. 1 Sample Review Comments

d. Wikipedia Integrated: The content from the articles is integrated in the relevant Wikipedia article.



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Suggested citation format:

Mikael Häggström (2014), "Reference ranges for estradiol, progesterone, luteinizing hormone and follicle-stimulating hormone during the menstrual cycle", *WikiJournal of Medicine*, **1** (1), doi:10.15347/WJM/2014.001, ISSN 2002-4436, Wikidata Q44275619

Citation metrics
AltMetrics
Page views on Wikipedia

Wikipedia: Content from this work is used in the following Wikipedia article: Estrogen, Estradiol, Menstrual cycle, Ovulation, Reference ranges for blood tests, Progesterone, Follicle-stimulating hormone, Luteinizing hormone.

License: This work is released into the **public domain** by the copyright holder (under a CC0 license). This applies worldwide. Any person may use this work for any purpose, without any conditions, unless such conditions are required by

Fig. 2 Article Details in Right Sidebar

In figure 2 it is clear that, the content/results from a paper is used in 8 different relevant Wikipedia Articles, which is mentioned in the Section of WikiJournal. The links to the articles are also given.

e. Citation Metrics: As shown in fig 2, one can navigate to the citation metrics of a particular article. The Altmetrics, Dimension, and page views on Wikipedia to the pages where the content of the Journal Article is used (as mentioned in d) are the navigations available.
f. ISSN: Each journal has ISSN. Journals are registered with ISSN directory.
g. Plagiarism Check: The plagiarism check tool of Wikimedia Foundation first of all checks the plagiarised content. Each article gets a peer review coordinator from amongst the editorial board, who carries out this task. Fig. 3 as an exemplar of the process that passes the article after the plagiarism check.

Fig. 3 Plagiarism Check Tool for passing the Article

h. Permanent Identifier to each article (DOI): An article is registered with DOI site and gets the DOI number for the same. This way it is associated with the DOI repository.
i. ORCID ID: Link to the ORCID profile of contributors, editors and reviewers is provided after each name.
j. Association with Sister Projects:-The articles are Wikipedia integrated. Unique ID of Wikidata is assigned to each article.
k. PDF: A PDF file of an article can be downloaded. The pdf file generated would be as shown in the fig. 4

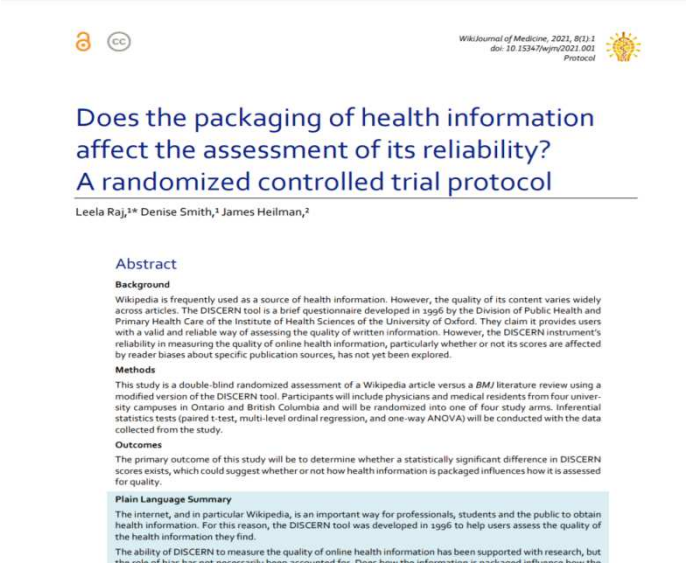

Fig. 4 The PDF view of the Article

l. Indexed in various databases: DOAJ, COPE, Scopus, etc.

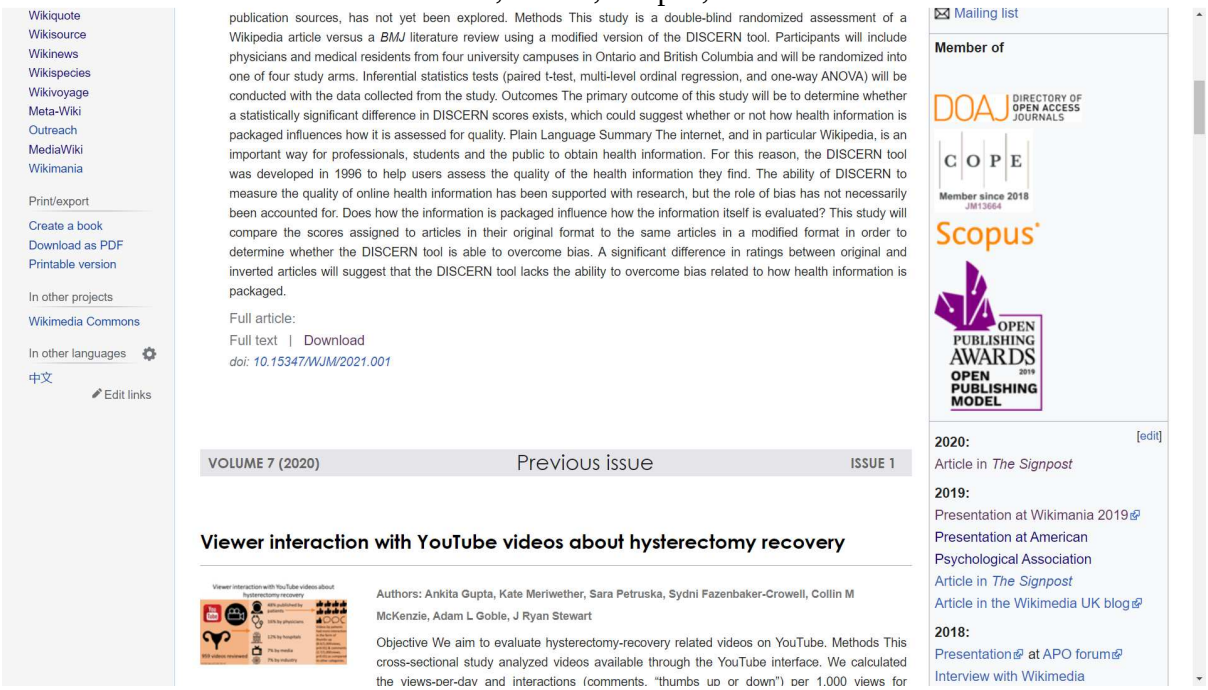

Fig. 5Member of Various Bodies

As shown in above figure, the journals are indexed in DOAJ. It has WorldCat ID also, as it is catalogued in OCLC Catalog.The process to submit a preprint which is initially accessible on WikiJournal preprint. Articles currently on WikiJournal preprint are assumed to be under review. The authors are supposed to fill the submission form along with the manuscript. It is mandatory to have at least two reviews for the journal.

8.1.2 The details of the journals are as under:-All the four journals are funded by Wikimedia Foundation and published by WikiJournal User Group. Frequency of these online journals is continuous and not specified or restricted to a particular interval of time. Editorial boards of all these journals are well composed of the scholars across various educational bodies. Links to the ORCID profile of editors are available.

1. WikiJournal of Medicine

The subject coverage of the journal is limited to medicine and biomedicine. ISSN of the Journal is 2002-4436. This journal started from March 2014. A year is treated as a volume of the journal. Till date 2021 there are 8 volumes present on the site. The 8th volume is at an ongoing stage. First volume contains only 12 articles. In all there are 41 articles published so far.

Fig. 6 WikiJournal of Medicine Homepage

2. WikiJournal of Science

The subject coverage of the journal is limited to science, mathematics, Engineering and Technology. ISSN of the Journal is 2470-6345. This journal is started from December 2017. First volume started in 2018, and produced 13 articles. In all 29 articles are produced through this journal.

3. WikiJournal of Humanities

The subject coverage of the journal is limited to humanities, arts and social sciences. ISSN of the Journal is 2639-5347. This journal also started from December 2017. There are a total of 7 research articles published so far from this journal.The user-friendly interface, clearly mentioned guidelines for authors are qualities of the journals. The interface as shown in Fig.1, is similar for all the journals. Sidebar in the right side shows the bibliographic details of the journal, links to social profiles and membership of other associated bodies. In spite of having the continuous frequency of the journals the research produced by the researchers is still less in quantity. At the same time it is notable that all the papers are published after proper peer review, passed through the plagiarism check and supported by proper attribution to the previous research. WikiJournal is recipient of Open Publishing Award 2019 (https://openpublishingawards.org). (See Fig. 5).WikiJournals do not charge publishing costs to authors. The objectives of the projectare to provide free original research; to assure quality with proper review process and to establish link between the Academicians and Wikimedia by availing platform to submit expert contributions in the traditional academic publishing format.

8.1.3 Upcoming Journal under this Project: WikiJournal of PPB

The subject coverage of the journal would be limited to Psychology, Psychiatry and Behavioral Sciences. As declared on the site, it will start in the year 2021. The link to the journal is https://en.wikiversity.org/wiki/WikiJournal_of_PPB

8.2 Wikimania: Wikimania is the project through which international conferences are organised by Wikimedia. The first Wikimania conference was held in 2005 at Frankfurt, Germany. These conferences basically focus on the research on Wiki Technology and specifically development of

the existing Wikimedia Projects. Separate sites for each annual conference of Wikimania were designed. So far 15 conferences were held at various venues across the world upto the year 2019 (as shown in Table 1). Covid-19 situation has affected the organization of the Wikimania conference for the year 2020, which is postponed to 2021. The upcoming conference of Wikimania 2021 will be based on the 20 years of Wikipedia.

The discussions, deliberations and research is conducted through the wikimania conferences to develop the projects of Wikimedia and improve the Wiki Technology. Conferences are hosted by universities, academic bodies, professional and government bodies also.

Fig. 7 Wikimania Homepage

The site (Fig. 7) of Wikimania (https://wikimania.wikimedia.org/wiki/Wikimania) gives details about the upcoming conference details, its theme, venue, host, program schedule, the scholarship details, etc. Wikimedia offers scholarships to the participants to attend the conference after submitting a proposal. Lectures, papers, discussions, recorded videos, slides are archived in sister projects of Wikimedia. The photos and slides are archived in the Wikimedia Commons. Wikimania has an association with Internet Archive, as some of the recorded videos of keynote addresses and sessions are stored on the site. It can be viewed that there are separate logos and sites for each wikimania conference which were arranged at various venues and were hosted by universities and academic bodies. The topics in the wikimania conferences basically cover Wiki Technology, Wikimedia, Free Culture, Wikipedia, Wikipedians, patterns of contributions, etc. Program of the conferences generally cover the events like panel discussions, workshops, discussion sessions and poster presentations. Besides that, editathons and nearby tours are also arranged parallelly.

Table: 1. Wikimania Conferences

Logo	Conference	Date	Venue
WIKIMANIA 2005	Wikimania 2005	August 4–8	Haus der Jugend, Frankfurt, Germany
WIKIMANIA 2006	Wikimania 2006	August 4–6	Harvard Law School, Cambridge, Massachusetts, United States

	Wikimania 2007	August 3–5	Taipei, Taiwan
	Wikimania 2008	July 17–19	Bibliotheca Alexandrina (a library), Alexandria, Egypt
	Wikimania 2009	August 26–28	Buenos Aires, Argentina
	Wikimania 2010	July 9–11	Polish Bartic Philharmonic, Gdańsk, Poland
	Wikimania 2011	August 4–7	Haifa, Israel
	Wikimania 2012	July 12–15	The George Washington University, Washington, D.C., United States
	Wikimania 2013	August 7–11	The Hong Kong Polytechnic University, Hong Kong, China
	Wikimania 2014	August 6–10	Barbican Center (a place for performing arts), London, United Kingdom
	Wikimania 2015	July 15–19	Hotel Hilton Mexico City, Mexico
	Wikimania 2016	June 21–28	Esino Lario, Italy
	Wikimania 2017	August 9–13	Montreal, Quebec, Canada
	Wikimania 2018	July 18–22	Cape Town, South Africa
	Wikimania 2019	August 14–18	Stockholm University, Sweden

8.3. Research Done by Wikimedia Contributors:-In 2010 the new project Wikimedia Incubator was introduced for the contributors wishing to start a new wiki. This project facilitates the contributors to experiment on wiki prior to publishing the final Wiki project under the Wikimedia projects. Writing a Wiki is indeed a kind of research. Wikimedia contributors are proposing new wikis and publishing primarily on Wikimedia Incubator.

8.3.1 Wikimedia Incubator as a Wiki Laboratory:-Wikimedia Incubator is the platform where contributors can start a new Wiki until it is officially published as a Wikimedia Project. The laboratory for starting a new Wiki.

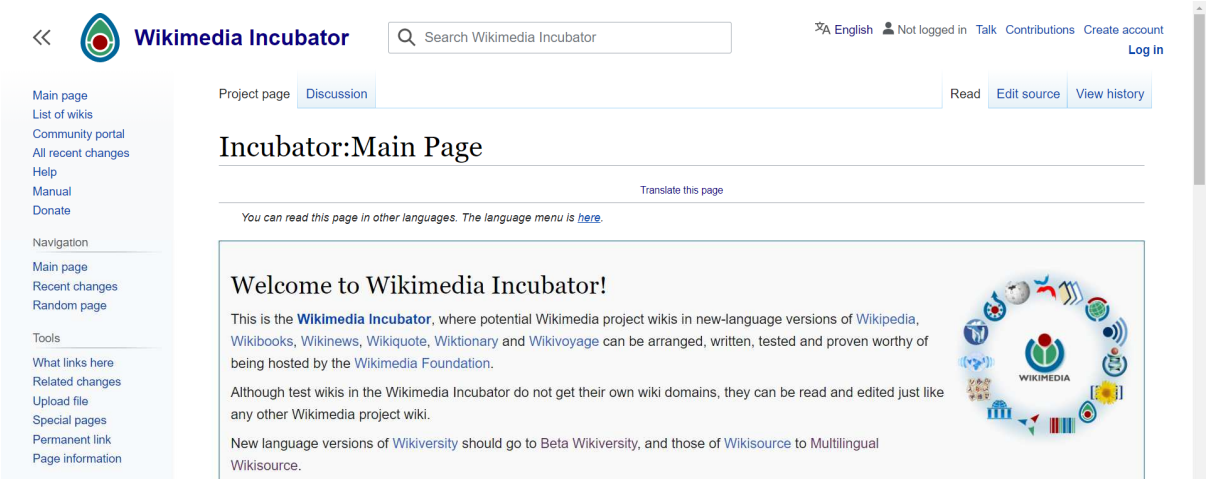

Fig. 8 Wikimedia Incubator Homepage

The project Wikimedia Incubator is started as a part of the mission of Wikimedia Vision that is making the knowledge open for all irrespective of the language, region. It is an attempt to launch the project editions in all the languages that are on this planet. This project gives power to the users to add a language edition of Wikipedia, Wiktionary, Wikibooks, Wikinews, Wikiquote and Wikivoyage. For starting language editions of Wikiversity and Wikisource there are the platforms respectively Beta Wikiversity and Multilingual Wikisource. These platforms are indeed a kind of laboratory, where one can experiment on Wiki Technology.

9. Findings:-Wikimedia is promoting research through the conferences under the platform of Wikimania. WikiJournal is a platform for researchers, academicians to publish their original papers and review articles. Wikimedia incubator is a Wiki laboratory, which is a virtue for experimenting on Wiki Technology. The research published on Wiki Journals is public reviewed under the handling editor as per the specialization. It is found that the reviewer and the editorial board is composed of academicians, PhD holders from eminent universities across the world. Only after reviewing the papers, which fulfil all the criteria as per the given guidelines, they are passed for publishing in the journals. Wikimedia Foundation Plagiarism check is one of the important phases of passing an article. The researchers, academicians from eminent institutions from across the world contribute research in these platforms. It is mandatory to adhere to the policies, instructions and norms for publishing the research on WikiJournals. The review comments can also be viewed by the users. The participants of the Wikimania conferences are also seen from the universities and various academic institutions across the globe. Majority discussions in the conferences are held on the project Wikipedia the first Wiki of the Wikimedia

Foundation, however, other projects like Wiktionary, Wikispecies, Wikiversity, Wikivoyage, etc are not discussed specifically.

10. Recommendations and Suggestions:-It is recommended to academic institutions to participate in the research projects as well as other projects. More universities across the world should promote research activities, that includes publishing in WikiJournals, reviewing the articles of WikiJournals. Research on Wiki Technology should be focused in the universities, colleges and schools. Wiki technology should be studied in terms of peer learning, collaborative content creation.

The suggestion are as under:

1. The researchers in library and information science are suggested to evaluate and analyse the WikiJournals, conduct their Bibliometric study and content analysis.
2. It is suggested to the students and researchers of Medical Sciences, Humanities, Science, Technology, Mathematics and Engineering to participate in the research, browse WikiJournal, etc. The graduate students should be guided for publishing their Research and contribute to the Wikimedia educational projects.
3. Students and researchers of Information Science, Computer Science, Information Technology are suggested to study Wiki technology in depth and participate in the Wikimania conferences. The students also experiment in the Wikimedia projects, their sandbox (where draft articles can be prepared) and Wikimedia Incubator.
4. Library professionals and information scientists should promote the open Journals amongst their users to go through the research and to contribute to the research. Since the researchers get recognition for their contribution.
5. The people from various linguistic backgrounds should understand the Wiki Technology and explore Wikimedia Incubator, so as to start respective language editions of various projects, like Wikipedia, Wiktionary, Wikibooks, Wikisource, Wikiquote, Wikiversity etc.

11. Conclusions:-Research aspect, which was earlier oversighted in the projects of Wikimedia, is addressed through the platforms that are created for research in the form of WikiJournals, Wikimania Conferences and Wikimedia Incubator. The three WikiJournals are run which follow and adhere to the norms, policies, ethics of research, however this platform is still not popularized amongst the research community. Though, currently the research produced on WikiJournals is reasonably slow but steady, remarkable recognition has been received by the WikiJournals. As it is associated with DOI, ORCID, many universities, academicians from various universities as editors and contributors. The journals are indexed in OCLC WorldCat and DOAJ also. Based on this, the essence of the journals can be perceived as a quality indicator. New submissions on wiki journals are kept under review and the articles which have been reviewed are published on the journals with their unique Wikidata ID and DOI number. The community involved in research right from contributors of the articles, the editors of the journals and the reviewers of the articles have good academic and research profiles. Wikimedia Foundation has taken another step (besides making the knowledge open for all) through these projects to make the new research open for all. For authors also, it has brought a great opportunity to publish free of charge but by just following the licensing policies of Wikimedia. The Wikimania conferences under the umbrella of Wikimedia, Encourage discussion and research on Wiki Technology. And thereby, Wikimedia Foundation publishes research. The research is done by the Wikimedia community and thus it is eventually a research by Wikimedia.

These projects are supporting research activities and at the same time, the problem of anonymity is also solved. Getting proper recognition for the contribution, encourages the academicians to contribute. Wikimedia Incubator is the platform, where a particular language community is motivated to start their own language edition, which is still to launch. Wikimedia Foundation has taken another step (besides making the knowledge open for all) through these projects to make the new research open for all. For authors also, it has brought a great opportunity to publish free of charge but by just following the licensing policies of Wikimedia. The Wikimania conferences under the umbrella of Wikimedia, encourage discussion and research on Wiki Technology. And thereby, Wikimedia Foundation publishes research. The research is done by the Wikimedia community and thus it is eventually a research by Wikimedia. These projects are supporting research activities and at the same time, the problem of anonymity is also solved. Getting proper recognition for the contribution, encourages the academicians to contribute. Wikimedia Incubator is the platform, where a particular language community is motivated to start their own language edition, which is still to launch.

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Phytochemical Analysis of a Medicinally Important plant *Citrullus colocynthis* cucurbit (Schard.)

Dr.Rakesh kumar jat , Mobin Ali *
Institute of pharmacy shri jagdish parsad jhabarmal tibrewala university chudela

Jhunjhunu Rajasthan

Abstract:-Citrullus colocynthis is an most important remedial plant belong cucurbit and belong to the Cucurbitaceae faimly . The present work was carried out to investigate the preliminary phytochemical analysis of bitter apple to estimate the presence of alkaloids, glycosides, tannins, flavonoids, steroids, phenols using t parts of plant extracts such as leaf, fruit pulp, by using cold maceration technique with methanol, butanol, chloroform, ethanol and hexane solvents.According to our analysis, quinones, saponins, fats and oils were absent in leaf extract. In stem extracts, butanol and methanol are more efficient solvents for alkaloids and glycosides were strongly present in ethanol and methanol solvent extracts whereas tannins resulted very less. In tendril extracts, glycosides were observed efficiently in butanol and methanol solvents. The root extracts revealed the strong presence of steroids in all solvents and tannins were totally absent. The results of fruit peel expressed the presence of glycosides and steroids strongly in methanol and ethanol extracts. However, the presence of tannins was very low in fruit peel extracts. The butane, ethanol, methonal solvent extractions showed the presence of flavonoids and steroids. Glycosides were observed strongly in butanol and methanol solvents in seed extract.

Keywords: Citrullus colocynthis, Phytochemicals, Alkaloids, Steroids, Glycosides, Flavonoids, Medicinal plants.

Introduction:-Plants and their extracts have a long history of use in the treatment of many diseases. Medicinal plants have remedial properties because of secondary metabolites which are an assortment of complex chemical substances of diverse composition.Plant based drugs can be derived from any part of the plant like bark, leaves, flowers, roots, fruits, seeds etc.These secondary metabolites are grouped as alkaloids, glycosides, flavonoids, saponins, tannins, carbohydrates and essential oils. These organic compounds endow with specific physiological action on the human body.In the conventional medicine, plant-based therapies are used for the healing of afflictions such as malaria and pain.[8] Plants have played a significant role as a resource of valuable anti- cancer agents; presently 60% of noteworthy anti-cancer agents are derived from plants.[8]Numerous medicinal plants belonging to Cucurbitaceae family are rich as biological active substances possessing broad choice of ethanomedicinal impotence. The chemical constituents present in Cucurbita ficifolia are fiber, protein, β-carotene, carbohydrates, minerals and fatty acids mixture, tetrahydrothiophene, linoleic acid, calotropoleanly ester, cholesterol and 13 (18)-oleanen-3-ol.Cucurbita maxima contain phenols, steroids, glycosides, flavonoids, carbohydrates and proteins.Gutierrez[15] reported that Cucurbita pepo contain carotene, carbohydrate, minerals, fatty acids, triglyceride fatty, tetrahydrothiophene, linoleic acid, calotropolenly ester cholesterol. The chemical constituents present in Trichosanthes cucumerina are flavonoids, carotenoids, phenolic acids and insoluble dietary fibers.Singh et al[33] reported presence of tannins, terpenoids, alkaloids, saponins, glycosides and phenols in Trichosanthes

cucumerina. Bryonia diocia contains Bryonin and Bryonitin, triterpene glycosides, bryoniosides A-G (1-7), cabenoside D and bryoamaride.Cucurbita andreana contains alkaloid, glycoside, steroid, saponin, tannin, flavonoids, and carbohydrates.Cucumis melo contains alkaloid, glycoside, steroid, saponin, tannin, flavonoids, and carbohydrates.Trichosanthes kirilowii contains a source of terpenoids, vitamins, saponins, protein.Ugbaja et al,reported that Trichosanthes cucumerina is rich in the major active constituents of the drug: triterpenoid saponins viz, cucurbitacins, a series like flavonoids, carotenoids, phenolic acids which make the plant pharmacologically and therapeutically active.Trichosanthes tricuspidata contains cucurbitane, hexanor cucurbitane and octanor cucurbitane glycosides, trichotetrol, cucurbitacin K, 2-O- glucocucurbitacin, the root of plant methyl palmitate, palmitic acid, suberic acid, α-spinasterol 3-obeta- D-glucopyranoside, stigmast-7en-3-beta-ol, bryonolic acid, cucurbitacin B, isocucurbitcin B, 3- epiisocucurbitacin B, dihydrocucurbitacin D, isocucurbitacin D and D glucose.Momordica charantia contains several constituents such as charantin (mixture of sterol glucosides), vaccine (pyrimidine nucleoside), insulin like polypeptides and several phytochemicals such as kuguacins F-S (cucurbitane triterpenoids).Citrullus colocynthis (L.) Schard is a medicinally important cucurbit which is commonly known as bitter apple and bitter cucumber. Different explants of this plant contain glycosides and various cucurbitacins (colocynthin and colocynthetin), cucurbitacins A, B, C, D and E (á-elaterin),[3] cucurbitacins E, I, J, K and L,[28,36] cucurbitacin glycosides.The extracts of plant parts are used as antirheumatic, anti- helminthic, as a remedy for skin infections and controls menstrual disorders. Citrullus colocynthis is a proven antioxidant, antimalarial, hepatoprotective, antispermatogenic and anti-carcinogenic.Tannin-Spitz et al[38] and others studied the effects of cucurbitacin glucosides extracted from Citrullus colocynthis leaves and roots on human breast cancer cell growth. The cucurbitacin glucoside combination (1:1) inhibited growth of ER (+) MCF-7 and ER (-) MDA-MB-231 human breast cancer cell lines.In Citrullus colocynthis, a qualitative phytochemical assessment was performed for the detection of different existence of elemental different composition in the leaf, root, flower, and fruit individually and assessment revealed the presence of alkaloids,carbohydrates and flavonoids in this plant[37,41]reported in Citrullus colocynthis.Presence of steroids, alkaloids, flavonoids, carbohydrates, proteins, glycosides, saponins, amino acids and phenolic compounds was detected in petroleum ether, ethanol and aqueous extract.Phytochemical screening of Citrullus colocynthis revealed the presence of tannins, saponins, alkaloids, flavonoids and glycosides.[24,26] The present phytochemical investigation in Citrullus colocynthis was performed to reveal the existence of different composition of elements like alkaloids, glycosides, flavonoids, phenols, steroids and tannins in leaf, stem, tendril, root, fruit peel, fruit pulp and seeds using various solvents.

Material and Methods:-Preparation of plant extracts: Preliminary phytochemical screening was done by each 5g powder of shade dried leaves, stems, roots, fruit pulp, fruit peel, seeds and tendrils. These powders were extracted using a cold maceration technique with 50 ml of ethanol, chloroform, acetone, butanol and methanol separately. Later the extract was filtered and concentrated using Rota evaporator and subsequently subjected for preliminary screening using following standard procedures for identifying various phytoconstituents.

Test for Alkaloids:-Dragendroff's test: 2 ml of HCl was added to 0.5 ml of pulp extract of plant followed by 1 ml of reagent is added . orange red color precipitate show it indicates the presence of alkaloids.

Mayer's test:- A few drops of the mayer reagent were added to 1 ml of the pulp extract of plant. After adding the reagent pale or cream color precipitate indicate it shows the presence of alkaloids.

Wagner's test:- 10 ml of pulp extract was acidified by adding 1.5% v/v hydrochloric acid and of herbal few drops of Wagner's reagent. After adding the reagent formation of a yellowish-brown precipitate it the alkaloid is persent in sample

Hager's test:- Few drops of Hager's reagent were added to 0.5 ml of pulp extract of plant ,after adding reagent in sample it give yellow colour precipitate it indicated the alakloid are persent in sample

Tannic acid test: Few drops of 10% tannic acid are added in 0.5 ml of pulp extract of plant , after adding tannic acid in sample it gives buff colour precipitate these test give indication alkaloid persent in sample

$FeCl_3$ test: some drops of neutral ferric chloride solution were added in 1 ml of test solution.after adding of reagent A yellow colour precipitate occur it indicates the presence of alkaloids.

Test for Glycosides:

Raymond's test: this test was performed by some drops of dinitrobenzene dissolved in hot methanolic alkali were added to 1 ml of pulp extract of plant . after then violet color it indicate the presence of glycoside in sample

Legal's test: Few drops of pyridine and alkaline sodium nitroprusside solution are added to 1 ml ofpulp extract of plant after then blood red color show it indicate the glycoside is persent in given sample.

Bromine water test: Few drops of bromine water added in 1 ml of sample extract. After then Formation of yellow color precipitation it indicated the glycosides are persent in given sample

Keller Kiliani test: 0.4 ml of glacial acetic acid containing trace amount of ferric chloride was added to the extract followed by 0.5 ml of conc. H_2SO_4 along the walls of the tubes. Formation of blue color in the acetic acid layer indicated the presence of Dixie sugars.

Molisch test: 1 ml of herbal extract was treated with few drops of alcohol α- napthol and 2 ml of conc. H_2SO_4 along the walls of the tubes. Appearance of brown ring at the junction of two liquids indicated the presence of carbohydrates

Conc. H_2SO_4 test: 1ml of conc. H_2SO_4 was added to 1ml of test solution and allowed to stand for 2 min. Red precipitate indicates the presence of glycosides.

Test for Tannins

$FeCl_3$ test: Few drops of $FeCl_3$ solution were added to 1ml of herbal extract. Formation of blue or green color indicated the presence of tannins.

Gelatin test: Few drops of 1% gelatin solution containing 10% NaCl were added to 1ml of herbal extract. Formation of white precipitation indicated the presence of tannins.

Lead acetate test: Basic lead acetate was added separately to 1ml of test solution. Bulky red precipitate indicates the presence of tannins.

Alkaline reagent test: The test solution was treated with sodium hydroxide solution. Yellow to red precipitate indicates the presence of tannins

Test for Flavonoids

Shinoda's test: 1ml of herbal extract was treated with few Mg turnings and a few drops of conc. HCl. Formation of pink/ crimson red/ green color indicated the presence of flavonoids.

Alkaline reagent test: 1ml of herbal extract was treated with a few drops of NaOH solution. Formation of intense yellow color which disappears on addition of dilute acid indicated the presence of flavonoids.

Zn-HCl reduction test: 1ml of herbal extract was treated with a mixture of zinc dust and conc. HCl. Occurrence of red color indicated the presence of flavonoids.

Lead acetate test: Basic lead acetate was added separately to 1ml of test solution. Bulky reddish-brown precipitate indicates the presence of flavonoids.

Ferric chloride test: Few drops of $FeCl_3$ solution were added to the test solution. Blackish precipitate indicates the presence of flavonoids.

Test for Sterols/Triterpenoids

Liebermann Burchard test: 1ml of herbal extract was treated with few drops of acetic anhydride, boiled and cooled at room temperature. Then conc. H_2SO_4 was added along the walls. Occurrence of brown ring at the junction of two layers and conversion of upper layer into green color indicated the presence of steroids whereas deep red color showed presence of triterpenoids.

Salkowski test: 1ml of herbal extract was treated with few drops of conc. H_2SO_4; formation of red color indicated the presence of steroids whereas yellow color showed presence of triterpenoids.

Test for Fats and Oils

Stain test: A small amount of the extract was pressed in between two filter papers. Occurrence of stain on filter paper indicated the presence of oils and fats.

Saponification test: Few drops of 0.5N alcoholic potassium hydroxide and a drop of phenolphthalein were added to small quantities of various test solutions and heated in water bath for 1-2 hrs. The presence of fixed oils and fats indicated the formation of soap.

Test for Phenols

$FeCl_3$ test: 1 ml of extract was treated with few drops of $FeCl_3$ solution. Formation of blue color indicated the presence of phenols.

Ellagic acid test: Few drops of 5% (w/v) glacial acetic acid and 5% (w/v) sodium nitrate solution were added to 2ml of test solution. Phenol is indicated by Niger brown precipitate.

Test for Quinones

Alcoholic KOH test: Alcoholic KOH solution was added to 1ml of test solution. Quinones were indicated by color ranging from red to blue.

Test for Saponins

Foam test: Extract was diluted with distilled water up to 20 ml and was agitated for 10-15 min. Formation of the foam layer indicated the presence of saponins.

Results and Discussion:-Phytochemical screening is usually carried out to screen and characterize the constituents available in Citrullus colocynthis plant like alkaloids, flavonoids, glycosides, tannins, phenols and steroids by cold maceration technique with ethanol, chloroform, butanol, hexane and methanol, in different plant parts like leaf, stem, tendril, root, fruit peel, fruit pulp and seeds.Fruit pulp extract: Phytochemical analysis of various solvents fruit pulp extracts like butanol, chloroform, ethanol, hexane and methanol was performed in Citrullus colocynthis (Fig. 2d, e and f). The analysis revealed the presence of alkaloids, flavonoids, glycosides, tannins, phenols and steroids differing in various solvents (Table 6). Analogous results were reported in fruit extract of Citrullus colocynthis showing that presence of alkaloids, flavonoids, steroids and glycosides9 . Excessive alkaloids were present in ethanol solvent fruit pulp extract followed by methanol, butanol and chloroform (Table 6). Very fewer positive results appeared in

hexane extract. Other than hexane solvent, remaining four solvent systems showed excessive presence of glycosides. Flavonoids are effectively observed in butanol solvent extract of fruit pulp followed by ethanol and methanol solvent systems. Methanol, ethanol and butanol solvents extract was impressed in phenols extract from fruit pulp. Parallel results appeared that phenols extract from fruit pulp in some Cucurbits such as Cucurbita maxima, Benincasa hispida, Citrullus lanatus and Cucumis melo. 33 The total concentrates of steroids existence in fruit pulp of Citrullus colocynthis is superior in the ethanol, chloroform and methanol (Fig. 2n). Chekroun et al9 reported presence of flavonoids, saponins, alkaloids and steroids in Cucumis sativus L. The phytochemical analysis of the methanolic extract of Cucumis sativus fruit pulp indicated the presence of saponins, glycosides, terpenes, phenolics, alkaloids, flavonoids and

.Preliminary screening of Phytochemicals from fruit pulp powder extract

Alkaloids					
	Butanol	Chloroform	Ethanol	Hexane	Methanol
Dragondroff	-	++	+	-	++
Mayer	+	+	+	+	+
Wageners	+	+	+	_	++
Hagers	+	+	+	-	-
Tannic	++	-	+	-	++
$FeCl_3$	+	-	+	+	+
Glycosides					
Raymonds test	++	+	++	-	+
Legals test	-	+	-	-	+
Bromine water	+	-	+	+	+
Kellar killani	-	+	-	+	+
Molish	++	+	+	_	+
Conc. H_2SO_4	+	+	+	+	++

Flavanoids					
Shinoda	+	-	+	-	+
Alkaline	+	-	++	-	++
Zn-HCl	+ +	+	-	+	-
Lead acetate	+	+	+	-	+
FeCl3	+	-	+	+	++
Phenols					
FeCl3	+	+	+	-	+
Ellagari	+	-	+	+	+
Steroids					
Libermann Burchard	+	++	+	-	++
Salkowski	+	+	++	+	+
Tannins					
FeCl3	+	-	+	-	+
Gelatin	+	+	+	-	+
Lead acetate	-	-	-	-	-
Alkaline reagent	-	+	+	-	+

Conclusion:-In the present study, preliminary phytochemical screening Citrullus colocynthis i.e fruit pulp, was conducted in different solvent system like butanol, chloroform, ethanol, hexane and methanol. The phytochemical analysis of Citrullus colocynthis give important information regarding the chemicals present in the fruit pulp of the plant which concluded that the clear indication of solvent system plays major role in the extraction of bioactive compounds from plants. fruit pulp contain highest concentration of steroids and also other parts were having significant amount. Similarly, glycosides, flavonoids, alkaloids and tannins showed different results in different explants of Citrullus colocynthis and solvent system.

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REVERSE PHASE HIGH PERFORMANCE LIQUID CHROMATOGRAPHIC METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF APREMILAST IN PHARMACEUTICAL FORMULATION

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ABSTRACT:-In this currentinvestigationeffort, an effort was made to build up anuncomplicated, speedy, truthfulas well as robust HPLC technique for the assessment of Apremilast in its tablet dosage form. Reverse phase high performance liquid chromatographic analysis was carried out on isocratic system. The column used for the investigation was Phenomenex C18 (250 mm× 4.6mm, 5µm) with ambient temperature. The optimized mobile phase was Methanol: Acetonitrile in the ratio of (20:80 %V/V). The detection was carried out at a wavelength of 230nm using a flow rate of 1ml/min. The urbanizedtechnique was validated for validationconstraints like linearity, specificity, accuracy, precision as per ICH strategy. The %RSD for all constraints was well within the limits, which indicates the validity of the techniquein addition tothe assay results obtained are in reasonableconformity with the label claim of the marketed formulation. Thus, the conventionalscheme can be anticipated for repetitive investigation of this drug in laboratories and for superiority purposes.

Keywords: Apremilast, Acetonitrile, HPLC, Linearity.

INTRODUCTION: Apremilast is a Phosphodiesterase 4 (PDE4) inhibitors chemically named as N-[2-[(1S)-1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-1,3-dioxoisoindol-4-yl]acetamide. It is used in the treatment of certain types of arthritis and skin conditions[1]. Literature survey revealed that few analytical techniques are available for estimation of Apremilast in pharmaceutical dosage form such as UV, HPLC. Keeping this objective in mind an attempt has been made to develop and validate the RP-HPLC method for the estimation of Apremilast in which the developed method would be a highly sensitivecost effective method having good resolution and reproducible results [2].

MATERIALS AND METHODS:

Equipment:- Chromatographic separation was conceded on WATERS HPLC system which is outfitted with the 515 dual head reciprocating pump & a 2489 UV Visible detector. The software used is Empower-2 software and column is Phenomenex C18 column of 250mm×4.6mm i.d, 5µm.

Materials and reagents:-Apremilast drug was gifted by Aurobindo Pharmaceuticals, Hyderabad, Telangana, India. Acetonitrile, methanol, HPLC grade water, sosium hydroxide, Diammonium hydrogen orthophosphate and Hydrochloric acid were collected from local manufacturers.

Preparation of standard solution:-Standard stock arrangement was set up by gauging 25mg of Apremilast and moving in to 25 ml volumetric jar. At that point 25 ml weaken methanol was included and sonicated for 5 minutes to break down the medication. At that point the arrangement was weakened to check with methanol [6]. It was then separated through 0.45µm film channel, which gives the stock arrangement containing 1000µg/ml Apremilast.Standard

arrangement was set up by moving In a 10 ml volumetric jar with a volume of 1 ml of standard stock arrangement and methanol separated through 0.45 separated layer channel; weaken the volume to provide a stock containing 100µg / ml Apremilast.

Preparation of the test solution:-20 tablets were precisely dissolved and crushed to shape fine powder. A volume powder comparable to 25 mg of Apremilast was most likely evaluated, and it was taken in 25 ml volumetric container, containing 25 ml methanol [7]. The container was then sonicated for 5 minutes and later made sufficient with dilute methanol. It gives stock arrangement of Apremilast with concentration of 1000µg / ml. The arrangement stock was then separated with Whatman channel paper and washed with powerless methanol; it was shed through 0.45 channel layer channel. Further weakening was built up by funneling 1ml above stock course of action into 10ml volumetric container and weakened in volume with methanol. Around then, this game plan was isolated through 0.45 channel film channel and sounded for 2min. This was fixed test system, with obsession being around (80/g/ml).

METHOD DEVELOPMENT

Chromatographic conditions:- Diverse columns enclosing octyl and octadecyl silane stationary phase were endeavored for severancein addition to resolutions. It was established that Phenomenex C18 (250mm×4.6mm i.d, 5µm) column offered additionalimprovement over further columns. The mobile phase was a concoction of methanol and acetonitrile (20:80 % v/v). Drug solution was introduced into column. The flow velocity of the mobile phase was accustomed to 1 ml /min[3]. The recognition was conceded out at wavelength 230nm. The injection capacity of the standard as well as sample solution was placed at 20µl. The preference of wavelength 230nm was well thought-outagreeable, permitting the recognition of the drugs with tolerable sensitivity. It fashioned well shaped peaks for the drug assay. A UV spectrum of the drug is given in figure 1 and chromatogram of the drug assayed is depicted in figure 2.

Figure 1: UV spectrum of Apremilast

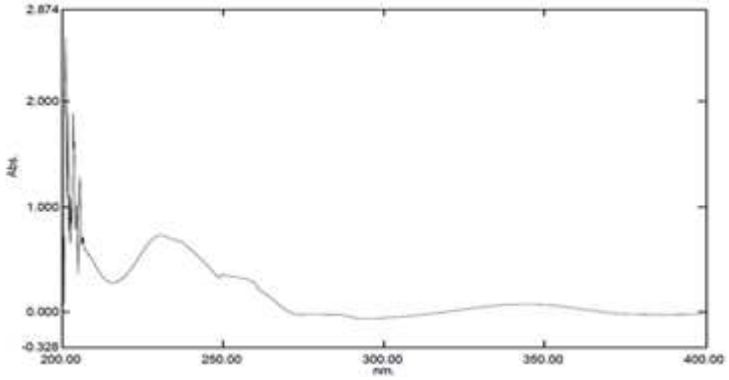
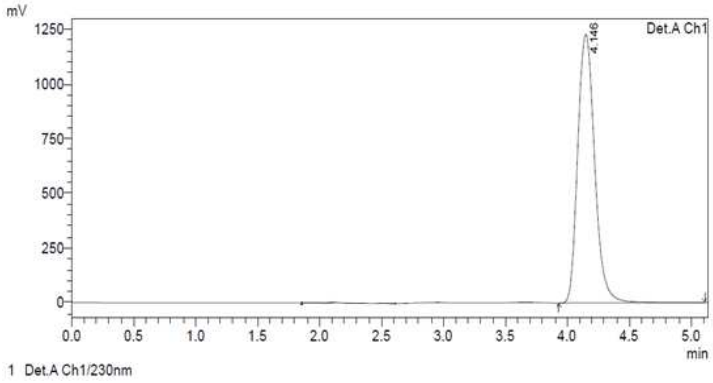


Figure 2: Chromatogram of standard



METHOD VALIDATION

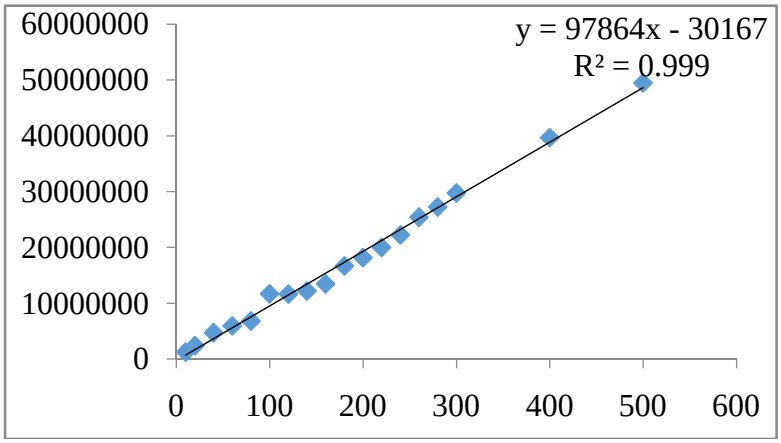
System suitability test:- The method under sophisticated chromatographic circumstances was performed by appropriateness testing infusing the customary arrangement 100% test fixation multiple times in to balanced out HPLC framework[4]. To set up System appropriateness last pinnacle six infusions was assessed. Framework appropriateness was manner by assessing parameters like number of hypothetical plates (N), peak area and tailing factor. From the results shown in table 1 it affirms that the system reasonableness parameters were discovered fulfilled.

Table 1: System suitability parameters

Name of the Peak	Rt (min)	Peak Area	Theoretical plates	Tailing factor
Apremilast	4.146	11676527	4352	1.242

Linearity:-The linearity of the technique was determined at different concentration levels ranging from 10 to 500µg/ml. Each solution was injected into HPLC system and linearity was evaluated by linear regression analysis. The calibration curve was plotted against concentration and average area response [5]and the regression equation was given as y= 97864x-30167. The correlation coefficient was found to be 0.999 and plot was shown in figure 3

Figure 3: Linearity plot of Apremilast



Range:- Working standard arrangements were prepared and injected 6 times into the HPLC system and the upper and lower levels of analyte indicating exactness, linearity and accuracy and saw as in the fixations go 500 and 10µg/ml. The overlain chromatograms for lowest and highest concentrations of range were shown in figures 4 and 5 respectively and the range data was shown in table 2

Figure 4: Overlain Chromatogram for lowest concentration of Range

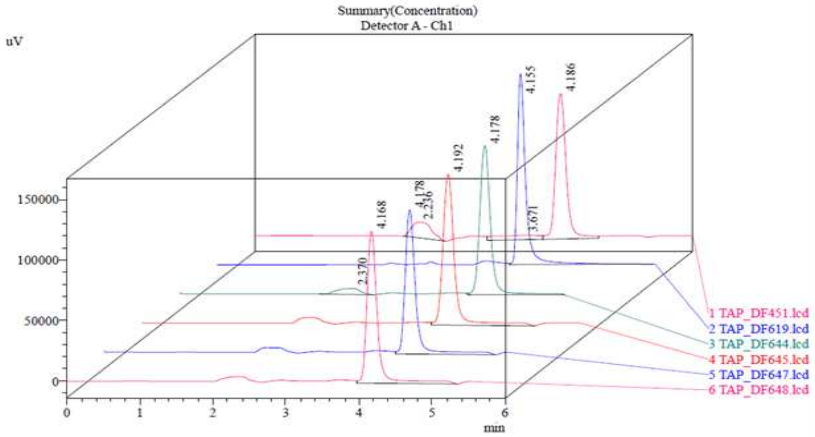


Figure 5: Overlain Chromatogram for highest concentration of Range

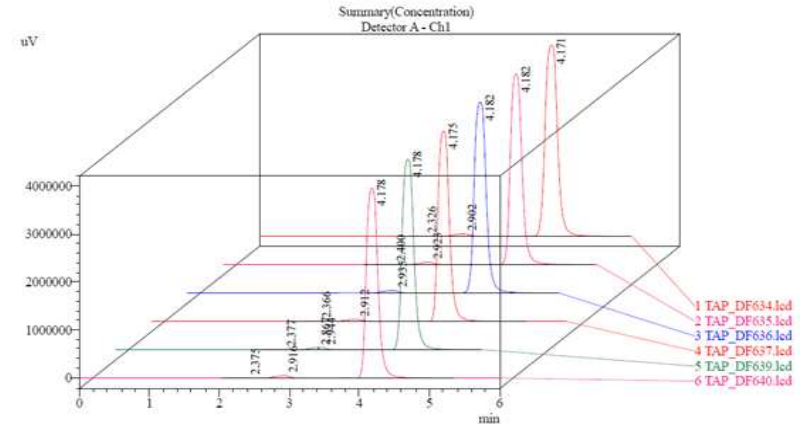


Table 2: Range data for Apremilast

S. No	Apremilast	
	Peak area lowest concentration (10µg/ml)	**Peak area highest concentration (500µg/ml)**
1	1269032	48856793
2	1253634	47041771
3	1247894	46621967
4	1255827	47302114
5	1249191	48718429
6	1240801	48552759
Mean	1252730	48856793
S.D	5060.4	69937.71
% RSD	1.08	1.2

Precision:- Method precision was establishedby infusing six relaxation infusions of the standard system at 120µg/ml fixation under the same test conditions[8]. The relative standard deviation obtained was shown in table 3

Table 3: Results of Method precision

Injections	Peak area
1	111062240
2	101213784
3	10256394

4	118446342
5	111062364
6	10256376
Mean S.D % RSD	10256376 9645.2 1.24

Accuracy:- Accuracy studies were completed at three unique levels of 50%, 100%, and 150%[9]. Each concentration solutions were prepared in three setsand injected into HPLC system and the results obtained are tabulated in table 4

Table 4: Accuracy Study data

Spiked Level	Standard		Mean area	Spiked		Mean area	Recovery
	Conc. (µg/ml)	Peak area		Conc. (µg/ml)	Peak area		
50%	100	10884010	10768731	180	18490895	17952012	96.1
		10387491			17215819		
		11034694			18149324		
100%	200	17817265	18075390	280	21370900	25953353	101.5
		18324653			27945221		
		18084254			28543939		
150%	300	30456484	31113633	380	39070004	37948721	97.5
		31861239			38868739		
		31023176			35907420		

Specificity: Interference of impurities was checked by injecting the blank and sample solution into HPLC system and chromatograms recorded were shown in figures 6 and 7.

Figure 6: Chromatogram of blank

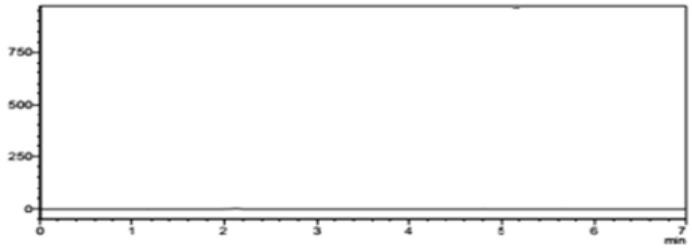
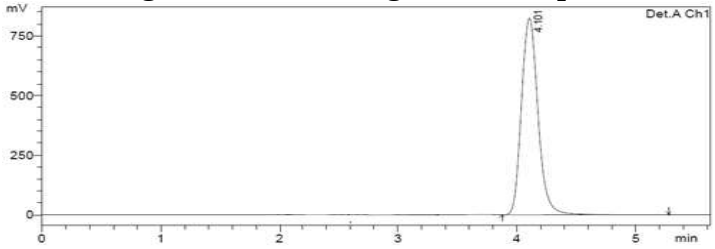


Figure 7: Chromatogram of sample



Robustness: Robustness study was carried out by changing the flow rate by ±0.2ml/min and wavelength by ±3nm and the relative standard deviation determined was shown in table 5

Table 5: Robustness Study (Change in Flow rate) Data

S.No	Robustness (Flow rate)
Injections	**Peak area**
1	18400170
2	18775516
3	19618609
4	17285324
5	15139747
6	19706503
Mean	18154311.5
S.D	23328
% RSD	1.2

Ruggedness: Standard solution was prepared and injected into HPLC system in 6 replicate injections and system suitability criteria are checkedunder variety of conditions like variability due to analyst and variability due to column and the results are shown in table 6[10].

Table 6: Results of analyst and column variability

S. No	Analyst 1	Analyst 2	Column 1	Column 2
Injections	**Peak area**	**Peak area**	**Peak area**	**Peak area**
1	13520039	13584382	25399273	49764789
2	13432064	13506336	25611132	49760089
3	13346033	13616410	27226471	48402789
4	13376024	13464343	25312273	49763218
5	13742497	13940689	25610132	47764712
6	12324264	13914790	27446471	49701029
Mean	13290153.5	13671158.3	26100959	49192771
S.D	15124.14	18231.63	2610.61	4132
% RSD	1.4	1.65	0.96	0.71

RESULTS AND DISCUSSION:-Different mobile phases were tried and finally the mobile phase containing methanol: acetonitrile in the ratio of 20:80 %v/v. The Rt was achieved at 4.101 and run time was 5minutes. System suitability parameters were checked and found to be within the acceptance criteria. The method was found to be linear in the concentration range of 10 to 500µg/ml and the regression coefficient was found to be 0.999. The relative standard deviation for method precision was 1.24 which was found to be within the limits.The lowest and highest concentrations of range were found to be 10µg/ml and 500µg/ml respectively. The method was found to be more specific as there was no placebo and blank interference. The % recovery at each level was within the limits of 95% and 102% which demonstrates that the technique was accurate and furthermore uncovers that the excipients present in the pharmaceutical definition were not meddling in the proposed strategy. The robustness studies were carried by changing the flow rate and wavelength and these studies indicated that there was no effect on the study of drug. The % RSD was found to be within the limits when there was variation from analyst to analyst and column to column and the method was found to be rugged

CONCLUSION:- An effort has been made to create straightforward exact well-explicit and financially possible strategy for estimation of apremilast by RP-HPLC in dosage form of the tablet by conducting various tests and the developed method was validated.The HPLC method is used to assay Apremilast as tablet dosage were approved regarding exactness, accuracy, linearity, particularity, robustness, ruggedness, channel approval, arrangement steadiness. The aftereffects of approval demonstrated that all the approval parameters are good. The peak

territories of Apremilast peaks were straight regarding focus. The results of analysis revealed that proposed technique was appropriate for their investigation with no obstruction and recuperation was seen as satisfactory.

ACKNOWLEDGEMENTS:-The authors acknowledge Aurobindo Pharmaceuticals Limited, Hyderabad, Telangana, India for providing gift sample of Apremilastdrug.

CONFLICT OF INTEREST:- The authors declare that they have no conflict of interests.

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Synthesis, Structural, IR and XRD Properties of Spinel Mg Ni Zn Ferrite System Synthesized by Sol-Gel Route

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Abstract:-Mg Ni Zn ferrite of chemical formula $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2 and 0.6) have been prepared by sol-gel method. All the samples have been sintered at 500^{o}C. All the samples were characterized by using XRD for structure analysis and lattice parameters determination. FTIR study has also been carried out which shows that synthesized material is ferrite.

Keywords:- Ferrites, Sol-gel method, Synthesis, X-ray diffraction, IR.

1.**Introduction:-**In several areas such as magnetic recording media, Ferro fluids, multilayer chip indicator, magnetic resonance imaging etc. nanoparticle ferrite were used.Nanoferrite have high resistivity and low eddy current losses at high frequency hence performed as potential candidates for microwave devices [1]. The ferrite containing Mg and Zn were used in computer memory and logic devices, recording heads, antenna rods, cores of transformers, loading coils and microwave devices due to having several interesting properties. In electrical as well as electronic industries Ni-Zn ferrites were used. The Ni-Zn ferrites are soft magnetic ceramics having spinel configuration [2]. Nanostructured materials have extremely small size or large specific surface area hence their unusual physical as well as chemical properties different from those of conventional bulk materials [3-5]. In the present study the sol-gel method was carried out to prepare $Mg_{0.7-x}Ni_xZn_{0.3}$ (where x=0.2 and 0.6) ferrite system.

2.Experimental Work

2.1. Synthesis:-Analytical grade magnesium nitrate, zinc nitrate, nickel nitrate, ferric nitrate, and citric acid were used as raw materials to prepare $Mg_{0.7-x}Ni_xZn_{0.3}Fe_2O_4$ (x=0.2 and 0.6) ferrite material. Appropriate amounts of metal nitrates and citric acid, in order to form 10g of MgNiZn ferrite powder were first dissolved in 100 ml of deionized water. The molar ratio of nitrates to citric acid was taken 1:3. A small amount of ammonia was added to the solution to adjust the pH value to about 7. During this procedure the solution was continuously stirred using magnetic stirrer. The mixed solution was stirring at 90^o C for 4-4.5 hrs. During the evaporation, the solution became viscous and finally converted into a very viscous brown gel. The dried gel was burnt in an auto combustion manner until the entire gels was burnt out to form loose powder known as burnt powder. This whole procedure was carried out under ambient atmosphere. After that individual powders were sintered at 500^o C for 1 h.The general chemical reaction involved in synthesis process can be written as $(0.7-x)Mg(NO_3)_2.6H_2O + (x)Ni(NO_3)_2.6H_2O + (0.3)Zn(NO_3)_2.6H_2O + 2\ Fe\ (NO_3)_3.9H_2O + 3C_6H_8O_7 \rightarrow (Mg_{0.7-x}Ni_xZn_{0.3}Fe_2O_4) + 4N_2\uparrow + 18CO_2\uparrow + 36H_2O$

2.2 Instrumentation:-The nanocrstalline samples were characterized by X-ray diffraction (XRD) technique at room temperature by using Philips Powder X-ray diffractometer (Model PW 3710) with CuKα radiation having wavelength 1.5406 A^o.

Result and Discussion

3.1. XRD Studies:

The phase formation of the nanocrystalline $Mg_{0.7-x}Ni_xZn_{0.3}Fe_2O_4$ (x=0.2 and 0.6) spinel ferrite sample is performed by X-ray diffraction technique at room temperature in the 2Θ range from 20^o to 80^o and is depicted in figure 1.Analysis of XRD patterns indicated that the studied samples have single phase cubic spinel structure. All the Bragg's angle of corresponding peaks in the XRD pattern matches closely with the characteristics of reflection peaks of Mg Ni Zn ferrites reported in JCPDS Barakat, m et al, J. Therm Anal 37.241 (1991) [6]. The average Crystallite size was calculated by using the Debye Scherer formula given below

D = $\frac{0.9\lambda}{\beta\, cos\theta}$, where β is the full width at half maxima and $\Theta$is the angle of diffraction.

The lattice constants was calculated using the formula

$a = d_{hkl} \times \sqrt{h^2 + k^2 + l^2}$, where (hkl) is the miller indices.

The interplaner spacing was calculated using the relation

$d_{cal} = \frac{n\lambda}{2sin\theta}$

The X-Ray densities of each sample was determined by using formula given below

$D_x = \frac{8M}{Na3}$, where M = Molecular weight of sample N = Avogadro's Number a = Lattice constants.

The ionic radii on tetrahedral A site and octahedral B site is calculated by using following relations

$R_A = (u - \frac{1}{4}).\ a.3^{\frac{1}{2}} - r(O^{2-})$, Where, $r(O^{2-})$ = ionic radii of the oxygen.

$R_B = (\frac{5}{8} - u).\ a\ . - r(O^{2-})$,Where, $r(O^{2-})$ = ionic radii of the oxygen.

The metal oxygen bond length A–O on tetrahedral site was determined by using following relation

$A–O = (u - \frac{1}{4}).\ a.3^{\frac{1}{2}}$Where u = oxygen ion parameter.

The Bond length B-O on octahedral site is calculated by using following equation

$B–O = (\frac{5}{8} – u).a$, Where u = oxygen ion parameter.

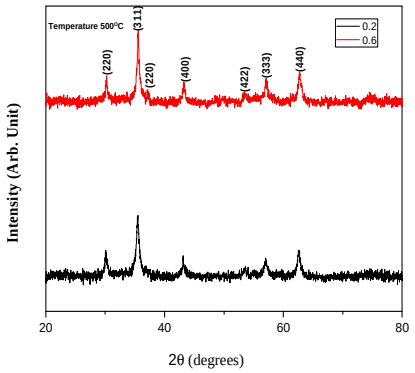

Fig. 1 XRD pattern of sample.

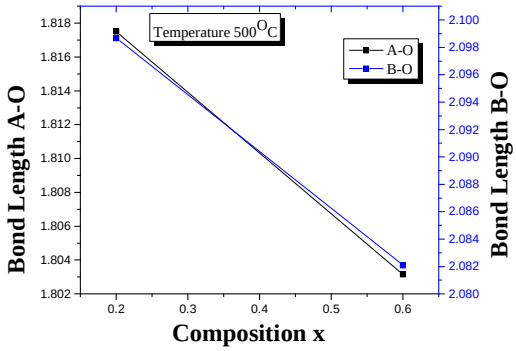

Fig.2 Bond Length V/s Composition of sample

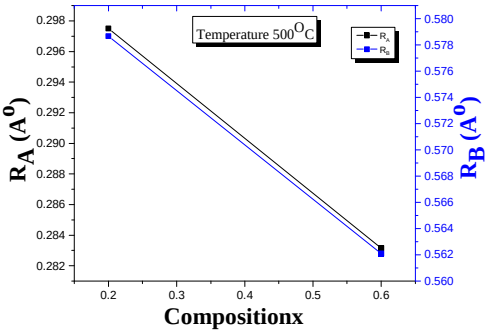

Fig.3 Ionic radii V/s composition of sample

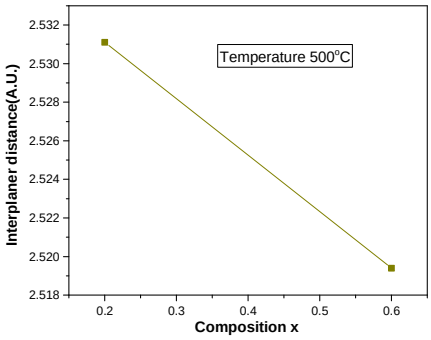

Fig.4 Interplaner Distance V/s Composition of sample

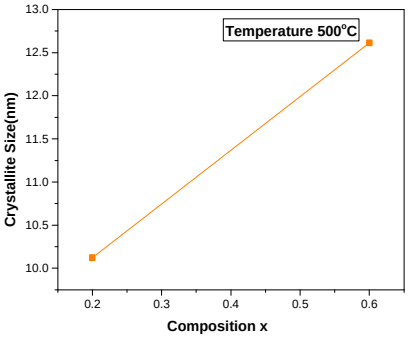

Fig.5 Crystallite Size V/s Composition of sample

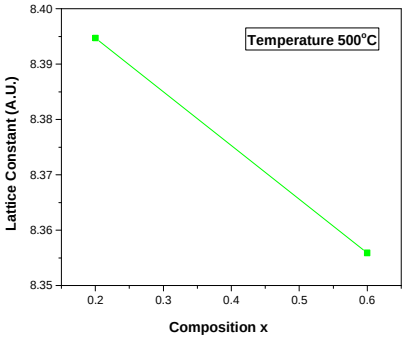

Fig.6 Lattice Constants V/s Composition of Sample

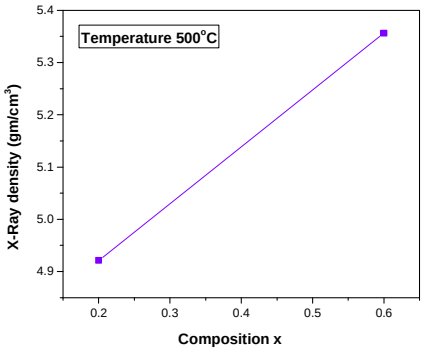

Fig.7 X-Ray Density V/s Composition of sample

3.2. FTIR Spectroscopy:-The FTIR (Fourier Transform Infrared Spectrometer) characterization: The FTIR (Fourier Transform Infrared Spectrometer) of $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2 and 0.6)nanoferrite sintered at 500°Care presented in Fig.8-9.The infrared curve of sintered powder shows infrared peak at range of 500-600 cm^{-1}. From IR curve confirmed that the synthesized material is ferrite.[7]

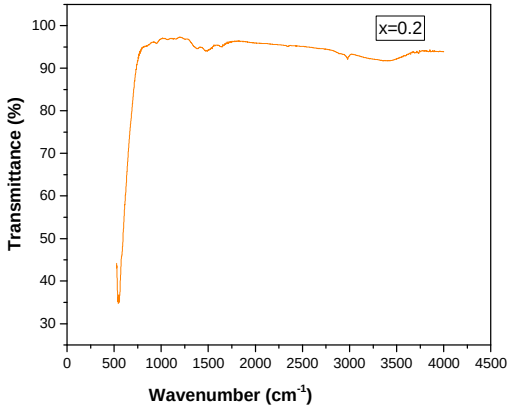

Fig.8 FTIR of $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2)

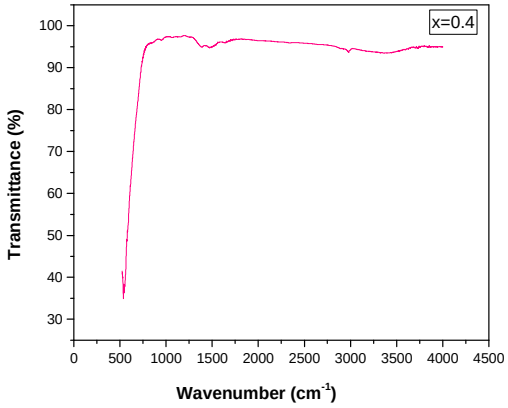

Fig.9 FTIR of $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.6)

Conclusion:-The $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2 and 0.6)nanoferrite were successfully synthesized using sol-gel route. X-Ray Diffraction pattern confirm the formation of cubic spinel phase. The IR curve confirms the ferrite formation. The Lattice parameters were changes significantly with the variation in composition of $Mg_{0.7-x}Ni_xZn_{0.3}$ (where x=0.2 and 0.6) nanoferrite system sintered at 500° C.

Acknowledgement:-A researcher acknowledges DST for the availability of instruments under DST-FIST programme at C. T. Bora College, Shirur (DST-FIST File No: SR/FST/COLLEGE/068/2017)

Conflicts of Interest:- The authors declare no conflict of interest

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An evaluative study to assess the knowledge, attitude and practices specific to International confederation of Midwives (ICM) competencies and Midwifery model of care (MMoC) among midwives working in government hospitals of (urban and rural areas) districts of Madhya Pradesh

***Linea Joseph PhD Scholar -25617052 JJTU, **Dr. Usha Ukande Co-Guide**

BACKGROUND:

"Midwifery is a blend of art, knowledge, skill, and instinct."

— Jennifer Worth

International Confederation of Midwives (ICM) is an accredited non-governmental organization which functions to strengthen midwifery practice through its affiliated midwifery associations throughout the world. It functions with the vision of a world where every childbearing woman has access to a midwife's care for herself and her newborn. The Midwives Model of Care consists of prenatal visits and "hands-on" care entire labor, birth and right after. It leads to minimal possibility of complications, less interferences and an improved birth for both mother and the baby. Midwives are the reliable assistants of women throughout their pregnancy, birth, as well as the period following child birth. They perform a crucial task in assisting women to accomplish sound pregnancies thereby making pregnancy a positive experience. Secure along with efficient midwifery care is capable of avoidance of eighty three percent of each maternal deaths, stillbirths and child mortality, respectively. Midwives are the major defenders of childbearing women. Elsewhere, obstetricians or family physicians may be solely accountable for treatment, or they may split the task. Familiarity, continuity of treatment and being concerned about by a familiar, trustworthy midwife during childbirth are the definition after the model. The focus is on women's innate capacity to endure birth with limited intervention.[2]Midwifery care has the probability to avert majority of these deaths. In the midst of these challenges, midwives are ensuring quality midwifery care to women along with newborns in health services or respective areas, preserving public health. Midwifery as a service identifies pregnancy, labor, birth as well as post-natal period as a healthy with reflective experience that a woman undergoes in the course of her life. Midwives acquire an essentially diverse approach to prenatal care in addition to efforts of the additional familiar therapy paradigm that medical practitioners usually undergo. "The practitioners make a formal service initiative with the gravid female, and offering evidence along with suggestions, nurturing respect with expectation, diminishing interventions, furthermore transferring women to obstetrical care whenever required. When started asking what kind of a birth they want, several feminists say that they want to have one "as comfortably as possible.[1] According World Health Organisation (WHO),[1] regular midwifery care reduces maternal and infant deaths and stillbirths by more than 80%, and decreases pre-term labour and birth by 24%..

KEYWORDS:-Midwives, ICM, MMoC, Competencies

OBJECTIVES OF THE STUDY

1. "To assess the knowledge specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."
2. "To determine the attitude specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."
3. "To evaluate the practices specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh"

4. "To find out association between knowledge specific to ICM competencies with selected demographic variables of midwives."
5. "To perceive the association between attitudes specific to ICM competencies with selected demographic variables of midwives."
6. "To determine the association between practices specific to ICM competencies with selected demographic variables of midwives."
7. "To assess the knowledge specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
8. "To determine the attitude specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
9. "To evaluate the practices specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
10. "To find out association between knowledge specific to MMoC with selected demographic variables of midwives."
11. To perceive the association between attitudes specific to MMoC with selected demographic variables of midwives."
12. "To determine the association between practices specific to MMoC with selected demographic variables of midwives."
13. "To analyze the gaps between desirable and prevalent practices among midwives in terms of maternal care in relation to ICM competencies and MMoC."

14."To identify relationship between knowledge and practice of midwives specific to ICM competencies and MMoC."

RESEARCH HYPOTHESES

H_1:"There may be significant association between knowledge specific to ICM competencies with selected socio demographic variables ($p \leq 0.05$).

H_2: "There may be significant association between attitudes specific to ICM competencies with selected socio demographic variables ($p \leq 0.05$)."

H_3: "There may be significant association between practices specific to ICM competencies with selected socio demographic variables ($p \leq 0.05$)."

H_4: "There may be significant association between knowledge specific to MMoC with selected socio demographic variables ($p \leq 0.05$)."

H_5: "There may be significant association between attitudes specific to MMoC with selected demographic variables ($p \leq 0.05$)."

H_6: "There may be significant association between practices specific to MMoC with selected socio demographic variables ($p \leq 0.05$)."

H_7: "There may be significant positive relationship between knowledge and practice of midwives specific to ICM competencies as evident from knowledge and practice tools ($p \leq 0.05$)."

H_8: "There may be significant positive relationship between knowledge and practice of midwives specific to MMoC as evident from knowledge and practice ($p \leq 0.05$)."

HO_1: "There will be no significant association of knowledge, attitudes and practices specific to ICM competencies along with selected socio demographic variables of study group($p \leq 0.05$)."

HO_2: "There will be no significant association of knowledge, attitudes and practices specific to

MMoC along with selected socio demographic variables of study group."

HO_3: "There will be no significant positive relationship between knowledge and practice of midwives specific to ICM competencies as evident from knowledge and practice tools ($p \leq 0.05$)."

HO_4: "There will be no positive relationship between knowledge and practice of midwives specific to MMoC as evident from knowledge and practice tools ($p \leq 0.05$)."

CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

An appraisal of the associated research as well as non - research literature facilitated the researcher to formulate a conceptual framework based totally at the newbie to professional model, delivered by way of **Dr Patricia Benner** and to adopt a suitable methodology for the study. Dr. Benner's novice to expert version was obtained from the model of Dreyfus version of expertise Acquisition which was further tailored to put forward a greater goal in a way for comparing progress of nursing talents and subjects.

REVIEW OF LITERATURE

The current chapter also encouraged the researcher to improve research instrument. It also helped her concentrate on a strategy for collection of information and comprehensive analysis. Literature reviewed was related to

- Midwives perception on ICM Competencies and MMoC
- Maternal benefits of ICM competencies and MMoC in mothers.
- ICM competencies and midwifery care including Knowledge, Attitudes, Practice of Midwives

RESEARCH DESIGN:-This is a blueprint structure intended and for carrying out the research study by assessment, compiling of required information and then finally analyzing the collected information through application of statistical formulas. The present study has adopted exploratory (evaluative) survey research design.

TARGET SAMPLE;-The samples of present research were the midwives working in selected government hospitals of different districts of Madhya Pradesh.

RESEARCH SETTING :-Midwives working in Antenatal, Labor, Postnatal, Cesarean OT and neonatal ward of different PHCs, CHCs, District Hospitals in different districts (Dewas, Dhar and Indore) of Madhya Pradesh.

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Cluster convenient sampling is a technique in which clusters of participants represents the population that are acknowledged and incorporated in the sample.

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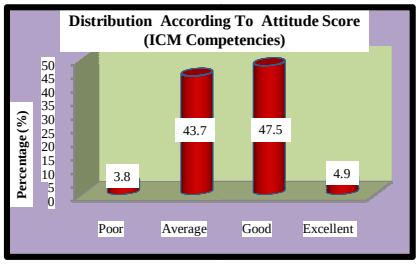

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- 20 ANMs

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RESULTS:

1. **Demographics wise distribution of midwives.**
   Out of 183 samples, Majority of the nurses i.e. 86 (47.0%) were in the age group 31-40 years. 111 (60.7%) nurses had done their B.Sc. Nursing. 110 (60.1%) nurses had a work experience between 5-15 years. 91 (49.7%) had work experience in labor unit while 135 (73.8%) nurses were working in urban area.. 68 (37.2%) nurses were working in CHC. 105 (57.4%) nurses had attended some workshop, seminars, conferences, etc. attended related to maternal care. 162 (88.5%) nurses were working as registered. nurses 160 (87.4%) nurses had never heard of ICM competencies whereas 109 (59.6%) nurses were aware about Midwifery Models of Care.
2. **Distribution of midwives according to knowledge score regarding ICM Competencies -** Majority of the nurses who were evaluated had obtained good knowledge score 154 (84.2%) followed by average knowledge score and only few of the nurses could obtain excellent knowledge score
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5. **Association of demographic variables with knowledge score according to ICM competencies using chi square test-** The Significant association observed in age (0.001), years of work experience as midwife (0.001).
6. **Association of demographic variables with attitude score according to ICM competencies using chi square test-** Significant association observed in years of work experience as midwife (0.01); type of health facility (0.041); whether heard about ICM competencies (0.016); have they heard of MMoC (0.033).
7. **Association of demographic variables with practice score according to ICM competencies have used χ^2 test-** No significant association was found amid demographic variables and Midwives' practice.
8. **Distribution of midwives according to knowledge score regarding MMoC-** Majority of the nurses who were evaluated obtained good knowledge score 148 (80.9%), followed by average knowledge score, then poor knowledge score and only few of the nurses could obtain excellent knowledge score.
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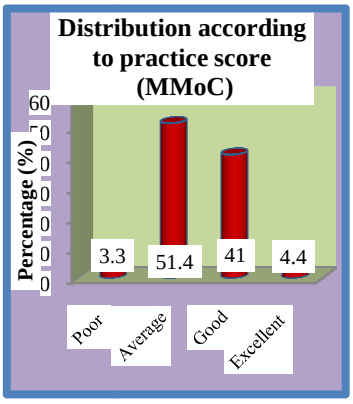

11. **Association of demographic variables with knowledge score according to MMoC using chi square test-** Significant association observed in Qualification (0.033); years of work experience as midwife (0.001); type of health facility (0.008)
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13. **Association of demographic variables with practice score according to MMoC using chi square test-** Significant association observed in years of work experience as midwife (0.007); area of employment (0.012); type of health facility (0.001).
14. **Description of relationship between level of knowledge and practice in both ICM Competencies and MMoC**
    1) The strong positive Correlation in knowledge and midwives' practice was founded particular to ICM competencies (p=0.001)
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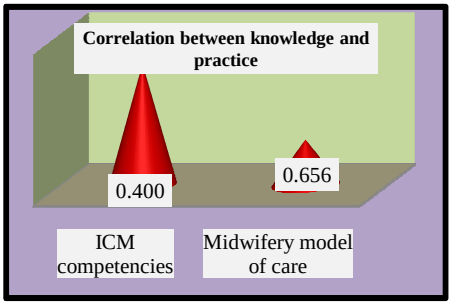

In addition to 183 samples, 20 ANMs worked in chosen Madhya Pradesh PHCs and CHCs. Since ANMs is not part of the inclusion criterion of the researcher as they often serve the responsibility of group field work and are implicitly connected to patient care by serving as assistants, the researcher felt the need to gather their interactions due to an ethical point of view.

CONCLUSION:-The knowledge, attitude and practice was found to be significantly associated with socio demographic variables based on ICM Competencies and MMoC of midwives working in selected government hospitals of Madhya Pradesh.Hence it showed that the ICM Competencies and MMoC if a standard protocols for midwives to improve their efficiency. Yet the researcher observed some lacunae in attitude and practice because of the issues faced by the midwives as mentioned due to which they are not able to give the quality output as expected of them. The government should take initiatives to fill in vacant spaces as per requirement in health care facilities so that work responsibilities can be evenly distributed to all midwives employed. The government should also take initiative to upgrade more training workshops, seminars and conferences and ensure that it is evenly accessible to all.

REFERENCES

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"An evaluative study to assess the knowledge, attitude and practices specific to International confederation of Midwives (ICM) competencies and Midwifery model of care (MMoC) among midwives working in government hospitals of (urban and rural areas) districts of Madhya Pradesh"

***Linea Joseph PhD Scholar -25617052 JJTU, **Dr. Usha Ukande Co-Guide**

BACKGROUND:

"Midwifery is a blend of art, knowledge, skill, and instinct."

— Jennifer Worth

International Confederation of Midwives (ICM) is an accredited non-governmental organization which functions to strengthen midwifery practice through its affiliated midwifery associations throughout the world. It functions with the vision of a world where every childbearing woman has access to a midwife's care for herself and her newborn. The Midwives Model of Care consists of prenatal visits and "hands-on" care entire labor, birth and right after. It leads to minimal possibility of complications, less interferences and an improved birth for both mother and the baby. Midwives are the reliable assistants of women throughout their pregnancy, birth, as well as the period following child birth. They perform a crucial task in assisting women to accomplish sound pregnancies thereby making pregnancy a positive experience. Secure along with efficient midwifery care is capable of avoidance of eighty three percent of each maternal deaths, stillbirths and child mortality, respectively. Midwives are the major defenders of childbearing women. Elsewhere, obstetricians or family physicians may be solely accountable for treatment, or they may split the task. Familiarity, continuity of treatment and being concerned about by a familiar, trustworthy midwife during childbirth are the definition after the model. The focus is on women's innate capacity to endure birth with limited intervention.Midwifery care has the probability to avert majority of these deaths. In the midst of these challenges, midwives are ensuring quality midwifery care to women along with newborns in health services or respective areas, preserving public health. Midwifery as a service identifies pregnancy, labor, birth as well as post-natal period as a healthy with reflective experience that a woman undergoes in the course of her life. Midwives acquire an essentially diverse approach to prenatal care in addition to efforts of the additional familiar therapy paradigm that medical practitioners usually undergo. "The practitioners make a formal service initiative with the gravid female, and offering evidence along with suggestions, nurturing respect with expectation, diminishing interventions, furthermore transferring women to obstetrical care whenever required. When started asking what kind of a birth they want, several feminists say that they want to have one "as comfortably as possible.[1] According World Health Organisation (WHO),[1] regular midwifery care reduces maternal and infant deaths and stillbirths by more than 80%, and decreases pre-term labour and birth by 24%..

OBJECTIVES OF THE STUDY

1."To assess the knowledge specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."

2."To determine the attitude specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."

3."To evaluate the practices specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh"

4."To find out association between knowledge specific to ICM competencies with selected demographic variables of midwives."

5."To perceive the association between attitudes specific to ICM competencies with selected demographic variables of midwives."
6"To determine the association between practices specific to ICM competencies with selected demographic variables of midwives."
7."To assess the knowledge specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
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11."To perceive the association between attitudes specific to MMoC with selected demographic variables of midwives."
12."To determine the association between practices specific to MMoC with selected demographic variables of midwives."
13."To analyze the gaps between desirable and prevalent practices among midwives in terms of maternal care in relation to ICM competencies and MMoC."

14."To identify relationship between knowledge and practice of midwives specific to ICM competencies and MMoC."

RESEARCH HYPOTHESES

H_1:"There may be significant association between knowledge specific to ICM competencies with selected socio demographic variables ($p \leq 0.05$).

H_2: "There may be significant association between attitudes specific to ICM competencies with selected socio demographic variables ($p \leq 0.05$)."

H_3: "There may be significant association between practices specific to ICM competencies with selected socio demographic variables ($p \leq 0.05$)."

H_4: "There may be significant association between knowledge specific to MMoC with selected socio demographic variables ($p \leq 0.05$)."

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H_6: "There may be significant association between practices specific to MMoC with selected socio demographic variables ($p \leq 0.05$)."

H_7: "There may be significant positive relationship between knowledge and practice of midwives specific to ICM competencies as evident from knowledge and practice tools ($p \leq 0.05$)."

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HO_1: "There will be no significant association of knowledge, attitudes and practices specific to ICM competencies along with selected socio demographic variables of study group($p \leq 0.05$)."

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CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

An appraisal of the associated research as well as non - research literature facilitated the researcher to formulate a conceptual framework based totally at the newbie to professional model, delivered by way of **Dr Patricia Benner** and to adopt a suitable methodology for the study. Dr. Benner's novice to expert version was obtained from the model of Dreyfus version of expertise Acquisition which was further tailored to put forward a greater goal in a way for comparing progress of nursing talents and subjects.

REVIEW OF LITERATURE

The current chapter also encouraged the researcher to improve research instrument. It also helped her concentrate on a strategy for collection of information and comprehensive analysis. Literature reviewed was related to

- Midwives perception on ICM Competencies and MMoC
- Maternal benefits of ICM competencies and MMoC in mothers.
- ICM competencies and midwifery care including Knowledge, Attitudes, Practice of Midwives

RESEARCH DESIGN

This is a blueprint structure intended and for carrying out the research study by assessment, compiling of required information and then finally analyzing the collected information through application of statistical formulas. The present study has adopted exploratory (evaluative) survey research design.

TARGET SAMPLE

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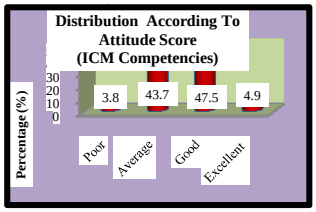

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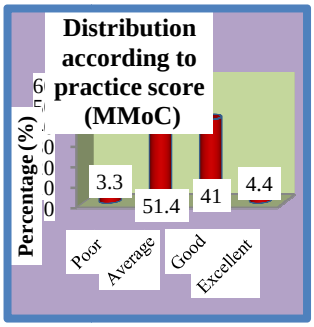

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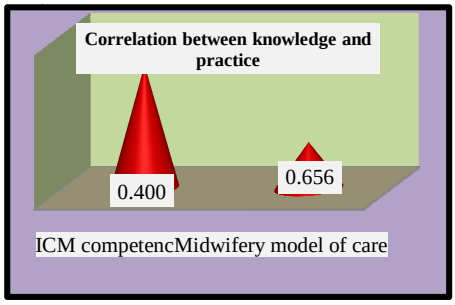

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KEYWORDS :-Midwives, ICM, MMoC, Competencies

REFERENCES

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Strong Technique to detecting COVID with X-ray images

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Abstract:-Previously unknown corona virus, generally referred to as COVID causes it. Detecting CO19 at this time is mostly depends on factors like the patient's signs and symptoms, on where the patient lives, where the patient has been, where the patient travels, and the proximity to other patients. To conduct a COVID test on a patient, a physician or other health worker uses a swab to obtain a nasal sample. After being analyzed in a laboratory, the results are copied into a database. If an individual has the sputum, he or she will cough it up, and if not, an instrument will do it. It becomes critical when there is a lack of reagents or testing capacity, when a healthcare professional tracks the virus and finds out if they are COV-19 positive, or works with infected. With retrospective analysis of laboratory test data, it is necessary to have a COVID-19-like process for X-ray image analysis Demystriciation: This paper offers a simplified method for detection of CO19 with the use of medical images based on deep nets. A preliminary study has shown an accuracy of 91.7% for diagnosis, with 100% success in determining the survival rate.

Keywords—Convolution neuralnetwork,Covid-19, deeplearning, chest X-ray images

I .INTRODUCTION:-Between 31 December 2019 and 16 May 2020, a total of approximately 4, 503, 36 cases have been reported, including 1,304,359 fatalities. It is discovered that COVID is a disease causing lethal, so statistics show us that early detection and tracking the epidemic are necessary in order to combat it. As much as we hate to admit it, not enough testing doesn't actually remove this virus from our systems. But is it important to know how accurate the results are? With respect to precise Covid-19 testing, cooperation from a number of methods is required. Secondly, the test units must be acquired, for example, the long tubes and chemicals are required. During this step, these are forwarded to proficient laboratory research lab researchers who use a polymerase chain reaction (PCR) machine. At the end of the day, there must be a framework in place to allow for tests to be done and feedback to be reported to the appropriate parties. an individual may be uninfected even when they're disease free.They are all put out of action. To avoid discharge near the testing location, they might have the infection in the lungs, but not in the nose. It is now a standard procedure to perform a CXR to find the abnormal respiratory tract or lung function. breath/b study is very likely to be the diagnostic and treatment modality of choice for lung abnormalities" Pathological findings on CXR establish whether or no deformation occurs.(Numerous studies have) demonstrated the utility of X-ray imaging in the diagnosis of various pathologies including pneumonia, abscesses, inflammation, and/ lymph nodes, and X-ray images are readily available for this purpose in [6] They look at the dataset of [4] and then use that to predict outcomes. Deep learning implementation of these X-ray images could be very advantageous. Successful applications of deep learning (DL) have previously demonstrated the ability to find anatomical and cellular structures, segmentation, detect diseases, and so on. DL technology is utilised for detecting and classifying cancer in a similar manner to how it's used in clinical diagnoses The researchers applied deep convolutionalvision neural net (DCNN) to digital multisequence imaging (MMI) for the automated detection and segmentation of brain metastases (MRI). It has been proposed that the DL is be used to test for fundus images for anaemia similar research was conducted by researchers in [10] and [11] by means of applying COVID-1 for imaging and diagnostics on the DL patients in [12] The authors retrieved the COVID- 19 data from the general population,

training and testing a DL system with transfer learning to identify COVID- 19 factors, and validated the method with a follow-up of patients who were given COVID- 19 to use transfer the findings to estimate survival The use of DL for the res50+SVM to extract complex features achieved 95.38% classification accuracy, with an FPR of 0.51%, an F1 score of 0.95.46, and an MCC of 0.77% The authors collected 453 CT confirmed cases of pathogen, known to be affected by CO19, as the training set, and created an algorithm based on the migration theory. With an accuracy of 82.9% and an extensiveness of 80.5%, internal validation was successful." The dataset used in the outside demonstrated a success rate of 73.1% with a S/P of 67% They introduced an alternative model, known as Capsule Networks, which successfully predicted 95.7% of CO19 infectivity in the small dataset. Table 1 shows other DL-based creative approaches with their proposed techniques and results Inspired by the work of [10-14], we built a CNN algorithm to evaluate CO19 in respiratory disorders like Middle East respiratory syndrome (MERS), SARS, and ACUTE ANDROJENT syndrome (ARDS).In our report, the report will be broken down into three sections. Section II deals with participant data, Section III illustrates our main findings, and our basic methodology, and Section V explains the overall conclusions.

II.DATA COLLECTION:-The data that was compiled used in this study comes from two public sources. 10 was given to us in This database contains a total of 259 MERS and SARS chest images (pneumonia cases). They are extracted from different websites. Apart from the [4] from that, we used 3347 other images to train and improve the classifier. Thus, here the total number of images in the research is 3600. The rule of thumb for me is that 80% of images are used for training and 20% of images are for evaluating and checking the algorithm performance of the whole system. less than 2% of the images pertain to diseases such as MERS, SARS, SARS-CoV, or SARS2 are related to the chest More than half of the original patients were found to be COVID positive.

III.METHODOLOGY:-The goals of this research are aimed at providing answers to four major questions:

1. To confirm whether or not the patient is infected with COV-19, the doctor has to order a test.
2. Will the patient live or die?
3. The ratio of cases to non-COVID patients is generally is about 3
4. Data has shown that about the ratio of male to female COVID patients to be 2:1.

It is shown in Figure 1. According to this theory, we first organized the images and put the related co-variation information in place before attempting to do further work on CVR. We started with black and white images and then organized them into two groups (i.e. SARS, MERS and ARDS). COVID-19 is then is used to determine the prognosis of patients who are close to being dead. This was accomplished by using DL convolution neural network (DL CNN). Figure 2 describes the architecture of CNN.

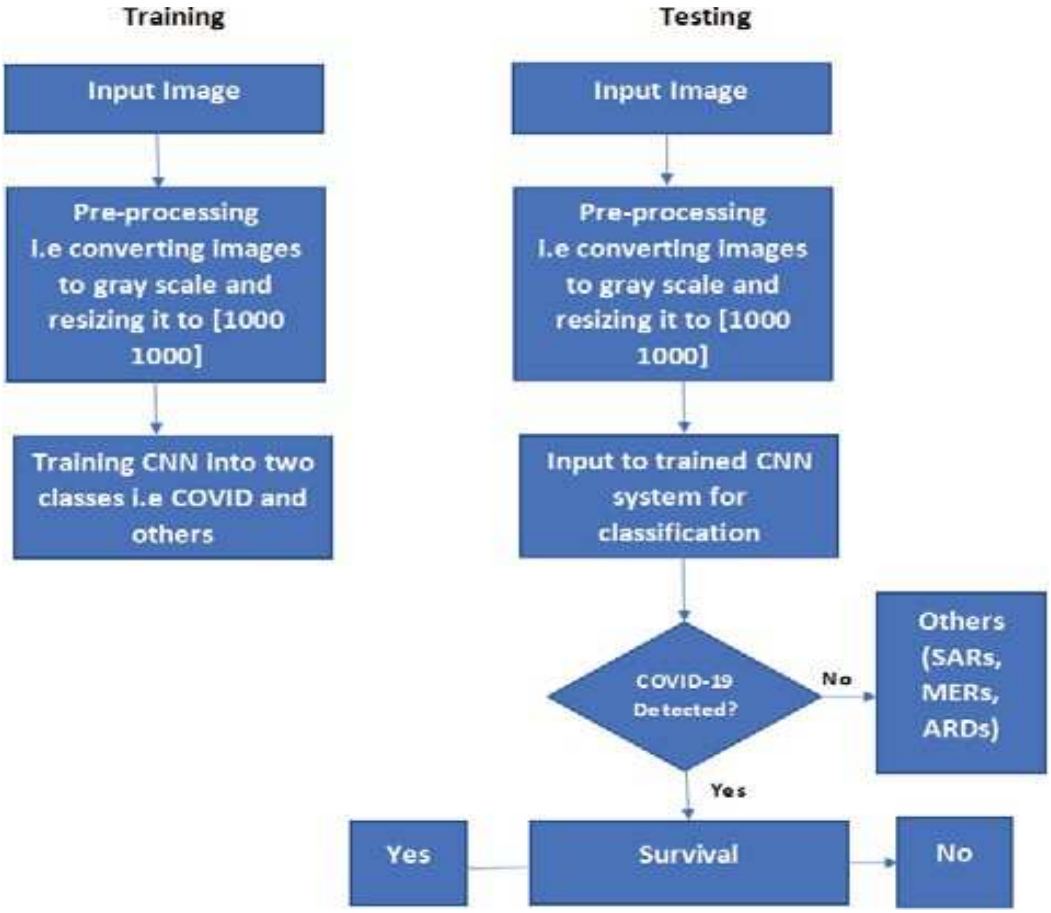


Fig.1.Picture illustrating the flow of the system

IV.RESULTS AND DISCUSSION:-With an accuracy of 91.67% in Figure 3 can be seen in Figure 6 Using the data as shown in Figure 4, we classified the original data with a neural network feature extractor and then analysed it to find the survival ratio (a). Here's confusion matrix (Figure 4b) demonstrates the fact that many aspects of the design are open to confusion. This classifier is as shown in Figure 7 is totally accurate. The green colour in Figure 3 and 4 (a) match. The blue images in Figure 4 (b) do not correctly reflect what Figure 3 depicts. Based on

	Name	Type	Activations	Learnables
1	imageinput 1000×1000×1 images with 'zerocenter' normalization	Image Input	1000×1000×1	-
2	conv 20 2×2×1 convolutions with stride [1 1] and padding [0 0 0 0]	Convolution	999×999×20	Weights 2×2×1×20 Bias 1×1×20
3	batchnorm Batch normalization with 20 channels	Batch Normalization	999×999×20	Offset 1×1×20 Scale 1×1×20
4	relu ReLU	ReLU	999×999×20	-
5	fc 2 fully connected layer	Fully Connected	1×1×2	Weights 2×19960020 Bias 2×1
6	softmax softmax	Softmax	1×1×2	-
7	classoutput crossentropyex with classes 'COVID-19' and 'Others'	Classification Output	-	-

our data in Figures 5(a) and 5(b), the majority of people infected with this virus are middle-aged or young adults.

Fig.2.CNNArchitecture

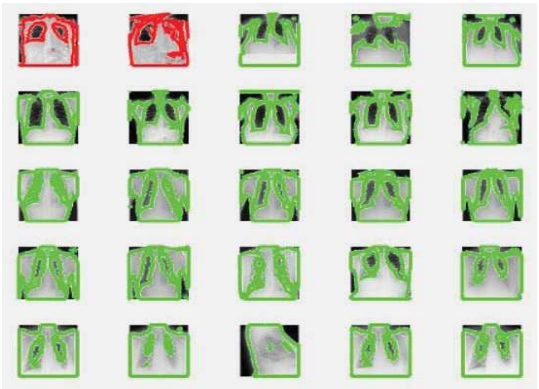
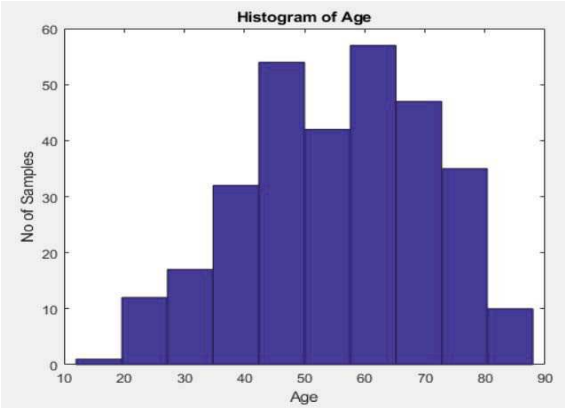
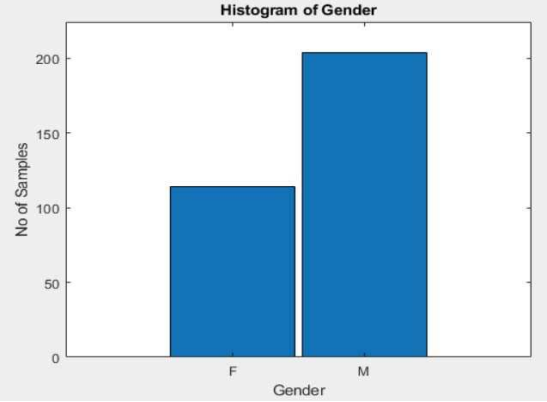


Fig.3. DetectionofCOVID-19patientsusingfeatures

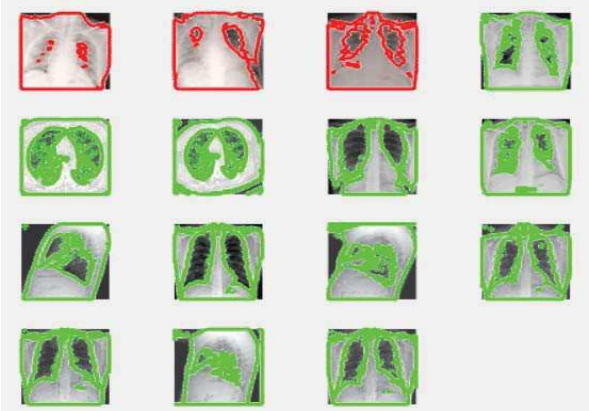


a)Histogram of age

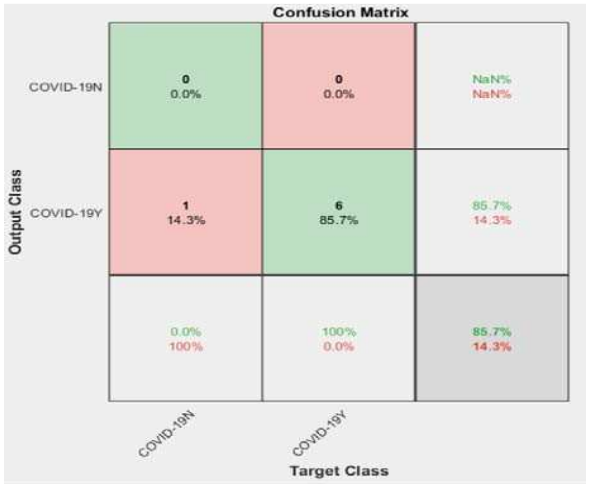


b) Histogram of sex.

Fig.4.Demographicsresultsbased onageand sex



a)featureanalysistofindsurvivalratio



b)Confusion matrix of classifier for survival analysis

Fig. 5. AnalysisofCOVID-19 patientssurvival

V.CONCLUSION AND FUTURE DIRECTIONS:-This research provides an exceptional starting point for us to identify the clinical stage of COVID-19 disease. In this study, we used a deep neural network technique to identify two different classes of patients based on the shape of their chests: those with chest abnormalities and those without. We achieved a perfect score of 91.67% in this case. We tried to diagnose and follow patients who have positive COVID-19 antibodies to see how their disease proceeds. This research also includes a feature that determines the survival rate of CO19 patients to track performance accuracy of about 98%. Until now, the presence of this virus has been associated with age groups in which there are more men than women. These current issues in healthcare were examined as part of the COVID project. In the future, our strategies will include ways to enhance the things we've already done well to include new and exciting techniques, and our strategy will be toward improvements of the things we've already done well with new and exciting techniques.Working in real time on these patients and increasing the accuracy of our findings.

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Effect of Music Therapy on Selected Physiological Parameters During First Stage Of Labour.

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Abstract:
Background: Enjoying some "music to move by" can encourage the mother to stay active for as long as possible during the labour. Less research has been done about the use of music therapy on selected physiological parameters in labour.
Aim: The purpose of the study was to investigate 'the effect of Music therapy on selected physiological parameters during first stage of labour among Primigravida at selected hospitals, Bangalore".
Subjects and methods: An evaluative research approach with Quasi experimental Post-test only Control group design was adopted. 40 primigravida were assigned either to experimental group (n=20) and control group (n=20) by purposive sampling method. Music therapy was given to the experimental group and the control group was not exposed to music during this period. Post-test was conducted for both the group using the Modified UAB Pain Behaviour Scale and Modified WHO Partograph.
Findings: The study findings revealed that there is significant Effect of music therapy on pain perception ($t=18.58$, $p<0.001$), frequency of uterine contractions ($t=11.92$, $p<0.001$), intensity of uterine contractions ($t=19.08$, $p<0.001$)and rate of cervical dilatation ($t=9.58$, $p<0.001$)in experimental group compared to control group.
Conclusion: The study concludes that Music therapy was found effective on selected physiological parameters among primigravida in first stage labour.
Key words: Music therapy, physiological parameters, primigravida.

INTRODUCTION:-Childbirth is one of the most marvelous and memorable segment in a woman's life. It does not really matter if the child is the first, second or the third one. Each experience is unique and calls for a celebration.Each woman comes into labour room with her own set of expectations, fear, pain threshold, personality and behavioural makeup and ways of experiencing what is happening to her, which has to be managed effectively.There are many choices for pain relief, both pharmacological and nonpharmacological measures.Pharmacologic measures are narcotic analgesia, epidural anesthesia, tranquilizers and sedatives. Nonpharmacological measures are Music therapy, Breathing techniques and relaxation, position change, etc.Throughout the last two decades there has been an increasing demand for non-pharmacological alternatives. Music is one such alternative as a therapeutic intervention started at 20th century. The common theory behind this is; music acts as a distracter as it can provide an escape from negative stimuli such as pain and anxiety.An experimental study conducted in Taiwan on 60 first time mothers expected to have normal spontaneous delivery, to investigate the effect of music therapy on labour pain and anxiety, revealed that compared with the control group, the experimental group had significantly lower pain and anxiety in the latent phase of labour.A study conducted in Thailand studied 2 groups of labouring women. One group chose among five types of calming music and listened to it for the first 3 hours in the hospital after active labour began. The control group had the standard care during labour. Researcher measured

the women's reports of labour pain before thestudy began and hourly for the next 3 hours. During the 3 hours and at each hourly measure, the music group had significantly less sensation and distress pain than the control group.By the above research studies it has proven that mothers require less pharmaceutical pain relief measures during labour if they make use of music. During early labour, this will also promote relaxation and also facilitate the birthing process.This study was an attempt to find the effect of music therapy on selected physiological parametersduring first stage of labour.

OBJECTIVES OF THE STUDY:

1. To assess the effect of music therapy on selected physiological parameters by comparing post test scores of experimental and control group.
2. To determine the association between the level of pain perception and selected socio-demographic variables in experimental group.
3. To find the association of the frequency and intensity of uterine contractions with selected socio-demographic variables in experimental group.
4. To determine the association between the rate of cervical dilatation progression and selected socio-demographic variables in experimental group.

HYPOTHESES:

H_{01}- There is no significant difference between post-test scores of experimental and control group.

H_{02}- There is no significant association between post-test level of pain perception and selected socio-demographic variable in experimental group.

H_{03}– There is no significant association between frequency of uterine contractions and selected socio-demographic variable in experimental group.

H_{04}– There is no significant association between intensity of uterine contractions and selected socio-demographic variable in experimental group.

H_{05}– There is no significant association between the rate of cervical dilatation progression and selected socio-demographic variable in experimental group.

MATERIAL AND METHODS:

1. RESEARCH APPROACH

Quantitative research approach.

2. RESEARCH DESIGN

Post-test only control group design

Intervention (X)	Post-test(O**1**)

3. SETTING OF THE STUDY

Labour room of M S Ramaiah Hospital, Bangalore.

i. **Population:** Primigravida mothers at M S Ramaiah hospital, Bangalore.
ii. **Sample:** Primigravida mothers in first 6 hours of active phase of labour.
iii. **Sample Size:** 40 primigravida mothers.
iv. **Sampling Technique:**Purposive sampling technique.

DESCRIPTION OF THE TOOL*:*

Section A: Socio-Demographic Data

Socio-demographic data – Age, Occupation, Type of work, Type of family,Presence of spouse in the hospital, Habitance.

Obstetric variables – Pregnancy, Mode of induction, Acceleration of labour,Gestational age, Duration of first stage labour, Estimated fetal weight, Bi-parietaldiameter.

Section B: Modified UAB Pain Behaviour Scale

Modified UAB Pain Behaviour Scale

Consisted6 items. Scoring:Each of 6 categories was rated as 0, 0.5, 1.

Scores were added together.Total pain score was documented out of 06.

Interpretation:

0 – 2	Mild Pain
2 – 4	Moderate Pain
4 – 6	Severe Pain

Section C: Modified WHO Partograph

1. Uterine changes-

A. Frequency-

Interpretation: maximum contractions in a hour: 12

< 4	Less frequent
4-8	Moderately frequent
9-12	More frequent

B. Intensity-

Interpretation: measured in terms of duration

<15sec	Mild contraction
15 — 40sec	Moderate contraction
>40	Strong contraction

2. Cervical dilatation –

<1cm/hr	Slow
1cm/hr	Medium
>1cm/hr	Fast

PILOT STUDY:-The pilot study was conducted in M.S. Ramaiah Hospital, Bangalore to find out the practicability and feasibility of the study, the reliability of the tool and effect of Music therapy. The findings of the Pilot Study revealed that the study is feasible. The Reliability of the **Modified UAB Pain Behaviour Scale** was calculated by using **Inter-Rater Reliability Method**. r : **0.87.** Since **Modified WHO Partograph** is standardized tool reliability was not done. The findings of the Pilot Study revealed that study and the tool were found to be reliable and feasible for administration for the main study. Formal permission was obtained from the concerned authority to conduct the main study. First 20 primigravida were allotted to experimental group. Music therapy was given to the women in first active stage of labour to experimental group with necessary instructions. Next 20 primigravida were allotted to control group and were not given any intervention. Post-test was conducted by the investigator for both the groups using the Modified UAB Pain Behaviour Scale and Modified WHO Partograph respectively.

ANALYSIS AND RESULTS:-The data collected were edited, tabulated, analysed, interpreted, and findings were presented in the form of tables and diagrams under the following sections.

SECTION A: Findings related to demographic characteristics of the subjects.

Majority of the subjects, i.e.50% of the experimental group and 40% of the control group belongs to the age group of 23-27 years.Many i.e. 35% of the experimental group and 30% of the control group subjects were private employees. Most i.e. 50% of subjects in experimental group and 40% in control group performed moderate work. Manysubjects i.e.70% in experimental group and 35% in control group belongs to nuclear family. Majority i.e. 80% of experimental group and 75% of control group spouse were present in the hospital. Many i.e. 50% of experimental group were from rural and 30% of control group subjects were from urban slum. Most subjects i.e.90% of the experimental group and 80% of the control group had the attitude of wanted pregnancy. Majoritysubjects i.e. 90% in experimental group and 80% in control group was spontaneous. Many subjects i.e. 90% of experimental group and 85% of control group had labour acceleration by medical method. Majority subjects i.e. 60% of the experimental group and 55% control group were in 39 – 40 weeks of gestation. Many of subjects i.e. 90% in experimental group was 8 – 10 hours and 85% in control group had duration of 10-12 hours. Most subjects i.e. 70% of experimental group and 55% of control group had estimated fetal weight of 3 – 4kg. Majority subjects i.e. 85% in both experimental group and control group had bi-parietal diameter 9.3 – 9.6cm.

SECTION B: Comparison of post-test findings of selected physiological parameters inexperimental and control group. (student-'t' test)

n=40 (20+20)

GROUP	EXPERIMENTAL		CONTROL		't' TEST
	MEAN	SD	MEAN	SD	
Pain perception	3.34	0.239	4.70	0.223	18.586 **
Frequency of uterinecontractions	8.09	0.793	5.27	0.699	18.586 **
Intensity of uterinecontractions	40.94	1.842	30.52	1.607	19.08 **
Cervical dilatation	7.37	0.498	5.70	0.599	9.589 **

**- Significant at 0.001 level

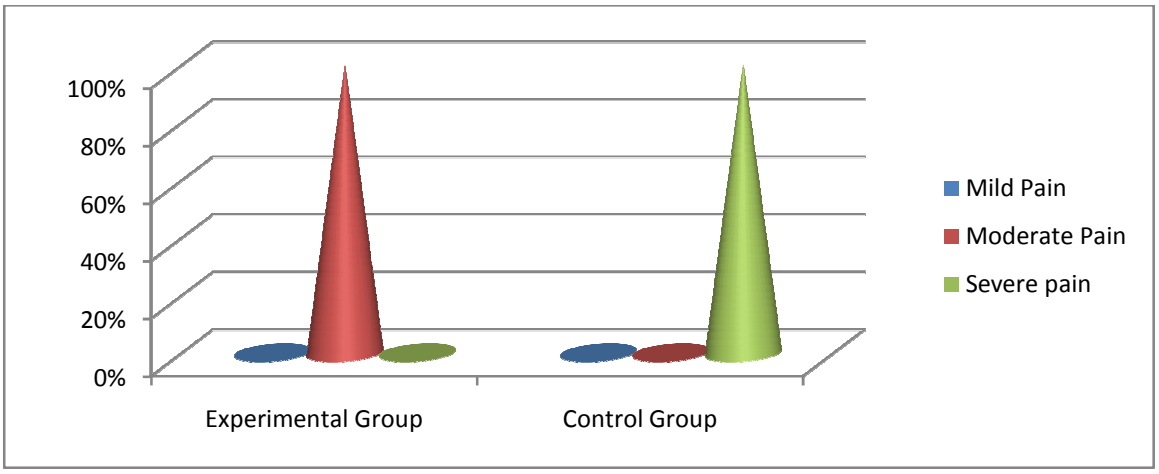
The above table reveals that there is a significant difference of the post-test scores of Pain perception, Frequency of uterine contractions, Intensity of uterine contractions and Cervical dilatation of experimental group and control group with student 't' value 18.586, 11.923, 19.08 and 9.589 which was significant at P • 0.01 level respectively. Hence H_{01} stated was rejected.

Frequency and Percentage distribution of Level of pain perception in experimental and control group in Post- test.

Pain Perception **n=40 (20+20)**

LEVEL OF PAIN PERCEPTION	EXPERIMENTALGROUP		CONTROL GROUP	
	Frequency	Percentage	Frequency	Percentage
Mild pain	-	-	-	-
Moderate pain	20	100%	-	-
Severe Pain	-	-	20	100%

The above table reveals all 100% of the subjects in the experimental group had moderate pain perception and all 100% of the subjectsin the control group had severe pain perception.

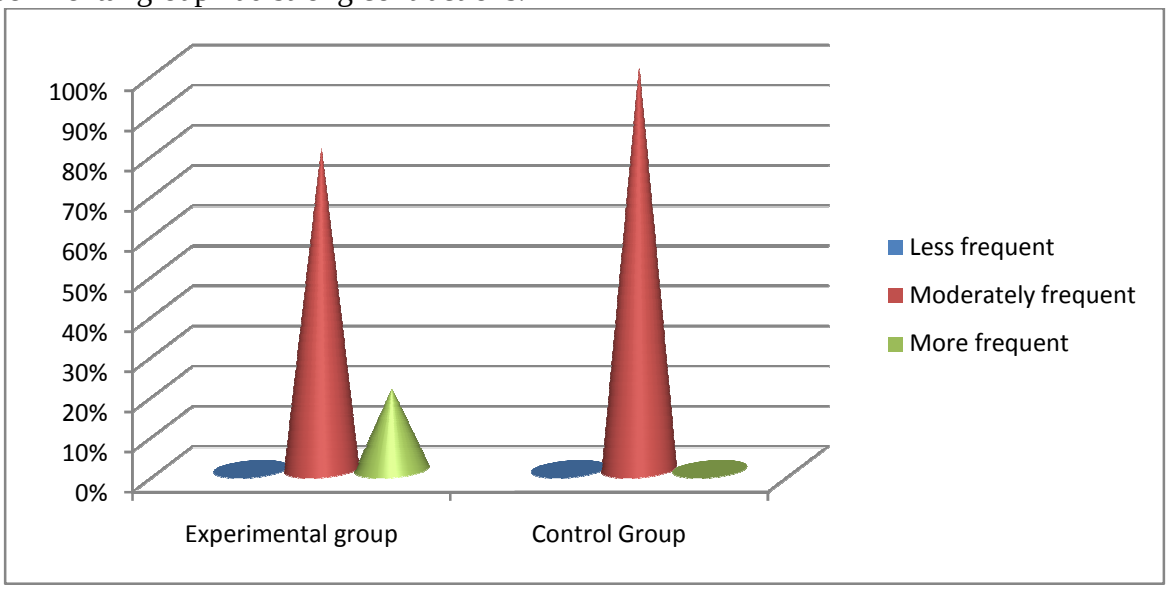


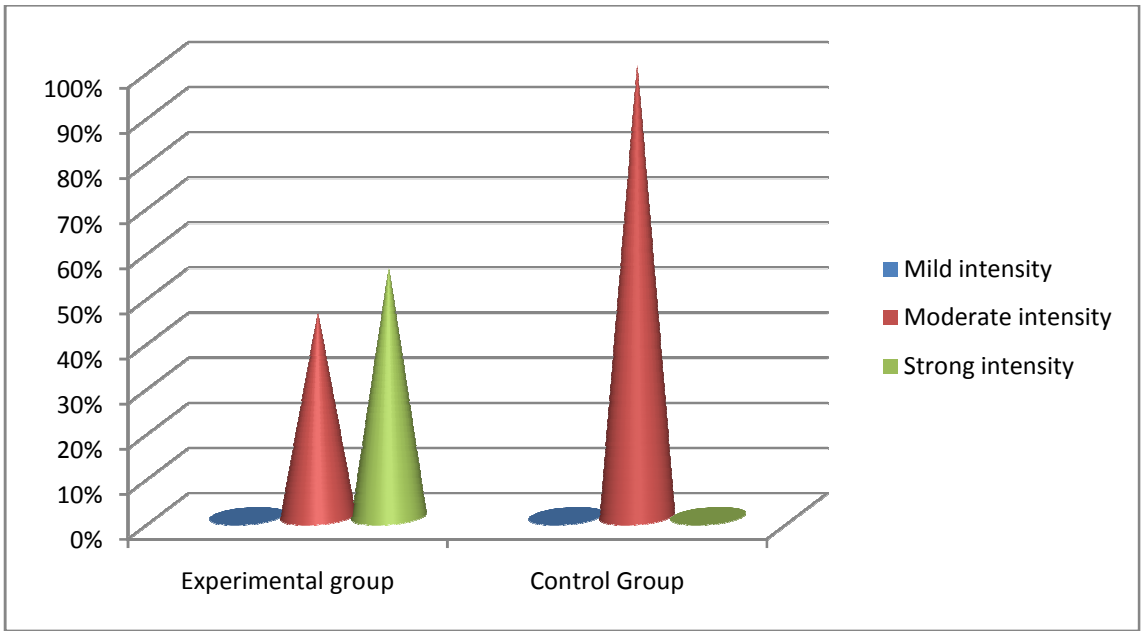
Frequency and Percentage distribution of uterine contractions in terms of frequency and intensity in experimental and control group in Post- test.

Uterine Contractions–Frequency and Intensity n=40 (20+20)

GROUP	Frequency						Intensity					
	Less		Moderate		More		Mild		Moderate		Strong	
	f	%	f	%	F	%	f	%	f	%	f	%
EXPERIMENTAL	-	-	16	80%	4	20%	-	-	9	45%	11	55%
CONTROL	-	-	20	100%	-	-	-	-	20	100%	-	-

The above table reveals with respect to frequency of uterine contractions 80% of the subjects in experimental group and all 100% of the subjects in control group had moderately frequent contractions and 20% of the subjects in experimental group had more frequent contractions and with respect to intensity of uterine contractions 45% of the subjects in experimental group and all 100% of the subjects in control group had moderate contractions and 55% ofthe subjects in experimental group had strong contractions.



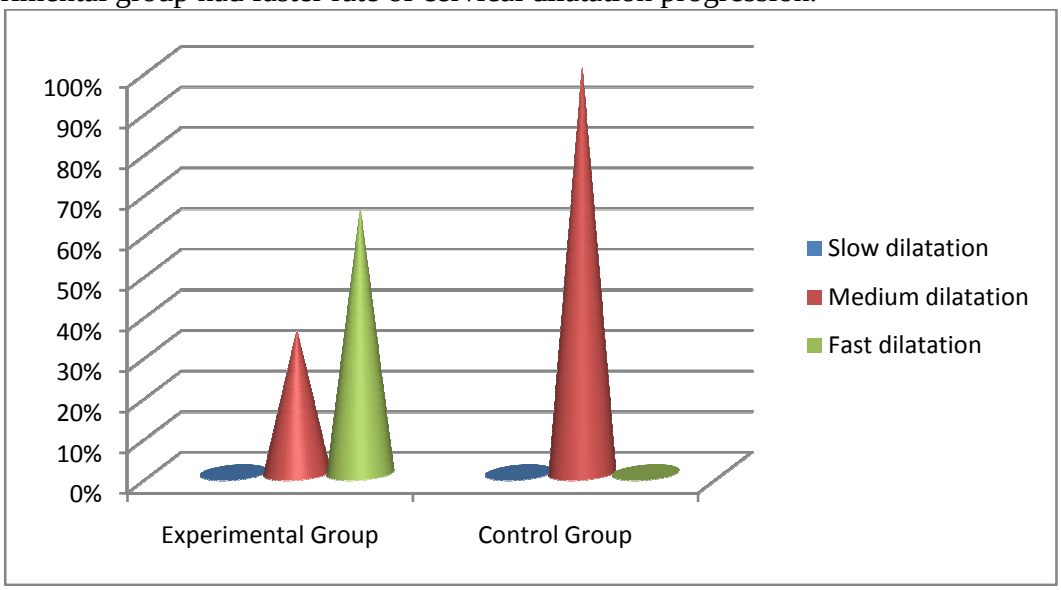


Frequency and Percentage distribution of rate of cervical dilatationprogression in experimental and control group in Post-test.

Cervical Dilatation **n=40 (20+20)**

RATE OF CERVICAL DILATATION PROGRESSION	EXPERIMENTAL GROUP		CONTROL GROUP	
	Frequency	Percentage	Frequency	Percentage
Slow	-	-	-	-
Medium	7	35%	20	100%
Fast	13	65%	-	-

The above table reveals that all 100% of the subjects in control group and 35% of the subjects in experimental group had medium rate of cervical dilatation progression and 65% of the subjects in experimental group had faster rate of cervical dilatation progression.



SECTION C- Association between the level of pain perception and selected socio-demographic variables in experimental group.

There is no significant association between the pain perception and selected socio demographic variables at 5% level.

SECTION D (a) - Association between the frequency of uterine contractions and selected socio-demographic variables in experimental group.

There is no significant association between the frequency of contractions and selected socio demographic variables except in area of type of work at 5% level.

SECTION D(b) - Association between the intensity of uterine contractions and selected socio-demographic variable in experimental group.

There is no significant association between the intensity of contractions and selected socio demographic variables at 5% level.

SECTION E - Association between the rate of cervicaldilatation progression and selected socio-demographic variables in experimental group.

There is no significant association between the rate of cervical dilatation and selected socio demographic variables except in areas of mode of onset of labour and acceleration of labourat 5% level.

DISCUSSION:-The null hypothesis H_{01} stated in this study isrejected since there is a significant difference between the post-test scores of pain perception, frequency of uterine contractions, intensity of uterine contractions and rate of cervical dilatation of experimental and control group and the calculated student't' value was 18.586, 11.9235, 19.08 and 9.589 which was significant at $P < 0.01$ level (1%) respectively because of music therapy.

χ^2value was less than table value for all selected socio-demographic variables, hence the H_{02} is accepted.

χ^2value was less than table value for all selected socio-demographic variables in experimental group except in areas of type of work of frequency of uterine contractions. Hence H_{03} was accepted except in areas of type of work of frequency of uterine contractions.

χ^2 value was less than table value for all selected socio-demographic variables, hence the H_{04} stated is accepted.

χ^2value was less than table value for all selected socio-demographic variables in experimental group except in areas of mode of onset of labour, acceleration of labour and control group post test scores. Hence H_{05} was accepted except in areas of mode of onset of labour and acceleration of labour.

CONCLUSION:-The study conclude that Music therapy was found effective in reducing pain perception, increasing frequency of contractions, intensity of contractions and increasing rate of cervical dilatation progression among primigravida in first stage labour.

RECOMMENDATIONS:

1. Study can be replicated with larger samples for better generalization.
2. Similar study can be conducted using time-series design with other measures.
3. Music can be administered for all women in labour at all hospitals.

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A STUDY TO ASSESS THE KNOWLEDGE AND PRACTICE OF RURAL ADULTS REGARDING PREVENTION OF RABIES, AT SELECTED AREA, RAMANAGAR DISTRICT, WITH A VIEW TO DEVELOP HEALTH EDUCATION MODULE

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Rabies is a vaccine-preventable, zoonotic, viral disease. Once clinical symptoms appear, rabies isvirtually 100% fatal. Out of 99% cases, domestic dogs are responsible for rabies virustransmission to humans. Yet, Rabies can affect both domestic and wild animals. It is spread to peopleand animals through bites or scratches, usually via saliva. Dog bite cases are found more in rural areas, among adults particularly compared to urban areas. Education plays a vital role in development of the human potential, through which we can achieve control of dog menace and prevention of Rabies and can make Rabies a history. A non-experimental descriptive research approach was adopted and research study was conducted at Kenchanakuppe village, Bidadi PHC area, Ramanagar District. Convenient sampling technique of non-probability sampling type was adopted to select 100 rural adults. Knowledge and Practice of rural adults regarding prevention of Rabies was collected using Structured Interview Schedule. After data collection, Health education module on Prevention of Rabies was given to rural adults who participated in the study.Overall mean knowledge and practice score is found to be 50.7% and 50.9% respectively indicating moderate level of knowledge and practice of rural adults regarding prevention of Rabies. However, there existed moderate positive correlation between knowledge and practice score of rural adults (r = +0.594) indicating promotion of practice with adequate knowledge. Association between demographic variables and Knowledge of rural adults regarding prevention of Rabies was determined using X^2 –test. Age, Education, Occupation, Type of family, Pet animals in house were found to have significant association with knowledge scores of rural adults with obtained X^2 value greater than critical value of X^2 at 5% level of Significance (X^2>P@0.05 level). Association between demographic variables and practice score of rural adults regarding prevention of Rabies was determined using X^2-test. Age, Education, Family monthly income, Experience of dog bite in family and Distance for health care facility were found to have significant association with respondents practice scores with obtained X^2 value greater than critical value of X^2 at 5% level of Significance (X^2>P @ 0.05 level).**My study revealed moderate knowledge and practice level of rural adults regarding prevention of Rabies indicating the need for health education regarding prevention of dog bite and prevention of rabies among rural adults.**

KEY WORDS:-Knowledge, Practice, Rabies and Rural adults.

INTRODUCTION:-Rabies is one of the vaccine preventable zoonotic disease also known as Hydrophobia. Zoonotic diseases have been known since antiquity. Zoonotic diseases were overshadowed by diseases peculiar to man alone andknown to be one of the most important zoonotic diseases in India. Rabies is also endemic in most countries of the world including India.About 563 million United States dollars arespent annually in the world on measures to prevent rabies, yet incountries of south-eastern Asia the disease is still an important publichealth problem. Despite 1.1 to 1.5million people having received post-exposure treatment, estimated 45% of deaths occurs from rabies in south-eastern Asia with 36% of the world's deaths.The dog population in India is estimated to be around 25 million and most of them are not protected against rabies.Rabies occurs in all parts of India with an exception of Andaman, Nicobar and

Lakshadweep Islands. At least 3 lakh people take treatment against rabies every year and at least 1000 people die in India after being bitten by a rabid animal. It is a public health problem in most countries like Asia, Africa and Latin America as like in India.Rabies remains an important public health problem in developing countries, and the indigenous threat of rabies continues in developed countries because of wild life reservoirs.In India, rabies affects mainly people of lower socio-economic status, reports about18,000 to 20,000 cases of rabies in a year and Rabies incidence in India has been constant for a decade, without any obvious declining trend, and is probably an underestimation of true incidence because in India rabies is still not a notifiable disease. This situation is rooted in a general lack of awareness of preventive measures, which translates into insufficient dog vaccination, an uncontrolled canine population, poor knowledge of proper post-exposure prophylaxis on the part of many medical professionals, and an irregular supply of anti-rabies vaccine.It's the responsibility of each individual to take care of their health for which they should have adequate knowledge on basis of which they practice healthy activities. Educating the rural people regarding prevention of rabies plays a vital role in improving their knowledge and practice level in preventing the deadly disease.

OBJECTIVES:

1. To assess the knowledge of rural adults regarding prevention of rabies.
2. To assess the practices of rural adults regarding prevention of rabies.
3. To find the association between knowledge and practices of rural adults regarding prevention of rabies with selected demographic variables.
4. To develop and provide health education module for rural adults regarding prevention of rabies.

ASSUMPTIONS:

1. The rural adults will have some knowledge regarding prevention of Rabies.
2. The rural adults will practice to certain extent regarding prevention of Rabies.

CONCEPTUAL FRAME WORK:-Concepts from Pender's health promotion model is utilized in present study, where the rural adults with their adequate knowledge and practice in preventing rabies plays vital role in taking care of themselves and their children during dog bite and in preventing rabies. Ultimately contributing to the promotion of community health.

MATERIAL AND METHODS

1. RESEARCH APPROACH

A Quantitative Research Approach

2. RESEARCH DESIGN

Descriptive Research Design

3. **SETTING OF THE STUDY:-**The present study was conducted at Kenchanakuppe Village at Bidadi PHC Area, Ramanagar District.

a) **Population:** Population of the study includes rural adults aged between 20 to 40 years residing at Bidadi PHC area
b) **Sample:** Rural Adults residing at Kenchanakuppe village at Bidadi PHC Area
c) **Sample Size:** 100 Rural Adults
d) **Sampling Technique:** Convenient Sampling Technique of Non-probability type.

DESCRIPTIVE OF THE TOOL

The tool consists of a structured interview schedule. It is divided into 2 parts, they are as follows

a) **Part I**: This part of the tool consists of questions related to demographic data consists of 12 items.

b) **Part II:** This part of the tool consists of items related to knowledge and practice of rural adults regarding prevention of rabies,it consists of 40 items and these are objective type multiple choice questions that help in assessing their knowledge and practice. To find out the association with the selected demographic variables and knowledge and practice scores, respondents are categorized into three groups.

- Below 50% - Inadequate
- 51-75 - Moderate
- Above 75% - Adequate

The Pilot study was conducted in Kumbalagodu PHC area to determine the feasibility of study as well as to determine the reliability of tool. Structured interview schedule was administered to10 samples. The reliability of the tool was computed by split half Karl Pearson's correlation formula (raw score method).The reliability co-efficient was determined using Brown's Prophecy formula. Reliability co-efficient of knowledge was found to be 0.85 and reliability co-efficient of practice found to be 0.84 revealing reliability of tool and pilot study also revealed the feasibility of the study.

ANALYSIS AND RESULTS:-The data collected were edited, tabulated, analysed, interpreted, and findings were presented in the form of tables and diagrams under the following sections.

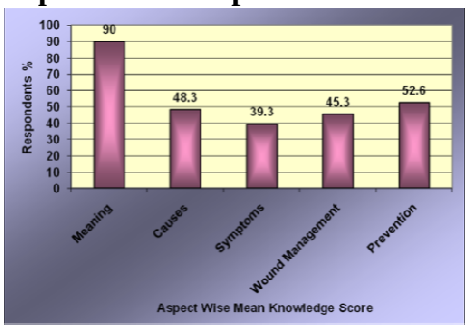
Section I: Distribution of respondents according demographic variables

A.Findings related to demographics characteristics of the subjects.

Majority (36%) of the respondents were in the age group of 26-30 years, followed by 34% in the age group of 31-35 years. Majority (53%) of the respondents were male as compared to 47% of female respondents. Most (32%) of the respondents had studied till primary school, followed by 32% had completed high school, 29% not literates, 7% studied till PUC. Majority (38%) of the respondents were house wives followed by 27% had private job, 18% in business and 17% of the respondents had agriculture as their occupation. All (100%) of the respondents were Hindus. Majority (64%) of the respondents belonged to joint family. Majority (70%) of the respondents had family income of Rs. 6,001 & above followed by 30% had family income between Rs.4, 001-6,000.All (100%) of the respondents obtained health information from family members/relatives/friends, among them most (99%) also from TV/Radio. Many of the respondents (22%) had cow, 10% had dog and 07% of the respondents had cat as pet animals. Majority (69%) of the respondents had experience of dog bite in their family. Majority of the respondents (47%) were at the distance of 1 km followed by 35% at 1.5 km and 18% at the distance of 2 km from the health care facility. All (100%) of the respondents had stray dogs in their vicinity.

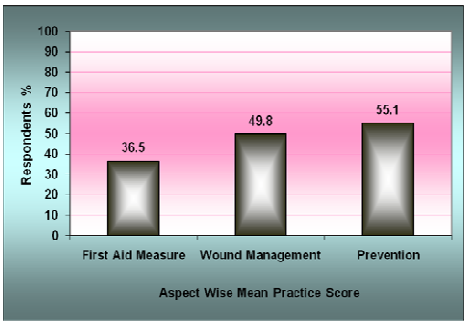
Section II: Distribution of scores related to knowledge and practice of respondents

A. Aspect wise knowledge and practice score of respondents on prevention of rabies.



Highest mean knowledge score of 90.0% was observed in the aspect of meaning of rabies followed by 52.6% in the aspect of prevention, 48.3% in the aspect of causes, 45.3% in the aspect of wound management and 39.3% in the aspect of symptoms. However, overall mean

knowledge score was observed to be 50.7%.Highest mean practice score of 55.1% was observed in the aspect of prevention of rabies followed by 49.8% in the aspect of Wound management and 36.5% in the aspect of first aid measure. However, overall practice score was found to be 50.9%.Correlation between Knowledge and practice of respondents



B. Correlation between knowledge and practice of respondents regarding prevention of Rabies.

Correlation between Knowledge and practice of respondents was determined using Karl Pearson correlation technique. A Positive significant relationship between knowledge and practice score of respondents on prevention of rabies (r = +0.594) indicating higher the knowledge score better is the practice score of respondents

Sl No.	Aspects	Max. Score	Respondents Knowledge			Correlation coefficient (r)
			Mean	Mean (%)	SD (%)	
I	Knowledge	25	12.67	50.7	08.7	+ 0.594*
II	Practice	15	07.63	50.9	11.3	

*** Significant at 5 % Level, r (0.05, 98 df) = 0.195**

Section III: Findings related to association between Knowledge and practice of rural adults regarding prevention of Rabies.

The association between knowledge and practice score of rural adults with demographic variables was assessed using Chi-square test.Among the demographic variables analyzed in the study, age, education, occupation, type of family, pet animals in family were found to have significant association with knowledge scores (P < 0.05 level @ 5%) and Age, education, family monthly income, experience of dog bite in family and distance for health care facility were found to have significant association with respondents practice scores ((P < 0.05 level @ 5%).

CONCLUSION:-The overall findings of the study clearly showed that the rural adults had moderate knowledge score (50.7%) and moderate practice score (50.9%). A Positive significant relationship between knowledge and practice score of respondents on prevention of rabies (r = +0.594) was also observed in the present study indicating higher the knowledge score better is the practice score of respondents.Hence, it can be concluded that, if the rural adults are provided with educational interventions such as information booklets, modules on prevention of rabies

will definitely update their knowledge and develops healthy practices, which in turn contribute to improve the total quality of one's health.

RECOMMENDATIONS:-Based on the findings of the study the following recommendations are made.

1. A similar study may be conducted on a larger sample for wider generalization.
2. A similar study can be conducted among urban adults.
3. A similar study may be conducted in other back ward districts, taluks, villages etc.,
4. Manuals, information booklets and self-instruction module may be developed.
5. The comparative study can be conducted on urban and rural area.
6. An experimental study can be conducted with structured teaching programme on knowledge, attitude and practice of rural population regarding prevention of rabies.
7. Follow up study can be conducted to evaluate the effectiveness of HEM.

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ASSESS THE PREVALENCE, RISK FACTORS AND KNOWLEDGE REGARDING HYPERTENSION AMONG CLASS IV EMPLOYEES IN MEDICAL COLLEGE HOSPITAL KOTTAYAM KERALA.

Greeshma K O **Reg no. 26519049** **Department: Nursing**

ABSTRACT

Hypertension is one of the biggest health challenges in the 21st century. Accurate and reliable information about prevalence of hypertension is a prerequisite for designing strategies for its effective control and prevention. The present study investigated to identify the prevalence, risk factors and knowledge of hypertension among class IV employees in Govt. Medical College Hospital, Kottayam. Descriptive survey design with purposive sampling technique was employed in this study. The study was theoretically supported by the frame work based on Nola J. Pender's Revised Health Promotion model. The study was conducted among 350 class IV employees of Medical College Hospital, Kottayam. The blood pressure of the employees was measured with the subject in sitting position, the right arm placed at heart level, using a calibrated sphygmomanometer. All subjects were reassessed after 1 week and the mean blood pressure was calculated. Pilot study was conducted to assess the feasibility of the study. Statistical analysis was done using descriptive and inferential statistics. The study findings revealed that the overall prevalence of hypertension was 42.29%, of which 28.57% were known cases, 13.72% were newly detected and 30.9% were prehypertensives. Also it shows that 51.2% has only average knowledge regarding hypertension and most of the employees had multiple risk factors for hypertension. It was found that there was a significant association between knowledge of employees with job area, years of experience and previous information regarding hypertension. On the basis of research outcome a care guide on hypertension was prepared by the investigator for the employees. Findings of the study have implications in nursing practice, education, administration andresearch.

Key words: Prevalence; Risk factors; Knowledge; Hypertension; Care guide; Class IV employees

INTRODUCTION

The sophisticated life due to the advanced technology and change in the life style increases the risk of the mortality and morbidity due to the non communicable diseases. As per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 63% were due to non communicable diseases.[1]It is predicted that non communicable diseases (NCD) would contribute as much as 80% of the global burden of disease by 2020 and they will be responsible for seven out of every ten deaths in the developingnations.[2]The largest proportion of NCD deaths is caused by cardiovascular diseases (48%).The Indian subcontinent is home to 20% of the world's population and may be one of the regions with the highest burden of CVD in the world. Globally cardiovascular disease accounts for approximately 17 million deaths a year, nearly one third of the total. Of these, complications of hypertension account for 9.4 million deaths worldwide every year. An elevated blood pressure (BP)>140/90mmHg has been demonstrated in approximately 69% of people who have a first heart attack, 77% of those who have a first stroke and 74% of those who have heartfailure.[2]Hypertension is modern day's epidemic and it is becoming a public health emergency worldwide, especially in the developing countries. Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000 and this is predicted to increase to 1.56 billion by 2025.[1]

According to WHO health statistics 2012, the prevalence of hypertension in India was 23.1% in men and 22.6% in women.[3] Experts arguing that the country might actually be headed to be among the most worst disease (hypertension) afflicted countries in the near future.An estimate to uts the number of blood pressure patients in the country to rise to about 214 million by 2030 up from about 118 million in 2000.[4]The data collected by the Kerala chapter of cardiological Society of India (CSI) states that the prevalence of hypertension in Kerala was 41.5% in men and 37.4% in women.[5]Urbanization is characterized by a marked increase in the intake of energy dense foods, a decrease in physical activity and a heightened level of psychosocial stress. All of which promote the development of hyperglycemias, hypertension and dyslipidemia. According to Indian studies it is noted that the prevalence of hypertension has increased by 30 times among the urban population over a period of 55 years and about10 times among the rural population over a period of 36 years.[4] Pooling of epidemiological data showed that hypertension was present in at least 25% of the urban and 10% of the rural adult population in India.Hypertension disproportionately affects populations in low and middle income countries where health systems are weak. Hypertension is a silent, invisible killer that rarely causes symptoms. Raised blood pressure is a serious warning sign that significant lifestyle changes are urgently needed. When symptomatic, its diagnosis is easy but in asymptomatic cases search of hypertension is possible only through routine health check-ups, active surveys or screening programmes.A survey of 26,000 adults in south India showed a hypertension prevalence of 20% (men 23% and women 17%) but 67% of those with hypertension were unaware of their diagnosis. Recent (2012) studies show that for every known person with hypertension there are two persons with either undiagnosed hypertension or prehypertension. [8]

STATEMENT OF THE PROBLEM

Assess the prevalence, risk factors and knowledge regarding hypertension among class IV employees in Medical College Hospital, Kottayam.

Objectives

1. To assess the prevalence of hypertension among class IVemployees
2. To identify the risk factors of hypertension among class IVemployees
3. To assess the knowledge regarding hypertension among class IVemployees
4. To compare the risk factors of hypertension among hypertensive and non hypertensiveemployees
5. To find out the association between knowledge regarding hypertension and selected socio personal variables ofemployees
6. To prepare a care guide onhypertension

Hypothesis

H_1: There is a significant association between knowledge regarding hypertension and selected socio personal variables of class IV employees.

Methodology

The present study investigated to identify the prevalence, risk factors and knowledge of hypertension among class IV employees in Govt. Medical College Hospital, Kottayam. Descriptive survey design with purposive sampling technique was employed in this study. The study was theoretically supported by the frame work based on Nola J. Pender's Revised Health Promotion model. The study was conducted among 350 class IV employees of Medical College Hospital, Kottayam. The blood pressure of the employees was measured with the subject in sitting position, the right arm placed at heart level, using a calibrated sphygmomanometer. All subjects were reassessed after 1 week and the mean blood pressure was calculated. Pilot study

was conducted to assess the feasibility of the study. Statistical analysis was done using descriptive and inferential statistics.

DESCRIPTION OF THETOOLS:

Tool 1-Sociopersonal data sheet

It includes social and personal information such as age, gender, religion, education, occupation, marital status, family status, monthly income, job area, years of experience and previous information regardinghypertension.

Tool 2- Clinical data sheet for risk factor assessment

The investigator prepared a risk factor assessment clinical data sheet consists of 20 questions based on risk factors included in the study. It consists of measurement of blood pressure, height, and weight, body mass index, waist-hip ratio, family history of hypertension, smoking, alcoholism, lack of exercise, stressful life events, diet habits and use of contraceptivepills.

1. Bloodpressure

BP recorded with the subject in sitting position, over the right arm kept at heart level using a calibrated LED sphygmomanometer and average of 2 readings with an interval of 1 week wastaken.

2. Weight

Employees were instructed to be bare foot and the weight was measured in kilograms using weighing machine which was standardized.

3. Height

Height was measured with the employee to be bare foot and heels together, standing erect on a flat surface and the head positioned in the horizontal plane, the arms hanging freely to the sides and flat measuring scale was kept at superior most part of the head pressing firm.

4. Body mass index (BMI)

Calculated by using the formula, BMI = weight (kg)/height $(m)^2$Each employee is categorized as underweight (<18.5), normal (18.5-24.9), overweight (25-29.9) andobese (30 and above) according to their BMI.

1. Waist-Hipratio

Waist circumference was measured at a level half way between the costal margin and iliac crest at the level of umbilicus. Hip circumference was measured with employee in the standing position. Hip circumference was measured at the level of the greater trochanters with the subject standing and breathing normally in a manner similar to that during measurement of the waist circumference. The ratio of the former to the latter provides an index of proportion of intra-abdominal fat. Normal waist / hip ratio are < 0.8 for females and < 1 formales.Tool 3- Structured questionnaire to assess the knowledge of employees regarding hypertensionThe knowledge questionnaire was prepared by the researcher. It consists of 29 multiple choice questions with 4 options. Questions mainly organized under 2 aspects; knowledge related to blood pressure and knowledge related to hypertension. Two questions come under the knowledge related to blood pressure and the remaining 27 questions organized under knowledge related to hypertension.Score interpretationMore than one correct answer for some questions and each correct answer carry one score. Each correct response was given a score of 1 and the total score for all questions were 66. The knowledge is graded as good, average andpoor.

Score interpretation as follows:

Goodknowledge - score above 44

Average knowledge - score between 22- 43

Poorknowledge - score below21

Result

The study findings revealed that the overall prevalence of hypertension was 42.29%, of which 28.57% were known cases, 13.72% were newly detected and 30.9% were prehypertensive. Also it shows that 51.2% has only average knowledge regarding hypertension and most of the employees had multiple risk factors for hypertension. It was found that there was a significant association between knowledge of employees with job area, years of experience and previous information regarding hypertension.

Section I Prevalence of hypertension among class IV employees

Frequency distribution and percentage of class IV employees based on prevalence of hypertension

	(n=350)	
Prevalenceofhypertension	**f**	**%**
Knownhypertensive	100	28.57
Newhypertensive	48	13.72
Prehypertensive	100	28.57
Normotensive	102	29.14

Table depicts that the overall prevalence of hypertension is 42.29 %, of which 28.57% are known hypertensives and 13.72% are newly detected hypertensives. About 28.57% are pre-hypertensive and 29.14% have normal blood pressure.

Section II Risk factors of hypertension among class IV employees

Frequency distribution and percentage of hypertensive and non hypertensive class IV employees based on risk factors of hypertension

Risk Factors	Hypertensive (148)		Non Hypertensive(202)	
	f	%	f	%
Advanced age(above 51 years)	90	60.81	89	44.05
Male	58	39.18	73	36.13
Female	72	48.64	147	72.77
Overweight and obesity	92	62.16	70	34.65
Risky waist hip ratio	92	62.16	70	34.65
Family history of hypertension	50	33.78	92	45.54
Smoking	42	28.37	48	23.76
Alcoholism	54	36.48	44	21.78
Contraceptive pill use	3	2.02	19	9.40
Lack of exercise	110	74.32	90	44.55
Stressful life events	108	72.97	112	55.54
Co morbidities	82	55.40	18	8.91
Increased salt intake	78	52.70	22	10.89

Fried food consumption	90	60.81	86	42.57

Table depicts that compared to non hypertensive risk factors like overweight and obesity, risky waist hip ratio, alcoholism, lack of exercise, co morbidities, stressful life events, increased salt intake and fried food consumption are present more inhypertensive.

Frequency distribution and percentage of class IV employees based on BMI

BMI (kg/ m^2)	**f**	**%**
Less than18.4 (Under weight)	20	5.71
18.5-24.9 (Normal)	168	48
25-30 (Over weight)	90	25.71
Above30 (Obese)	72	20.57

Table depicts that 48% of the employees have normal BMI and 25.71% are having over weight.

Frequency distribution and percentage of class IV employees based on waist hip ratio

(n=350)

Waist – hip ratio (cm)	f	%
Male < 1	63	18
>1	68	19.42
Female <0.8	125	35.72
>0.8	94	26.86

Table depicts that 19.42% of the male employees and 26.86% of female employees have risky waist - hip ratio.

Frequency distribution and percentage of class IV employees based on family history of hypertensions

Family history of hypertension	**f**	**%**
Yes	142	40.57
No	208	59.43

Table depicts that 59.43% of employees have no family history of hypertension and 40.57% have family history of hypertension.

Frequency distribution and percentage of class IV employees based on type and duration of smoking habit

(n=90)

Variables	f	%
Type of smoking habit Lightsmoker (<2 cigarette / day)	45	50
Medium smoker (2-10 cigarette /day)	25	27.78
Heavysmoker (>10 cigarette /day)	20	22.22
Duration of smoking		

<5years	23	25.55
5-10 years	29	32.22
>10 years	38	42.23

Table depicts that 68.70% of male employees are smokers. Among them 50% are light smokers and 42.23% are smokers for more than 10 years.

Frequency distribution and percentage of class IV employees based on type and duration of alcoholism

(n=98)		
Variables	**f**	**%**
Type of alcoholism Moderate (<3 pint /day)	47	47.96
Heavy (>3 pint / /day)	29	29.59
Binge(4 or more pint in about 2hour)	22	22.45
Duration of alcoholism <5years	23	23.47
5-10 years	17	17.35
>10 years	58	59.18

Table depicts that 74.80% of male employees are alcoholic. Among them 47.96% are consumes alcohol on light basis and 59.18% are alcoholic for more than 10years.

Frequency distribution and percentage of female employees based on use of contraceptive pill.

N=219		
Contraceptive pill use	**f**	**%**
Yes	22	10.05
No	197	89.95

Table depicts that majority hadn't used contraceptive pills in their life and only 10.05% are having history of contraceptive use.

Frequency distribution and percentage of class IV employees based on type of exercise

(n=350)		
Type of exercise	**f**	**%**
Walking	150	42.85
Nil	200	57.15

Table depicts that 57.15% of the employees are not doing any exercises and 42.85% of the employees are having a habit of walking.

Frequency distribution and percentage of class IV employees based on duration of walking

		N=150
Duration of walking	**f**	**%**
Less than 3 days in a week	50	33.33
3-5 days	35	23.33
6-7 days	65	43.34

Table depicts that 43.34% of the employees walk 6-7 days in a week.

Frequency distribution and percentage of class IV employees based on stressful life events

n=350

Stressful life events	f	%
Heavy work load	97	27.72
Physical dangers at work place	17	4.85
Lengthy working hours	20	5.72
Problems in marital life	30	8.57
Divorce/separation	18	5.14
Change in financial state	18	5.14
Illness	20	5.72
Nil	130	37.14

Table depicts 62.86% employees are having stressful life events andamong them 27.72% are having heavy workload.

Frequency distribution and percentage of class IV employees based on Co- morbidities

n=350

Variables	f	%
Co- morbidities		
Diabetes Mellitus	45	12.86
Heart disease	29	8.28
Renal disease	3	0.86
Hypercholestremia	30	8.57
Nil	243	69.43

Table depicts that 12.86% of the employees have diabetes mellitus and 69.43% of employees are not having any co morbid conditions.

Frequency distribution and percentage of class IV employees based on increased salt intake

n=350

Increased salt intake (> 2 spoons / day)	f	%
Yes	100	28.57
No	250	71.43

Table depicts that 71.43%of employees are not using more than 2 spoons of salt daily and only 28.57% of employees use more than 2 spoons ofsalt.

Frequency distribution and percentage of class IV employees based on fried food consumption

Variables	f	%
Fried food consumption Once in a week	87	24.85
2 to 3 times a week	70	20
5 to 6 times a week	48	13.71
Daily	75	21.44
Monthly	70	20

Table depicts that 24.85% of the employees are using fried food items once in a week and 21.44% are using daily.

Section III Knowledge of class IV employees regarding hypertension

Frequency distribution and percentage of class IV employees based on knowledge score regarding hypertension **n=350**

Knowledge score	F	%
Good (42-66)	68	19.4
Average (22- 41)	179	51.2
Poor (0 - 21)	103	29.4

Table 19 depicts that majority (51.2%) of class IV employees have average knowledge regarding hypertension and 29.4% employees have only poor knowledge.

CONCLUSION:-Hypertension was identified to be prevailing in this population but treatment, awareness and manage rate in individuals within the disease were small. Definite risksfactor likesfolk histories of diabetes, hypertension and being overweight were identifiedamongst affected employees within BP high. The result in this study and other recent studies conduct in the country haveevidently shows that hypertension is fetching a severe public-health concern. Hypertension being a disease if not controlled at the appropriate time can lead to uneventful catastrophes and so an economic crisis to the nation. In the present study the overall prevalence of hypertension was 42.2%. Moreover, only 17.1% had good knowledge regarding hypertension. The study concluded that without proper knowledge and intervention programmes, employees are at risk for developing hypertension and its complications. The study also recommended regular blood pressure check-ups after the age of 30 years, irrespective of gender. Lets this study provides a background for a population based intervention in attempts to prevent the rising problems of hypertension in ourcountry.

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COVID-19 Diagnosis Using Chest X-Ray Images Using Deep Learning

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Abstract - A new coronavirus blowback event has become a virus that is impacting public health around the world. To stop disease transmission in the population, large-scale screening is needed. Real-time PCR is a popular diagnostic method for pathological testing. However, the increasing number of false test results has paved the way for the development of new testing methods. COVID-19 patients' chest X-rays have proven to be a useful alternative indicator of COVID-19 screening. However, radiological expertise is needed for accuracy. The diagnostic task of the doctor can be minimised by a diagnosis recommender device that will assist the doctor in reviewing the patient's lung photographs. In medical imaging classification, deep learning techniques, specifically Convolutional Neural Networks (CNN), have shown to be accurate. For the diagnosis of COVID-19, four separate deep CNN architectures were investigated on images of chest X-Rays. These models have been pre-trained on the ImageNet database, eliminating the need for large training sets since the weights have already been pre-trained. CNN-based architectures have been found to have the ability to diagnose COVID-19.

Keywords - COVID-19, CNN, Deep Learning, Convolutional Neural Network, Diagnosis Recommender, ImageNet.

I. INTRODUCTION:-The corona virus disease outbreak that started in China in December 2019 rapidly spread throughout the world by January 2020. On January 30, 2020, the World Health Organization (WHO) announced it as COVID-19 and named it a pandemic [1]. The number of confirmed cases is expected to reach about 7 million by June 8, 2020, with a global fatality rate of 3-4 percent.Since it is a highly infectious disease that spreads quickly, governments in almost all of the affected countries are prioritising the isolation of infected people as soon as possible. COVID-19 patients experience the symptoms such as fever, cough, dysp nea, breathing problems, and viral pneumonia. However, these signs are insignificant on their own. Many people are not symptomatic, but their chest CT scan and pathogenic test both come out positive for COVID-19 [2]. As a result, positive pathogenic tests and positive CT images/X-Rays of the chest are used to diagnose the disease, in addition to symptoms. Real-time PCR is used as a standard diagnostic method for pathological testing [2].COVID-19 research facilities are being expanded by healthcare systems all over the world. As more people are tested, infectious people will be detected and isolated, reducing the spread of the disease in the population [3]. However, accessibility does not imply dependability. False negative test results, which indicate that an infected person is not infected, are the key source of concern for governments at this time [3]. These individuals can inadvertently spread the virus to others. Test results that are incorrect have a negative effect on efforts to stop the virus from spreading. The impact of this problem on the safety of public and health workers cannot be measured because there is no clear or reliable data on these test performance characteristics. The sensitivity of these tests is largely unknown [3].Due to its high sensitivity, chest X-rays the patients have proven to be an effective alternative diagnosis method for COVID-19 [4], [5]. However, the accuracy of X-ray diagnosis is highly dependent on radiological knowledge. When the number of patients is

high, it becomes a repetitive operation. The diagnostic workload of the doctor can be minimised by a diagnosis recommender device that will assist the doctor in reviewing the patient's lung photographs.Artificial neural networks with multiple neurons that act similarly to the neurons in the human body are used in Deep Learning techniques. CNNs are a form of DL technique that has shown to be competitive and accurate in medical image classification. In several trials, CNN has been used to classify pneuonia and other diseases based on radiography. [6] suggested a CNN-based architecture for detecting various lung diseasesIn [7],. a CNN model was trained for the diagnosis of 14 diseases using the Chest X-Ray dataset, which contains approximately 100,000 X-ray images. In addition, CNN has been used to predict pneumonia [7], [8]. A advisory method that aids radiologists in finding contaminated areas in CT images has been suggested [9].CNN is a natural candidate for diagnosis as a result. COVID-19 patients are advised to take this medication. Small data sets of only 50 individuals were used to compare [10], [11], and seven different deep learning neural network architectures that are currently in use. Pictures 25 of the 50 samples tested positive for COVID-19. COVID-19 negative patients accounted for 25 of the total. New CNN architectures [8], [12]–[14], or fine-tuned ResNet50 [15], [16] have been proposed as solutions to the problem of classifying Chest X-Rays by some researchers. They are, however, only in preprint.

II. ARCHITECTURES:-A well before model is one that has been previously trained to find an optimal solution and can be used by anyone to solve a similar problem. Many CNN models for image classification have been pre-trained on image datasets. The ImageNet database contains a large number of images that are both accurate and diverse. The WordNet hierarchy[17] is used to organise the images in this database. In WordNet, there are approximately 100,000 words, each with an average of 1000 images. The following four models' architectures were used in this analysis, all of which were pre-trained on Image Dataset:

- **Inception V3:** The Inception architecture was proposed by Szegedy *et al*. [18] in 2014. GoogleLeNet was the name of the original architecture. Inception Vn was the name given to all subsequent models (n is the version number). As an improvement over Inception V1, Batch Normalization was introduced in Inception V2. V3 model factorization methods were implemented in Inception as an improvement over V2.
- **ResNet50:** ResNet - The Residual Networks architecture was proposed by He *et al.* [19] in 2015. It has 50 convolutional layers with skip connections, which aid the model in learning more precisely. In addition, instead of completely connected layers, it uses global averaging pooling, resulting in a smaller model.
- **MobileNet:** Howard *et al*. [20] proposed a new CNN architecture called MobileNet in 2017. The convolution procedure is applied to each colour channel individually rather than as a whole in this separable convolution. The cost of computation is minimised in this architecture.
- **Xception:** Xception was created by François Chollet in the year 2017 [21]. As modules of an improvised version of Inception Inception has been replaced by depthwise separable depthwise separable depthwise separable depthwise separable depthwise se There are a lot of them. This model's most recent and reliable results based on pace and precision.

III. EXPERIMENT

A. Datasets:-Total of 6249 Chest X-Ray images are gathered from public databases [22] that could be found on various GitHub repositories. COVID-19 positive patients accounted for 320

of the total, while COVID-19 negative patients accounted for 5928. COVID-19 and Normal images were categorised. Figures 1 and 2 show examples of images from the COVID19 and Non-COVID-19 groups, respectively.The 75:25 ratio was used to split the dataset into training and testing sets. For instruction, 4686 records were used, and for research, 1563 records were used. 30% of the training set is retained as the validation set.

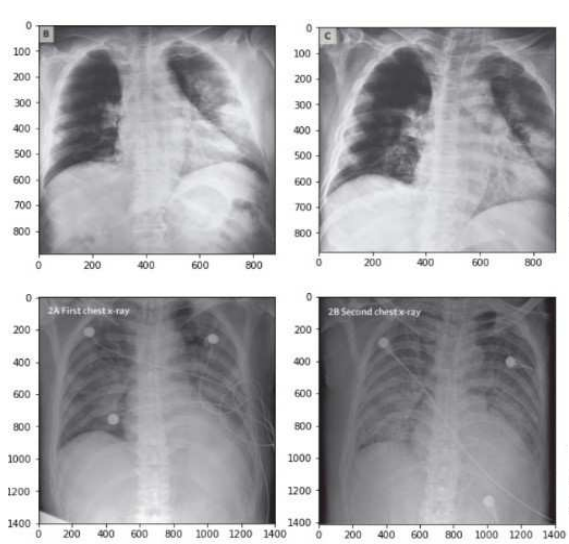

Fig. 1 Sample images of Chest X-Rays of COVID-19patients

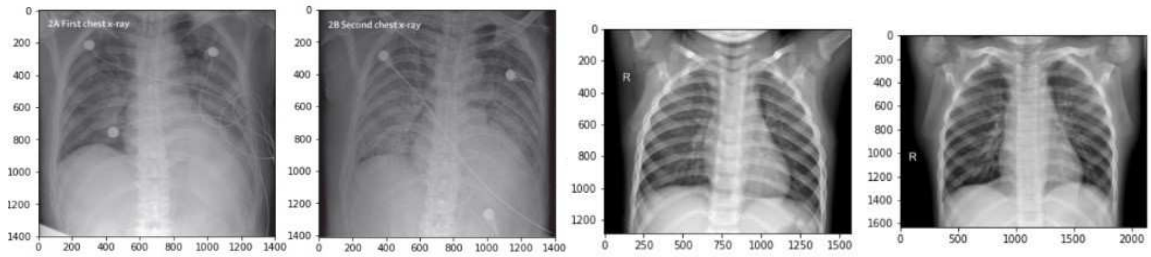

Fig. 2 Sample Images of Chest X-Rays of Non-COVID-19Patients

B. ExperimentalSetup

The Keras system with TensorFlow as the backend was used to implement the above four architectures. Keras offers pre-trained weights from the ImageNet database for these pre-trained models. The images which are in the ImageNet dataset on which these models are trained may not be same to the images gathered for analysis, they may aid in the transfer of learned information to make the intended task more effective. Pre-trained weights often minimise the need for a large amount of data for preparation.The Python code was run using Google Research's Collaboratory, an online Jupyter Notebook-based service. The Tesla P4 GPU, which is supported by Collaboratory, was used for faster processing. All of the networks were trained using Adadelta Optimizer, with MSE as the loss function.

IV. RESULT:-The confusion matrices observed on the research dataset for all four versions Xception, Resnet50, MobileNet and InceptionV3 are shown in Figures 3 to 6. In Table 1, the effects of these four models are summarised. All of the models' output was evaluated using parameters such as accuracy, specificity, precision, recall/sensitivity, and F1 ranking.According to the accuracy values of four models, CNN architectures are reliable for diagnosing COVID-19 disease. With the highest F1 score of the four versions, MobileNet emerges as the best. In all models, the specificity, which determines the model's ability to prevent false alarms, is greater than 99 percent. However, only Mobilenet and Inception V3 have strong Recall/Sensitivity, which tests a model's ability to identify positive cases. Although the Xception model is very similar to Mobilenet, it cannot be considered a robust model due to its low sensitivity of 0.6.

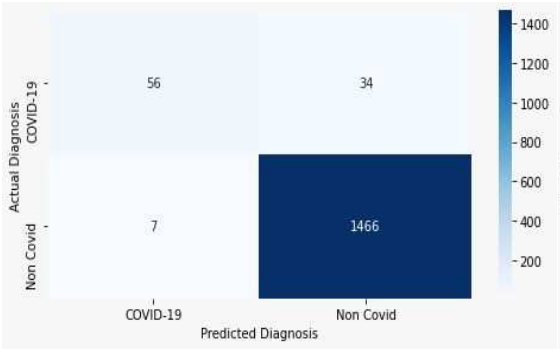

Fig 3 Confusion Matrix forXceptionModel

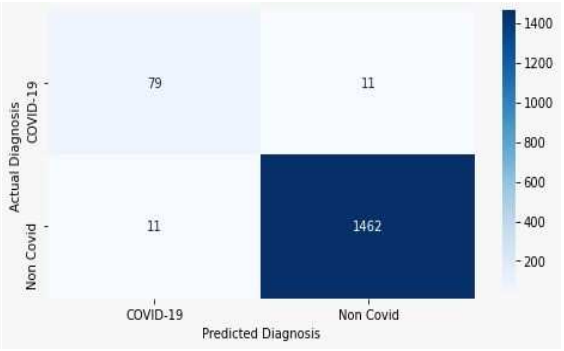

Fig 4 Conf usion Matrix for MobileNetModel

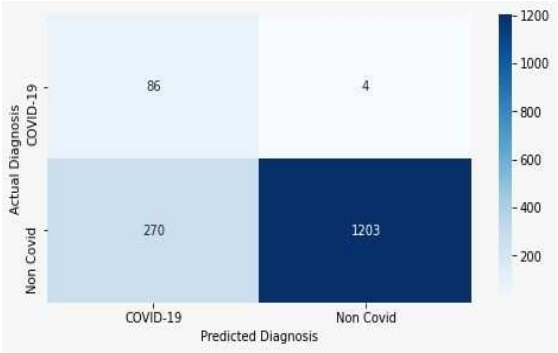

Fig5ConfusionMatrixforResNet50Model

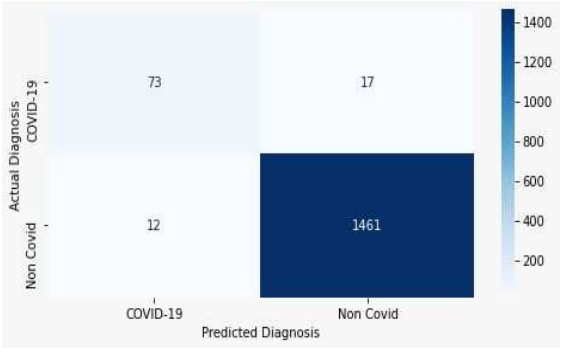

Fig 6 Confusion Matrix for Inception V3 Model

Table 1 Classification results of four architectures

Method	**Evaluation Metrics**								
	TP	**TN**	**FP**	**FN**	**Accuracy**	**Specificity**	**Precision**	**Recall/Sensitivity**	**F1 Score**
Inception V3	73	1461	12	17	0.981	0.992	0.859	0.811	0.834
ResNet50	86	1203	4	270	0.825	0.997	0.956	0.242	0.386
MobileNet	79	1462	11	11	0.986	0.993	0.878	0.878	0.878
Xception	56	1466	7	34	0.974	0.995	0.889	0.622	0.732

V. CONCLUSION:-COVID-19 is wreaking havoc on the world's population's health at an unprecedented pace. To stop the spread of disease, vast numbers of people must be tested. The gold standard pathological test for the diagnosis of this condition is real-time PCR. However,

because of the rising number of false positives, Chest XRays are now being used as a substitute for COVID-19 diagnosis. Deep learning-based recommender systems can be particularly useful when there are a large number of patients and no radiological information. Four separate deep CNN architectures were tested on images of chest X-Rays in order to suggest a diagnosis for COVID-19 patients in this study. These models have weights that have been pre-trained to help them pass their prior knowledge to the dataset under investigation. The ImageNet database was used to prepare them. The Mobilenet model emerges as the most effective of all the models.The findings indicate that CNN-based architectures may be used to correctly diagnose COVID-19 disease. Transfer learning is essential for increasing detection accuracy. The accuracy of these models could be improved even further by fine-tuning them. Other models that have already been trained may also be used to build a recommender diagnostic framework. Future studies could include the creation of new architectures based on CNN for the detection of COVID-19 and other diseases in the medical domain.

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बच्चो के विकास मे आहार का महत्व.

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सारांश :–प्रत्येक बालक एवं किशोर हमारे राष्ट्र का भावी नागरिक है, परिस्थितियो मे इनके पोष्टिक भोजन की और ध्यान केंद्रित करना अति आवश्यक है । उचित पौष्टिक तत्वो के उपयोग पर ही स्वास्थ निर्भर करता है । पोषण उचित न हो पर बालक एवं किशोर चिडचिडे हो जाते है । भारत मे बालकों एवं किशोरो के आहार में अनेक पौष्टिक तत्वो की कमी पाई जाती है, जिसका प्रभाव उनके पोषण स्तर पर पडता है । असन्तुलित आहार का मुख्य कारण अज्ञानता, निर्धनता और परम्परागत भोजन सम्बंधी आदेस है स्कुल जाने वाले बच्चो एवं किशोर को अपर्याप्त भोजन मिलने से वे कुपोषण का शिकार हो जाते है । इसका मुख्य कारण भोज्य पदार्थो के उत्पादन मे कमी, गरीबी तथा पोषण सम्बधी ज्ञान की कमी है । बाल्यावस्था एवं किशोरावस्था में शरीरीक वृध्दि एवं विकास की गति बहुत तीव्र होती है । शारीरीक अंग शनैः पुष्ट एवं परिपक्व होने लगते है। जब बालक किशोरावस्था की और बढता है, तो शारीरिक, मानसिक और संवेगात्मक विशेषताएं एवं अभिरुचियां प्रभावित होने लगती है! ठस प्रकार शारीरिक वृध्दि, विकास एवं अन्य गतिविधियो के लिए इन अवस्थाओं मे अतिरिक्त ऊर्जा एवं पोषण तत्वो की आवश्यकता होती है! आवश्यक है ।

प्रस्तावना :–उत्तम पोषण के लिए भोजन में सभी पौष्टिक तत्वो का शरीर को आवश्यकता के अनुसार समावेश होना चाहिए! पौष्टिक तत्वो की आवश्यकता कुछ अन्य बातों से भी प्रभावित होती है! 1) कार्यशीलता या शरीर व्दारा कितना श्रम किया गया है! 2) जलवायु के अनुसार भी पौष्टिक तत्वो की मात्रा कम और ज्यादा होती है ! 3) विभिन्न रोगो की अवस्था! उत्तम पोषण से बच्चो का शरीर स्वस्थ रहता है! उसकी कार्यक्षमता शारीरिक एवं मानसिक रुप से संतुलित रहती है! तभी बच्चे अपनी शक्ती का सही रुप से उपयोग कर सकते है!हर माताओं की यही ईच्छा होती है की वो अपने बच्चो को उचित एवं संतुलित आहार दे सके! प्रंतु अधिकतर एसा नही हो पाता किसी न किसी रुप मे आहार में कुछ पौष्टिक तत्वों की कमी रह जाती है जिसका प्रभाव बच्चो के शरीर पर पडता है!उत्तम पोषण वही होता है जो बच्चो के शरीर की वृध्दी एवं विकास सही अनुपान में करे, प्रत्येक अंगो की सुसंगठित करे, शरीर के भार एवं लम्बाई में अनुपात रखे बच्चो के शरीर को चुस्त, चपल एवं क्रियाशिल बनाये रखे, बालक की दैनिक आवश्यकताओं की पूर्ति के लिये संतुलित एवं सभी तत्वों से युक्त पौष्टिक आहार तथा उसके खाने की आदत एवं समय का भी ध्यान रखा जाना चाहिए! पौष्टिक आहार देते समय किसी विशेष खाद्य पदार्थ, जैसे दूध या अंडे पर अधिक रुचि नही दिखाई जाए तथा यह भी नही हो कि बच्चे को निश्चित समय अर्थात प्रातः एवं सायंकाल ही भोजन दिया जाए! भोजन में एक या अधिक भोज्य पदार्थ दिए जा सकते है! तथा बालक आवष्यकतानुसार दिन मे तीन या चार बार खाना खा सकता है! तथा प्रत्येक खाने के अन्तराल में सूप या कुछ हलका भोजन दिया जा सकता है! शरीर की आवश्यकतानुसार ही बच्चे को भोजन के समय भूख लगने लगती है! उस समय उसे उसकी आवश्यकतानुसार आहार दिया जाना चाहिए!किशोरावस्था में बच्चो के शारीरिक विकास, वृध्दि तथा अन्य शारीरिक निर्माण कार्यो हेतु अत्याधिक ऊर्जा एवं प्रोटीन की आवश्यकता होने लगती है! एस अवस्था मे लडको को 3000 कैलोरी तथा लडकियो को 2400 कैलोरी की आवश्यकता होती है! इसी प्रकार मानसिक कार्य करने वाले किशोरो को अतिरिक्त थायमिन आहार में दी जानी चाहिए! लेह तथा आयोडीन की भी अतिरिक्त मात्रा मे आवश्यकता होती है!हमारे देश के उच्च स्तरीय वर्ग के स्कूल जाने वाले बच्चे एवं किशोरो का भार एवं लम्बाई निम्न स्तरीय वर्ग से अधिक होता है! उच्च स्तरीय वर्ग को अधिक पौष्टिक तत्व प्राप्त होते है जिसका प्रभाव उनके शारीरिक भार एवं लम्बाई पर पडता है!

पौष्टिक तत्वों की आवश्यकता :

कैलरीज :– स्कूल जाने वाले बच्चे एवं किशोरो को अधिक कैलोरी की आवश्यकता होती है! इस आयु में ये बच्चे अत्यन्त क्रियाशील रहते है, तथा शारीरिक वृध्दि गति से होने के कारण बेसल मेटाबोलिक दर भी अधिक हो जाता है! इन दोनो कारणों से इस अवस्था मे अधिक कैलोरी की आवश्यकता होती है! कैलोरी की आहार में कमी होने पर बाढ गति कम हो जायेगी तथा बालकों एवं किशोरो का स्वास्थ ठिक नही रह पायेगा इन बच्चो के आहार मे वसा तथा श्वेतसार युक्त भोज्य पदार्थी का अधिक उपयोग होना चाहिए! तकि ऊर्जा की आवश्यकता पूर्ण हो सके! 5 ते 18 वर्ष की आयु के बालकों के लिये 1500–3000 कैलरीज निर्धारित की है!

प्रोटीन :–स्कूल जाने वाले बच्चे एवं किशोरो में वृध्दि के विकास के लिए प्रोटीन की मात्रा आहार में अधिक होना नितान्त अनिवार्य है! षरीर के विभिन्न अंगो का विकास भी इसी आयु मे पुर्ण होता है, तथा प्रोटीन की आहार मे न्युनता से वृध्दि एवं विकास की गती मन्द हो जाती है! आईसीएमआर न्युरेषन एक्सपर्ट ग्रुप ने 5 – 18 वर्ष की आयु वाले बालकों के लिए 20 – 60 ग्राम प्रोटीन प्रतिदिन निर्धारीत की है! कुल प्रोटीन का आधा भाग प्रणिजय स्तोत्र से प्राप्त होना चाहिए!स्कूल जाने वाले

बालको एवं किशोरो के आहार में अण्डा, मॉस, मछली, दूध तथा दूध से बने पदार्थ, दाल, मेवो का अधिक मात्रा में उपयोग हो!

खनिज लवण–अस्थि कंकाल तथा दॉतो के निर्माण के लिए कैल्शियम की अधिक मात्रा इनके आहार में दी जाए! आईसीएमआर एक्सपर्ट ग्रुप मे 5 –18 वर्ष की आयु वाले बालको के लिए 0.5 से 0.7 ग्राम कैल्शियम प्रतिदिन निर्धारीत किया है! कैल्शियम के उत्तम स्त्रोत दूध तथा दूध से बने पदार्थ हरी पत्ते वाली सब्जियॉ तथा मेवे आदि है! हिमोग्लोबिन के संश्लेषण के लिए लवन की उपास्थिती एक्सपर्ट ग्रुप ने इस वर्ग के लिए 20 –35 मि. ग्राम लोह लवण निर्धारीत किया है!

विटामिन्स :–बच्चों के शरीर मे विटामिन्स एक नितान्त आवश्यक घटक है! इनके बिना स्वास्थ और जीवन दोनो ही दुष्कर है! इसी कारण इन्हे जीवनीय कण या आहार जीवन तत्व नाम दिया गया है! विटामिन 6 प्रकार के होते है! इन 6 विटामिन्स को ए,बी,सी,डी,ई एवं के व्दारा सम्बोधित किया जाता है!बच्चो के आहार मे विटामिन की कमी से अनेक प्रकार के रोग उत्पन्न होते है! शरीर दुर्बल हो जाता है!स्कूल जाने वाले बालकों एवं किशोरो के आहार में सभी विटामिन की अधिकता होनी चाहिए!

विटामिन ए	–	600 – 750 ग्रा.
विटामिन सी	–	30 – 50 ग्रा.
विटामिन डी	–	200 आईयु
विटामिन बी	–	12 – 0.510 एमजी

इसी प्रकार बच्चो के शरीर मे विटामीन का प्रमाण होना आवश्यक है!

बालको के पोषण सम्बधी समसाएँ :–बालको को उचित पोषण युक्त आहार न मिलने से शारीरिक एवं मानसिक रुप से पिछड जाते है! इस अवस्था में किशोरियॉ अपने शारीरिक बनावट पर अधिक ध्यान देते है! जिस कारण वो कम भोजन ग्रहण करते है! अतः अनेक पौष्टिक तत्वों का सेवन नही करते जो उनके लिए अत्यावश्यक है! इस अवस्था में किशोंर अत्यंत व्यस्त रहते है!

महिला का कामकाजी होना :–

कई बार कामकाजी महिलाएँ समय की कमी होने के कारण पोषण युक्त आहार नही बना पाती है! इसी कारण बच्चो को अच्छा पोषणयुक्त आहार नही मिलता है! इसी कारण वो बच्चे चिडचिडापण, करते है और जल्दी से थकते भी है और अशक्त भी रहते है!

पोषण संबंधी अज्ञान :–पोषण युक्त आहार बनाने के लिए पोषण संबंधी ज्ञान होना जरुरी है! जिन महिलाओ को पोषणयुक्त आहार संबंधी अज्ञानी है वो माता अपने बच्चो को ज्यादा तंदुरुस्त नही बना पाएंगी !किसी राष्ट्र की उन्नती तथा अवनति उसकी जनता के पोषण स्तर पर निर्भर करती है! पौष्टिक तत्वों की कमी से शरीर में अनेक प्रकार की बीमारियॉ हो जाती है जिसके कारण कार्यक्षमता भी कम हो जाती है!

गरीबी :–बच्चो को पोषणयुक्त आहार न मिलने का कारण गरीबी भी माना जाता है! देश की जनसंख्या अधिक होने से गरीबी रहती है गरीब लोग अधिक प्रोटीन वाले भोज्य पदार्थ खरीदने में असमर्थ होते है! इनके बालको के आहार में प्रोटीन मुख्यतः वनस्पती स्त्रोत जैसे चावल, गेहूँ, ज्वार, बाजरा आदि अनाज है! ये प्रोटीन वृध्दि एवं विकास कार्य नही कर पाती गरीब बच्चो को दुध, मॉस, मछली, अंण्डे आदि भोज्य पदार्थ नही मिल पाते क्यो की ये महंगे होते है, तथा वे इनको खरीदने में असमर्थ होते है!

धार्मिक विचार, रुढिवादिता, परम्परा :–किसी भी राष्ट्र की आहार सम्बधी आदतें, धर्म, जाति, समाज से प्रभावि होती है, हिंन्दू धर्म मे मॉस, मछली तथा अण्डा निषेध है अतः हम प्रोटीन के उत्तम स्त्रोत को ग्रहन नही कर पाते सामाजिक एवं धार्मिक रिती रिवाज व्यक्ति के पोषण को बहुत प्रभावित करते है! कुछ सामाजिक प्रतिबन्धो के कारण भोजन मे पोष्टिक तत्व नही मिल पाते

खाना पकाने का विधी :–खाना पकाने की सही विधी की अनभिज्ञना से खाद्य पदार्थ मे विदयमान पौष्टिक तत्व नष्ट हो जाते है! खुले बर्तन मे लम्बे समय तक सब्जी उबालने से वो सब्जी से पोष्टिन तत्व नष्ट हो जाता है!बलकाल मे पोषण के अभाव मे शरीर का विकास व वृध्दि अवस्था हो जाते है! पोषण के अभाव मे बच्चो को ढीला ढीला शरीर, शुल्क बाल, अन्धापन आदि दोष दिखाई देने लगते है!

पोषण एवं स्वास्थ :–हमारे देश मे अधिकांश लोगो का पोषण अपर्याप्त है! विशेषकर बच्चो का क्युकि आज के बच्चे कल के नागरिक होंगे इसलिए बच्चो के स्वास्थ के लिए अच्छा पोषण अत्यत्य आवश्यक है! अच्छे पोषण के अभाव मे स्वस्थ रहना सम्भंव नही है! इसलिए स्वास्थ तथा पोषण के बीच गहरा सम्बंध है! प्रातः पोषण के साथ साधारण पर्याप्त तथा आदर्श आदि विशेषणो का प्रयोग होता है! लेकिन इससे इनका अर्थ ज्यादा स्पष्ट नही हो पाता है!

तात्पर्य – बीमारियो की रोकधाम के लिए जरुरी पोषण है! आदर्श पोषण वह होता है जो शरीर मे कार्यकलाप, जलवायु, बीमारी की स्थिती आदि में पैदा हुई जरुरतो की पूर्ती के उपरात भी कुछ पोषक तत्वो को शरीर मे संग्रहीत कर सके जिससे आकस्मिक परिस्थितीया को क्षतिपूर्ति शीध्रतापूर्वक हो सके!इसलिए बच्चो को पोषणयुक्त आहार की ज्यादा जरुरत है! बालक राष्ट्र की धरोहर होते है! सुविख्यात अंग्रेजी कवि मिल्टन के कथन है कि तथा सुर्योदय होने पर ही दिवस होता है वैसे ही मानव का उद्भव बालक से होता है! अतः प्रत्येक राष्ट्र का यह परत पुनीत कर्तव्य है िकवह अपने अमूल्य बाल धन सर्वाधिक सुरक्षा करे.पोषण स्तर व्यक्ति के स्वास्थ की ऐसी स्थिती है जो खाद्य तत्वो की उपयोगीता से प्रभावित हुई है!कइ बार कामकाजी महिलाएँ समय की कमी के कारण आहार आयोजन नही कर पाती! ऐसे मे ये महिलाएँ अपने परिवार को संतुलित

आहार नही दे पाती! टाहार आयोजन के लिए गृहिणी को आहार एवं पोषण सम्बन्धी सामान्य जानकारी होना आवश्यक है! यदि गृहिणी को विभिन्न भोज्य समूहो तथा आहार में उनकी दैनिक आवश्यकता की जानकारी होगी तो ही वह सभी सदस्यों की आवश्यकता के अनुरुप आहार आयोजन कर सकेगीइस प्रकार के आहार आयोजन से कई लाभ है! किसी राष्ट्र की उन्नति तथा अवनति उसकी जनता के पोषण स्तर पर निर्भर करती है! पौष्टिक तत्वो की कमी से शरीर मे अनेक प्रकार की बीमारीयॉ हो जाती है, जिसके कारण कार्यक्षमता कम हो जाती है!

निष्कर्ष :–बच्चो का उत्तम विकास पोषणयुक्त आहारपर निर्धारीत है! इसलिए माताओ की अपने बच्चो के विकास के प्रति जागृत रहना जरुरी है! देश के विकास के लिए बालको का विकास होना अत्यंन्त जरुरी है! इसलिए बच्चो के सर्वांगीण विकास के लिए उनको उत्तम पोषण युक्त आहार की जरुरत है!

संदर्भ :–.

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Phytochemical Analysis of a Medicinally Important plant *Citrullus colocynthis* cucurbit (Schard.)

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Abstract:-Citrullus colocynthis is an most important remedial plant belong cucurbit and belong to the Cucurbitaceae faimly . The present work was carried out to investigate the preliminary phytochemical analysis of bitter apple to estimate the presence of alkaloids, glycosides, tannins, flavonoids, steroids, phenols using t parts of plant extracts such as leaf, fruit pulp, by using cold maceration technique with methanol, butanol, chloroform, ethanol and hexane solvents.According to our analysis, quinones, saponins, fats and oils were absent in leaf extract. In stem extracts, butanol and methanol are more efficient solvents for alkaloids and glycosides were strongly present in ethanol and methanol solvent extracts whereas tannins resulted very less. In tendril extracts, glycosides were observed efficiently in butanol and methanol solvents. The root extracts revealed the strong presence of steroids in all solvents and tannins were totally absent. The results of fruit peel expressed the presence of glycosides and steroids strongly in methanol and ethanol extracts. However, the presence of tannins was very low in fruit peel extracts. The butane, ethanol, methonal solvent extractions showed the presence of flavonoids and steroids. Glycosides were observed strongly in butanol and methanol solvents in seed extract.

Keywords: Citrullus colocynthis, Phytochemicals, Alkaloids, Steroids, Glycosides, Flavonoids, Medicinal plants.

Introduction:-Plants and their extracts have a long history of use in the treatment of many diseases. Medicinal plants have remedial properties because of secondary metabolites which are an assortment of complex chemical substances of diverse composition.Plant based drugs can be derived from any part of the plant like bark, leaves, flowers, roots, fruits, seeds etc.These secondary metabolites are grouped as alkaloids, glycosides, flavonoids, saponins, tannins, carbohydrates and essential oils. These organic compounds endow with specific physiological action on the human body.In the conventional medicine, plant-based therapies are used for the healing of afflictions such as malaria and pain.[8] Plants have played a significant role as a resource of valuable anti- cancer agents; presently 60% of noteworthy anti-cancer agents are derived from plants.[8]Numerous medicinal plants belonging to Cucurbitaceae family are rich as biological active substances possessing broad choice of ethanomedicinal impotence. The chemical constituents present in Cucurbita ficifolia are fiber, protein, β-carotene, carbohydrates, minerals and fatty acids mixture, tetrahydrothiophene, linoleic acid, calotropoleanly ester, cholesterol and 13 (18)-oleanen-3-ol.Cucurbita maxima contain phenols, steroids, glycosides, flavonoids, carbohydrates and proteins.Gutierrez[15] reported that Cucurbita pepo contain carotene, carbohydrate, minerals, fatty acids, triglyceride fatty, tetrahydrothiophene, linoleic acid, calotropolenly ester cholesterol. The chemical constituents present in Trichosanthes cucumerina are flavonoids, carotenoids, phenolic acids and insoluble dietary fibers.Singh et al[33] reported presence of tannins, terpenoids, alkaloids, saponins, glycosides and phenols in Trichosanthes

cucumerina. Bryonia diocia contains Bryonin and Bryonitin, triterpene glycosides, bryoniosides A-G (1-7), cabenoside D and bryoamaride.Cucurbita andreana contains alkaloid, glycoside, steroid, saponin, tannin, flavonoids, and carbohydrates.Cucumis melo contains alkaloid, glycoside, steroid, saponin, tannin, flavonoids, and carbohydrates.Trichosanthes kirilowii contains a source of terpenoids, vitamins, saponins, protein.Ugbaja et al,reported that Trichosanthes cucumerina is rich in the major active constituents of the drug: triterpenoid saponins viz, cucurbitacins, a series like flavonoids, carotenoids, phenolic acids which make the plant pharmacologically and therapeutically active.Trichosanthes tricuspidata contains cucurbitane, hexanor cucurbitane and octanor cucurbitane glycosides, trichotetrol, cucurbitacin K, 2-O- glucocucurbitacin, the root of plant methyl palmitate, palmitic acid, suberic acid, α-spinasterol 3-obeta- D-glucopyranoside, stigmast-7en-3-beta-ol, bryonolic acid, cucurbitacin B, isocucurbitcin B, 3- epiisocucurbitacin B, dihydrocucurbitacin D, isocucurbitacin D and D glucose.Momordica charantia contains several constituents such as charantin (mixture of sterol glucosides), vaccine (pyrimidine nucleoside), insulin like polypeptides and several phytochemicals such as kuguacins F-S (cucurbitane triterpenoids).Citrullus colocynthis (L.) Schard is a medicinally important cucurbit which is commonly known as bitter apple and bitter cucumber. Different explants of this plant contain glycosides and various cucurbitacins (colocynthin and colocynthetin), cucurbitacins A, B, C, D and E (á-elaterin),[3] cucurbitacins E, I, J, K and L,[28,36] cucurbitacin glycosides.The extracts of plant parts are used as antirheumatic, anti- helminthic, as a remedy for skin infections and controls menstrual disorders. Citrullus colocynthis is a proven antioxidant, antimalarial, hepatoprotective, antispermatogenic and anti-carcinogenic.Tannin-Spitz et al[38] and others studied the effects of cucurbitacin glucosides extracted from Citrullus colocynthis leaves and roots on human breast cancer cell growth. The cucurbitacin glucoside combination (1:1) inhibited growth of ER (+) MCF-7 and ER (-) MDA-MB-231 human breast cancer cell lines.In Citrullus colocynthis, a qualitative phytochemical assessment was performed for the detection of different existence of elemental different composition in the leaf, root, flower, and fruit individually and assessment revealed the presence of alkaloids,carbohydrates and flavonoids in this plant[37,41]reported in Citrullus colocynthis.Presence of steroids, alkaloids, flavonoids, carbohydrates, proteins, glycosides, saponins, amino acids and phenolic compounds was detected in petroleum ether, ethanol and aqueous extract.Phytochemical screening of Citrullus colocynthis revealed the presence of tannins, saponins, alkaloids, flavonoids and glycosides.[24,26] The present phytochemical investigation in Citrullus colocynthis was performed to reveal the existence of different composition of elements like alkaloids, glycosides, flavonoids, phenols, steroids and tannins in leaf, stem, tendril, root, fruit peel, fruit pulp and seeds using various solvents.

Material and Methods:-Preparation of plant extracts: Preliminary phytochemical screening was done by each 5g powder of shade dried leaves, stems, roots, fruit pulp, fruit peel, seeds and tendrils. These powders were extracted using a cold maceration technique with 50 ml of ethanol, chloroform, acetone, butanol and methanol separately. Later the extract was filtered and concentrated using Rota evaporator and subsequently subjected for preliminary screening using following standard procedures for identifying various phytoconstituents.

Test for Alkaloids:-Dragendroff's test: 2 ml of HCl was added to 0.5 ml of pulp extract of plant followed by 1 ml of reagent is added . orange red color precipitate show it indicates the presence of alkaloids.

Mayer's test:- A few drops of the mayer reagent were added to 1 ml of the pulp extract of plant. After adding the reagent pale or cream color precipitate indicate it shows the presence of alkaloids.

Wagner's test:- 10 ml of pulp extract was acidified by adding 1.5% v/v hydrochloric acid and of herbal few drops of Wagner's reagent. After adding the reagent formation of a yellowish-brown precipitate it the alkaloid is persent in sample

Hager's test:- Few drops of Hager's reagent were added to 0.5 ml of pulp extract of plant ,after adding reagent in sample it give yellow colour precipitate it indicated the alakloid are persent in sample

Tannic acid test: Few drops of 10% tannic acid are added in 0.5 ml of pulp extract of plant , after adding tannic acid in sample it gives buff colour precipitate these test give indication alkaloid persent in sample

$FeCl_3$ test: some drops of neutral ferric chloride solution were added in 1 ml of test solution.after adding of reagent A yellow colour precipitate occur it indicates the presence of alkaloids.

Test for Glycosides:

Raymond's test: this test was performed by some drops of dinitrobenzene dissolved in hot methanolic alkali were added to 1 ml of pulp extract of plant . after then violet color it indicate the presence of glycoside in sample

Legal's test: Few drops of pyridine and alkaline sodium nitroprusside solution are added to 1 ml ofpulp extract of plant after then blood red color show it indicate the glycoside is persent in given sample.

Bromine water test: Few drops of bromine water added in 1 ml of sample extract. After then Formation of yellow color precipitation it indicated the glycosides are persent in given sample

Keller Kiliani test: 0.4 ml of glacial acetic acid containing trace amount of ferric chloride was added to the extract followed by 0.5 ml of conc. H_2SO_4 along the walls of the tubes. Formation of blue color in the acetic acid layer indicated the presence of Dixie sugars.

Molisch test: 1 ml of herbal extract was treated with few drops of alcohol α- napthol and 2 ml of conc. H_2SO_4 along the walls of the tubes. Appearance of brown ring at the junction of two liquids indicated the presence of carbohydrates

Conc. H_2SO_4 test: 1ml of conc. H_2SO_4 was added to 1ml of test solution and allowed to stand for 2 min. Red precipitate indicates the presence of glycosides.

Test for Tannins

$FeCl_3$ test: Few drops of $FeCl_3$ solution were added to 1ml of herbal extract. Formation of blue or green color indicated the presence of tannins.

Gelatin test: Few drops of 1% gelatin solution containing 10% NaCl were added to 1ml of herbal extract. Formation of white precipitation indicated the presence of tannins.

Lead acetate test: Basic lead acetate was added separately to 1ml of test solution. Bulky red precipitate indicates the presence of tannins.

Alkaline reagent test: The test solution was treated with sodium hydroxide solution. Yellow to red precipitate indicates the presence of tannins

Test for Flavonoids

Shinoda's test: 1ml of herbal extract was treated with few Mg turnings and a few drops of conc. HCl. Formation of pink/ crimson red/ green color indicated the presence of flavonoids.

Alkaline reagent test: 1ml of herbal extract was treated with a few drops of NaOH solution. Formation of intense yellow color which disappears on addition of dilute acid indicated the presence of flavonoids.

Zn-HCl reduction test: 1ml of herbal extract was treated with a mixture of zinc dust and conc. HCl. Occurrence of red color indicated the presence of flavonoids.

Lead acetate test: Basic lead acetate was added separately to 1ml of test solution. Bulky reddish-brown precipitate indicates the presence of flavonoids.

Ferric chloride test: Few drops of $FeCl_3$ solution were added to the test solution. Blackish precipitate indicates the presence of flavonoids.

Test for Sterols/Triterpenoids

Liebermann Burchard test: 1ml of herbal extract was treated with few drops of acetic anhydride, boiled and cooled at room temperature. Then conc. H_2SO_4 was added along the walls. Occurrence of brown ring at the junction of two layers and conversion of upper layer into green color indicated the presence of steroids whereas deep red color showed presence of triterpenoids.

Salkowski test: 1ml of herbal extract was treated with few drops of conc. H_2SO_4; formation of red color indicated the presence of steroids whereas yellow color showed presence of triterpenoids.

Test for Fats and Oils

Stain test: A small amount of the extract was pressed in between two filter papers. Occurrence of stain on filter paper indicated the presence of oils and fats.

Saponification test: Few drops of 0.5N alcoholic potassium hydroxide and a drop of phenolphthalein were added to small quantities of various test solutions and heated in water bath for 1-2 hrs. The presence of fixed oils and fats indicated the formation of soap.

Test for Phenols

$FeCl_3$ test: 1 ml of extract was treated with few drops of $FeCl_3$ solution. Formation of blue color indicated the presence of phenols.

Ellagic acid test: Few drops of 5% (w/v) glacial acetic acid and 5% (w/v) sodium nitrate solution were added to 2ml of test solution. Phenol is indicated by Niger brown precipitate.

Test for Quinones

Alcoholic KOH test: Alcoholic KOH solution was added to 1ml of test solution. Quinones were indicated by color ranging from red to blue.

Test for Saponins

Foam test: Extract was diluted with distilled water up to 20 ml and was agitated for 10-15 min. Formation of the foam layer indicated the presence of saponins.

Results and Discussion:-Phytochemical screening is usually carried out to screen and characterize the constituents available in Citrullus colocynthis plant like alkaloids, flavonoids, glycosides, tannins, phenols and steroids by cold maceration technique with ethanol, chloroform, butanol, hexane and methanol, in different plant parts like leaf, stem, tendril, root, fruit peel, fruit pulp and seeds.Fruit pulp extract: Phytochemical analysis of various solvents fruit pulp extracts like butanol, chloroform, ethanol, hexane and methanol was performed in Citrullus colocynthis (Fig. 2d, e and f). The analysis revealed the presence of alkaloids, flavonoids, glycosides, tannins, phenols and steroids differing in various solvents (Table 6). Analogous results were reported in fruit extract of Citrullus colocynthis showing that presence of alkaloids, flavonoids, steroids and glycosides9 . Excessive alkaloids were present in ethanol solvent fruit pulp extract followed by methanol, butanol and chloroform (Table 6). Very fewer positive results appeared in

hexane extract. Other than hexane solvent, remaining four solvent systems showed excessive presence of glycosides. Flavonoids are effectively observed in butanol solvent extract of fruit pulp followed by ethanol and methanol solvent systems. Methanol, ethanol and butanol solvents extract was impressed in phenols extract from fruit pulp. Parallel results appeared that phenols extract from fruit pulp in some Cucurbits such as Cucurbita maxima, Benincasa hispida, Citrullus lanatus and Cucumis melo. 33 The total concentrates of steroids existence in fruit pulp of Citrullus colocynthis is superior in the ethanol, chloroform and methanol (Fig. 2n). Chekroun et al9 reported presence of flavonoids, saponins, alkaloids and steroids in Cucumis sativus L. The phytochemical analysis of the methanolic extract of Cucumis sativus fruit pulp indicated the presence of saponins, glycosides, terpenes, phenolics, alkaloids, flavonoids and

.Preliminary screening of Phytochemicals from fruit pulp powder extract

Alkaloids					
	Butanol	Chloroform	Ethanol	Hexane	Methanol
Dragondroff	-	++	+	-	++
Mayer	+	+	+	+	+
Wageners	+	+	+	_	++
Hagers	+	+	+	-	-
Tannic	++	-	+	-	++
$FeCl_3$	+	-	+	+	+
Glycosides					
Raymonds test	++	+	++	-	+
Legals test	-	+	-	-	+
Bromine water	+	-	+	+	+
Kellar killani	-	+	-	+	+
Molish	++	+	+	_	+
Conc. H_2SO_4	+	+	+	+	++

Flavanoids					
Shinoda	+	-	+	-	+
Alkaline	+	-	++	-	++
Zn-HCl	+ +	+	-	+	-
Lead acetate	+	+	+	-	+
FeCl3	+	-	+	+	++
Phenols					
FeCl3	+	+	+	-	+
Ellagari	+	-	+	+	+
Steroids					
Libermann Burchard	+	++	+	-	++
Salkowski	+	+	++	+	+
Tannins					
FeCl3	+	-	+	-	+
Gelatin	+	+	+	-	+
Lead acetate	-	-	-	-	-
Alkaline reagent	-	+	+	-	+

Conclusion:-In the present study, preliminary phytochemical screening Citrullus colocynthis i.e fruit pulp, was conducted in different solvent system like butanol, chloroform, ethanol, hexane and methanol. The phytochemical analysis of Citrullus colocynthis give important information regarding the chemicals present in the fruit pulp of the plant which concluded that the clear indication of solvent system plays major role in the extraction of bioactive compounds from plants. fruit pulp contain highest concentration of steroids and also other parts were having significant amount. Similarly, glycosides, flavonoids, alkaloids and tannins showed different results in different explants of Citrullus colocynthis and solvent system.

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REVERSE PHASE HIGH PERFORMANCE LIQUID CHROMATOGRAPHIC METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF APREMILAST IN PHARMACEUTICAL FORMULATION

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ABSTRACT:-In this currentinvestigationeffort, an effort was made to build up anuncomplicated, speedy, truthfulas well as robust HPLC technique for the assessment of Apremilast in its tablet dosage form. Reverse phase high performance liquid chromatographic analysis was carried out on isocratic system. The column used for the investigation was Phenomenex C18 (250 mm× 4.6mm, 5µm) with ambient temperature. The optimized mobile phase was Methanol: Acetonitrile in the ratio of (20:80 %V/V). The detection was carried out at a wavelength of 230nm using a flow rate of 1ml/min. The urbanizedtechnique was validated for validationconstraints like linearity, specificity, accuracy, precision as per ICH strategy. The %RSD for all constraints was well within the limits, which indicates the validity of the techniquein addition tothe assay results obtained are in reasonableconformity with the label claim of the marketed formulation. Thus, the conventionalscheme can be anticipated for repetitive investigation of this drug in laboratories and for superiority purposes.

Keywords: Apremilast, Acetonitrile, HPLC, Linearity.

INTRODUCTION: Apremilast is a Phosphodiesterase 4 (PDE4) inhibitors chemically named as N-[2-[(1S)-1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-1,3-dioxoisoindol-4-yl]acetamide. It is used in the treatment of certain types of arthritis and skin conditions[1]. Literature survey revealed that few analytical techniques are available for estimation of Apremilast in pharmaceutical dosage form such as UV, HPLC. Keeping this objective in mind an attempt has been made to develop and validate the RP-HPLC method for the estimation of Apremilast in which the developed method would be a highly sensitivecost effective method having good resolution and reproducible results [2].

MATERIALS AND METHODS:

Equipment:- Chromatographic separation was conceded on WATERS HPLC system which is outfitted with the 515 dual head reciprocating pump & a 2489 UV Visible detector. The software used is Empower-2 software and column is Phenomenex C18 column of 250mm×4.6mm i.d, 5µm.

Materials and reagents:-Apremilast drug was gifted by Aurobindo Pharmaceuticals, Hyderabad, Telangana, India. Acetonitrile, methanol, HPLC grade water, sosium hydroxide, Diammonium hydrogen orthophosphate and Hydrochloric acid were collected from local manufacturers.

Preparation of standard solution:-Standard stock arrangement was set up by gauging 25mg of Apremilast and moving in to 25 ml volumetric jar. At that point 25 ml weaken methanol was included and sonicated for 5 minutes to break down the medication. At that point the arrangement was weakened to check with methanol [6]. It was then separated through 0.45µm film channel, which gives the stock arrangement containing 1000µg/ml Apremilast.Standard

arrangement was set up by moving In a 10 ml volumetric jar with a volume of 1 ml of standard stock arrangement and methanol separated through 0.45 separated layer channel; weaken the volume to provide a stock containing 100µg / ml Apremilast.

Preparation of the test solution:-20 tablets were precisely dissolved and crushed to shape fine powder. A volume powder comparable to 25 mg of Apremilast was most likely evaluated, and it was taken in 25 ml volumetric container, containing 25 ml methanol [7]. The container was then sonicated for 5 minutes and later made sufficient with dilute methanol. It gives stock arrangement of Apremilast with concentration of 1000µg / ml. The arrangement stock was then separated with Whatman channel paper and washed with powerless methanol; it was shed through 0.45 channel layer channel. Further weakening was built up by funneling 1ml above stock course of action into 10ml volumetric container and weakened in volume with methanol. Around then, this game plan was isolated through 0.45 channel film channel and sounded for 2min. This was fixed test system, with obsession being around (80/g/ml).

METHOD DEVELOPMENT

Chromatographic conditions:- Diverse columns enclosing octyl and octadecyl silane stationary phase were endeavored for severancein addition to resolutions. It was established that Phenomenex C18 (250mm×4.6mm i.d, 5µm) column offered additionalimprovement over further columns. The mobile phase was a concoction of methanol and acetonitrile (20:80 % v/v). Drug solution was introduced into column. The flow velocity of the mobile phase was accustomed to 1 ml /min[3]. The recognition was conceded out at wavelength 230nm. The injection capacity of the standard as well as sample solution was placed at 20µl. The preference of wavelength 230nm was well thought-outagreeable, permitting the recognition of the drugs with tolerable sensitivity. It fashioned well shaped peaks for the drug assay. A UV spectrum of the drug is given in figure 1 and chromatogram of the drug assayed is depicted in figure 2.

Figure 1: UV spectrum of Apremilast

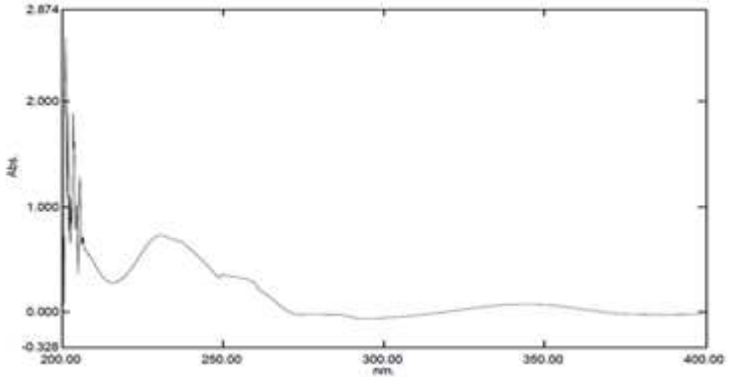
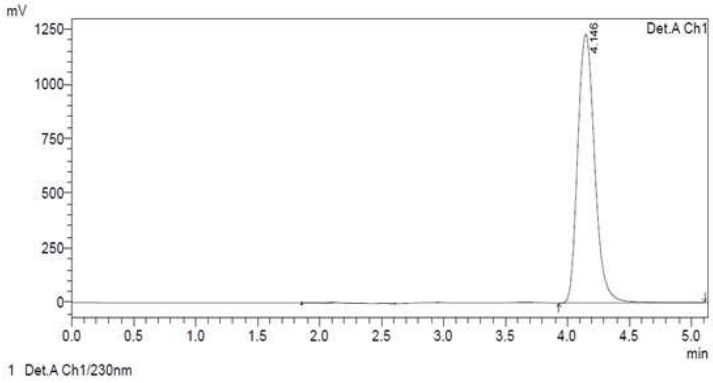


Figure 2: Chromatogram of standard



METHOD VALIDATION

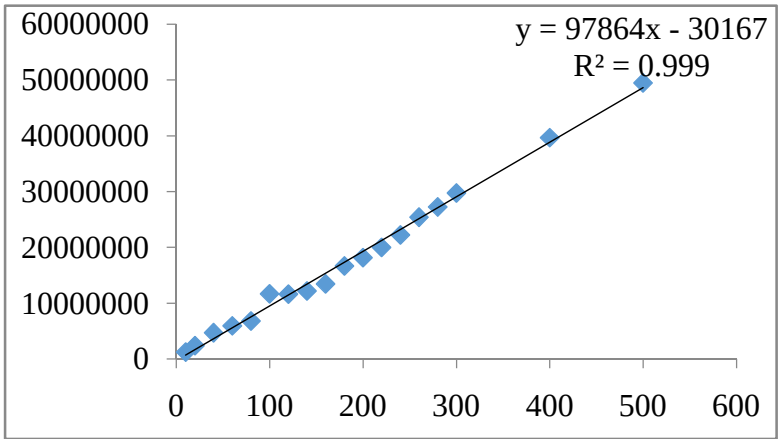
System suitability test:- The method under sophisticated chromatographic circumstances was performed by appropriateness testing infusing the customary arrangement 100% test fixation multiple times in to balanced out HPLC framework[4]. To set up System appropriateness last pinnacle six infusions was assessed. Framework appropriateness was manner by assessing parameters like number of hypothetical plates (N), peak area and tailing factor. From the results shown in table 1 it affirms that the system reasonableness parameters were discovered fulfilled.

Table 1: System suitability parameters

Name of the Peak	Rt (min)	Peak Area	Theoretical plates	Tailing factor
Apremilast	4.146	11676527	4352	1.242

Linearity:-The linearity of the technique was determined at different concentration levels ranging from 10 to 500µg/ml. Each solution was injected into HPLC system and linearity was evaluated by linear regression analysis. The calibration curve was plotted against concentration and average area response [5]and the regression equation was given as y= 97864x-30167. The correlation coefficient was found to be 0.999 and plot was shown in figure 3

Figure 3: Linearity plot of Apremilast



Range:- Working standard arrangements were prepared and injected 6 times into the HPLC system and the upper and lower levels of analyte indicating exactness, linearity and accuracy and saw as in the fixations go 500 and 10µg/ml. The overlain chromatograms for lowest and highest concentrations of range were shown in figures 4 and 5 respectively and the range data was shown in table 2

Figure 4: Overlain Chromatogram for lowest concentration of Range

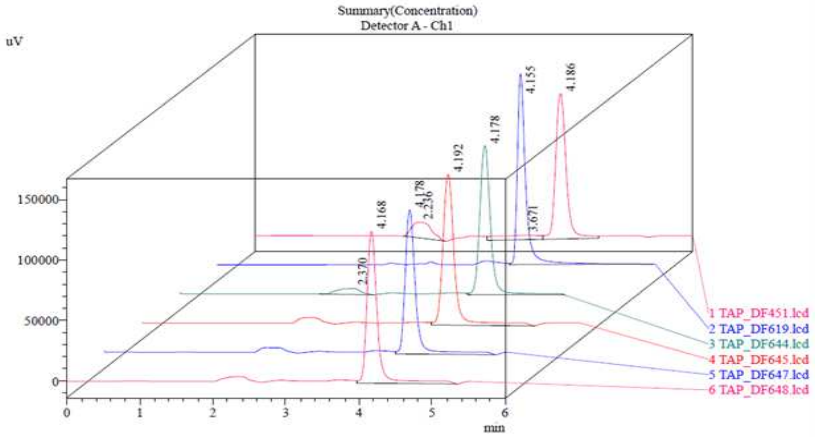


Figure 5: Overlain Chromatogram for highest concentration of Range

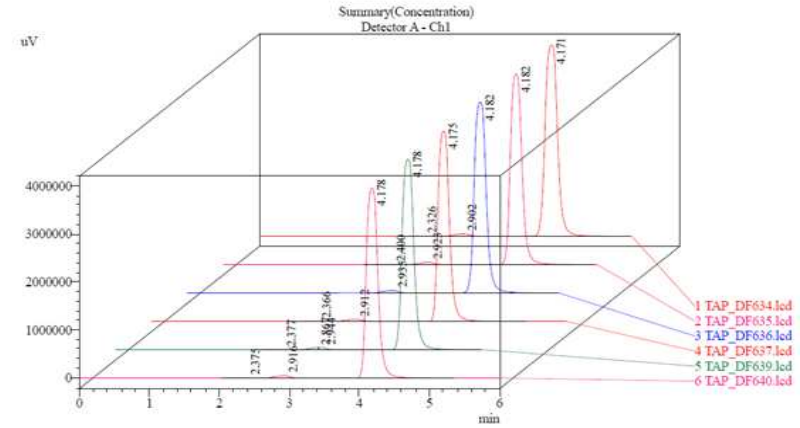


Table 2: Range data for Apremilast

S. No	Apremilast	
	Peak area lowest concentration (10µg/ml)	**Peak area highest concentration (500µg/ml)**
1	1269032	48856793
2	1253634	47041771
3	1247894	46621967
4	1255827	47302114
5	1249191	48718429
6	1240801	48552759
Mean	1252730	48856793
S.D	5060.4	69937.71
% RSD	1.08	1.2

Precision:- Method precision was establishedby infusing six relaxation infusions of the standard system at 120µg/ml fixation under the same test conditions[8]. The relative standard deviation obtained was shown in table 3

Table 3: Results of Method precision

Injections	Peak area
1	111062240
2	101213784
3	10256394

4	118446342
5	111062364
6	10256376
Mean S.D % RSD	10256376 9645.2 1.24

Accuracy:- Accuracy studies were completed at three unique levels of 50%, 100%, and 150%[9]. Each concentration solutions were prepared in three setsand injected into HPLC system and the results obtained are tabulated in table 4

Table 4: Accuracy Study data

Spiked Level	Standard		Mean area	Spiked		Mean area	Recovery
	Conc. (µg/ml)	Peak area		Conc. (µg/ml)	Peak area		
50%	100	10884010	10768731	180	18490895	17952012	96.1
		10387491			17215819		
		11034694			18149324		
100%	200	17817265	18075390	280	21370900	25953353	101.5
		18324653			27945221		
		18084254			28543939		
150%	300	30456484	31113633	380	39070004	37948721	97.5
		31861239			38868739		
		31023176			35907420		

Specificity: Interference of impurities was checked by injecting the blank and sample solution into HPLC system and chromatograms recorded were shown in figures 6 and 7.

Figure 6: Chromatogram of blank

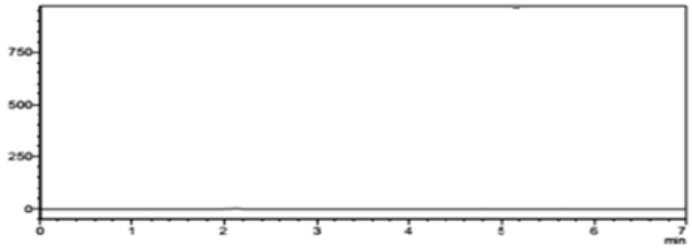
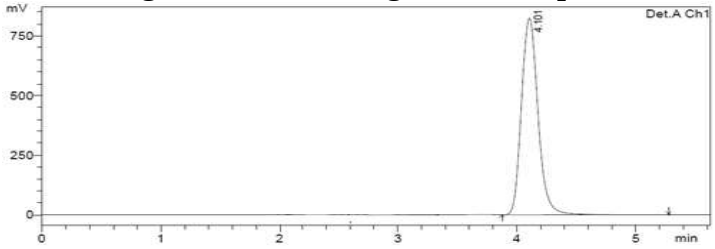


Figure 7: Chromatogram of sample



Robustness: Robustness study was carried out by changing the flow rate by ±0.2ml/min and wavelength by ±3nm and the relative standard deviation determined was shown in table 5

Table 5: Robustness Study (Change in Flow rate) Data

S.No	Robustness (Flow rate)
Injections	**Peak area**
1	18400170
2	18775516
3	19618609
4	17285324
5	15139747
6	19706503
Mean	18154311.5
S.D	23328
% RSD	1.2

Ruggedness: Standard solution was prepared and injected into HPLC system in 6 replicate injections and system suitability criteria are checkedunder variety of conditions like variability due to analyst and variability due to column and the results are shown in table 6[10].

Table 6: Results of analyst and column variability

S. No	Analyst 1	Analyst 2	Column 1	Column 2
Injections	**Peak area**	**Peak area**	**Peak area**	**Peak area**
1	13520039	13584382	25399273	49764789
2	13432064	13506336	25611132	49760089
3	13346033	13616410	27226471	48402789
4	13376024	13464343	25312273	49763218
5	13742497	13940689	25610132	47764712
6	12324264	13914790	27446471	49701029
Mean	13290153.5	13671158.3	26100959	49192771
S.D	15124.14	18231.63	2610.61	4132
% RSD	1.4	1.65	0.96	0.71

RESULTS AND DISCUSSION:-Different mobile phases were tried and finally the mobile phase containing methanol: acetonitrile in the ratio of 20:80 %v/v. The Rt was achieved at 4.101 and run time was 5minutes. System suitability parameters were checked and found to be within the acceptance criteria. The method was found to be linear in the concentration range of 10 to 500µg/ml and the regression coefficient was found to be 0.999. The relative standard deviation for method precision was 1.24 which was found to be within the limits.The lowest and highest concentrations of range were found to be 10µg/ml and 500µg/ml respectively. The method was found to be more specific as there was no placebo and blank interference. The % recovery at each level was within the limits of 95% and 102% which demonstrates that the technique was accurate and furthermore uncovers that the excipients present in the pharmaceutical definition were not meddling in the proposed strategy. The robustness studies were carried by changing the flow rate and wavelength and these studies indicated that there was no effect on the study of drug. The % RSD was found to be within the limits when there was variation from analyst to analyst and column to column and the method was found to be rugged

CONCLUSION:- An effort has been made to create straightforward exact well-explicit and financially possible strategy for estimation of apremilast by RP-HPLC in dosage form of the tablet by conducting various tests and the developed method was validated.The HPLC method is used to assay Apremilast as tablet dosage were approved regarding exactness, accuracy, linearity, particularity, robustness, ruggedness, channel approval, arrangement steadiness. The aftereffects of approval demonstrated that all the approval parameters are good. The peak

territories of Apremilast peaks were straight regarding focus. The results of analysis revealed that proposed technique was appropriate for their investigation with no obstruction and recuperation was seen as satisfactory.

ACKNOWLEDGEMENTS:-The authors acknowledge Aurobindo Pharmaceuticals Limited, Hyderabad, Telangana, India for providing gift sample of Apremilastdrug.

CONFLICT OF INTEREST:- The authors declare that they have no conflict of interests.

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Synthesis, Structural, IR and XRD Properties of Spinel Mg Ni Zn Ferrite System Synthesized by Sol-Gel Route

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Abstract:-Mg Ni Zn ferrite of chemical formula $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2 and 0.6) have been prepared by sol-gel method. All the samples have been sintered at 500^{o}C. All the samples were characterized by using XRD for structure analysis and lattice parameters determination. FTIR study has also been carried out which shows that synthesized material is ferrite.

Keywords:- Ferrites, Sol-gel method, Synthesis, X-ray diffraction, IR.

1.**Introduction:-**In several areas such as magnetic recording media, Ferro fluids, multilayer chip indicator, magnetic resonance imaging etc. nanoparticle ferrite were used.Nanoferrite have high resistivity and low eddy current losses at high frequency hence performed as potential candidates for microwave devices [1]. The ferrite containing Mg and Zn were used in computer memory and logic devices, recording heads, antenna rods, cores of transformers, loading coils and microwave devices due to having several interesting properties. In electrical as well as electronic industries Ni-Zn ferrites were used. The Ni-Zn ferrites are soft magnetic ceramics having spinel configuration [2]. Nanostructured materials have extremely small size or large specific surface area hence their unusual physical as well as chemical properties different from those of conventional bulk materials [3-5]. In the present study the sol-gel method was carried out to prepare $Mg_{0.7-x}Ni_xZn_{0.3}$ (where x=0.2 and 0.6) ferrite system.

2.Experimental Work

2.1. Synthesis:-Analytical grade magnesium nitrate, zinc nitrate, nickel nitrate, ferric nitrate, and citric acid were used as raw materials to prepare $Mg_{0.7-x}Ni_xZn_{0.3}Fe_2O_4$ (x=0.2 and 0.6) ferrite material. Appropriate amounts of metal nitrates and citric acid, in order to form 10g of MgNiZn ferrite powder were first dissolved in 100 ml of deionized water. The molar ratio of nitrates to citric acid was taken 1:3. A small amount of ammonia was added to the solution to adjust the pH value to about 7. During this procedure the solution was continuously stirred using magnetic stirrer. The mixed solution was stirring at 90^o C for 4-4.5 hrs. During the evaporation, the solution became viscous and finally converted into a very viscous brown gel. The dried gel was burnt in an auto combustion manner until the entire gels was burnt out to form loose powder known as burnt powder. This whole procedure was carried out under ambient atmosphere. After that individual powders were sintered at 500^o C for 1 h.The general chemical reaction involved in synthesis process can be written as $(0.7-x)Mg(NO_3)_2.6H_2O + (x)Ni(NO_3)_2.6H_2O + (0.3)Zn(NO_3)_2.6H_2O + 2\ Fe\ (NO_3)_3.9H_2O + 3C_6H_8O_7 \rightarrow (Mg_{0.7-x}Ni_xZn_{0.3}Fe_2O_4) + 4N_2\uparrow + 18CO_2\uparrow + 36H_2O$

2.2 Instrumentation:-The nanocrstalline samples were characterized by X-ray diffraction (XRD) technique at room temperature by using Philips Powder X-ray diffractometer (Model PW 3710) with CuKα radiation having wavelength 1.5406 A^o.

Result and Discussion

3.1. XRD Studies:

The phase formation of the nanocrystalline $Mg_{0.7-x}Ni_xZn_{0.3}Fe_2O_4$ (x=0.2 and 0.6) spinel ferrite sample is performed by X-ray diffraction technique at room temperature in the 2Θ range from 20^o to 80^o and is depicted in figure 1.Analysis of XRD patterns indicated that the studied samples have single phase cubic spinel structure. All the Bragg's angle of corresponding peaks in the XRD pattern matches closely with the characteristics of reflection peaks of Mg Ni Zn ferrites reported in JCPDS Barakat, m et al, J. Therm Anal 37.241 (1991) [6]. The average Crystallite size was calculated by using the Debye Scherer formula given below

D = $\frac{0.9\lambda}{\beta\, cos\theta}$, where β is the full width at half maxima and $\Theta$is the angle of diffraction.

The lattice constants was calculated using the formula

$a = d_{hkl} \times \sqrt{h^2 + k^2 + l^2}$, where (hkl) is the miller indices.

The interplaner spacing was calculated using the relation

$d_{cal} = \frac{n\lambda}{2sin\theta}$

The X-Ray densities of each sample was determined by using formula given below

$D_x = \frac{8M}{Na3}$, where M = Molecular weight of sample N = Avogadro's Number a = Lattice constants.

The ionic radii on tetrahedral A site and octahedral B site is calculated by using following relations

$R_A = (u - \frac{1}{4}).\ a.3^{\frac{1}{2}} - r(O^{2-})$, Where, $r(O^{2-})$ = ionic radii of the oxygen.

$R_B = (\frac{5}{8} - u).\ a\ . - r(O^{2-})$,Where, $r(O^{2-})$ = ionic radii of the oxygen.

The metal oxygen bond length A–O on tetrahedral site was determined by using following relation

$A–O = (u - \frac{1}{4}).\ a.3^{\frac{1}{2}}$Where u = oxygen ion parameter.

The Bond length B-O on octahedral site is calculated by using following equation

$B–O = (\frac{5}{8} – u).a$, Where u = oxygen ion parameter.

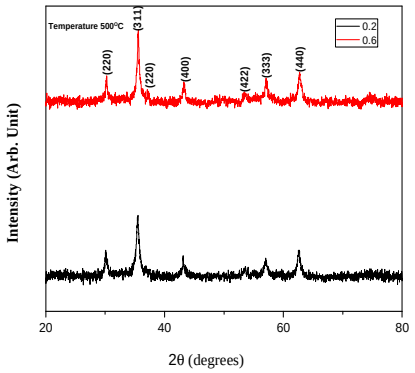

Fig. 1 XRD pattern of sample.

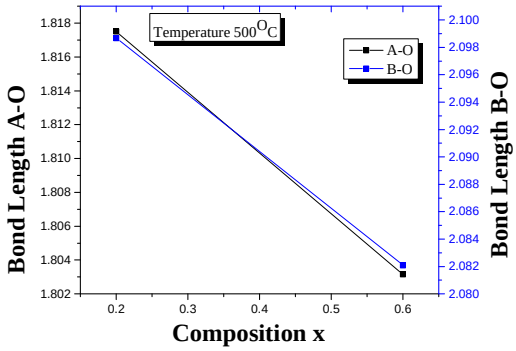

Fig.2 Bond Length V/s Composition of sample

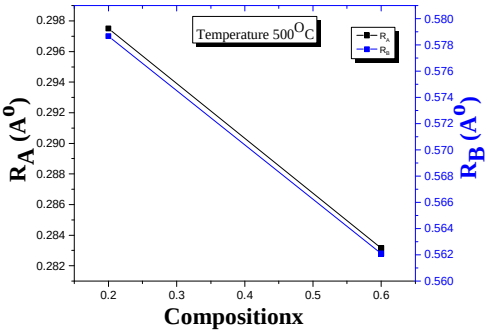

Fig.3 Ionic radii V/s composition of sample

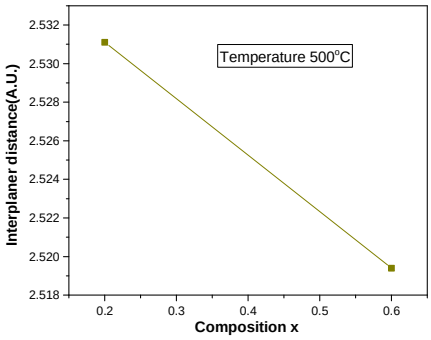

Fig.4 Interplaner Distance V/s Composition of sample

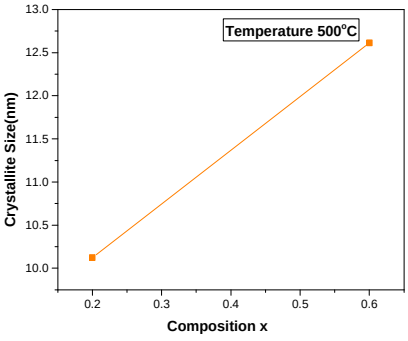

Fig.5 Crystallite Size V/s Composition of sample

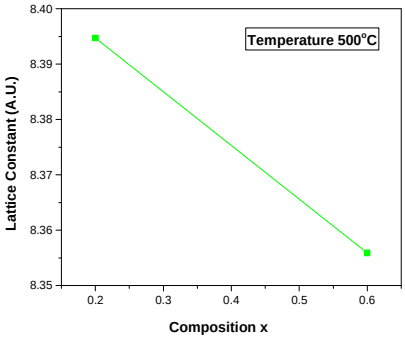

Fig.6 Lattice Constants V/s Composition of Sample

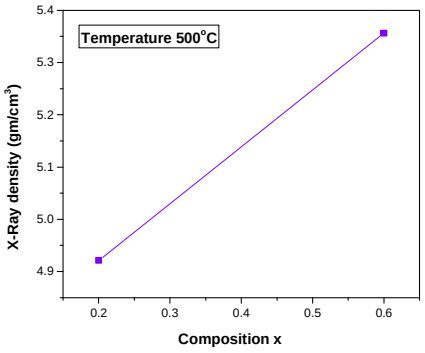

Fig.7 X-Ray Density V/s Composition of sample

3.2. FTIR Spectroscopy:-The FTIR (Fourier Transform Infrared Spectrometer) characterization: The FTIR (Fourier Transform Infrared Spectrometer) of $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2 and 0.6)nanoferrite sintered at 500°Care presented in Fig.8-9.The infrared curve of sintered powder shows infrared peak at range of 500-600 cm^{-1}. From IR curve confirmed that the synthesized material is ferrite.[7]

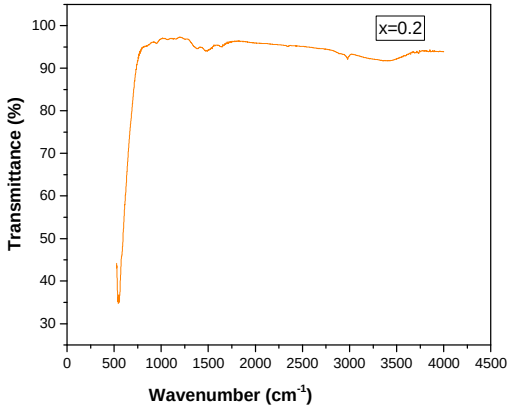

Fig.8 FTIR of $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2)

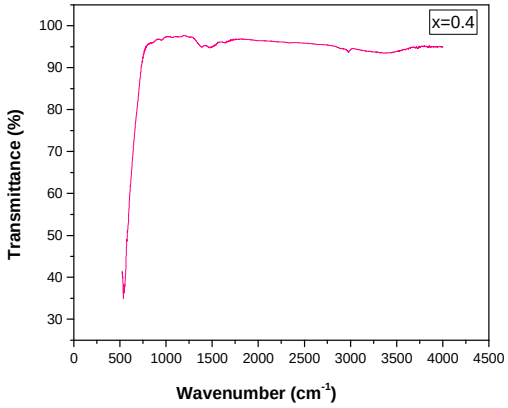

Fig.9 FTIR of $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.6)

Conclusion:-The $Mg_{0.7-x}Ni_xZn_{0.3}$ (x=0.2 and 0.6)nanoferrite were successfully synthesized using sol-gel route. X-Ray Diffraction pattern confirm the formation of cubic spinel phase. The IR curve confirms the ferrite formation. The Lattice parameters were changes significantly with the variation in composition of $Mg_{0.7-x}Ni_xZn_{0.3}$ (where x=0.2 and 0.6) nanoferrite system sintered at 500° C.

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Conflicts of Interest:- The authors declare no conflict of interest

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An evaluative study to assess the knowledge, attitude and practices specific to International confederation of Midwives (ICM) competencies and Midwifery model of care (MMoC) among midwives working in government hospitals of (urban and rural areas) districts of Madhya Pradesh

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BACKGROUND:

"Midwifery is a blend of art, knowledge, skill, and instinct."

— Jennifer Worth

International Confederation of Midwives (ICM) is an accredited non-governmental organization which functions to strengthen midwifery practice through its affiliated midwifery associations throughout the world. It functions with the vision of a world where every childbearing woman has access to a midwife's care for herself and her newborn. The Midwives Model of Care consists of prenatal visits and "hands-on" care entire labor, birth and right after. It leads to minimal possibility of complications, less interferences and an improved birth for both mother and the baby. Midwives are the reliable assistants of women throughout their pregnancy, birth, as well as the period following child birth. They perform a crucial task in assisting women to accomplish sound pregnancies thereby making pregnancy a positive experience. Secure along with efficient midwifery care is capable of avoidance of eighty three percent of each maternal deaths, stillbirths and child mortality, respectively. Midwives are the major defenders of childbearing women. Elsewhere, obstetricians or family physicians may be solely accountable for treatment, or they may split the task. Familiarity, continuity of treatment and being concerned about by a familiar, trustworthy midwife during childbirth are the definition after the model. The focus is on women's innate capacity to endure birth with limited intervention.[2]Midwifery care has the probability to avert majority of these deaths. In the midst of these challenges, midwives are ensuring quality midwifery care to women along with newborns in health services or respective areas, preserving public health. Midwifery as a service identifies pregnancy, labor, birth as well as post-natal period as a healthy with reflective experience that a woman undergoes in the course of her life. Midwives acquire an essentially diverse approach to prenatal care in addition to efforts of the additional familiar therapy paradigm that medical practitioners usually undergo. "The practitioners make a formal service initiative with the gravid female, and offering evidence along with suggestions, nurturing respect with expectation, diminishing interventions, furthermore transferring women to obstetrical care whenever required. When started asking what kind of a birth they want, several feminists say that they want to have one "as comfortably as possible.[1] According World Health Organisation (WHO),[1] regular midwifery care reduces maternal and infant deaths and stillbirths by more than 80%, and decreases pre-term labour and birth by 24%..

KEYWORDS:-Midwives, ICM, MMoC, Competencies

OBJECTIVES OF THE STUDY

1. "To assess the knowledge specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."
2. "To determine the attitude specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."
3. "To evaluate the practices specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh"

4. "To find out association between knowledge specific to ICM competencies with selected demographic variables of midwives."
5. "To perceive the association between attitudes specific to ICM competencies with selected demographic variables of midwives."
6. "To determine the association between practices specific to ICM competencies with selected demographic variables of midwives."
7. "To assess the knowledge specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
8. "To determine the attitude specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
9. "To evaluate the practices specific to MMoC among midwives working in government hospitals of Madhya Pradesh."
10. "To find out association between knowledge specific to MMoC with selected demographic variables of midwives."
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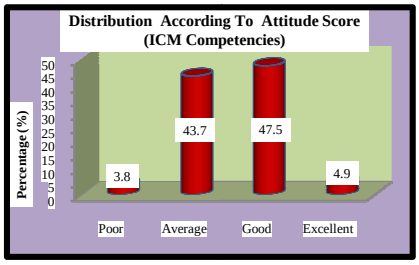

Exclusion Criteria

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   Out of 183 samples, Majority of the nurses i.e. 86 (47.0%) were in the age group 31-40 years. 111 (60.7%) nurses had done their B.Sc. Nursing. 110 (60.1%) nurses had a work experience between 5-15 years. 91 (49.7%) had work experience in labor unit while 135 (73.8%) nurses were working in urban area.. 68 (37.2%) nurses were working in CHC. 105 (57.4%) nurses had attended some workshop, seminars, conferences, etc. attended related to maternal care. 162 (88.5%) nurses were working as registered. nurses 160 (87.4%) nurses had never heard of ICM competencies whereas 109 (59.6%) nurses were aware about Midwifery Models of Care.
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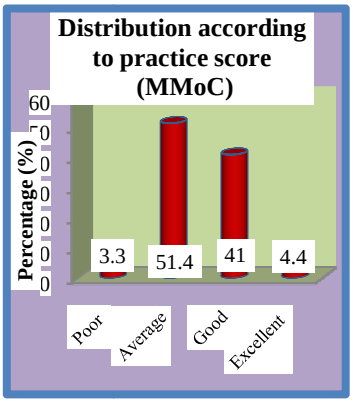

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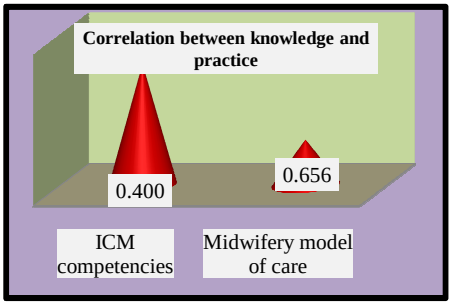

In addition to 183 samples, 20 ANMs worked in chosen Madhya Pradesh PHCs and CHCs. Since ANMs is not part of the inclusion criterion of the researcher as they often serve the responsibility of group field work and are implicitly connected to patient care by serving as assistants, the researcher felt the need to gather their interactions due to an ethical point of view.

CONCLUSION:-The knowledge, attitude and practice was found to be significantly associated with socio demographic variables based on ICM Competencies and MMoC of midwives working in selected government hospitals of Madhya Pradesh.Hence it showed that the ICM Competencies and MMoC if a standard protocols for midwives to improve their efficiency. Yet the researcher observed some lacunae in attitude and practice because of the issues faced by the midwives as mentioned due to which they are not able to give the quality output as expected of them. The government should take initiatives to fill in vacant spaces as per requirement in health care facilities so that work responsibilities can be evenly distributed to all midwives employed. The government should also take initiative to upgrade more training workshops, seminars and conferences and ensure that it is evenly accessible to all.

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"An evaluative study to assess the knowledge, attitude and practices specific to International confederation of Midwives (ICM) competencies and Midwifery model of care (MMoC) among midwives working in government hospitals of (urban and rural areas) districts of Madhya Pradesh"

***Linea Joseph PhD Scholar -25617052 JJTU, **Dr. Usha Ukande Co-Guide**

BACKGROUND:

"Midwifery is a blend of art, knowledge, skill, and instinct."

— Jennifer Worth

International Confederation of Midwives (ICM) is an accredited non-governmental organization which functions to strengthen midwifery practice through its affiliated midwifery associations throughout the world. It functions with the vision of a world where every childbearing woman has access to a midwife's care for herself and her newborn. The Midwives Model of Care consists of prenatal visits and "hands-on" care entire labor, birth and right after. It leads to minimal possibility of complications, less interferences and an improved birth for both mother and the baby. Midwives are the reliable assistants of women throughout their pregnancy, birth, as well as the period following child birth. They perform a crucial task in assisting women to accomplish sound pregnancies thereby making pregnancy a positive experience. Secure along with efficient midwifery care is capable of avoidance of eighty three percent of each maternal deaths, stillbirths and child mortality, respectively. Midwives are the major defenders of childbearing women. Elsewhere, obstetricians or family physicians may be solely accountable for treatment, or they may split the task. Familiarity, continuity of treatment and being concerned about by a familiar, trustworthy midwife during childbirth are the definition after the model. The focus is on women's innate capacity to endure birth with limited intervention.Midwifery care has the probability to avert majority of these deaths. In the midst of these challenges, midwives are ensuring quality midwifery care to women along with newborns in health services or respective areas, preserving public health. Midwifery as a service identifies pregnancy, labor, birth as well as post-natal period as a healthy with reflective experience that a woman undergoes in the course of her life. Midwives acquire an essentially diverse approach to prenatal care in addition to efforts of the additional familiar therapy paradigm that medical practitioners usually undergo. "The practitioners make a formal service initiative with the gravid female, and offering evidence along with suggestions, nurturing respect with expectation, diminishing interventions, furthermore transferring women to obstetrical care whenever required. When started asking what kind of a birth they want, several feminists say that they want to have one "as comfortably as possible.[1] According World Health Organisation (WHO),[1] regular midwifery care reduces maternal and infant deaths and stillbirths by more than 80%, and decreases pre-term labour and birth by 24%..

OBJECTIVES OF THE STUDY

1."To assess the knowledge specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."

2."To determine the attitude specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh."

3."To evaluate the practices specific to ICM competencies among midwives working in government hospitals of Madhya Pradesh"

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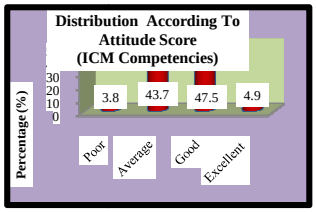

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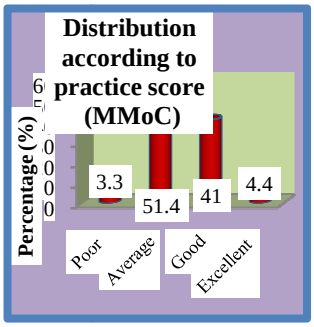

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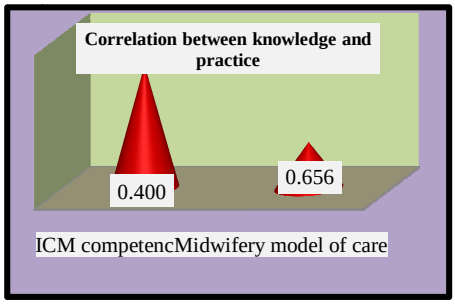

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KEYWORDS :-Midwives, ICM, MMoC, Competencies

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Strong Technique to detecting COVID with X-ray images

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Abstract:-Previously unknown corona virus, generally referred to as COVID causes it. Detecting CO19 at this time is mostly depends on factors like the patient's signs and symptoms, on where the patient lives, where the patient has been, where the patient travels, and the proximity to other patients. To conduct a COVID test on a patient, a physician or other health worker uses a swab to obtain a nasal sample. After being analyzed in a laboratory, the results are copied into a database. If an individual has the sputum, he or she will cough it up, and if not, an instrument will do it. It becomes critical when there is a lack of reagents or testing capacity, when a healthcare professional tracks the virus and finds out if they are COV-19 positive, or works with infected. With retrospective analysis of laboratory test data, it is necessary to have a COVID-19-like process for X-ray image analysis Demystriciation: This paper offers a simplified method for detection of CO19 with the use of medical images based on deep nets. A preliminary study has shown an accuracy of 91.7% for diagnosis, with 100% success in determining the survival rate.

Keywords—Convolution neuralnetwork,Covid-19, deeplearning, chest X-ray images

I .INTRODUCTION:-Between 31 December 2019 and 16 May 2020, a total of approximately 4, 503, 36 cases have been reported, including 1,304,359 fatalities. It is discovered that COVID is a disease causing lethal, so statistics show us that early detection and tracking the epidemic are necessary in order to combat it. As much as we hate to admit it, not enough testing doesn't actually remove this virus from our systems. But is it important to know how accurate the results are? With respect to precise Covid-19 testing, cooperation from a number of methods is required. Secondly, the test units must be acquired, for example, the long tubes and chemicals are required. During this step, these are forwarded to proficient laboratory research lab researchers who use a polymerase chain reaction (PCR) machine. At the end of the day, there must be a framework in place to allow for tests to be done and feedback to be reported to the appropriate parties. an individual may be uninfected even when they're disease free.They are all put out of action. To avoid discharge near the testing location, they might have the infection in the lungs, but not in the nose. It is now a standard procedure to perform a CXR to find the abnormal respiratory tract or lung function. breath/b study is very likely to be the diagnostic and treatment modality of choice for lung abnormalities" Pathological findings on CXR establish whether or no deformation occurs.(Numerous studies have) demonstrated the utility of X-ray imaging in the diagnosis of various pathologies including pneumonia, abscesses, inflammation, and/ lymph nodes, and X-ray images are readily available for this purpose in [6] They look at the dataset of [4] and then use that to predict outcomes. Deep learning implementation of these X-ray images could be very advantageous. Successful applications of deep learning (DL) have previously demonstrated the ability to find anatomical and cellular structures, segmentation, detect diseases, and so on. DL technology is utilised for detecting and classifying cancer in a similar manner to how it's used in clinical diagnoses The researchers applied deep convolutionalvision neural net (DCNN) to digital multisequence imaging (MMI) for the automated detection and segmentation of brain metastases (MRI). It has been proposed that the DL is be used to test for fundus images for anaemia similar research was conducted by researchers in [10] and [11] by means of applying COVID-1 for imaging and diagnostics on the DL patients in [12] The authors retrieved the COVID- 19 data from the general population,

training and testing a DL system with transfer learning to identify COVID- 19 factors, and validated the method with a follow-up of patients who were given COVID- 19 to use transfer the findings to estimate survival The use of DL for the res50+SVM to extract complex features achieved 95.38% classification accuracy, with an FPR of 0.51%, an F1 score of 0.95.46, and an MCC of 0.77% The authors collected 453 CT confirmed cases of pathogen, known to be affected by CO19, as the training set, and created an algorithm based on the migration theory. With an accuracy of 82.9% and an extensiveness of 80.5%, internal validation was successful." The dataset used in the outside demonstrated a success rate of 73.1% with a S/P of 67% They introduced an alternative model, known as Capsule Networks, which successfully predicted 95.7% of CO19 infectivity in the small dataset. Table 1 shows other DL-based creative approaches with their proposed techniques and results Inspired by the work of [10-14], we built a CNN algorithm to evaluate CO19 in respiratory disorders like Middle East respiratory syndrome (MERS), SARS, and ACUTE ANDROJENT syndrome (ARDS).In our report, the report will be broken down into three sections. Section II deals with participant data, Section III illustrates our main findings, and our basic methodology, and Section V explains the overall conclusions.

II.DATA COLLECTION:-The data that was compiled used in this study comes from two public sources. 10 was given to us in This database contains a total of 259 MERS and SARS chest images (pneumonia cases). They are extracted from different websites. Apart from the [4] from that, we used 3347 other images to train and improve the classifier. Thus, here the total number of images in the research is 3600. The rule of thumb for me is that 80% of images are used for training and 20% of images are for evaluating and checking the algorithm performance of the whole system. less than 2% of the images pertain to diseases such as MERS, SARS, SARS-CoV, or SARS2 are related to the chest More than half of the original patients were found to be COVID positive.

III.METHODOLOGY:-The goals of this research are aimed at providing answers to four major questions:

1. To confirm whether or not the patient is infected with COV-19, the doctor has to order a test.
2. Will the patient live or die?
3. The ratio of cases to non-COVID patients is generally is about 3
4. Data has shown that about the ratio of male to female COVID patients to be 2:1.

It is shown in Figure 1. According to this theory, we first organized the images and put the related co-variation information in place before attempting to do further work on CVR. We started with black and white images and then organized them into two groups (i.e. SARS, MERS and ARDS). COVID-19 is then is used to determine the prognosis of patients who are close to being dead. This was accomplished by using DL convolution neural network (DL CNN). Figure 2 describes the architecture of CNN.

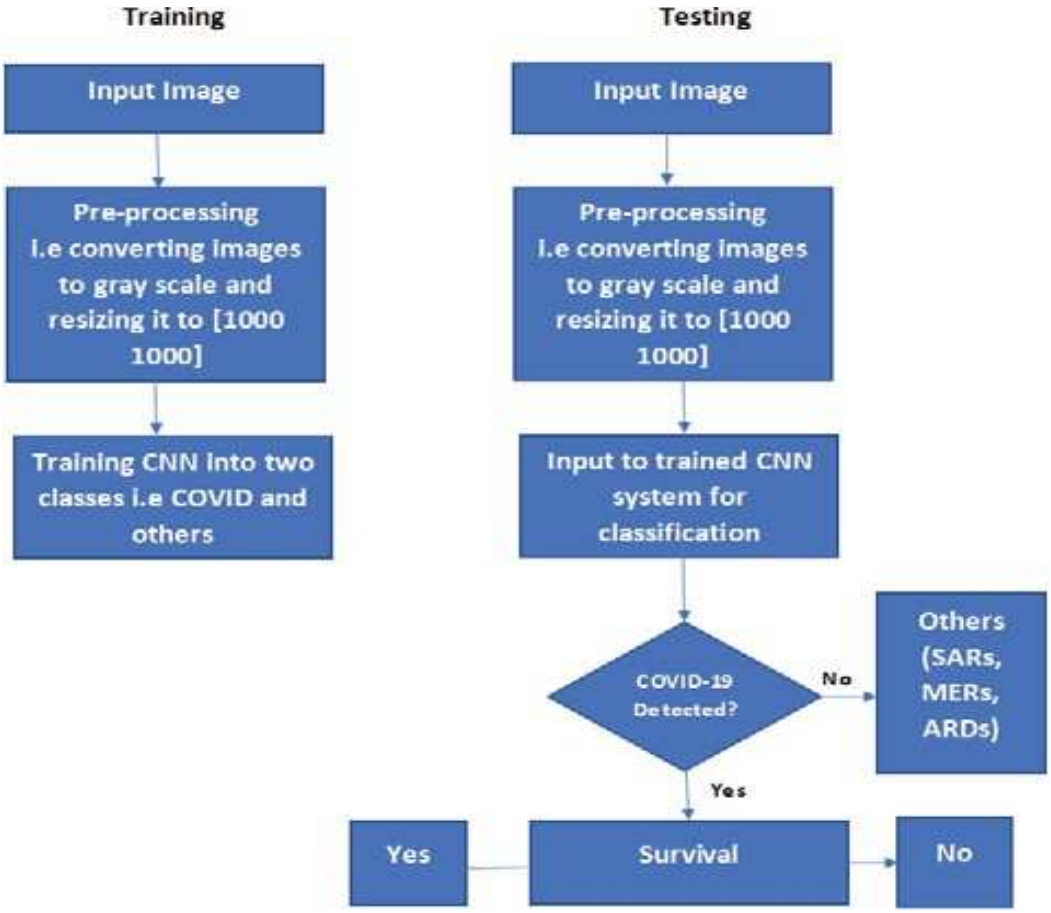


Fig.1.Picture illustrating the flow of the system

IV.RESULTS AND DISCUSSION:-With an accuracy of 91.67% in Figure 3 can be seen in Figure 6 Using the data as shown in Figure 4, we classified the original data with a neural network feature extractor and then analysed it to find the survival ratio (a). Here's confusion matrix (Figure 4b) demonstrates the fact that many aspects of the design are open to confusion. This classifier is as shown in Figure 7 is totally accurate. The green colour in Figure 3 and 4 (a) match. The blue images in Figure 4 (b) do not correctly reflect what Figure 3 depicts. Based on

	Name	Type	Activations	Learnables
1	imageinput 1000×1000×1 images with 'zerocenter' normalization	Image Input	1000×1000×1	-
2	conv 20 2×2×1 convolutions with stride [1 1] and padding [0 0 0 0]	Convolution	999×999×20	Weights 2×2×1×20 Bias 1×1×20
3	batchnorm Batch normalization with 20 channels	Batch Normalization	999×999×20	Offset 1×1×20 Scale 1×1×20
4	relu ReLU	ReLU	999×999×20	-
5	fc 2 fully connected layer	Fully Connected	1×1×2	Weights 2×19960020 Bias 2×1
6	softmax softmax	Softmax	1×1×2	-
7	classoutput crossentropyex with classes 'COVID-19' and 'Others'	Classification Output	-	-

our data in Figures 5(a) and 5(b), the majority of people infected with this virus are middle-aged or young adults.

Fig.2.CNNArchitecture

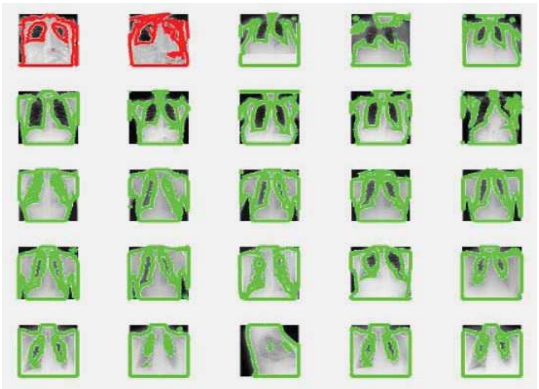
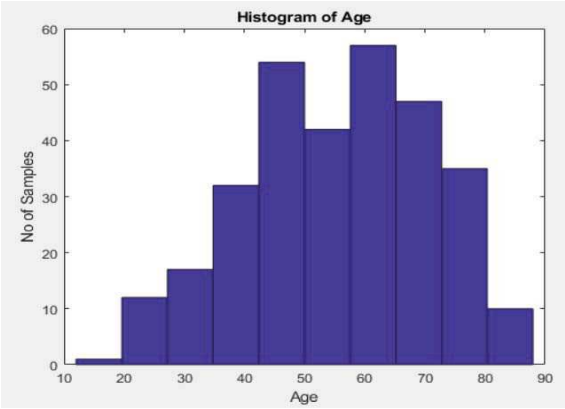
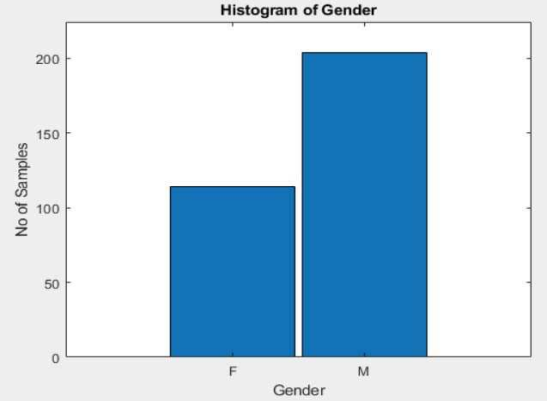


Fig.3. DetectionofCOVID-19patientsusingfeatures

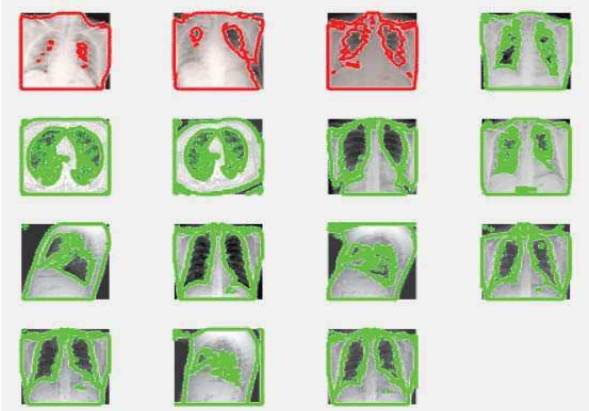


a)Histogram of age

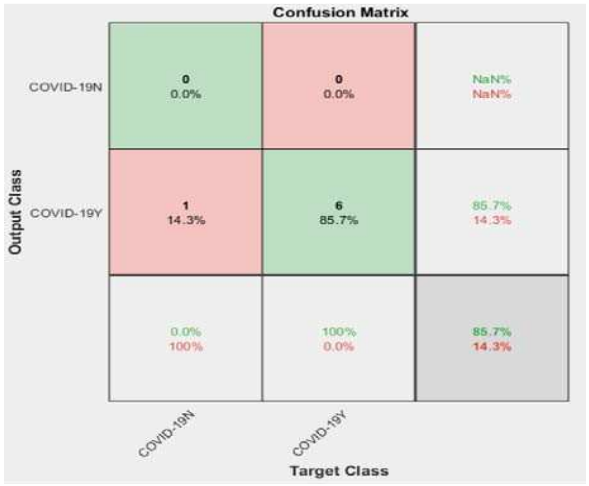


b) Histogram of sex.

Fig.4.Demographicsresultsbased onageand sex



a)featureanalysistofindsurvivalratio



b)Confusion matrix of classifier for survival analysis

Fig. 5. AnalysisofCOVID-19 patientssurvival

V.CONCLUSION AND FUTURE DIRECTIONS:-This research provides an exceptional starting point for us to identify the clinical stage of COVID-19 disease. In this study, we used a deep neural network technique to identify two different classes of patients based on the shape of their chests: those with chest abnormalities and those without. We achieved a perfect score of 91.67% in this case. We tried to diagnose and follow patients who have positive COVID-19 antibodies to see how their disease proceeds. This research also includes a feature that determines the survival rate of CO19 patients to track performance accuracy of about 98%. Until now, the presence of this virus has been associated with age groups in which there are more men than women. These current issues in healthcare were examined as part of the COVID project. In the future, our strategies will include ways to enhance the things we've already done well to include new and exciting techniques, and our strategy will be toward improvements of the things we've already done well with new and exciting techniques.Working in real time on these patients and increasing the accuracy of our findings.

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Effect of Music Therapy on Selected Physiological Parameters During First Stage Of Labour.

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Abstract:
Background: Enjoying some "music to move by" can encourage the mother to stay active for as long as possible during the labour. Less research has been done about the use of music therapy on selected physiological parameters in labour.
Aim: The purpose of the study was to investigate 'the effect of Music therapy on selected physiological parameters during first stage of labour among Primigravida at selected hospitals, Bangalore".
Subjects and methods: An evaluative research approach with Quasi experimental Post-test only Control group design was adopted. 40 primigravida were assigned either to experimental group (n=20) and control group (n=20) by purposive sampling method. Music therapy was given to the experimental group and the control group was not exposed to music during this period. Post-test was conducted for both the group using the Modified UAB Pain Behaviour Scale and Modified WHO Partograph.
Findings: The study findings revealed that there is significant Effect of music therapy on pain perception ($t=18.58$, $p<0.001$), frequency of uterine contractions ($t=11.92$, $p<0.001$), intensity of uterine contractions ($t=19.08$, $p<0.001$)and rate of cervical dilatation ($t=9.58$, $p<0.001$)in experimental group compared to control group.
Conclusion: The study concludes that Music therapy was found effective on selected physiological parameters among primigravida in first stage labour.
Key words: Music therapy, physiological parameters, primigravida.

INTRODUCTION:-Childbirth is one of the most marvelous and memorable segment in a woman's life. It does not really matter if the child is the first, second or the third one. Each experience is unique and calls for a celebration.Each woman comes into labour room with her own set of expectations, fear, pain threshold, personality and behavioural makeup and ways of experiencing what is happening to her, which has to be managed effectively.There are many choices for pain relief, both pharmacological and nonpharmacological measures.Pharmacologic measures are narcotic analgesia, epidural anesthesia, tranquilizers and sedatives. Nonpharmacological measures are Music therapy, Breathing techniques and relaxation, position change, etc.Throughout the last two decades there has been an increasing demand for non-pharmacological alternatives. Music is one such alternative as a therapeutic intervention started at 20th century. The common theory behind this is; music acts as a distracter as it can provide an escape from negative stimuli such as pain and anxiety.An experimental study conducted in Taiwan on 60 first time mothers expected to have normal spontaneous delivery, to investigate the effect of music therapy on labour pain and anxiety, revealed that compared with the control group, the experimental group had significantly lower pain and anxiety in the latent phase of labour.A study conducted in Thailand studied 2 groups of labouring women. One group chose among five types of calming music and listened to it for the first 3 hours in the hospital after active labour began. The control group had the standard care during labour. Researcher measured

the women's reports of labour pain before thestudy began and hourly for the next 3 hours. During the 3 hours and at each hourly measure, the music group had significantly less sensation and distress pain than the control group.By the above research studies it has proven that mothers require less pharmaceutical pain relief measures during labour if they make use of music. During early labour, this will also promote relaxation and also facilitate the birthing process.This study was an attempt to find the effect of music therapy on selected physiological parametersduring first stage of labour.

OBJECTIVES OF THE STUDY:

1. To assess the effect of music therapy on selected physiological parameters by comparing post test scores of experimental and control group.
2. To determine the association between the level of pain perception and selected socio-demographic variables in experimental group.
3. To find the association of the frequency and intensity of uterine contractions with selected socio-demographic variables in experimental group.
4. To determine the association between the rate of cervical dilatation progression and selected socio-demographic variables in experimental group.

HYPOTHESES:

H_{01}- There is no significant difference between post-test scores of experimental and control group.

H_{02}- There is no significant association between post-test level of pain perception and selected socio-demographic variable in experimental group.

H_{03}– There is no significant association between frequency of uterine contractions and selected socio-demographic variable in experimental group.

H_{04}– There is no significant association between intensity of uterine contractions and selected socio-demographic variable in experimental group.

H_{05}– There is no significant association between the rate of cervical dilatation progression and selected socio-demographic variable in experimental group.

MATERIAL AND METHODS:

1. RESEARCH APPROACH

Quantitative research approach.

2. RESEARCH DESIGN

Post-test only control group design

Intervention (X)	Post-test(O**1**)

3. SETTING OF THE STUDY

Labour room of M S Ramaiah Hospital, Bangalore.

i. **Population:** Primigravida mothers at M S Ramaiah hospital, Bangalore.
ii. **Sample:** Primigravida mothers in first 6 hours of active phase of labour.
iii. **Sample Size:** 40 primigravida mothers.
iv. **Sampling Technique:**Purposive sampling technique.

DESCRIPTION OF THE TOOL*:*

Section A: Socio-Demographic Data

Socio-demographic data – Age, Occupation, Type of work, Type of family,Presence of spouse in the hospital, Habitance.

Obstetric variables – Pregnancy, Mode of induction, Acceleration of labour,Gestational age, Duration of first stage labour, Estimated fetal weight, Bi-parietaldiameter.

Section B: Modified UAB Pain Behaviour Scale

Modified UAB Pain Behaviour Scale

Consisted6 items. Scoring:Each of 6 categories was rated as 0, 0.5, 1.

Scores were added together.Total pain score was documented out of 06.

Interpretation:

0 – 2	Mild Pain
2 – 4	Moderate Pain
4 – 6	Severe Pain

Section C: Modified WHO Partograph

1. Uterine changes-

A. Frequency-

Interpretation: maximum contractions in a hour: 12

< 4	Less frequent
4-8	Moderately frequent
9-12	More frequent

B. Intensity-

Interpretation: measured in terms of duration

<15sec	Mild contraction
15 — 40sec	Moderate contraction
>40	Strong contraction

2. Cervical dilatation –

<1cm/hr	Slow
1cm/hr	Medium
>1cm/hr	Fast

PILOT STUDY:-The pilot study was conducted in M.S. Ramaiah Hospital, Bangalore to find out the practicability and feasibility of the study, the reliability of the tool and effect of Music therapy. The findings of the Pilot Study revealed that the study is feasible. The Reliability of the **Modified UAB Pain Behaviour Scale** was calculated by using **Inter-Rater Reliability Method**. r : **0.87.** Since **Modified WHO Partograph** is standardized tool reliability was not done. The findings of the Pilot Study revealed that study and the tool were found to be reliable and feasible for administration for the main study. Formal permission was obtained from the concerned authority to conduct the main study. First 20 primigravida were allotted to experimental group. Music therapy was given to the women in first active stage of labour to experimental group with necessary instructions. Next 20 primigravida were allotted to control group and were not given any intervention. Post-test was conducted by the investigator for both the groups using the Modified UAB Pain Behaviour Scale and Modified WHO Partograph respectively.

ANALYSIS AND RESULTS:-The data collected were edited, tabulated, analysed, interpreted, and findings were presented in the form of tables and diagrams under the following sections.

SECTION A: Findings related to demographic characteristics of the subjects.

Majority of the subjects, i.e.50% of the experimental group and 40% of the control group belongs to the age group of 23-27 years.Many i.e. 35% of the experimental group and 30% of the control group subjects were private employees. Most i.e. 50% of subjects in experimental group and 40% in control group performed moderate work. Manysubjects i.e.70% in experimental group and 35% in control group belongs to nuclear family. Majority i.e. 80% of experimental group and 75% of control group spouse were present in the hospital. Many i.e. 50% of experimental group were from rural and 30% of control group subjects were from urban slum. Most subjects i.e.90% of the experimental group and 80% of the control group had the attitude of wanted pregnancy. Majoritysubjects i.e. 90% in experimental group and 80% in control group was spontaneous. Many subjects i.e. 90% of experimental group and 85% of control group had labour acceleration by medical method. Majority subjects i.e. 60% of the experimental group and 55% control group were in 39 – 40 weeks of gestation. Many of subjects i.e. 90% in experimental group was 8 – 10 hours and 85% in control group had duration of 10-12 hours. Most subjects i.e. 70% of experimental group and 55% of control group had estimated fetal weight of 3 – 4kg. Majority subjects i.e. 85% in both experimental group and control group had bi-parietal diameter 9.3 – 9.6cm.

SECTION B: Comparison of post-test findings of selected physiological parameters inexperimental and control group. (student-'t' test)

n=40 (20+20)

GROUP	EXPERIMENTAL		CONTROL		't' TEST
	MEAN	SD	MEAN	SD	
Pain perception	3.34	0.239	4.70	0.223	18.586 **
Frequency of uterinecontractions	8.09	0.793	5.27	0.699	18.586 **
Intensity of uterinecontractions	40.94	1.842	30.52	1.607	19.08 **
Cervical dilatation	7.37	0.498	5.70	0.599	9.589 **

**- Significant at 0.001 level

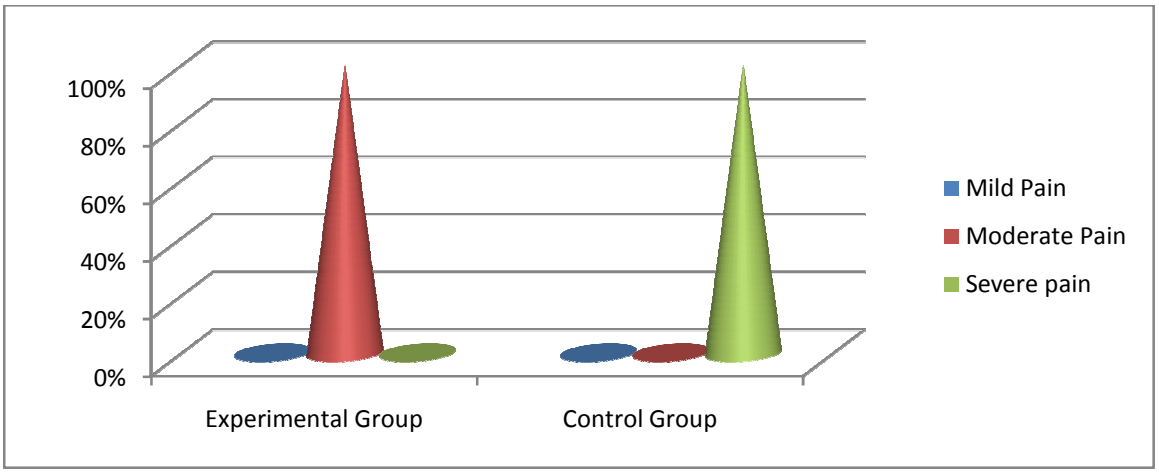
The above table reveals that there is a significant difference of the post-test scores of Pain perception, Frequency of uterine contractions, Intensity of uterine contractions and Cervical dilatation of experimental group and control group with student 't' value 18.586, 11.923, 19.08 and 9.589 which was significant at P • 0.01 level respectively. Hence H_{01} stated was rejected.

Frequency and Percentage distribution of Level of pain perception in experimental and control group in Post- test.

Pain Perception **n=40 (20+20)**

LEVEL OF PAIN PERCEPTION	EXPERIMENTALGROUP		CONTROL GROUP	
	Frequency	Percentage	Frequency	Percentage
Mild pain	-	-	-	-
Moderate pain	20	100%	-	-
Severe Pain	-	-	20	100%

The above table reveals all 100% of the subjects in the experimental group had moderate pain perception and all 100% of the subjectsin the control group had severe pain perception.

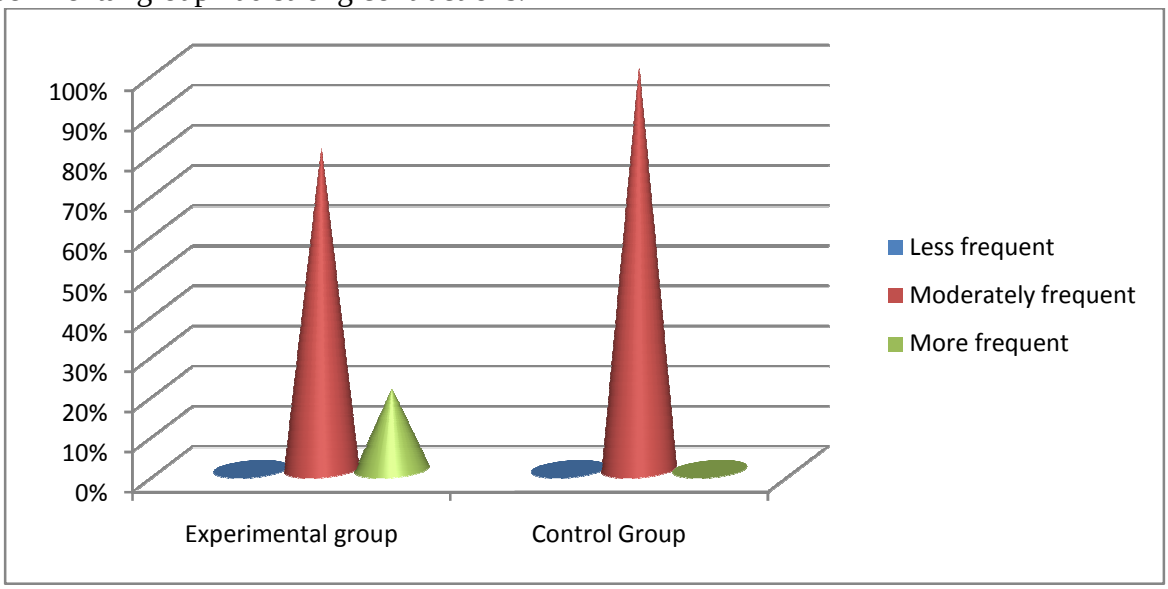


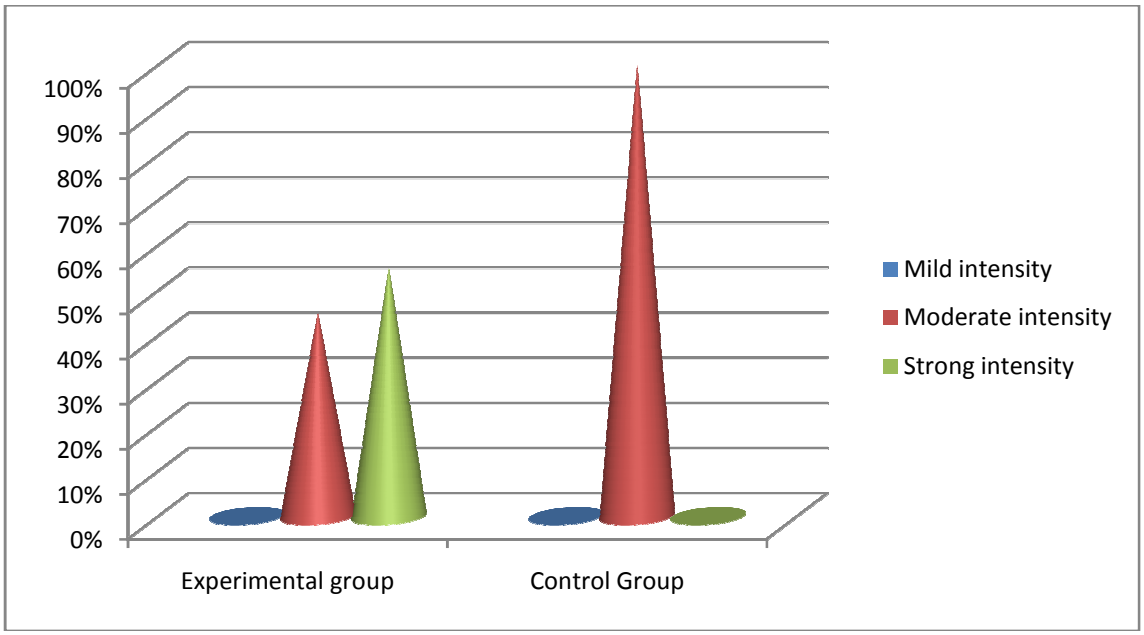
Frequency and Percentage distribution of uterine contractions in terms of frequency and intensity in experimental and control group in Post- test.

Uterine Contractions–Frequency and Intensity n=40 (20+20)

GROUP	Frequency						Intensity					
	Less		Moderate		More		Mild		Moderate		Strong	
	f	%	f	%	F	%	f	%	f	%	f	%
EXPERIMENTAL	-	-	16	80%	4	20%	-	-	9	45%	11	55%
CONTROL	-	-	20	100%	-	-	-	-	20	100%	-	-

The above table reveals with respect to frequency of uterine contractions 80% of the subjects in experimental group and all 100% of the subjects in control group had moderately frequent contractions and 20% of the subjects in experimental group had more frequent contractions and with respect to intensity of uterine contractions 45% of the subjects in experimental group and all 100% of the subjects in control group had moderate contractions and 55% ofthe subjects in experimental group had strong contractions.



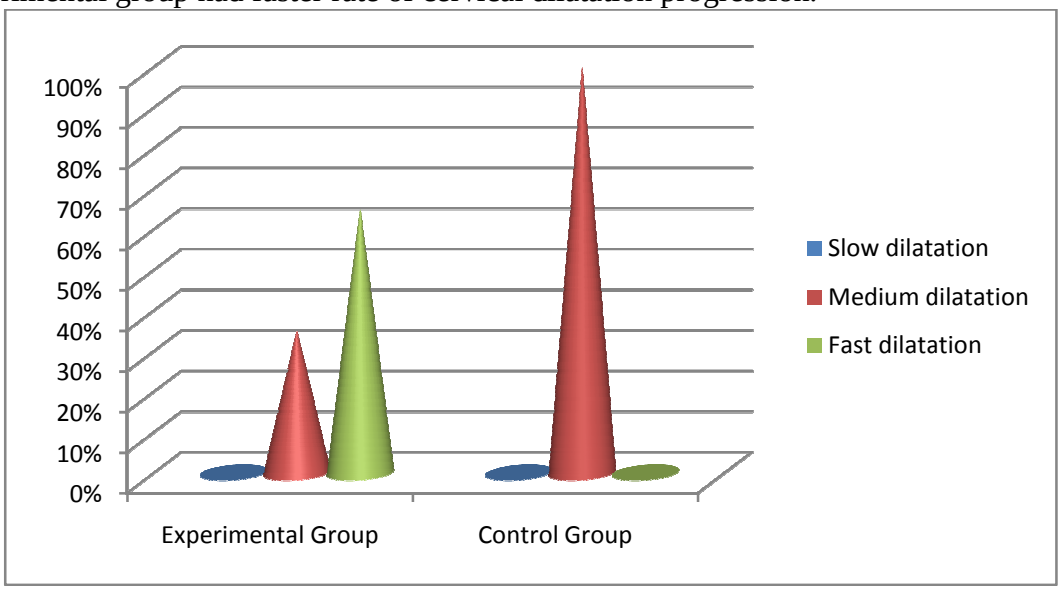


Frequency and Percentage distribution of rate of cervical dilatationprogression in experimental and control group in Post-test.

Cervical Dilatation **n=40 (20+20)**

RATE OF CERVICAL DILATATION PROGRESSION	EXPERIMENTAL GROUP		CONTROL GROUP	
	Frequency	Percentage	Frequency	Percentage
Slow	-	-	-	-
Medium	7	35%	20	100%
Fast	13	65%	-	-

The above table reveals that all 100% of the subjects in control group and 35% of the subjects in experimental group had medium rate of cervical dilatation progression and 65% of the subjects in experimental group had faster rate of cervical dilatation progression.



SECTION C- Association between the level of pain perception and selected socio-demographic variables in experimental group.

There is no significant association between the pain perception and selected socio demographic variables at 5% level.

SECTION D (a) - Association between the frequency of uterine contractions and selected socio-demographic variables in experimental group.

There is no significant association between the frequency of contractions and selected socio demographic variables except in area of type of work at 5% level.

SECTION D(b) - Association between the intensity of uterine contractions and selected socio-demographic variable in experimental group.

There is no significant association between the intensity of contractions and selected socio demographic variables at 5% level.

SECTION E - Association between the rate of cervicaldilatation progression and selected socio-demographic variables in experimental group.

There is no significant association between the rate of cervical dilatation and selected socio demographic variables except in areas of mode of onset of labour and acceleration of labourat 5% level.

DISCUSSION:-The null hypothesis H_{01} stated in this study isrejected since there is a significant difference between the post-test scores of pain perception, frequency of uterine contractions, intensity of uterine contractions and rate of cervical dilatation of experimental and control group and the calculated student't' value was 18.586, 11.9235, 19.08 and 9.589 which was significant at $P < 0.01$ level (1%) respectively because of music therapy.

χ^2value was less than table value for all selected socio-demographic variables, hence the H_{02} is accepted.

χ^2value was less than table value for all selected socio-demographic variables in experimental group except in areas of type of work of frequency of uterine contractions. Hence H_{03} was accepted except in areas of type of work of frequency of uterine contractions.

χ^2 value was less than table value for all selected socio-demographic variables, hence the H_{04} stated is accepted.

χ^2value was less than table value for all selected socio-demographic variables in experimental group except in areas of mode of onset of labour, acceleration of labour and control group post test scores. Hence H_{05} was accepted except in areas of mode of onset of labour and acceleration of labour.

CONCLUSION:-The study conclude that Music therapy was found effective in reducing pain perception, increasing frequency of contractions, intensity of contractions and increasing rate of cervical dilatation progression among primigravida in first stage labour.

RECOMMENDATIONS:

1. Study can be replicated with larger samples for better generalization.
2. Similar study can be conducted using time-series design with other measures.
3. Music can be administered for all women in labour at all hospitals.

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A STUDY TO ASSESS THE KNOWLEDGE AND PRACTICE OF RURAL ADULTS REGARDING PREVENTION OF RABIES, AT SELECTED AREA, RAMANAGAR DISTRICT, WITH A VIEW TO DEVELOP HEALTH EDUCATION MODULE

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Rabies is a vaccine-preventable, zoonotic, viral disease. Once clinical symptoms appear, rabies isvirtually 100% fatal. Out of 99% cases, domestic dogs are responsible for rabies virustransmission to humans. Yet, Rabies can affect both domestic and wild animals. It is spread to peopleand animals through bites or scratches, usually via saliva. Dog bite cases are found more in rural areas, among adults particularly compared to urban areas. Education plays a vital role in development of the human potential, through which we can achieve control of dog menace and prevention of Rabies and can make Rabies a history. A non-experimental descriptive research approach was adopted and research study was conducted at Kenchanakuppe village, Bidadi PHC area, Ramanagar District. Convenient sampling technique of non-probability sampling type was adopted to select 100 rural adults. Knowledge and Practice of rural adults regarding prevention of Rabies was collected using Structured Interview Schedule. After data collection, Health education module on Prevention of Rabies was given to rural adults who participated in the study.Overall mean knowledge and practice score is found to be 50.7% and 50.9% respectively indicating moderate level of knowledge and practice of rural adults regarding prevention of Rabies. However, there existed moderate positive correlation between knowledge and practice score of rural adults (r = +0.594) indicating promotion of practice with adequate knowledge. Association between demographic variables and Knowledge of rural adults regarding prevention of Rabies was determined using X^2 –test. Age, Education, Occupation, Type of family, Pet animals in house were found to have significant association with knowledge scores of rural adults with obtained X^2 value greater than critical value of X^2 at 5% level of Significance (X^2>P@0.05 level). Association between demographic variables and practice score of rural adults regarding prevention of Rabies was determined using X^2-test. Age, Education, Family monthly income, Experience of dog bite in family and Distance for health care facility were found to have significant association with respondents practice scores with obtained X^2 value greater than critical value of X^2 at 5% level of Significance (X^2>P @ 0.05 level).**My study revealed moderate knowledge and practice level of rural adults regarding prevention of Rabies indicating the need for health education regarding prevention of dog bite and prevention of rabies among rural adults.**

KEY WORDS:-Knowledge, Practice, Rabies and Rural adults.

INTRODUCTION:-Rabies is one of the vaccine preventable zoonotic disease also known as Hydrophobia. Zoonotic diseases have been known since antiquity. Zoonotic diseases were overshadowed by diseases peculiar to man alone andknown to be one of the most important zoonotic diseases in India. Rabies is also endemic in most countries of the world including India.About 563 million United States dollars arespent annually in the world on measures to prevent rabies, yet incountries of south-eastern Asia the disease is still an important publichealth problem. Despite 1.1 to 1.5million people having received post-exposure treatment, estimated 45% of deaths occurs from rabies in south-eastern Asia with 36% of the world's deaths.The dog population in India is estimated to be around 25 million and most of them are not protected against rabies.Rabies occurs in all parts of India with an exception of Andaman, Nicobar and

Lakshadweep Islands. At least 3 lakh people take treatment against rabies every year and at least 1000 people die in India after being bitten by a rabid animal. It is a public health problem in most countries like Asia, Africa and Latin America as like in India.Rabies remains an important public health problem in developing countries, and the indigenous threat of rabies continues in developed countries because of wild life reservoirs.In India, rabies affects mainly people of lower socio-economic status, reports about18,000 to 20,000 cases of rabies in a year and Rabies incidence in India has been constant for a decade, without any obvious declining trend, and is probably an underestimation of true incidence because in India rabies is still not a notifiable disease. This situation is rooted in a general lack of awareness of preventive measures, which translates into insufficient dog vaccination, an uncontrolled canine population, poor knowledge of proper post-exposure prophylaxis on the part of many medical professionals, and an irregular supply of anti-rabies vaccine.It's the responsibility of each individual to take care of their health for which they should have adequate knowledge on basis of which they practice healthy activities. Educating the rural people regarding prevention of rabies plays a vital role in improving their knowledge and practice level in preventing the deadly disease.

OBJECTIVES:

1. To assess the knowledge of rural adults regarding prevention of rabies.
2. To assess the practices of rural adults regarding prevention of rabies.
3. To find the association between knowledge and practices of rural adults regarding prevention of rabies with selected demographic variables.
4. To develop and provide health education module for rural adults regarding prevention of rabies.

ASSUMPTIONS:

1. The rural adults will have some knowledge regarding prevention of Rabies.
2. The rural adults will practice to certain extent regarding prevention of Rabies.

CONCEPTUAL FRAME WORK:-Concepts from Pender's health promotion model is utilized in present study, where the rural adults with their adequate knowledge and practice in preventing rabies plays vital role in taking care of themselves and their children during dog bite and in preventing rabies. Ultimately contributing to the promotion of community health.

MATERIAL AND METHODS

1. RESEARCH APPROACH

A Quantitative Research Approach

2. RESEARCH DESIGN

Descriptive Research Design

3. **SETTING OF THE STUDY:-**The present study was conducted at Kenchanakuppe Village at Bidadi PHC Area, Ramanagar District.

a) **Population:** Population of the study includes rural adults aged between 20 to 40 years residing at Bidadi PHC area
b) **Sample:** Rural Adults residing at Kenchanakuppe village at Bidadi PHC Area
c) **Sample Size:** 100 Rural Adults
d) **Sampling Technique:** Convenient Sampling Technique of Non-probability type.

DESCRIPTIVE OF THE TOOL

The tool consists of a structured interview schedule. It is divided into 2 parts, they are as follows

a) **Part I**: This part of the tool consists of questions related to demographic data consists of 12 items.

b) **Part II:** This part of the tool consists of items related to knowledge and practice of rural adults regarding prevention of rabies,it consists of 40 items and these are objective type multiple choice questions that help in assessing their knowledge and practice. To find out the association with the selected demographic variables and knowledge and practice scores, respondents are categorized into three groups.

- Below 50% - Inadequate
- 51-75 - Moderate
- Above 75% - Adequate

The Pilot study was conducted in Kumbalagodu PHC area to determine the feasibility of study as well as to determine the reliability of tool. Structured interview schedule was administered to10 samples. The reliability of the tool was computed by split half Karl Pearson's correlation formula (raw score method).The reliability co-efficient was determined using Brown's Prophecy formula. Reliability co-efficient of knowledge was found to be 0.85 and reliability co-efficient of practice found to be 0.84 revealing reliability of tool and pilot study also revealed the feasibility of the study.

ANALYSIS AND RESULTS:-The data collected were edited, tabulated, analysed, interpreted, and findings were presented in the form of tables and diagrams under the following sections.

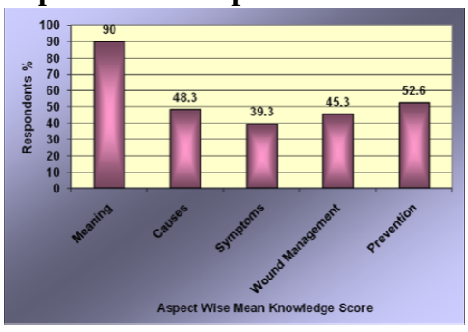
Section I: Distribution of respondents according demographic variables

A.Findings related to demographics characteristics of the subjects.

Majority (36%) of the respondents were in the age group of 26-30 years, followed by 34% in the age group of 31-35 years. Majority (53%) of the respondents were male as compared to 47% of female respondents. Most (32%) of the respondents had studied till primary school, followed by 32% had completed high school, 29% not literates, 7% studied till PUC. Majority (38%) of the respondents were house wives followed by 27% had private job, 18% in business and 17% of the respondents had agriculture as their occupation. All (100%) of the respondents were Hindus. Majority (64%) of the respondents belonged to joint family. Majority (70%) of the respondents had family income of Rs. 6,001 & above followed by 30% had family income between Rs.4, 001-6,000.All (100%) of the respondents obtained health information from family members/relatives/friends, among them most (99%) also from TV/Radio. Many of the respondents (22%) had cow, 10% had dog and 07% of the respondents had cat as pet animals. Majority (69%) of the respondents had experience of dog bite in their family. Majority of the respondents (47%) were at the distance of 1 km followed by 35% at 1.5 km and 18% at the distance of 2 km from the health care facility. All (100%) of the respondents had stray dogs in their vicinity.

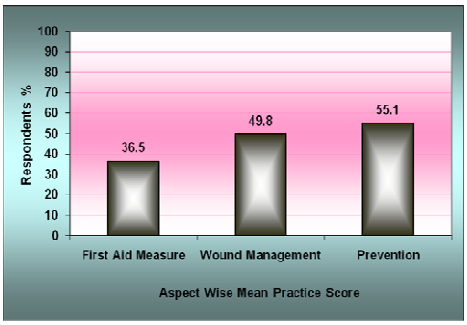
Section II: Distribution of scores related to knowledge and practice of respondents

A. Aspect wise knowledge and practice score of respondents on prevention of rabies.



Highest mean knowledge score of 90.0% was observed in the aspect of meaning of rabies followed by 52.6% in the aspect of prevention, 48.3% in the aspect of causes, 45.3% in the aspect of wound management and 39.3% in the aspect of symptoms. However, overall mean

knowledge score was observed to be 50.7%.Highest mean practice score of 55.1% was observed in the aspect of prevention of rabies followed by 49.8% in the aspect of Wound management and 36.5% in the aspect of first aid measure. However, overall practice score was found to be 50.9%.Correlation between Knowledge and practice of respondents



B. Correlation between knowledge and practice of respondents regarding prevention of Rabies.

Correlation between Knowledge and practice of respondents was determined using Karl Pearson correlation technique. A Positive significant relationship between knowledge and practice score of respondents on prevention of rabies (r = +0.594) indicating higher the knowledge score better is the practice score of respondents

Sl No.	Aspects	Max. Score	Respondents Knowledge			Correlation coefficient (r)
			Mean	Mean (%)	SD (%)	
I	Knowledge	25	12.67	50.7	08.7	+ 0.594*
II	Practice	15	07.63	50.9	11.3	

*** Significant at 5 % Level, r (0.05, 98 df) = 0.195**

Section III: Findings related to association between Knowledge and practice of rural adults regarding prevention of Rabies.

The association between knowledge and practice score of rural adults with demographic variables was assessed using Chi-square test.Among the demographic variables analyzed in the study, age, education, occupation, type of family, pet animals in family were found to have significant association with knowledge scores (P < 0.05 level @ 5%) and Age, education, family monthly income, experience of dog bite in family and distance for health care facility were found to have significant association with respondents practice scores ((P < 0.05 level @ 5%).

CONCLUSION:-The overall findings of the study clearly showed that the rural adults had moderate knowledge score (50.7%) and moderate practice score (50.9%). A Positive significant relationship between knowledge and practice score of respondents on prevention of rabies (r = +0.594) was also observed in the present study indicating higher the knowledge score better is the practice score of respondents.Hence, it can be concluded that, if the rural adults are provided with educational interventions such as information booklets, modules on prevention of rabies

will definitely update their knowledge and develops healthy practices, which in turn contribute to improve the total quality of one's health.

RECOMMENDATIONS:-Based on the findings of the study the following recommendations are made.

1. A similar study may be conducted on a larger sample for wider generalization.
2. A similar study can be conducted among urban adults.
3. A similar study may be conducted in other back ward districts, taluks, villages etc.,
4. Manuals, information booklets and self-instruction module may be developed.
5. The comparative study can be conducted on urban and rural area.
6. An experimental study can be conducted with structured teaching programme on knowledge, attitude and practice of rural population regarding prevention of rabies.
7. Follow up study can be conducted to evaluate the effectiveness of HEM.

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ASSESS THE PREVALENCE, RISK FACTORS AND KNOWLEDGE REGARDING HYPERTENSION AMONG CLASS IV EMPLOYEES IN MEDICAL COLLEGE HOSPITAL KOTTAYAM KERALA.

Greeshma K O **Reg no. 26519049** **Department: Nursing**

ABSTRACT

Hypertension is one of the biggest health challenges in the 21st century. Accurate and reliable information about prevalence of hypertension is a prerequisite for designing strategies for its effective control and prevention. The present study investigated to identify the prevalence, risk factors and knowledge of hypertension among class IV employees in Govt. Medical College Hospital, Kottayam. Descriptive survey design with purposive sampling technique was employed in this study. The study was theoretically supported by the frame work based on Nola J. Pender's Revised Health Promotion model. The study was conducted among 350 class IV employees of Medical College Hospital, Kottayam. The blood pressure of the employees was measured with the subject in sitting position, the right arm placed at heart level, using a calibrated sphygmomanometer. All subjects were reassessed after 1 week and the mean blood pressure was calculated. Pilot study was conducted to assess the feasibility of the study. Statistical analysis was done using descriptive and inferential statistics. The study findings revealed that the overall prevalence of hypertension was 42.29%, of which 28.57% were known cases, 13.72% were newly detected and 30.9% were prehypertensives. Also it shows that 51.2% has only average knowledge regarding hypertension and most of the employees had multiple risk factors for hypertension. It was found that there was a significant association between knowledge of employees with job area, years of experience and previous information regarding hypertension. On the basis of research outcome a care guide on hypertension was prepared by the investigator for the employees. Findings of the study have implications in nursing practice, education, administration andresearch.

Key words: Prevalence; Risk factors; Knowledge; Hypertension; Care guide; Class IV employees

INTRODUCTION

The sophisticated life due to the advanced technology and change in the life style increases the risk of the mortality and morbidity due to the non communicable diseases. As per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 63% were due to non communicable diseases.[1]It is predicted that non communicable diseases (NCD) would contribute as much as 80% of the global burden of disease by 2020 and they will be responsible for seven out of every ten deaths in the developingnations.[2]The largest proportion of NCD deaths is caused by cardiovascular diseases (48%).The Indian subcontinent is home to 20% of the world's population and may be one of the regions with the highest burden of CVD in the world. Globally cardiovascular disease accounts for approximately 17 million deaths a year, nearly one third of the total. Of these, complications of hypertension account for 9.4 million deaths worldwide every year. An elevated blood pressure (BP)>140/90mmHg has been demonstrated in approximately 69% of people who have a first heart attack, 77% of those who have a first stroke and 74% of those who have heartfailure.[2]Hypertension is modern day's epidemic and it is becoming a public health emergency worldwide, especially in the developing countries. Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000 and this is predicted to increase to 1.56 billion by 2025.[1]

According to WHO health statistics 2012, the prevalence of hypertension in India was 23.1% in men and 22.6% in women.[3] Experts arguing that the country might actually be headed to be among the most worst disease (hypertension) afflicted countries in the near future.An estimate to uts the number of blood pressure patients in the country to rise to about 214 million by 2030 up from about 118 million in 2000.[4]The data collected by the Kerala chapter of cardiological Society of India (CSI) states that the prevalence of hypertension in Kerala was 41.5% in men and 37.4% in women.[5]Urbanization is characterized by a marked increase in the intake of energy dense foods, a decrease in physical activity and a heightened level of psychosocial stress. All of which promote the development of hyperglycemias, hypertension and dyslipidemia. According to Indian studies it is noted that the prevalence of hypertension has increased by 30 times among the urban population over a period of 55 years and about10 times among the rural population over a period of 36 years.[4] Pooling of epidemiological data showed that hypertension was present in at least 25% of the urban and 10% of the rural adult population in India.Hypertension disproportionately affects populations in low and middle income countries where health systems are weak. Hypertension is a silent, invisible killer that rarely causes symptoms. Raised blood pressure is a serious warning sign that significant lifestyle changes are urgently needed. When symptomatic, its diagnosis is easy but in asymptomatic cases search of hypertension is possible only through routine health check-ups, active surveys or screening programmes.A survey of 26,000 adults in south India showed a hypertension prevalence of 20% (men 23% and women 17%) but 67% of those with hypertension were unaware of their diagnosis. Recent (2012) studies show that for every known person with hypertension there are two persons with either undiagnosed hypertension or prehypertension. [8]

STATEMENT OF THE PROBLEM

Assess the prevalence, risk factors and knowledge regarding hypertension among class IV employees in Medical College Hospital, Kottayam.

Objectives

1. To assess the prevalence of hypertension among class IVemployees
2. To identify the risk factors of hypertension among class IVemployees
3. To assess the knowledge regarding hypertension among class IVemployees
4. To compare the risk factors of hypertension among hypertensive and non hypertensiveemployees
5. To find out the association between knowledge regarding hypertension and selected socio personal variables ofemployees
6. To prepare a care guide onhypertension

Hypothesis

H_1: There is a significant association between knowledge regarding hypertension and selected socio personal variables of class IV employees.

Methodology

The present study investigated to identify the prevalence, risk factors and knowledge of hypertension among class IV employees in Govt. Medical College Hospital, Kottayam. Descriptive survey design with purposive sampling technique was employed in this study. The study was theoretically supported by the frame work based on Nola J. Pender's Revised Health Promotion model. The study was conducted among 350 class IV employees of Medical College Hospital, Kottayam. The blood pressure of the employees was measured with the subject in sitting position, the right arm placed at heart level, using a calibrated sphygmomanometer. All subjects were reassessed after 1 week and the mean blood pressure was calculated. Pilot study

was conducted to assess the feasibility of the study. Statistical analysis was done using descriptive and inferential statistics.

DESCRIPTION OF THETOOLS:

Tool 1-Sociopersonal data sheet

It includes social and personal information such as age, gender, religion, education, occupation, marital status, family status, monthly income, job area, years of experience and previous information regardinghypertension.

Tool 2- Clinical data sheet for risk factor assessment

The investigator prepared a risk factor assessment clinical data sheet consists of 20 questions based on risk factors included in the study. It consists of measurement of blood pressure, height, and weight, body mass index, waist-hip ratio, family history of hypertension, smoking, alcoholism, lack of exercise, stressful life events, diet habits and use of contraceptivepills.

1. Bloodpressure

BP recorded with the subject in sitting position, over the right arm kept at heart level using a calibrated LED sphygmomanometer and average of 2 readings with an interval of 1 week wastaken.

2. Weight

Employees were instructed to be bare foot and the weight was measured in kilograms using weighing machine which was standardized.

3. Height

Height was measured with the employee to be bare foot and heels together, standing erect on a flat surface and the head positioned in the horizontal plane, the arms hanging freely to the sides and flat measuring scale was kept at superior most part of the head pressing firm.

4. Body mass index (BMI)

Calculated by using the formula, BMI = weight (kg)/height $(m)^2$Each employee is categorized as underweight (<18.5), normal (18.5-24.9), overweight (25-29.9) andobese (30 and above) according to their BMI.

1. Waist-Hipratio

Waist circumference was measured at a level half way between the costal margin and iliac crest at the level of umbilicus. Hip circumference was measured with employee in the standing position. Hip circumference was measured at the level of the greater trochanters with the subject standing and breathing normally in a manner similar to that during measurement of the waist circumference. The ratio of the former to the latter provides an index of proportion of intra-abdominal fat. Normal waist / hip ratio are < 0.8 for females and < 1 formales.Tool 3- Structured questionnaire to assess the knowledge of employees regarding hypertensionThe knowledge questionnaire was prepared by the researcher. It consists of 29 multiple choice questions with 4 options. Questions mainly organized under 2 aspects; knowledge related to blood pressure and knowledge related to hypertension. Two questions come under the knowledge related to blood pressure and the remaining 27 questions organized under knowledge related to hypertension.Score interpretationMore than one correct answer for some questions and each correct answer carry one score. Each correct response was given a score of 1 and the total score for all questions were 66. The knowledge is graded as good, average andpoor.

Score interpretation as follows:

Goodknowledge - score above 44

Average knowledge - score between 22- 43

Poorknowledge - score below21

Result

The study findings revealed that the overall prevalence of hypertension was 42.29%, of which 28.57% were known cases, 13.72% were newly detected and 30.9% were prehypertensive. Also it shows that 51.2% has only average knowledge regarding hypertension and most of the employees had multiple risk factors for hypertension. It was found that there was a significant association between knowledge of employees with job area, years of experience and previous information regarding hypertension.

Section I Prevalence of hypertension among class IV employees

Frequency distribution and percentage of class IV employees based on prevalence of hypertension

	(n=350)	
Prevalenceofhypertension	**f**	**%**
Knownhypertensive	100	28.57
Newhypertensive	48	13.72
Prehypertensive	100	28.57
Normotensive	102	29.14

Table depicts that the overall prevalence of hypertension is 42.29 %, of which 28.57% are known hypertensives and 13.72% are newly detected hypertensives. About 28.57% are pre-hypertensive and 29.14% have normal blood pressure.

Section II Risk factors of hypertension among class IV employees

Frequency distribution and percentage of hypertensive and non hypertensive class IV employees based on risk factors of hypertension

Risk Factors	Hypertensive (148)		Non Hypertensive(202)	
	f	%	f	%
Advanced age(above 51 years)	90	60.81	89	44.05
Male	58	39.18	73	36.13
Female	72	48.64	147	72.77
Overweight and obesity	92	62.16	70	34.65
Risky waist hip ratio	92	62.16	70	34.65
Family history of hypertension	50	33.78	92	45.54
Smoking	42	28.37	48	23.76
Alcoholism	54	36.48	44	21.78
Contraceptive pill use	3	2.02	19	9.40
Lack of exercise	110	74.32	90	44.55
Stressful life events	108	72.97	112	55.54
Co morbidities	82	55.40	18	8.91
Increased salt intake	78	52.70	22	10.89

Fried food consumption	90	60.81	86	42.57

Table depicts that compared to non hypertensive risk factors like overweight and obesity, risky waist hip ratio, alcoholism, lack of exercise, co morbidities, stressful life events, increased salt intake and fried food consumption are present more inhypertensive.

Frequency distribution and percentage of class IV employees based on BMI

BMI (kg/ m^2)	**f**	**%**
Less than18.4 (Under weight)	20	5.71
18.5-24.9 (Normal)	168	48
25-30 (Over weight)	90	25.71
Above30 (Obese)	72	20.57

Table depicts that 48% of the employees have normal BMI and 25.71% are having over weight.

Frequency distribution and percentage of class IV employees based on waist hip ratio

(n=350)

Waist – hip ratio (cm)	f	%
Male < 1	63	18
>1	68	19.42
Female <0.8	125	35.72
>0.8	94	26.86

Table depicts that 19.42% of the male employees and 26.86% of female employees have risky waist - hip ratio.

Frequency distribution and percentage of class IV employees based on family history of hypertensions

Family history of hypertension	**f**	**%**
Yes	142	40.57
No	208	59.43

Table depicts that 59.43% of employees have no family history of hypertension and 40.57% have family history of hypertension.

Frequency distribution and percentage of class IV employees based on type and duration of smoking habit

(n=90)

Variables	f	%
Type of smoking habit Lightsmoker (<2 cigarette / day)	45	50
Medium smoker (2-10 cigarette /day)	25	27.78
Heavysmoker (>10 cigarette /day)	20	22.22
Duration of smoking		

<5years	23	25.55
5-10 years	29	32.22
>10 years	38	42.23

Table depicts that 68.70% of male employees are smokers. Among them 50% are light smokers and 42.23% are smokers for more than 10 years.

Frequency distribution and percentage of class IV employees based on type and duration of alcoholism

(n=98)		
Variables	**f**	**%**
Type of alcoholism Moderate (<3 pint /day)	47	47.96
Heavy (>3 pint / /day)	29	29.59
Binge(4 or more pint in about 2hour)	22	22.45
Duration of alcoholism <5years	23	23.47
5-10 years	17	17.35
>10 years	58	59.18

Table depicts that 74.80% of male employees are alcoholic. Among them 47.96% are consumes alcohol on light basis and 59.18% are alcoholic for more than 10years.

Frequency distribution and percentage of female employees based on use of contraceptive pill.

N=219		
Contraceptive pill use	**f**	**%**
Yes	22	10.05
No	197	89.95

Table depicts that majority hadn't used contraceptive pills in their life and only 10.05% are having history of contraceptive use.

Frequency distribution and percentage of class IV employees based on type of exercise

(n=350)		
Type of exercise	**f**	**%**
Walking	150	42.85
Nil	200	57.15

Table depicts that 57.15% of the employees are not doing any exercises and 42.85% of the employees are having a habit of walking.

Frequency distribution and percentage of class IV employees based on duration of walking

		N=150
Duration of walking	**f**	**%**
Less than 3 days in a week	50	33.33
3-5 days	35	23.33
6-7 days	65	43.34

Table depicts that 43.34% of the employees walk 6-7 days in a week.

Frequency distribution and percentage of class IV employees based on stressful life events

n=350

Stressful life events	f	%
Heavy work load	97	27.72
Physical dangers at work place	17	4.85
Lengthy working hours	20	5.72
Problems in marital life	30	8.57
Divorce/separation	18	5.14
Change in financial state	18	5.14
Illness	20	5.72
Nil	130	37.14

Table depicts 62.86% employees are having stressful life events andamong them 27.72% are having heavy workload.

Frequency distribution and percentage of class IV employees based on Co- morbidities

n=350

Variables	f	%
Co- morbidities		
Diabetes Mellitus	45	12.86
Heart disease	29	8.28
Renal disease	3	0.86
Hypercholestremia	30	8.57
Nil	243	69.43

Table depicts that 12.86% of the employees have diabetes mellitus and 69.43% of employees are not having any co morbid conditions.

Frequency distribution and percentage of class IV employees based on increased salt intake

n=350

Increased salt intake (> 2 spoons / day)	f	%
Yes	100	28.57
No	250	71.43

Table depicts that 71.43%of employees are not using more than 2 spoons of salt daily and only 28.57% of employees use more than 2 spoons ofsalt.

Frequency distribution and percentage of class IV employees based on fried food consumption

Variables	f	%
Fried food consumption Once in a week	87	24.85
2 to 3 times a week	70	20
5 to 6 times a week	48	13.71
Daily	75	21.44
Monthly	70	20

Table depicts that 24.85% of the employees are using fried food items once in a week and 21.44% are using daily.

Section III Knowledge of class IV employees regarding hypertension

Frequency distribution and percentage of class IV employees based on knowledge score regarding hypertension **n=350**

Knowledge score	F	%
Good (42-66)	68	19.4
Average (22- 41)	179	51.2
Poor (0 - 21)	103	29.4

Table 19 depicts that majority (51.2%) of class IV employees have average knowledge regarding hypertension and 29.4% employees have only poor knowledge.

CONCLUSION:-Hypertension was identified to be prevailing in this population but treatment, awareness and manage rate in individuals within the disease were small. Definite risksfactor likesfolk histories of diabetes, hypertension and being overweight were identifiedamongst affected employees within BP high. The result in this study and other recent studies conduct in the country haveevidently shows that hypertension is fetching a severe public-health concern. Hypertension being a disease if not controlled at the appropriate time can lead to uneventful catastrophes and so an economic crisis to the nation. In the present study the overall prevalence of hypertension was 42.2%. Moreover, only 17.1% had good knowledge regarding hypertension. The study concluded that without proper knowledge and intervention programmes, employees are at risk for developing hypertension and its complications. The study also recommended regular blood pressure check-ups after the age of 30 years, irrespective of gender. Lets this study provides a background for a population based intervention in attempts to prevent the rising problems of hypertension in ourcountry.

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COVID-19 Diagnosis Using Chest X-Ray Images Using Deep Learning

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Abstract - A new coronavirus blowback event has become a virus that is impacting public health around the world. To stop disease transmission in the population, large-scale screening is needed. Real-time PCR is a popular diagnostic method for pathological testing. However, the increasing number of false test results has paved the way for the development of new testing methods. COVID-19 patients' chest X-rays have proven to be a useful alternative indicator of COVID-19 screening. However, radiological expertise is needed for accuracy. The diagnostic task of the doctor can be minimised by a diagnosis recommender device that will assist the doctor in reviewing the patient's lung photographs. In medical imaging classification, deep learning techniques, specifically Convolutional Neural Networks (CNN), have shown to be accurate. For the diagnosis of COVID-19, four separate deep CNN architectures were investigated on images of chest X-Rays. These models have been pre-trained on the ImageNet database, eliminating the need for large training sets since the weights have already been pre-trained. CNN-based architectures have been found to have the ability to diagnose COVID-19.

Keywords - COVID-19, CNN, Deep Learning, Convolutional Neural Network, Diagnosis Recommender, ImageNet.

I. INTRODUCTION:-The corona virus disease outbreak that started in China in December 2019 rapidly spread throughout the world by January 2020. On January 30, 2020, the World Health Organization (WHO) announced it as COVID-19 and named it a pandemic [1]. The number of confirmed cases is expected to reach about 7 million by June 8, 2020, with a global fatality rate of 3-4 percent.Since it is a highly infectious disease that spreads quickly, governments in almost all of the affected countries are prioritising the isolation of infected people as soon as possible. COVID-19 patients experience the symptoms such as fever, cough, dysp nea, breathing problems, and viral pneumonia. However, these signs are insignificant on their own. Many people are not symptomatic, but their chest CT scan and pathogenic test both come out positive for COVID-19 [2]. As a result, positive pathogenic tests and positive CT images/X-Rays of the chest are used to diagnose the disease, in addition to symptoms. Real-time PCR is used as a standard diagnostic method for pathological testing [2].COVID-19 research facilities are being expanded by healthcare systems all over the world. As more people are tested, infectious people will be detected and isolated, reducing the spread of the disease in the population [3]. However, accessibility does not imply dependability. False negative test results, which indicate that an infected person is not infected, are the key source of concern for governments at this time [3]. These individuals can inadvertently spread the virus to others. Test results that are incorrect have a negative effect on efforts to stop the virus from spreading. The impact of this problem on the safety of public and health workers cannot be measured because there is no clear or reliable data on these test performance characteristics. The sensitivity of these tests is largely unknown [3].Due to its high sensitivity, chest X-rays the patients have proven to be an effective alternative diagnosis method for COVID-19 [4], [5]. However, the accuracy of X-ray diagnosis is highly dependent on radiological knowledge. When the number of patients is

high, it becomes a repetitive operation. The diagnostic workload of the doctor can be minimised by a diagnosis recommender device that will assist the doctor in reviewing the patient's lung photographs.Artificial neural networks with multiple neurons that act similarly to the neurons in the human body are used in Deep Learning techniques. CNNs are a form of DL technique that has shown to be competitive and accurate in medical image classification. In several trials, CNN has been used to classify pneuonia and other diseases based on radiography. [6] suggested a CNN-based architecture for detecting various lung diseasesIn [7],. a CNN model was trained for the diagnosis of 14 diseases using the Chest X-Ray dataset, which contains approximately 100,000 X-ray images. In addition, CNN has been used to predict pneumonia [7], [8]. A advisory method that aids radiologists in finding contaminated areas in CT images has been suggested [9].CNN is a natural candidate for diagnosis as a result. COVID-19 patients are advised to take this medication. Small data sets of only 50 individuals were used to compare [10], [11], and seven different deep learning neural network architectures that are currently in use. Pictures 25 of the 50 samples tested positive for COVID-19. COVID-19 negative patients accounted for 25 of the total. New CNN architectures [8], [12]–[14], or fine-tuned ResNet50 [15], [16] have been proposed as solutions to the problem of classifying Chest X-Rays by some researchers. They are, however, only in preprint.

II. ARCHITECTURES:-A well before model is one that has been previously trained to find an optimal solution and can be used by anyone to solve a similar problem. Many CNN models for image classification have been pre-trained on image datasets. The ImageNet database contains a large number of images that are both accurate and diverse. The WordNet hierarchy[17] is used to organise the images in this database. In WordNet, there are approximately 100,000 words, each with an average of 1000 images. The following four models' architectures were used in this analysis, all of which were pre-trained on Image Dataset:

- **Inception V3:** The Inception architecture was proposed by Szegedy *et al*. [18] in 2014. GoogleLeNet was the name of the original architecture. Inception Vn was the name given to all subsequent models (n is the version number). As an improvement over Inception V1, Batch Normalization was introduced in Inception V2. V3 model factorization methods were implemented in Inception as an improvement over V2.
- **ResNet50:** ResNet - The Residual Networks architecture was proposed by He *et al.* [19] in 2015. It has 50 convolutional layers with skip connections, which aid the model in learning more precisely. In addition, instead of completely connected layers, it uses global averaging pooling, resulting in a smaller model.
- **MobileNet:** Howard *et al*. [20] proposed a new CNN architecture called MobileNet in 2017. The convolution procedure is applied to each colour channel individually rather than as a whole in this separable convolution. The cost of computation is minimised in this architecture.
- **Xception:** Xception was created by François Chollet in the year 2017 [21]. As modules of an improvised version of Inception Inception has been replaced by depthwise separable depthwise separable depthwise separable depthwise separable depthwise se There are a lot of them. This model's most recent and reliable results based on pace and precision.

III. EXPERIMENT

A. Datasets:-Total of 6249 Chest X-Ray images are gathered from public databases [22] that could be found on various GitHub repositories. COVID-19 positive patients accounted for 320

of the total, while COVID-19 negative patients accounted for 5928. COVID-19 and Normal images were categorised. Figures 1 and 2 show examples of images from the COVID19 and Non-COVID-19 groups, respectively.The 75:25 ratio was used to split the dataset into training and testing sets. For instruction, 4686 records were used, and for research, 1563 records were used. 30% of the training set is retained as the validation set.

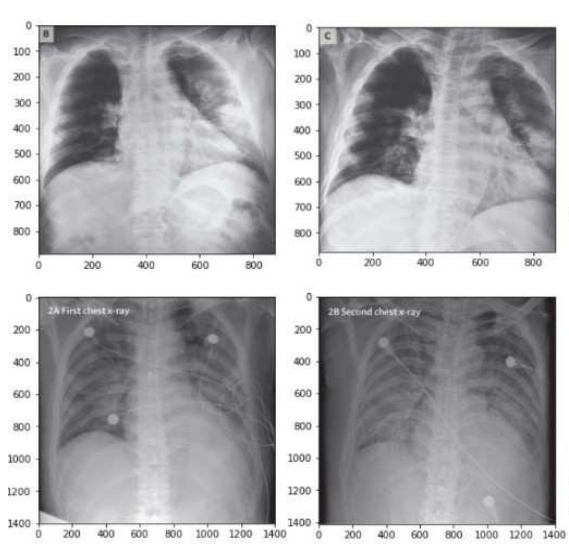

Fig. 1 Sample images of Chest X-Rays of COVID-19patients

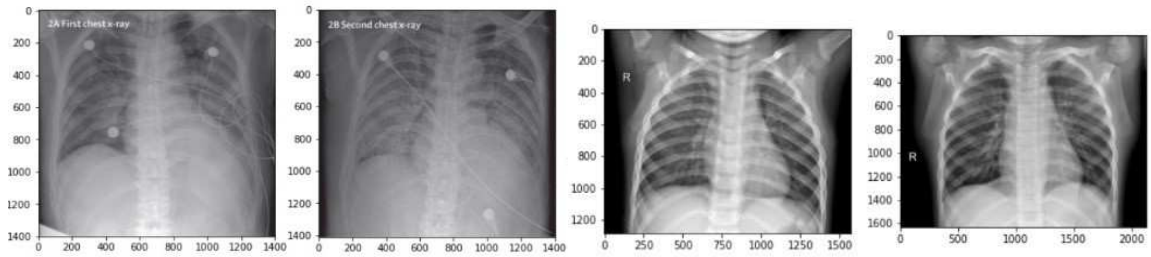

Fig. 2 Sample Images of Chest X-Rays of Non-COVID-19Patients

B. ExperimentalSetup

The Keras system with TensorFlow as the backend was used to implement the above four architectures. Keras offers pre-trained weights from the ImageNet database for these pre-trained models. The images which are in the ImageNet dataset on which these models are trained may not be same to the images gathered for analysis, they may aid in the transfer of learned information to make the intended task more effective. Pre-trained weights often minimise the need for a large amount of data for preparation.The Python code was run using Google Research's Collaboratory, an online Jupyter Notebook-based service. The Tesla P4 GPU, which is supported by Collaboratory, was used for faster processing. All of the networks were trained using Adadelta Optimizer, with MSE as the loss function.

IV. RESULT:-The confusion matrices observed on the research dataset for all four versions Xception, Resnet50, MobileNet and InceptionV3 are shown in Figures 3 to 6. In Table 1, the effects of these four models are summarised. All of the models' output was evaluated using parameters such as accuracy, specificity, precision, recall/sensitivity, and F1 ranking.According to the accuracy values of four models, CNN architectures are reliable for diagnosing COVID-19 disease. With the highest F1 score of the four versions, MobileNet emerges as the best. In all models, the specificity, which determines the model's ability to prevent false alarms, is greater than 99 percent. However, only Mobilenet and Inception V3 have strong Recall/Sensitivity, which tests a model's ability to identify positive cases. Although the Xception model is very similar to Mobilenet, it cannot be considered a robust model due to its low sensitivity of 0.6.

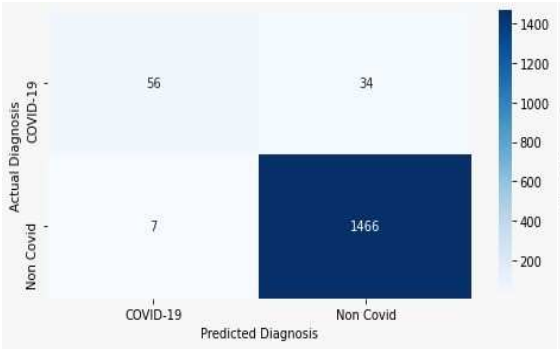

Fig 3 Confusion Matrix forXceptionModel

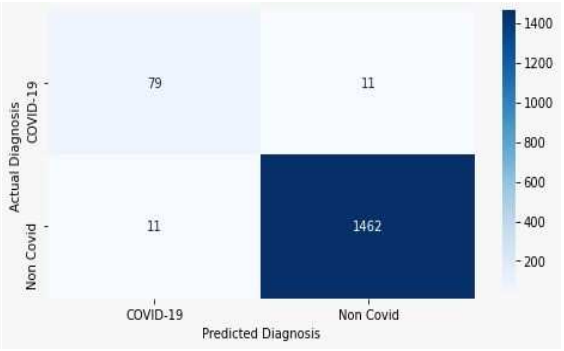

Fig 4 Conf usion Matrix for MobileNetModel

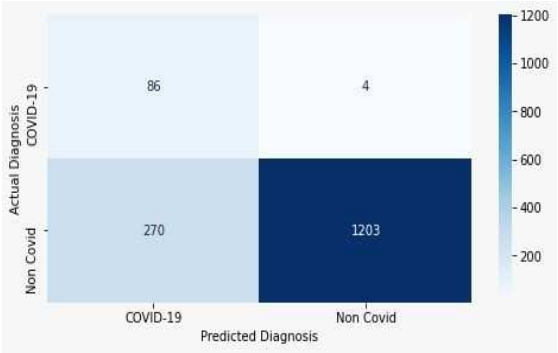

Fig5ConfusionMatrixforResNet50Model

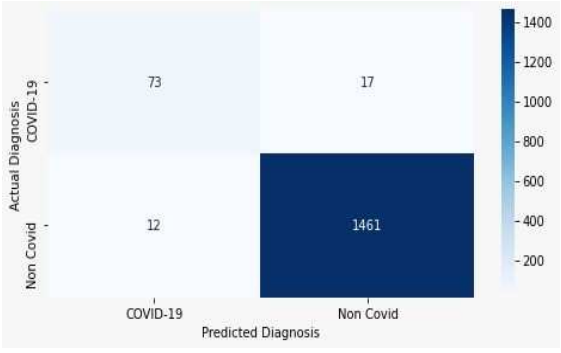

Fig 6 Confusion Matrix for Inception V3 Model

Table 1 Classification results of four architectures

Method	**Evaluation Metrics**								
	TP	**TN**	**FP**	**FN**	**Accuracy**	**Specificity**	**Precision**	**Recall/Sensitivity**	**F1 Score**
Inception V3	73	1461	12	17	0.981	0.992	0.859	0.811	0.834
ResNet50	86	1203	4	270	0.825	0.997	0.956	0.242	0.386
MobileNet	79	1462	11	11	0.986	0.993	0.878	0.878	0.878
Xception	56	1466	7	34	0.974	0.995	0.889	0.622	0.732

V. CONCLUSION:-COVID-19 is wreaking havoc on the world's population's health at an unprecedented pace. To stop the spread of disease, vast numbers of people must be tested. The gold standard pathological test for the diagnosis of this condition is real-time PCR. However,

because of the rising number of false positives, Chest XRays are now being used as a substitute for COVID-19 diagnosis. Deep learning-based recommender systems can be particularly useful when there are a large number of patients and no radiological information. Four separate deep CNN architectures were tested on images of chest X-Rays in order to suggest a diagnosis for COVID-19 patients in this study. These models have weights that have been pre-trained to help them pass their prior knowledge to the dataset under investigation. The ImageNet database was used to prepare them. The Mobilenet model emerges as the most effective of all the models.The findings indicate that CNN-based architectures may be used to correctly diagnose COVID-19 disease. Transfer learning is essential for increasing detection accuracy. The accuracy of these models could be improved even further by fine-tuning them. Other models that have already been trained may also be used to build a recommender diagnostic framework. Future studies could include the creation of new architectures based on CNN for the detection of COVID-19 and other diseases in the medical domain.

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बच्चो के विकास मे आहार का महत्व.

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सारांश :–प्रत्येक बालक एवं किशोर हमारे राष्ट्र का भावी नागरिक है, परिस्थितियो मे इनके पोष्टिक भोजन की और ध्यान केंद्रित करना अति आवश्यक है । उचित पौष्टिक तत्वो के उपयोग पर ही स्वास्थ निर्भर करता है । पोषण उचित न हो पर बालक एवं किशोर चिडचिडे हो जाते है । भारत मे बालकों एवं किशोरो के आहार में अनेक पौष्टिक तत्वो की कमी पाई जाती है, जिसका प्रभाव उनके पोषण स्तर पर पडता है । असन्तुलित आहार का मुख्य कारण अज्ञानता, निर्धनता और परम्परागत भोजन सम्बंधी आदेस है स्कुल जाने वाले बच्चो एवं किशोर को अपर्याप्त भोजन मिलने से वे कुपोषण का शिकार हो जाते है । इसका मुख्य कारण भोज्य पदार्थो के उत्पादन मे कमी, गरीबी तथा पोषण सम्बधी ज्ञान की कमी है । बाल्यावस्था एवं किशोरावस्था में शरीरीक वृध्दि एवं विकास की गति बहुत तीव्र होती है । शारीरीक अंग शनैः पुष्ट एवं परिपक्व होने लगते है। जब बालक किशोरावस्था की और बढता है, तो शारीरिक, मानसिक और संवेगात्मक विशेषताएं एवं अभिरुचियां प्रभावित होने लगती है! ठस प्रकार शारीरिक वृध्दि, विकास एवं अन्य गतिविधियो के लिए इन अवस्थाओं मे अतिरिक्त ऊर्जा एवं पोषण तत्वो की आवश्यकता होती है! आवश्यक है ।

प्रस्तावना :–उत्तम पोषण के लिए भोजन में सभी पौष्टिक तत्वो का शरीर को आवश्यकता के अनुसार समावेश होना चाहिए! पौष्टिक तत्वो की आवश्यकता कुछ अन्य बातों से भी प्रभावित होती है! 1) कार्यशीलता या शरीर व्दारा कितना श्रम किया गया है! 2) जलवायु के अनुसार भी पौष्टिक तत्वो की मात्रा कम और ज्यादा होती है ! 3) विभिन्न रोगो की अवस्था! उत्तम पोषण से बच्चो का शरीर स्वस्थ रहता है! उसकी कार्यक्षमता शारीरिक एवं मानसिक रुप से संतुलित रहती है! तभी बच्चे अपनी शक्ती का सही रुप से उपयोग कर सकते है!हर माताओं की यही ईच्छा होती है की वो अपने बच्चो को उचित एवं संतुलित आहार दे सके! प्रंतु अधिकतर एसा नही हो पाता किसी न किसी रुप मे आहार में कुछ पौष्टिक तत्वों की कमी रह जाती है जिसका प्रभाव बच्चो के शरीर पर पडता है!उत्तम पोषण वही होता है जो बच्चो के शरीर की वृध्दी एवं विकास सही अनुपान में करे, प्रत्येक अंगो की सुसंगठित करे, शरीर के भार एवं लम्बाई में अनुपात रखे बच्चो के शरीर को चुस्त, चपल एवं क्रियाशिल बनाये रखे, बालक की दैनिक आवश्यकताओं की पूर्ति के लिये संतुलित एवं सभी तत्वों से युक्त पौष्टिक आहार तथा उसके खाने की आदत एवं समय का भी ध्यान रखा जाना चाहिए! पौष्टिक आहार देते समय किसी विशेष खाद्य पदार्थ, जैसे दूध या अंडे पर अधिक रुचि नही दिखाई जाए तथा यह भी नही हो कि बच्चे को निश्चित समय अर्थात प्रातः एवं सायंकाल ही भोजन दिया जाए! भोजन में एक या अधिक भोज्य पदार्थ दिए जा सकते है! तथा बालक आवष्यकतानुसार दिन मे तीन या चार बार खाना खा सकता है! तथा प्रत्येक खाने के अन्तराल में सूप या कुछ हलका भोजन दिया जा सकता है! शरीर की आवश्यकतानुसार ही बच्चे को भोजन के समय भूख लगने लगती है! उस समय उसे उसकी आवश्यकतानुसार आहार दिया जाना चाहिए!किशोरावस्था में बच्चो के शारीरिक विकास, वृध्दि तथा अन्य शारीरिक निर्माण कार्यो हेतु अत्याधिक ऊर्जा एवं प्रोटीन की आवश्यकता होने लगती है! एस अवस्था मे लडको को 3000 कैलोरी तथा लडकियो को 2400 कैलोरी की आवश्यकता होती है! इसी प्रकार मानसिक कार्य करने वाले किशोरो को अतिरिक्त थायमिन आहार में दी जानी चाहिए! लेह तथा आयोडीन की भी अतिरिक्त मात्रा मे आवश्यकता होती है!हमारे देश के उच्च स्तरीय वर्ग के स्कूल जाने वाले बच्चे एवं किशोरो का भार एवं लम्बाई निम्न स्तरीय वर्ग से अधिक होता है! उच्च स्तरीय वर्ग को अधिक पौष्टिक तत्व प्राप्त होते है जिसका प्रभाव उनके शारीरिक भार एवं लम्बाई पर पडता है!

पौष्टिक तत्वों की आवश्यकता :

कैलरीज :– स्कूल जाने वाले बच्चे एवं किशोरो को अधिक कैलोरी की आवश्यकता होती है! इस आयु में ये बच्चे अत्यन्त क्रियाशील रहते है, तथा शारीरिक वृध्दि गति से होने के कारण बेसल मेटाबोलिक दर भी अधिक हो जाता है! इन दोनो कारणों से इस अवस्था मे अधिक कैलोरी की आवश्यकता होती है! कैलोरी की आहार में कमी होने पर बाढ गति कम हो जायेगी तथा बालकों एवं किशोरो का स्वास्थ ठिक नही रह पायेगा इन बच्चो के आहार मे वसा तथा श्वेतसार युक्त भोज्य पदार्थी का अधिक उपयोग होना चाहिए! तकि ऊर्जा की आवश्यकता पूर्ण हो सके! 5 ते 18 वर्ष की आयु के बालकों के लिये 1500–3000 कैलरीज निर्धारित की है!

प्रोटीन :–स्कूल जाने वाले बच्चे एवं किशोरो में वृध्दि के विकास के लिए प्रोटीन की मात्रा आहार में अधिक होना नितान्त अनिवार्य है! षरीर के विभिन्न अंगो का विकास भी इसी आयु मे पुर्ण होता है, तथा प्रोटीन की आहार मे न्युनता से वृध्दि एवं विकास की गती मन्द हो जाती है! आईसीएमआर न्युरेषन एक्सपर्ट ग्रुप ने 5 – 18 वर्ष की आयु वाले बालकों के लिए 20 – 60 ग्राम प्रोटीन प्रतिदिन निर्धारीत की है! कुल प्रोटीन का आधा भाग प्रणिजय स्तोत्र से प्राप्त होना चाहिए!स्कूल जाने वाले

बालको एवं किशोरो के आहार में अण्डा, मॉस, मछली, दूध तथा दूध से बने पदार्थ, दाल, मेवो का अधिक मात्रा में उपयोग हो!

खनिज लवण–अस्थि कंकाल तथा दॉतो के निर्माण के लिए कैल्शियम की अधिक मात्रा इनके आहार में दी जाए! आईसीएमआर एक्सपर्ट ग्रुप मे 5 –18 वर्ष की आयु वाले बालको के लिए 0.5 से 0.7 ग्राम कैल्शियम प्रतिदिन निर्धारीत किया है! कैल्शियम के उत्तम स्त्रोत दूध तथा दूध से बने पदार्थ हरी पत्ते वाली सब्जियॉ तथा मेवे आदि है! हिमोग्लोबिन के संश्लेषण के लिए लवन की उपास्थिती एक्सपर्ट ग्रुप ने इस वर्ग के लिए 20 –35 मि. ग्राम लोह लवण निर्धारीत किया है!

विटामिन्स :–बच्चों के शरीर मे विटामिन्स एक नितान्त आवश्यक घटक है! इनके बिना स्वास्थ और जीवन दोनो ही दुष्कर है! इसी कारण इन्हे जीवनीय कण या आहार जीवन तत्व नाम दिया गया है! विटामिन 6 प्रकार के होते है! इन 6 विटामिन्स को ए,बी,सी,डी,ई एवं के व्दारा सम्बोधित किया जाता है!बच्चो के आहार मे विटामिन की कमी से अनेक प्रकार के रोग उत्पन्न होते है! शरीर दुर्बल हो जाता है!स्कूल जाने वाले बालकों एवं किशोरो के आहार में सभी विटामिन की अधिकता होनी चाहिए!

विटामिन ए	–	600 – 750 ग्रा.
विटामिन सी	–	30 – 50 ग्रा.
विटामिन डी	–	200 आईयु
विटामिन बी	–	12 – 0.510 एमजी

इसी प्रकार बच्चो के शरीर मे विटामीन का प्रमाण होना आवश्यक है!

बालको के पोषण सम्बधी समसाएँ :–बालको को उचित पोषण युक्त आहार न मिलने से शारीरिक एवं मानसिक रुप से पिछड जाते है! इस अवस्था में किशोरियॉ अपने शारीरिक बनावट पर अधिक ध्यान देते है! जिस कारण वो कम भोजन ग्रहण करते है! अतः अनेक पौष्टिक तत्वों का सेवन नही करते जो उनके लिए अत्यावश्यक है! इस अवस्था में किशोंर अत्यंत व्यस्त रहते है!

महिला का कामकाजी होना :–

कई बार कामकाजी महिलाएँ समय की कमी होने के कारण पोषण युक्त आहार नही बना पाती है! इसी कारण बच्चो को अच्छा पोषणयुक्त आहार नही मिलता है! इसी कारण वो बच्चे चिडचिडापण, करते है और जल्दी से थकते भी है और अशक्त भी रहते है!

पोषण संबंधी अज्ञान :–पोषण युक्त आहार बनाने के लिए पोषण संबंधी ज्ञान होना जरुरी है! जिन महिलाओ को पोषणयुक्त आहार संबंधी अज्ञानी है वो माता अपने बच्चो को ज्यादा तंदुरुस्त नही बना पाएंगी !किसी राष्ट्र की उन्नती तथा अवनति उसकी जनता के पोषण स्तर पर निर्भर करती है! पौष्टिक तत्वों की कमी से शरीर में अनेक प्रकार की बीमारियॉ हो जाती है जिसके कारण कार्यक्षमता भी कम हो जाती है!

गरीबी :–बच्चो को पोषणयुक्त आहार न मिलने का कारण गरीबी भी माना जाता है! देश की जनसंख्या अधिक होने से गरीबी रहती है गरीब लोग अधिक प्रोटीन वाले भोज्य पदार्थ खरीदने में असमर्थ होते है! इनके बालको के आहार में प्रोटीन मुख्यतः वनस्पती स्त्रोत जैसे चावल, गेहूँ, ज्वार, बाजरा आदि अनाज है! ये प्रोटीन वृध्दि एवं विकास कार्य नही कर पाती गरीब बच्चो को दुध, मॉस, मछली, अंण्डे आदि भोज्य पदार्थ नही मिल पाते क्यो की ये महंगे होते है, तथा वे इनको खरीदने में असमर्थ होते है!

धार्मिक विचार, रुढिवादिता, परम्परा :–किसी भी राष्ट्र की आहार सम्बधी आदतें, धर्म, जाति, समाज से प्रभावि होती है, हिंन्दू धर्म मे मॉस, मछली तथा अण्डा निषेध है अतः हम प्रोटीन के उत्तम स्त्रोत को ग्रहन नही कर पाते सामाजिक एवं धार्मिक रिती रिवाज व्यक्ति के पोषण को बहुत प्रभावित करते है! कुछ सामाजिक प्रतिबन्धो के कारण भोजन मे पोष्टिक तत्व नही मिल पाते

खाना पकाने का विधी :–खाना पकाने की सही विधी की अनभिज्ञना से खाद्य पदार्थ मे विदयमान पौष्टिक तत्व नष्ट हो जाते है! खुले बर्तन मे लम्बे समय तक सब्जी उबालने से वो सब्जी से पोष्टिन तत्व नष्ट हो जाता है!बलकाल मे पोषण के अभाव मे शरीर का विकास व वृध्दि अवस्था हो जाते है! पोषण के अभाव मे बच्चो को ढीला ढीला शरीर, शुल्क बाल, अन्धापन आदि दोष दिखाई देने लगते है!

पोषण एवं स्वास्थ :–हमारे देश मे अधिकांश लोगो का पोषण अपर्याप्त है! विशेषकर बच्चो का क्युकि आज के बच्चे कल के नागरिक होंगे इसलिए बच्चो के स्वास्थ के लिए अच्छा पोषण अत्यत्य आवश्यक है! अच्छे पोषण के अभाव मे स्वस्थ रहना सम्भंव नही है! इसलिए स्वास्थ तथा पोषण के बीच गहरा सम्बंध है! प्रातः पोषण के साथ साधारण पर्याप्त तथा आदर्श आदि विशेषणो का प्रयोग होता है! लेकिन इससे इनका अर्थ ज्यादा स्पष्ट नही हो पाता है!

तात्पर्य – बीमारियो की रोकधाम के लिए जरुरी पोषण है! आदर्श पोषण वह होता है जो शरीर मे कार्यकलाप, जलवायु, बीमारी की स्थिती आदि में पैदा हुई जरुरतो की पूर्ती के उपरात भी कुछ पोषक तत्वो को शरीर मे संग्रहीत कर सके जिससे आकस्मिक परिस्थितीया को क्षतिपूर्ति शीध्रतापूर्वक हो सके!इसलिए बच्चो को पोषणयुक्त आहार की ज्यादा जरुरत है! बालक राष्ट्र की धरोहर होते है! सुविख्यात अंग्रेजी कवि मिल्टन के कथन है कि तथा सुर्योदय होने पर ही दिवस होता है वैसे ही मानव का उद्भव बालक से होता है! अतः प्रत्येक राष्ट्र का यह परत पुनीत कर्तव्य है िकवह अपने अमूल्य बाल धन सर्वाधिक सुरक्षा करे.पोषण स्तर व्यक्ति के स्वास्थ की ऐसी स्थिती है जो खाद्य तत्वो की उपयोगीता से प्रभावित हुई है!कइ बार कामकाजी महिलाएँ समय की कमी के कारण आहार आयोजन नही कर पाती! ऐसे मे ये महिलाएँ अपने परिवार को संतुलित

आहार नही दे पाती! टाहार आयोजन के लिए गृहिणी को आहार एवं पोषण सम्बन्धी सामान्य जानकारी होना आवश्यक है! यदि गृहिणी को विभिन्न भोज्य समूहो तथा आहार में उनकी दैनिक आवश्यकता की जानकारी होगी तो ही वह सभी सदस्यों की आवश्यकता के अनुरुप आहार आयोजन कर सकेगीइस प्रकार के आहार आयोजन से कई लाभ है! किसी राष्ट्र की उन्नति तथा अवनति उसकी जनता के पोषण स्तर पर निर्भर करती है! पौष्टिक तत्वो की कमी से शरीर मे अनेक प्रकार की बीमारीयॉ हो जाती है, जिसके कारण कार्यक्षमता कम हो जाती है!

निष्कर्ष :–बच्चो का उत्तम विकास पोषणयुक्त आहारपर निर्धारीत है! इसलिए माताओ की अपने बच्चो के विकास के प्रति जागृत रहना जरुरी है! देश के विकास के लिए बालको का विकास होना अत्यंन्त जरुरी है! इसलिए बच्चो के सर्वांगीण विकास के लिए उनको उत्तम पोषण युक्त आहार की जरुरत है!

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STUDY ON TEMPER TANTRUMS AMONG MOTHERS OF UNDER-FIVE CHILDREN, BENGALURU

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ABSTRACT:-Up bringing a child without any problems like angry feelings, major temper tantrums, impulsive actions, afraid of being separated from a particular person is difficult. Mothers are assumed to be most important in child's life. So educating the mothers about their children's temper tantrum is necessary. This study aims to assess the knowledge level before and after structured teaching programme regarding temper tantrum among mothers of under-five children's at selected urban area Bengaluru.Experimental approach with two group pre-test and post-test design was adopted and study was conducted at Hanumantha nagar, urban area Bengaluru. Simple random sampling technique was used to collect data from 60 mothers of under-five children's and self- administered questionnaire was used followed by Structured Teaching Programme (STP) and after eight days study was reconducted . The result revealed that pre-test level knowledge among experimental group mothers had inadequate knowledge 86.7%, moderately adequate knowledge was 13.3% and control group mothers had 100% inadequate knowledge were as in Post-test level of knowledge among mothers in control group 90% had inadequate knowledge and 10% moderately adequate knowledge and experimental group mothers had adequate knowledge 30% and moderately adequate knowledge 70%.The study Conclude that structured teaching programme was highly effective with the 't' value (9.229) and $P < 0.05$. This indicates that the experimental group has more knowledge than the control group after administering structured teaching programme. Based on the findings researcher recommends this study can be carried out on working mothers and can be replicated with larger samples for better generalization.

Key words: Knowledge, temper tantrums, mothers of under-five children.

INTRODUCTION:-Temper tantrums is an angry outburst by child who has lost their temper in reaction to something they did not want to happen.If the child actually hurts himself or others or has very frequent tantrums occurring more than 15 minutes/ three or more times per week, it may be a sign of behaviour problems.Epidemiologically, tantrums occur 87% in 18 to 24-month-olds, 91% in 30 to 36-month-olds, and 59% in 42 to 48-month-olds. Children with language deficits or autism may have more frequent and aggressive tantrum behaviours because of the additional frustration associated with difficulty expressing them. Breath-holding spells typically occur between six months and five years of age, with onset between 6 and 18 months, and disappear by five years of age. Breath-holding events may occur during tantrums and affect 0.1 to 4.6% in healthy children. A study was conducted among 800 children aged between 3-12 years , 22.8% of children with age 4.7 years had temper tantrums . Boys in the group had more temper tantrum than girls. Children born with postnatal trauma and seziure shown more temper tantrum when compared with control group. Boys who were protected more from Parents and whose parents had marital disputes show higher incidence but in girls parent not taking care of them become more important factor for stress. Some behavioural problems like sucking

thumb,bedwetting, sudden movement of muscle with out control,banging the head,disturbed sleep was also found in children with temper tantrum.

Long - term antisocial behaviour and psychological problems may be seen among preschool children. Care takers are looking after children ,as many parents are having shift in working and very less time is given by parents towards children growth and development. Many of parents have only one child and they pamper them more. Childrens are not thought about shareing things by these parents. Children only learn to take things but not giving to others, they dont develop any bonding relationship. Siblings are very important for children to develop relationship. Researcher found parents are lacking in understanding their children behaviour. Many times the problems in childrens is inculcated by parents themselves because of there over safe gaurding. Keeping all this in mind researcher thought to increase the level of knowledge regarding temper tantrum among under five mothers is important. Early findings of problems will help to reduce associated risk and damages in future.Children behaviours are not things to be molded but to be unfolded. Nations wealth is in childerns hand. Understand the children behaviour is responsible of all the people around them.

OBJECTIVES OF THE STUDY

- To find knowledge level among mothers of under-five children regarding Temper tantrum.
- To find the effectiveness of STP.
- To determine the association between level of knowledge and socio-demographic variables.

HYPOTHESES

H1: There is a improvement in the knowledge level among mothers of under-five children.

H2: There is difference post-test knowledge level between experimental and control group

H3: There is a association between knowledge level and socio demographic variables.

CONCEPTUAL FRAMEWORK:-General system theory is used in the study which is given by Ludwig Von Bertalanffy (1969).

This system consist of input,throughput and output.

MATERIAL AND METHOD:

1. RESEARCH APPROACH: A quantitative research approach.

2. RESEARCH DESIGN: Control group Pre-test and post -test.

Intervention undergoing Group:	Before	STP	After	Improvement
Control Group:	Pre-test	No intervention	Post-test	-

3. SETTING OF THE STUDY: The study was conducted at Hanumantha Nagar (kuvempu road and kumara swami road) urban, situated in Bangalore.

i. Population: mothers of under-five children residing in Hanumantha Nagar urban, Bangalore.

ii. Sample: mothers of under- five children staying in kuvempu road and kumara swami road at Bangalore.

iii. Sample Size: 60 mothers of under- five children

iv. Sampling Technique: Simple random technique.

DESCRIPTION :

Questionnaire which was structured to find the knowledge level in mothers of under five children.The structured questionnaire comprised of 2 sections.

a. Section I: consists of 8 items related to the demographic variables under the study.

b. Section II: It is designed to elicit the knowledge among mothers of under-five child regarding temper tantrum it consists of 30 items.

To find out the association with the selected demographic variables and knowledge scores, respondents are categorized into three groups.

Below 50%	Inadequate knowledge
51-75%	Moderate knowledge
Above 75%	Adequate knowledge

PILOT STUDY:-The pilot study was conducted in Gavipuram (Rajkumar road and Ambedkar road) urban, situated in Bangalore to find whether the tool used in study is reliable and STP is effective. The findings of the Pilot Study revealed that the study is feasible. The reliability co-efficient of knowledge found to be 0.87 revealing the tool is feasible for administration for the main study and Formal prior permission was obtained from the medical officer of primary health centre. The subjects of each experimental and control group consist of 30 in each group. The pre-test was given to the subjects in experimental group followed by structured teaching program using laptop, pamphlets and flash card, whereas in control group the pre-test alone was carried out. On 8th day post test was conducted for both groups using the same questionnaire to assess the effectiveness of structured teaching program.

ANALYSIS AND RESULTS-The data collected were edited, tabulated, analysed, interpreted, and findings were presented in the form of tables and diagrams under the following sections.

PART I: Analysis of the socio demographic variables for experimental and control group.

In two group, (40%) mothers age was 30+, (60%) in experimental and (53.3%) in control mothers belongs to hindu religion . (60%) in experimental group and (53.3%) control group , mothers have formal education. 100% of mothers are house wife in experimental group and control group.(73.3%) in experimental group and (56.6%) in control group, family monthly

income was between 3000-6000. Majority(60%)in experimental group were from nuclear family and (53.7%) control group were from joint family, family had 2 childeen in experimental group (80%) and in control group (63.6%) and previous exposure to information in mothers in experimental group was (60%) and control group (56.7%).

PART II: Assessment the knowledge level in experimental and control group

Pre-test, 86.7% of mothers in experimental had inadequate knowledge, moderately adequate knowledge 13.3% and 100% of mothers had inadequate knowledge in control group .

PART III: Evaluation of effectiveness of the structured teaching programme

N=60

GROUP	MEAN DIFFERENCE	T-VALUE	P-VALUE
Experimental group	10.4667	9.229	P<0.05 Significant
Control group	1.0000		

The result shows that the structured program was highly effective as the p value is <0.05 and the T value is 9.229. It indicates that the experimental group has more knowledge than the control group after administering structured teaching program.

PART–IV: To find the association between knowledge level and socio demographic variables.

In experimental group there is a significant relationship found in some of socio demographic variables. Significance was not found in variables such as age of the mother, education of the mother, and previous exposure to information about temper tantrum. In control group there is a no significance was found in variables .

Testing the hypotheses:

The research hypothesis H_1 stated in the study is accepted.

The research hypothesis H_2 stated in the study is accepted as the structured teaching program was highly effective since, p value was <0.05 and the T value was 9.229.

The research hypothesis H_3 stated in the study is rejected as there is no significant association found in some areas .

RECOMMENDATIONS:

- Same can be used in larger area for better generalization.
- Study can be done only on working mothers .

CONCLUSION:-It includes, over all paired‘t’ value (9.229) at P < 0.05 level (5%) which indicates that STP was effective in enhancing the knowledge among the mothers of under-five children regarding temper tantrum.

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TO STUDY BASIC NOMENCLATURE IN FUZZY LOGIC

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Abstract:-The purpose of this article to conceive basic concept of the fuzzy logic. Fuzzy logic is a prevailing problem solving methodology. It is superset of classical logic or crisp logic. Classical sets are those sets that represent bivalent logic is that every intention either true or false. In this tasks should be focus on nomenclature of fuzzy logic. The many students used distinct nomenclature of fuzzy logicininvestigation. Nomenclature used in fuzzy set theory as support, core, crossover point, height, normality, subnormal fuzzy set, fuzzy singleton, α- cut, strong α- cut, convexity, fuzzy number, band width,fuzzy symmetry, open left and open right fuzzy set.Fuzzy logic nomenclature is the basic to handletowards the all those model being used for sculpting and forecasting.

Keywords: Fuzzy set; Fuzzy logic; Membership value;Open;Nomenclature.

Introduction:-Fuzzy logicis a multivalued logic, Fuzzy logic is generalizes the convential logic of two value for reasoning under indistinctness. Fuzzy logic deals with Partial i.e. matter of degree information, imprecise information, linguistic information and perception based information. Fuzzy logic use many conceptions has becomes easier and this help to everybody.Fuzzy logicis a qualitative computational method which describes vagueness or partial truth. The inventive idealistic mathematical approach had been improved to accommodate partial truth by the introduction of fuzzy set theory invented by Zadeh, unlike crisp set theory, fuzzy set theory is flexible, which is focuses on the degree of being a member of set. The most successful approach is based on the fuzzy set notation proposedby Lotfi A. Zadeh in 1965. He had observed that conventional computer logic could not manipulate data that represented subjective or vague ideas. Zadeh developed the fuzzy control system that is a based on fuzzy logic, a mathematical system that analyze the input values in terms of logical variables that take on continuous value between true and false (1 or 0).Some nomenclature used fuzzy set theory as support, core, crossover point, height, normality, subnormal fuzzy set, fuzzy singleton, α-cut, strong α-cut, convexity, cardinality, fuzzy number, band width,fuzzy symmetry, open left and open right fuzzy set. In the present work represented nomenclature used fuzzy set theory, which would be useful for solving any uncertainty in the severalfields.

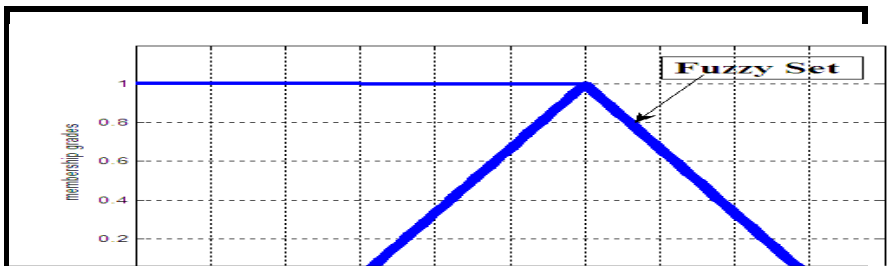
Fuzzy set:-A fuzzy set A can be written as a set of ordered pairs of the elements and its belonging ness or membership in the set A.

$A= \{(x_i, \mu_A(x_i)) \mid x_i \in X , i = 1, 2, 3, \ldots, n. \}$

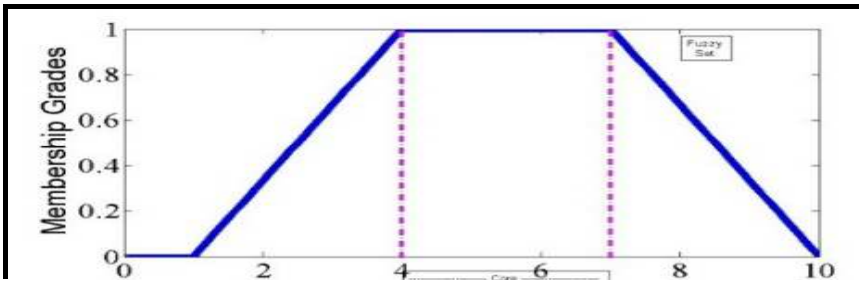
Nomenclature used in Fuzzy Set Theory

Support:-The support of fuzzy set A is the set of all point x in the universe of discourse X for any associated membership function such that $\mu_A(x) > 0$. It can be represents as

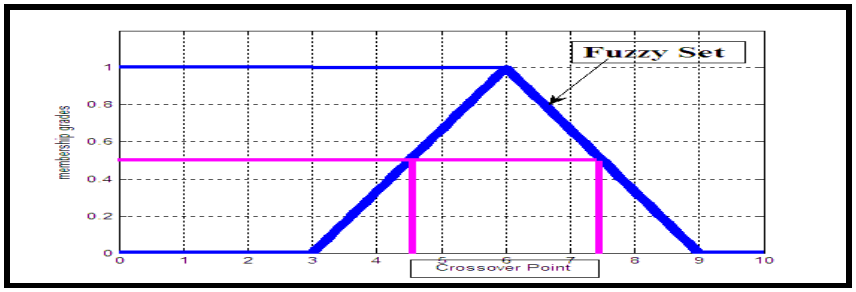
support $(A) = \{x \mid \mu_A(x) > 0\}$



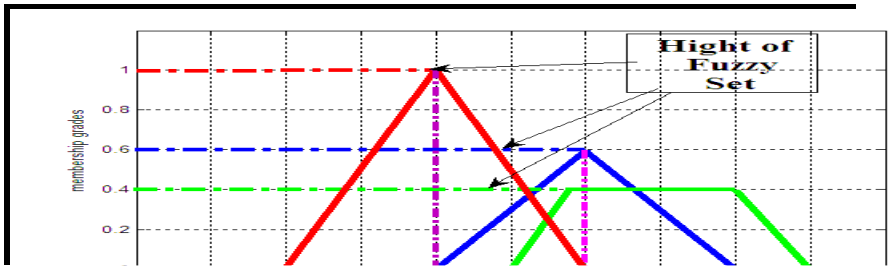
Core: The core of fuzzy set A is the set of all points x in universe of discourse X such that $\mu_A(x) = 1$. It can be represented ascore (A) ={x |$\mu_A(x) = 1$}



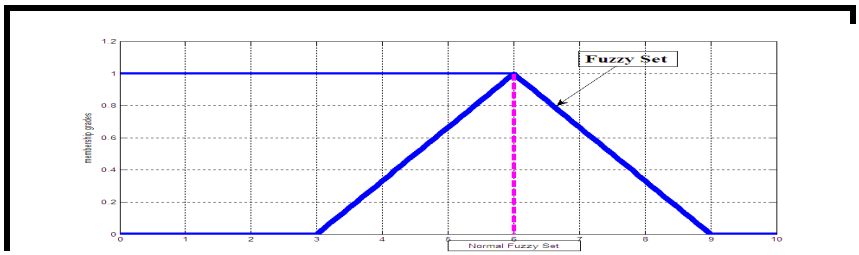
Crossover Point: The crossover points of a fuzzy set A is the points x in universe of discourse X at which $\mu_A(x) = 0.5$. It can be represented ascrossover (A) ={x |$\mu_A(x) = 0.5$}



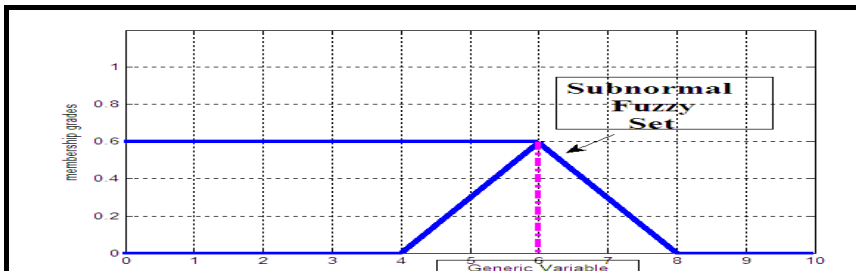
Height: The height of a fuzzy set A is the maximum value of the membership function. It is represented ashgt (A) = max{ $\mu_A(x)$ }, If hgt (A) < 1 then the fuzzy set A is called as " Subnormal fuzzy set " and The hgt (A) is viewed as the degree of validity or credibility of information expressed by fuzzy set A.



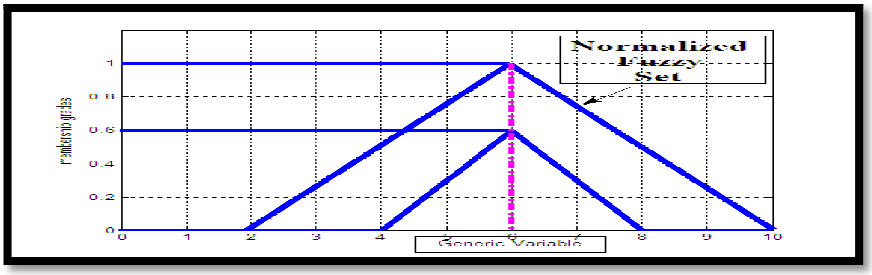
Normal Fuzzy Set: A fuzzy set A is normal if its core is non empty. In otherworld's we can always find a point x in universe discourse of X such that $\mu_A(x) = 1$.



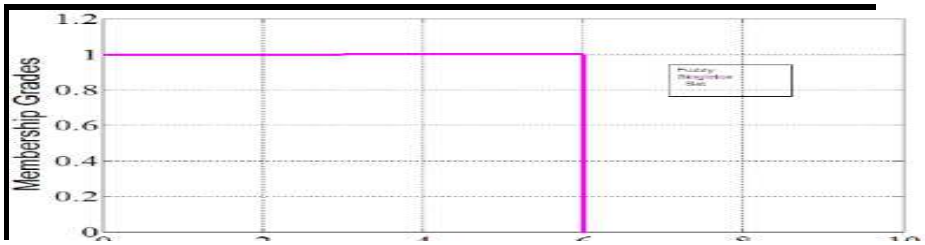
Subnormal Fuzzy Set: A fuzzy set A is subnormal if its core is empty. In otherworld's we can always find a point x in universe discourse of X such that $\mu_A(x) \neq 1$.



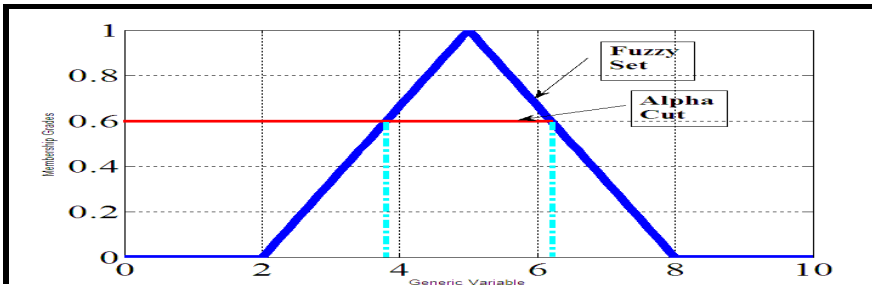
Normalization of a Fuzzy Set:A fuzzy set A' is the normalized version of a fuzzy set A which is represented by A'= Norm (A), The normalization is carried out as follows A'= Norm (A)= $\sum \frac{\mu_A(x)}{\frac{hgt(A)}{x}}$



Fuzzy Singleton:A fuzzy set whose support is a single point in universe of discourse X with $\mu_A(x) = 1$ is called fuzzy singleton.

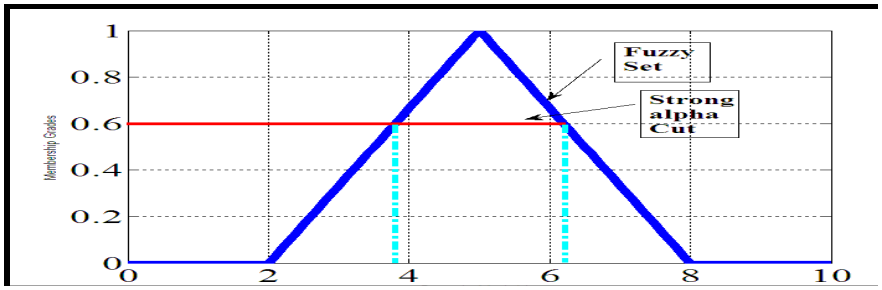


***α*- Cut:**The α-cut or α-level set of a fuzzy set A is a crisp set defined asA_α=$\{x \mid \mu_A(x) \geq \alpha\}$

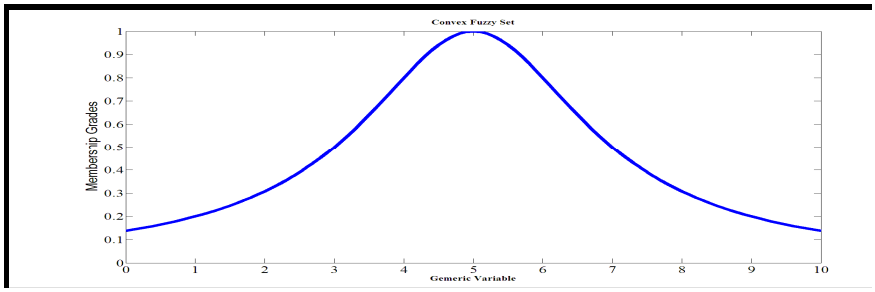


Strong α- Cut : The strong α-cut or strong α-level set of a fuzzy set A is a crisp set defined

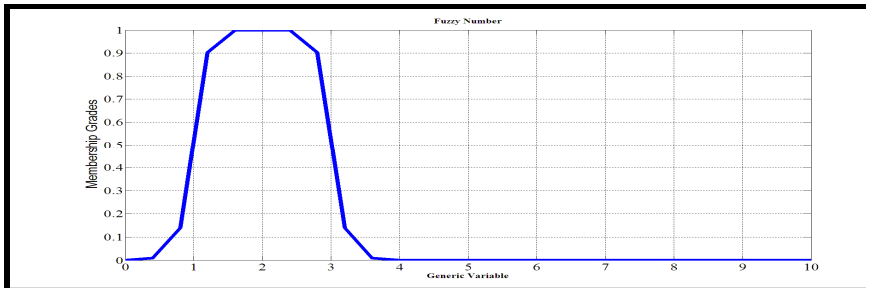
$A'_{\alpha} = \{x \mid \mu_A(x) > \alpha\}$



Convexity:A fuzzy set A is convex if and only if for any x_1 and $x_2 \in X$ and $\lambda \in [0\ 1]$, the following condition satisfies$\mu_A(\lambda x_1 + (1-\lambda)x_2) \geq \min[\mu_A(x_1), \mu_A(x_2)]$, Alternatively, A is convex if all its α-level sets are convex. A convex fuzzy set is described by a MF whose values are: strictly monotonically increasing; strictly monotonically decreasing; strictly monotonically increasing then strictly monotonically decreasing with increasing values for elements in the universe of discourse.

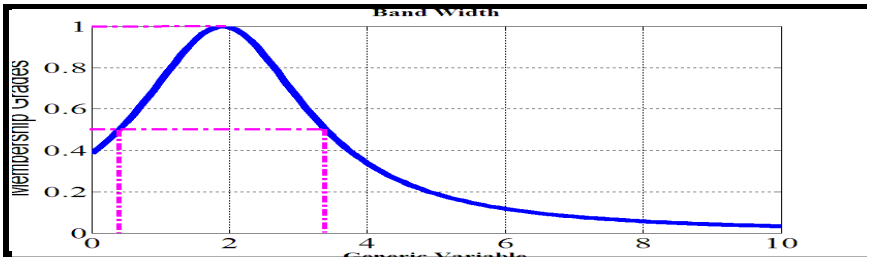


Fuzzy Number: A fuzzy number A is a fuzzy set in the real time $\Re$ that satisfies the condition for normality and convexity.

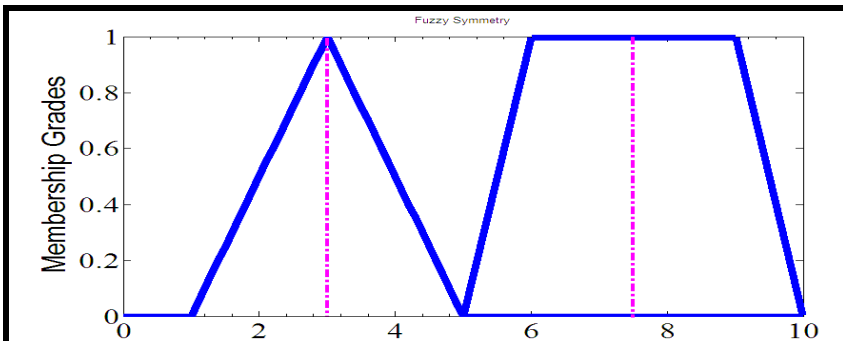


Band Width: For a normal and convex fuzzy set A, the bandwidth or width is defined as the distance between the two unique crossover points, width (A) = $|x_1 - x_2|$,

Here,$\mu_A(x_1) = \mu_A(x_2) = 0.5$

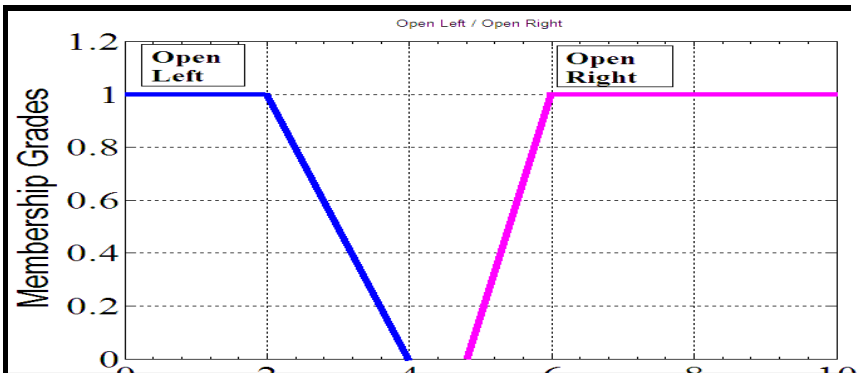


Fuzzy Symmetry:A fuzzy set A is symmetric if its MF is symmetric around a certain point x = c i.e. it satisfies the condition given below for the universe of discourse X.$\mu_A(c + x)=\mu_A(c - x)$, $\forall x \in X$



Open Left and Open Right Fuzzy Set:

1. A fuzzy set A is open left if $\lim_{n\to-\infty}\mu_A(x)= 1$ and $\lim_{n\to+\infty}\mu_A(x)= 0$
2. A fuzzy set B is open right if $\lim_{n\to-\infty}\mu_B(x)= 0$ and $\lim_{n\to+\infty}\mu_B(x)= 1$



Conclusion :-Fuzzy logic is generalizes the convential logic of two value for reasoning under indistinctness. Fuzzy logic deals with partial i.e. matter of degree information, imprecise information, linguistic information and perception based information. In this task we study the different nomenclature say support, core, crossover point, height, normality, subnormal fuzzy set, fuzzy singleton, α- cut, strong α- cut, convexity, fuzzy number, band width,fuzzy symmetry, open left and open right fuzzy set used in fuzzy logic.Fuzzy logic nomenclature is the basic approachtowards the all those model being used for sculpting and forecasting.

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Effectiveness of Structured Teaching Programme on Knowledge of Married women regarding prevention of Reproductive Tract Infections at Selected Slums of Gavipuram Guttahalli, Bangalore.

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ABSTRACT:-Reproductive tract infections are epidemic today. Women are twice as likely as men to be infected by STD. A woman may have more than one sexually transmitted disease at a time. Nurses have an important role in primary and preventive care of women as it is related to routine assessments, screening procedures and management of specific health concerns. The nurse acts as an educator and advocate for women. The study was undertaken to evaluate the Effectiveness of structured teaching programme on knowledge of married women regarding prevention of Reproductive Tract Infections at Selected Slums of Gavipuram Guttahalli, Bangalore.Pre-experimental with one group pre-test and post-test design was adopted and study was conducted at Selected Slums of Gavipuram Guttahalli, Bangalore.Purposive sampling technique was used to collect data from 60 married women who were interviewed by using structured interview schedule, followed by Structured Teaching Programme (STP) and post-test was conducted after 8 days to find the effectiveness. The overall post-test mean and mean percentage knowledge scores found to be 57.60 and 86.80% respectively. Obtained overall paired 't' value (44.07) is greater than table value (2.00) at $P < 0.05$ level which indicates STP was effective in enhancing the knowledge of married women regarding prevention of Reproductive Tract Infections.The results revealed that teaching programme enable and empower women with adequate knowledge on reproductive tract infections, which in turn contribute to improve the total quality of women's health. Researchers recommend to develop manuals, information booklets and self-instructional module in areas of reproductive tract infections among eligible couples.

Key words:-Knowledge, Married women, Reproductive Tract Infections, Prevention.

INTRODUCTION:-Reproductive health is an important component of general health for women. Reproductive health starts with conception and reproductive ill health starts with infection. Reproductive tract infections pose great threats to women's lives throughout the world, particularly having high incidence rates in developing countries. The control of reproductive tract infections is an urgent health priority in many countries including India. Since the International Conference on Population and Development held in Cairo in 1994 and more recently, the ICPD+5 forum in the Hague, organizations and research groups have understand the need for improved methods to monitor reproductive health in the community.In India, married women are reluctant to seek medical treatment because of lack of privacy, lack of a female doctor at health facility, the cost of treatment and their subordinate social status. A "culture of silence" shrouds gynaecologic morbidity throughout India and elsewhere. A community based cross-sectional study of RTI was conducted among married women 16-22 years of age in Tamil Nadu. The study findings showed that young married women in this rural Indian community have ahigh prevalence of RTIs but seldom seek treatment. Education and outreach are needed to reduce the stigma, embarrassment and lack of knowledge related to RTIs. The low social status of women, especially young women, appears to be a significant influence in their low rates of treatment for these conditions.Despite great improvement in preventing and

treating STDs and RTIs, including HIV/AIDS, infections have been increasing significantly throughout the world. The problems of STDSs RTIs and HIV/AIDS among women aged 15-49 years is increasing at an alarming rate. Society will experience an increase in orphans, destabilization of the family unit and a reduction in family income. Considering the impact of these diseases on the reproductive health of women, community, measures should be taken to prevent and control the epidemic.A study on health services needs of women with reproductive tract infections in selected areas of China concluded that the prevalence of RTIs is high, but the rate of seeking health services is low. There is a great need for emphasizing culturally acceptable reproductive health education in different places to improve women's ability for self-care.A study on RTIs; prevalence and risk factors in rural Bangladesh revealed a low prevalence of RTIs, coupled with a high level of reported risk behaviour, indicated a need for primary programmes that would prevent an increase in an incidence of RTIs, STIs and HIV infections.Today, the nurse being an important member of health care team, she has to play a vital role in the community because she has greater access to nursing care as per the needs of women. A nurse can diagnose, treat and educate women regarding RTIs and the women and her family will value the compassion and empathy provided by her. RTI if it is not prevented and treated at an earlier stage leads to serious problems such as infertility, cervical cancer, spontaneous abortion, ectopic pregnancy and later on, death. As prevention is better than cure, the investigator feels that there is a need for this study.

OBJECTIVES

a) To assess the knowledge of married women regarding prevention of reproductive tract infections.
b) To develop and conduct structured teaching programme on prevention of reproductive tract infections.
c) To evaluate the effectiveness of structured teaching programme on prevention of reproductive tract infections in terms of gain in women's knowledge scores.
d) To find the association between the women's knowledge and selected demographic variables.

HYPOTHESES

$H_{(01)}$: There is no significant difference between the pre-test and post-test knowledge scores regarding prevention of reproductive tract infections among married women.

$H_{(02)}$: There is no significant association between Post-test knowledge scores regarding prevention of reproductive tract infections among married women and selected demographic variables.

CONCEPTUAL FRAMEWORK:-The conceptual model for the study is based on the General System theory by Ludwig Von Bertalanffy (1969). The main focus is on the discrete parts and their interrelationship, which consist of input, throughput and output. "System'' has a complex interaction that consist of two or more converted elements, which form an organized whole and that interact with each other.

MATERIALS AND METHODS

1. **RESEARCH APPROACH :** A quantitative research approach.
2. **RESEARCH DESIGN :** Pre- experimental with one group Pre-test and Post-test design

Experimental group	Pre-test (O_1)	Intervention (X)	Post-test (O_2)

3. **SETTING OF THE STUDY**
   The study was conducted in Selected Slums of Gavipuram Guttahalli, Bangalore.
4. **POPULATION:**Population of the study consists of Married women who are in reproductive age group (18-45 years).
5. **SAMPLE:**Married women who are in reproductive age group (18-45 years) residing at selected Slums of Gavipuram Guttahalli, Bangalore.
6. **SAMPLE SIZE:**60 married women
7. **SAMPLING TECHNIQUE:**Purposive sampling technique.

Description of the tool :-A structured questionnaire was prepared in order to assess the knowledge of Married women. The structured questionnaire comprised of 2 parts.

Part I:consists of 11 items pertaining to demographic characteristics about the participants.

Part II:consists of structured questionnaire of 64 questions to assess the knowledge of Married Women regarding prevention of reproductive tract infection.

To find out the association with the selected demographic variables and knowledge scores, respondents are categorized into three groups.

- Below 50% - Inadequate knowledge
- 51-75 - Moderate knowledge
- Above 75% - Adequate knowledge

The pilot study was conducted atselected Slums of Gavipuram Guttahalli, Bangalore with a sample size of 6 married women in a reproductive age group (18-45 years) to find out the reliability of the tool and effectiveness of structured teaching programme.The findings of the Pilot Study revealed that the study is feasible. The reliability co-efficient of knowledge found to be 0.9643 revealing the tool is feasible for administration for the main study. Since the reliability co-efficient for scale $r > 0.07$, the tool was found to be reliable and feasible. Brown's prophecy formula was used. Formal prior permission was obtained from the Senior Medical Officer, Lions Urban Family Welfare Centre Bengaluru to conduct the main study. Followed by pre-test, on same day Structured Teaching Program was conducted in Kannada by the investigator for a period of 50 minutes by using appropriate visual aids. The same Structured Interview Schedule was used to collect the post test data. Post test data was collected on 8^{th} day of Structured Teaching Programme.

ANALYSIS AND RESULTS:-The data collected were edited, tabulated, analysed, interpreted, and findings were presented in the form of tables and diagrams under the following sections.

The major findings of the study were as follows:

A. Findings related to demographic characteristics of the subjects

• Majority (41.70%) of the respondents were in18-28 years old.

• Majority (45%) of the respondents had received primary education.

• Majority (55%) of the respondents were Labourers.

• Highest (70%) the respondents were Hindus.

• Majority (58.30%) of the respondents were from Nuclear family

• Most (48.30%) of the respondents belonged to the income group of Rs. 2,001-3,000/month

• Maximum (83.30%)received information through Medias.

B. Findings related to Pre and Post-test knowledge scores of married women.

• Highest (36.30%) knowledge score in the aspect wise pre-test mean knowledge score on prevention of RTIs was found in the aspect of causes, transmission and risk factors.

• Highest (97.10%) knowledge score in the aspect wise post-test mean knowledge score on prevention of RTIs was found in the aspect of causes, transmission and risk factors

• The post-test mean knowledge score was found higher (86.80%) when compared with pre-test mean knowledge score (26.30%).

• Aspect wise enhancement of knowledge scores on prevention of RTIs was found higher (68.30%) in the aspect of complications.

• The statistical paired 't' test indicates that enhancement in the mean knowledge scores found to be significant at 5 percent level for all the aspects under study.

Table 1: Aspect wise Enhancement of Knowledge Scores on Prevention of RTIs

N=60

No.	Aspects	Items	Knowledge Scores (%)						Paired 't' value
			Pre-test		Post-test		Enhancement		
			Mean	SD	Mean	SD	Mean	SD	
I	Reproductive System	6	32.8	19.2	94.4	9.0	61.6	17.4	28.37*
II	Meaning	12	24.6	22.0	90.6	12.3	66.0	20.8	25.38*
III	Causes, Transmission and Risk factors	4	36.3	25.0	97.1	11.4	60.8	24.9	19.53*
IV	Signs and Symptoms	10	21.5	15.4	81.0	15.4	59.5	16.6	28.67*
V	Complications	10	9.5	8.3	77.8	17.9	68.3	19.1	24.92*
VI	Prevention	22	33.3	12.9	87.7	9.8	54.4	11.1	39.14*
Combined		64	26.3	12.6	86.8	10.4	60.5	11.0	44.07*

* Significant at 5% level

C. Findings related to association between Knowledge scores and demographic variables.

• There was no significant association between age and knowledge scores.

• There was a highly significant association between educational status and knowledge scores.

• There was no significant association between Occupation and knowledge scores.

• There was a significant association between religion and knowledge scores.

• There was no significant association between type of family and knowledge scores.

• There was highly significant association between monthly family income of respondents and knowledge scores.

TESTING THE HYPOTHESES

$H_{(01)}$: There is no significant difference between the pre-test and post-test knowledge scores regarding prevention of reproductive tract infections among married women. The statistical paired 't' implies that the difference in the pretest and post-test knowledge score was found statistically significant at 5% level with a paired "t" value of 44.07. There exists a statistical significance in the enhancement of knowledge scores indicating the positive impact of intervention programme. Therefore the investigator **REJECTS** the null hypotheses $H_{(01)}$.

$H_{(02)}$: There is no significant association between Post-test knowledge scores regarding prevention of reproductive tract infections among married women and selected demographic variables. The null hypothesis $H_{(02)}$ stated in the study is **ACCEPTED** since there is no significant association between post test knowledge scores regarding prevention of RTIs among married women and selected demographic variables except for educational status, income and religion.

CONCLUSION:-The overall findings of the study clearly showed that the STP was significantly effective in improving the knowledge scores of Married woman regarding prevention of RTIs.The results revealed that teaching programme enable and empower women with adequate knowledge on reproductive tract infections, which in turn contribute to improve the total quality of women's health. Researchers recommend to develop manuals, information booklets and self-instructional module in areas of reproductive tract infections among eligible couples.

RECOMMENDATIONS

1. A similar study can be conducted on a larger sample among eligible couples.
2. A similar study may be conducted in other back ward districts, taluks, villages etc.
3. The comparative study can be conducted between urban and rural settings or between married and unmarried or between men and women.
4. The similar study can be replicated on a large samples to generalise the findings.
5. Manuals, information booklets and self-instructional module may be developed in areas of reproductive tract infections among eligible couples Experimental study can be conducted with randomized and control group.

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CHALLENGES IN HEALTH CARE SECTOR DURING THE PHASE OF NEW STRAIN OF MUTATED CORONA VIRUS

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Introduction:-United Kingdom was the first place where anew variant of SARS-Cov2 virus was found. This variant is 70% quicker in spreading the disease. Denmark, Netherlands, Belgium and other countries have reported few cases. India may gradually get more and more affected by this new variant in the coming days.

New variant of SARS-Cov2:-Therapid genetic recombination in the of novel coronaviruses results in mutation into new strains. The toxicity and infectivity of each recombination can increase in future and can invalidate the actual treatment methods and the drugsused for the treatment of the disease. scientists in Iceland have discovered forty variants of novel coronaviruses. The variability of this virus is too high. The infectivity of COVID-19 is significantly higher than that of SARS because the affinity between the S-protein of 2019-nCoV and angiotensin converting enzyme 2 (ACE2) is 10 to 20 times that of SARS as sated by scientific data.

Lineage of corona virus:-There is large number of genetic changes, particularly in the spike protein. There is need for enhanced genomic and epidemiological surveillance worldwide due to rapid growth of this lineage. It is therefore important to do laboratory investigations of antigenicity and infectivity.This intractable and unexpected virus has a strong ability to camouflage itself. The virus can make an infected person appear asymptomatic and look healthy. It can also cause common respiratory disease by manifesting various other symptoms in some infected person.

Concerns about new variant of SARS-Cov2:-The main concern about the new variant for the scientific community is about the timely efforts to prevent and control its spread, discover effective therapies, whether vaccines will work against this variant, the likely impact on the efforts to bring the pandemic under control, and also to better understand the behavior of the new coronavirus and know the viral mechanisms.

Challenge related to vaccine:-One key concerning the new strain is because the new mutation reportedly occurred within the spike macromolecule, whether or not this may scale back the effectiveness of immunizing agent. The new variant is the target of most vaccines presently below development for Covid-19.

National policies:-There is need to have specific National policies which has to be communicated to the public. Emphasis should be on strict adherence to non-pharmaceutical interventions,avoidance of non-essential travel to be reinforced,stress should be emphasised on avoidance of unwanted social activities, PCR performance should be reviewed by laboratories

and this test should be performed only as an indicator for cases with the new variant for further sequencing and investigation. Follow up of reinfected suspected cases of COVID-19.

Safety measures:-Maintaining basic hand and respiratory hygiene is an important aspect of self-protection. People should adhere tosafe eating habits and avoid close contact with anyone who has symptoms of respiratory diseases. Maintain social distancing at all times.

Responsibility of public health authorities and laboratories:-Researchstudies to be carried out on treatment failures using convalescent plasma or monoclonal antibodies. Identifying possible vaccination failure and close monitoring of COVID-19-vaccinated individuals is of prime importance. Also there is a need to look for breakthrough infections to avoid further spread. Virus isolates need to be analysed and sequenced and characterised genetically and antigenically to identify cases of the new variant.

Effect of new variant on medical device industry:-India imports many medical equipment and consumables, disposables and capital equipment including computed tomography and magnetic resonance imaging devices, orthopaedic implants, gloves, syringes, bandages, from other countries. The medical device manufacturers across India are finding it difficult to source important raw materials and electronic components due to the current crisis in other countries. Shortage of some critical electronic parts and raw material still exists even though some of the factories in China/ other countries have restored operation. The medical devices industry is hit badly. This has adversely affected the margins and profitability of Indian companies importing small components to manufacture finished products, and medical devices. In this short term there is upward pressure on prices of medical devices.

Challenges in Health care sector:-The healthcare sector being the epicentre of this unprecedented global pandemic challengeis facing lot of burden.To ensures 100 per cent preparedness for safety in the hospitals, the health sector has to invest additional manpower, consumables, equipment and other resources. Also health care sector in general and hospitals specifically are experiencing a sharp drop in OPD patients and elective surgeries.Private sector is providing all the support to the government like getting ready isolation beds for the treatment of Covid-19 positive patients, testing support, deploying instrumentality and workers in known nodal hospitals. The worst compact facet of health care sector throughout pandemic is its revenue growth as a result of delayed pricey elective medical interventions.

Conclusion:-Its important to identify people with travel history to places known to be affected and also people having epidemiological links. These people need to be tested, isolated, and follow up of all contacts to prevent spread of new variant.Countries and health system should be notified through early warning and response system if some one is detected Covid positive.

ISSUES AND CHALLENGES OF THE NEW STRAIN OF MUTATED CORONA VIRUS ON MATERNAL & CHILD HEALTH

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INTRODUCTION:-Globally, we all are striving to achieve the millennium development goals like other countries which are as follows:-

1. Eradicate extreme poverty and hunger.
2. Achieve universal primary education.
3. Promote gender equality and empower women.
4. **Reduce child mortality**.
5. **Improve maternal health**.
6. Combat HIV/AIDS, malaria, and other diseases.
7. Ensure environmental sustainability.
8. Develop a global partnership for development

Among these, today's presentation will be focusing more on way for the achievement of the 4th and 5th goal that is to reduce child mortality and improve maternal health.

COMPONENTS OF QUALITY MATERNAL CARE:-Keeping in view the development goals a high quality and consistent care is required during the antenatal, postnatal, intra-natal period along with the provision of mental health care for a healthy mother and a healthy child, finally leading to a healthy society.

EFFECT OF MUTATED CORONA VIRUS ON PREGNANCY:-Pregnancy is a time that is full of excitement and anticipation. But due to the outbreak of coronavirus disease (COVID-19) and followed by a new mutation of coronavirus lot of unexpected problems arose. The new variation of coronavirus is more transmissible and deadly. Normally, during pregnancy certain significant physiologic and immunologic changes occur to support and protect the developing baby. These changes are for good but also enhance the risk of infection with respiratory viruses for both mother & her unborn baby which further heightens the risk for infection with a new strain of mutated coronavirus. Most common clinical presentations may include fever, cough, and dyspnea with a sufficient decrease in white blood cell counts finally leading to severe respiratory disease.

ISSUES OF MUTATED CORONA VIRUS ON MATERNAL HEALTH:

Due to these mutations a lot of issues has raised such as

1. Poor pregnancy outcome in the form of IUGR, perinatal and maternal death.
2. Impact on mental health in the form of anxiety, fear, undue stress.
3. Stress and fear & uncertainty of viral spread and vertical transmission.
4. Limited accessibility of antenatal care resources.
5. Lack of social support due to lockdown and isolation.
6. Decrease in the number of antenatal care visits due to fear and anxiety of viral spread.
7. Difficult access to online services especially in rural areas due to poor connectivity.
8. Increase in unintended pregnancies due to poor planning.

CHALLENGES OF MUTATED VIRUS ON MATERNAL HEALTH

There are many challenges for the health workforce that needs to be tackled to provide high quality and consistent maternal health care services like

• Provision of high-quality health care services at all levels be it rural or urban
• Availability of trained midwives and health care staff
• Ease of access to health care services
• Functional health facility with a skilled birth attendant.
• Positive health-seeking behavior
• Ensuring 24/7 availability of MCH services
• Continuation of antenatal and postnatal care visits
• Availability of adequate funds with state governments

COMBATING ISSUES & CHALLENGES:-We need to know, how to combat these issues. Here are few points which are discussed and which may prove to be beneficial in combating these issues:-

- Analysis of evidences about effects of COVID19 on maternal and child health
- Integrated efforts to develop tools for better monitoring of health services
- Regular assessment of socio-economic effects of containment measures on maternal and newborn wellbeing
- Necessary precautions to prevent the infection & spread of virus
- Continued guidance by healthcare professional

HOME CARE

Pregnant women may be advised to follow following few steps to keep them free from infection and thereby increasing the chance of healthy mother and a healthy child

- **Take :** Good self care, well balanced diet, adequate fluids & fiber
- **Avoid :**Crowded areas, Public transport, Physical gatherings
- **Use :** Telephone, text, online measures to contact
- **Add :** Protective measures, self-monitoring of covid signs or symptoms
- **Seek :** early care from a health care provider.

CONCLUSION:-The mutated strain of coronavirus may prove to be a big hazard to the world as it may spread faster. There are lot many issues and challenges of the new strain of mutated coronavirus in all over India that can affect all services to mankind. However, it requires continuous intensive efforts to provide high quality maternal and child health services for healthy mother and healthy baby.

Structured analysis of employment in Vasai (Maharashtra) demographics using Statistical techniques impacted by Covid-19 pandemic.

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Abstract:-Pandemic was a great hit in 2019 which affected many sectors along with human race. Finance is very vital for us as human beings for day to day life. Economic sector has deeply affected and thus employment has also impacted and many lives has come to stand still. Along with exiting of jobs new ventures have come up and thus self-independency have been developed. Analysis of a small town Vasai has been done where many ventures have come up as many jobs were halted.The project initiated by our own Prime minister Shri Narendra ji we need to be self -sufficient and self - independent.

Keywords: Pandemic, Atma nirbhar, ventures

Introduction:-Global pandemic was a hit in 2019 where they would come to standstill where all the activities were halted and this was a stroke to all human race as well as other living beings. Families were affected and thus many individuals' lives were affected. Jobs financial crisis, mental and physical health was depreciated, various strains gave rise to various complications. Transportation, borders for migration were closed. Human race was confirmed in a close structure. Many lives were departed to heavenly abodes. Daily wage workers were lifted at a very high rate. Thus COVID-19 virus and a global pandemic has left many good and bad traces in the lives of people. Employment is where one person earns for his living and also his families living. Basic earnings is needed for one's living. As India is a developing country there are still many people who are unemployed. Not many employment opportunities are generated. Some workers work on daily wages, monthly wages and annual packages and some on contract basis. There are some workers whose jobs are generated as per seasons so there is a huge demand for seasonal workers also. As there is not 100 percent literacy in India, we cannot expect literate employees throughout the country as there are professional jobs where highly educated personals are hired. In these years many professional and highly educated candidates migrated overseas for better jobs and education purposes. Thus, skill and talented candidates have decreased in number from our country. But when pandemic hit the globe many lost their jobs and the number of unemployment increased outside the country and thus the rate of unemployment rase and it was a break through our economy. Many people came back to India as the pandemic was struck. It was also a great loss for the economy as NRI residents came back and thus exchange of money for dollars decreased. During this pandemic our own prime minister Narendra Modi came up with a concept of “Atma Nirbhar” that is standing on our own feet’s and not depending financially on anyone. India is a land of talents, skills and lots of hardworking people, many people started their own ventures and small-scale business as a home product business. People also boycotted

foreign and especially Chinese products and this gave lots of enthusiasm for the upcoming entrepreneurs. Online marketing was a boom and has covered each and every aspect, cashless transactions and many other facilities were given for the customers. Food business were flourished where international taste and concept was introduced. Organic fruits and vegetables were available in locality and community and this gave opportunities for local customers to lead a healthy diet. Atma Nirbhar Bharat was an amazing concept which gave us so many bakers, food outlets, many designers and many other small-scale businesses. Vasai is a place in state of Maharashtra situated in Palghar district. It is an evergreen developed region with beauty and beautiful infrastructure and has many primary and secondary occupations. Many members of the family work overseas on cruise, rigs and abroad etc for better earnings. Vasai has many parishes and this parishes are divided into villages and around 21lakh population is situated in this Vasai taluka and the sex rate is 880 females per 1000 males.

Method:-survey method is used for this research purpose. Questionnaire of 10 questions is framed on digital platform that is google forms and then respondents from all over Vasai is covered. This research is done on a small scale where approximately 40 respondents are researched. Many respondents have lost their jobs during pandemic and for self and family needs have started their own ventures. Various pie charts are framed automatically with the feature of google forms.

Review of Literature:-The COVID-19 pandemic has strapped the creation into an extraordinary disaster and vagueness, calling to accelerate the application of the Centennial Announcement.[1] It called upon elements to chase 'with remorseless vigour its [ILO] legal directive for communal fairness by additional emerging its social centred tactic to the upcoming work'. It called for stroking employees' human rights and the wants, ambitions and truths of all public at the sentiment of monetary, societal and ecological strategies.[1] The universal civic and ILO's elements have involved in a cooperative endeavour to challenge the shocking social influence of the pandemic.[1]

Objective of research:

1. To study and analyse the rate of employment during COVID-19 pandemic.
2. To analyse the status of upcoming ventures during pandemic.
3. To compare self-employment and salaried employment.

Analysis:-A questionnaire was framed and approximately 44 respondents were noted with regards to employment during this unprecedented times. Digital mode was used for this purpose and it was easy to memorize the data pictorially. Vasai demographic was selected which is a town in Mumbai in state of Maharashtra. This place is full of greenery and also quite developed with respect to employment and economic conditions. Majority are Christians, Hindu and Muslims and also variety of other religions. It's a secular town. It has a rich heritage and has its own diverse culture. Many small scale business or ventures came up when there was sudden loss of employment during pandemic and it was a hit to the backbone of the family. But during this unprecedented times we as individuals had to live our life as survival was very vital and also necessary. In today's generation both men and women goes hand in hand and there is no such occupation where these two genders have not reached. When talking about third gender they have also reached various heights.

Gender:

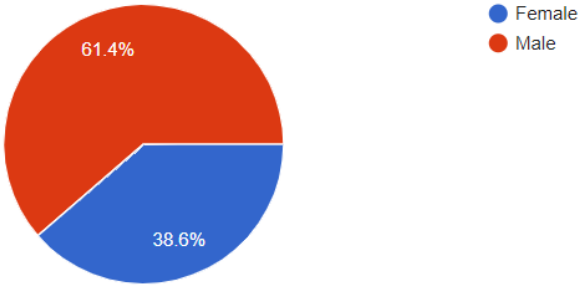

Fig: 1.1

Both male and female were studied and it is found that more number of males started their own ventures. Around 61.4% lost their jobs during pandemic and they came up in setting their own idea and came up with innovative ways in serving the society and earning their daily needs. Also 38.6% females showed independency with respect to coming up with various new business.

Age group:

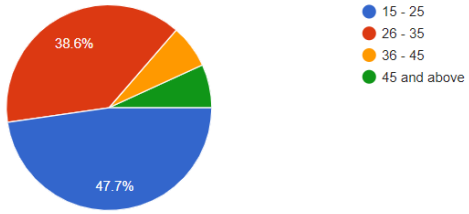

Fig 1.2

India is a country with lot of young population and this is the real prosperity of a developing country. Major chunk is concentrated in the age group of 15 to 25 years and we see clearly that around 47.7% population lies with the same interval. These are our skilled population and we need to nurture them very well. Here the average age calculated is 24 years. We also see that the age interval 36 to 45 and above the number of self employed people are same of having 6.8%. Also those who are settled in the age group of 26 to 35 and have lost their jobs do have to find an alternative to work and earn their daily live hood.

Employment during pandemic:

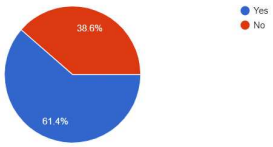

Fig:1.3

More than 50% have been employed during pandemic which is a great sign of relief and also a great relief for family. 27 out of 44 respondents are employed in this current situation and around 38.6% were not employed and thus had to find an alternative for survival. Also around 81.8% during this COVID-19 pandemic has started their own venture and others must have not initiated one or must have merged in with others. Various ventures like bakery, Packaging, Candle making, Dillon Imaging, Fast food restaurant, Healthcare Solutions, Mini Mart, Photography, Yoga Classes, YouTube channels, nail project, beauticians, handicrafts, food stations, online platforms like vestige, IX global and many others.

COVID and Impact on Finance:

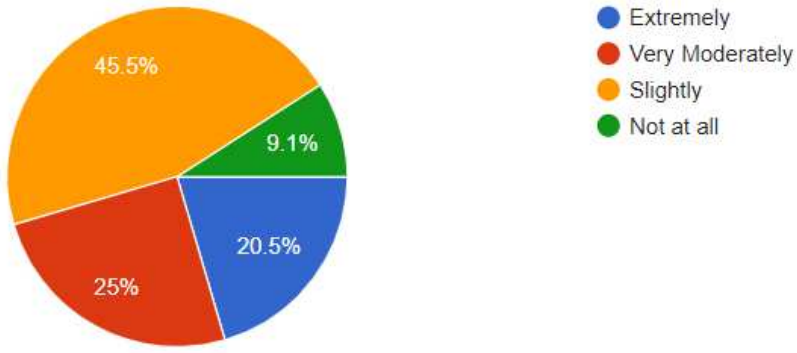

Fig 1.4

There are definitely some people as well sector where this pandemic was a great hit and some where people had no impact at all. This depends on job and financial status before and after pandemic. Around 4 people out of 44 said that pandemic didn't affect them at all whereas 20.5% said that it was a great hit as there was a great loss of job and income. 45.5% of the respondents recorded that there was a slight affect in finance during pandemic may be for salaried person salary cut must have given or may be during lockdown enough finance was saved.

Registration of Business:-Many businesses are home based venture and thus registration of business is ignored. During this pandemic many businesses where registered but many felt that registration was not required. Many said that business was only during lockdown once lockdown was over they will be back to their original job. Approximately 30% said that there is no need for their business registration. 32.5% persons businesses were registered whereas 37.5% has not registered their business.

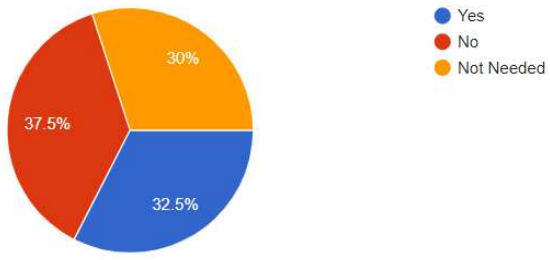

Fig: 1.5

Income:-Income is very essential for daily needs and requirement. With upcoming new businesses many people have managed to cover their expenses and live an independent life. Around 32.5% got approximately less than 5000 which could barely bare their expenses. And there are people gaining more than fifteen thousand that is 27% got unexpectedly more amount. Mode lies between five thousand to ten thousand.

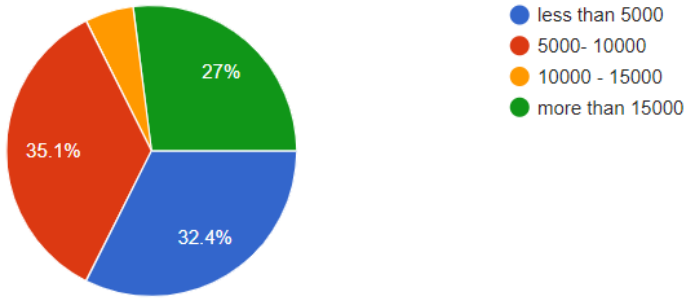

Fig: 1.6

Hypothesis:

H0: There is no relationship between income and new start up or venture.

H1: There is relationship between income and new start up or venture.

Here x and y are the values whether the individual has started a new start up or not. X indicates yes and y indicated No.

Now we will find correlation coefficient between monthly income and sarting of new venture during pandemic.

Table:1.1

Income	x	y	$xi - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})(y_i - \bar{y})$	$(xi - \bar{x})^2$	$(yi - \bar{y})^2$
<5000	12	4	3.25	1.75	5.6875	10.5625	3.0625
<10000	12	1	3.25	-1.25	-4.0625	10.5625	1.5625
<15000	4	1	-4.75	-1.25	5.9375	22.5625	1.5625
>15000	7	3	-1.75	0.75	-1.3125	3.0625	0.5625
Total					6.25	46.75	6.75

Mean of x = 8.75

Mean of y = 2.25

r = 0.35

Correlation coefficient formulas are used to find how strong a relationship is between data. The value lies between -1 and 1, where:

1. 1 shows a strong positive relationship.
2. -1 shows a strong negative relationship.
3. zero indicates no relationship at all.

Here r is positively correlated..

Thus we reject the null hypothesis and accept the alternative hypothesis.

H1: There is relationship between income and new start up or venture.

Limitations of the study:

1. This study is concentrated for Vasai town only.
2. Number of respondents is not very large.
3. Due to use of google forms only respondents with access of this facility were intervened.

Results and Conclusion:-With new start up one can come up with flying income or many be a struggler for initial months. There is a positive relationship between own venture and salaried job. Both have a diverse thinking. Initially with start up the income might be low but if the product and service is excellent there is a direct relation with the rise of finance. As India is a country where maximum population is concentrated in the age group 25 to 35 years there is ahuge potential and thus much efforts need to be put in education and technology and human brains need to be used. The project initiated by our own Prime minister Shri Narendra ji we need to be self -sufficient and self - independent. Thus COVID has taught us many lessons for life and is teaching util the end of the pandemic.

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A Review- Impact of the New Strain Corona Virus outbreak on lifestyle behaviour.

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ABSTRACT:-The discovery of new strain of mutant corona virus in UK & South Africa has raised concern among people worldwide, despite fact that vaccination programmes for COVID-19 are being carried out in many nations, including United Kingdom, & several others, such as India, are gearing up for it. Latest SARS-CoV-2 virus strains, which are responsible for COVID-19 pandemic, are said to be up to 70% more transmissible than original virus. Although it is not as harmful as original virus, it has been attributed to exponential increase in number of affected cases in both countries. While latest strains in UK & South Africa appeared at same time, World Health Organisation claims they are not same. Aside from United Kingdom, UK version has been found in few other countries, including India. Here's what we know about latest corona virus strains so far. To monitor spread of current epidemic, several interventions will be required, including computer models, mathematical methods, & quantitative analyses, as well as rapid creation of new treatment. Indian Ministry of Health & Family Welfare has raised concern about recent outbreak & is taking requisite steps to stop COVID-19 from spreading. To accomplish this aim, federal & state governments are taking variety of steps & developing number of wartime protocols. This disease is inextricably related to country's economy, as it has severely hampered manufacturing sectors & people all over world are currently wary of doing business in affected areas.

INTRODUCTION

What Is Mutation & How Has Corona virus Mutated?

Mutation is normal phenomenon that happens as virus multiplies, according to Dr. Pretty Kumar, Vice President, Public Health System Support, Public Health Foundation of India. It refers to minor alteration in virus's genetic sequence caused by defect in biological system's copying process. Genetic sequence of virus that multiplies by DNA (Deoxyribonucleic acid) is almost perfectly copied through another DNA molecule. However, viruses that replicate by copying RNA (ribonucleic acid) have higher risk of errors because their replication machinery lacks ability to correct errors. Mutation happens as result of these defects in genetic material. D614G is new dominant strain of mutant corona virus, which swaps amino acids D & G. Proteins are made up of amino acids, which are chemical molecules that bind to form proteins. These proteins are present in spikes of corona virus receptor, which aids in virus's attachment to host cells. Virus's receptors activate immune response in host. He went on to suggest that original corona virus strain had amino acids of 'S' type, which had evolved into 'L' type. Although 'L' type corona virus became more widespread in China, 'S' type corona virus became more infectious elsewhere. First corona virus strain in India was 'L' strain, which appeared in Wuhan. According to Dr. Aggarwal, 'S' & 'G' stains gradually mutated & scattered throughout country.[1]

What effect does new COVID strain have on us?

The latest discovery of new corona virus strain has thrown whole planet into frenzy. Infections have now been identified in over 30 countries around world, owing to lockdowns, gene

decoding, & questions over vaccines' efficacy in avoiding mutations. While research into virus is still ongoing, experts agree that while virus mutation is not more lethal, it is 70 percent more contagious & spreads quickly, suggesting that there are far more chances of contracting virus & individuals in higher risk groups are far more vulnerable to COVID-19. [2]

What is New Strain?

SARS-CoV-2 VUI 202012/01 is name of latest UK version (Variant under Investigation, year 2020, month 12, and variant 01). On December 14, UK authorities formally announced this variant. It was discovered for first time in September by whole-genome sequencing of virus. Method of assessing full DNA sequence of organism's genome, which corresponds to all of its genetic material, is known as genome sequencing. According to Dr. Aggarwal, newly discovered UK strain is result of mutation in SARS-CoV-2 spike N501Y, which is central part of virus that makes it enter cells & cause infection. Both varieties share same mutation in spike N501Y, according to Dr Emma Hodcraft, Molecular Epidemiologist at University of Basel in Switzerland, who has been researching both UK & South African strains in depth. [3]

Who is now at greater risk of being ill?

Another way virus could heighten our concerns is that it spreads to other people. According to research, epidemic has ability to impact even society's younger generations, who have so far been shown to be affected by virus's less serious complications. According to study, latest UK virus strain is particularly dangerous to people under age of 20, which includes children under age of 20. Here's what we know so far about this side effect, & why it's cause for alarm as number of cases continues to increase across world. [4]

Where Did New Strain Originate?

The latest strain is unusually strongly mutated, according to Dr Ravindra Gupta, Professor of Clinical Microbiology at University of Cambridge, as approximately 17 mutations have occurred on same virus. According to him, most possible reason is that mutation occurred in patient who had been carrying virus for long time. He went on to suggest that treating COVID-19 patients with convalescent plasma therapy is one of conditions for corona virus mutations. If you use plasma or antibody therapy on someone with weak immune system, virus can only resist one kind of antibody that has been injected into patient, he said. This antibody may not be found in all areas where virus splits or replicates. As result, we must show caution when using these treatments in people with weakened immune systems, & they should be kept in isolation with routine virus monitoring & sequencing to ensure that mutations do not arise. Infected patients with compromised immune system who are unable to fight infection, according to Dr. Aggarwal, are breeding ground for virus to mutate. Mutant virus is 70% more transmissible than existing virus, but it isn't any more deadly. New version which spread more easily between individuals, but it does not exacerbate disease & is not more dangerous than current strain, according to preliminary research. Experiments to see whether new version will affect any improvements in severity of symptoms or antibody generation are also underway, according to WHO. As consequence, researchers say it's too early to say how fatal it is. Reproduction(R) number will increase, according to Dr. Aggarwal, since current strains are nearly 70% more infectious. R number is key predictor of corona virus pandemic since it indicates number of individuals affected by single infected person. According to researchers, R number for disease does not exceed 1. Dr Chand Nagpaul, Chair of British Medical Association's Council, said that infectious new variant's increased rate of spread made handling pandemic much more difficult. He stated that due to latest strain of virus, approximately 90% of all hospital beds in United Kingdom are currently filled. He emphasised importance of trying to introduce prevention steps to stop spread

of virus, & he predicted that UK's lockout would be extended for some time. To control virus strain, he proposed prioritising vaccines for patients. [5]

What conclusions should be drawn from findings?

The study, which has not yet been peer-reviewed, compared & examined epidemic outbreaks around regions in England, which is currently facing worldwide wave in cases. Research was done in London & has not yet been peer-reviewed. Not only did study find definitive proof that virus was much more transmissible than older strains, but it was still capable of infecting younger generation, as well as those who were still at risk. Discovery of cases means that not only does mutation reflect change in populations, but it also means that much greater part of global population is at risk. Latest study also corroborated earlier observations by team of Imperial College London experts, who discovered that new strain is much more dangerous for infants & those under age of 20. [6]

Here's why it's cause for concern:

Mass immunisation with help of vaccine drives is only way to stop or manage virus's spread on such large scale. Although vaccination campaigns have been limited to target categories such as veterans, frontline responders, & essential personnel, others who are currently at risk do not have access to vaccinations. According to reports, vaccination will only be available to youngest generation in second half of year. This ensures that those who have not been vaccinated are also at risk of contracting infection. [7]

What effect does current pressure have on children?

COVID-19 continues to impact children as one of most disadvantaged groups.

In addition, current strain is much more harmful for children & young adults.

What makes it more complicated is that vaccine for children has yet to be produced, & clinical trials & approvals will take long time. Children, more than any other category, can develop odd symptoms, according to studies, & so must be doubly covered.

The financial influence

The RBI forecasted GDP growth of 6.2 percent in 2019-20. International Monetary Fund, on other hand, cut India's growth outlook for 2019-20 by 1.3 percentage points to 4.8 percent, claiming that country's growth had slowed dramatically. As result, it is self-evident that economy still suffering from weak growth in previous fiscal year will be seriously harmed by pandemic's lockout. According to MSME ratings, national lockdown is projected to result in regular losses of over $4.5 billion. Healthcare industry is country's fourth largest employer, & private sector, which offers about 80% of out-patient services & approximately 60% of in-patient care, is currently suffering 90% declines due to reduced out-patient enrolment, elective procedures, & foreign patients. Situation among India's internal migrant workers (both intra- & inter-state) is similarly bleak. Informal economy employs whopping 139 million people, accounting for about 93 percent of population. When asked about their rations, about half of migrant workers said they only had enough for day. Furthermore, according to Stranded Workers Action Network report, 89 percent of stranded workers were not paying salaries by their employers within first 21 days of lockdown, & 74 percent were living on less than half of their daily wages. Economic effect of this pandemic is expected to be more serious for India in following ways: (a) increased vulnerability, i.e. more citizens falling below poverty line, (b) worsening socio-economic inequality, impacting health & nutrition indices, & (c) breach in health-related safeguards. Both of these will have significant long-term health implications. [8]

Socio-cultural Challenges

India's social fabric thrives on emotional & economic interdependence among families, acquaintances, & friends. Close physical encounters, such as living in cramped housing & other environments, pulling & jostling, are increasingly frequent & serve as barrier to so-called "internal distancing" mandated during this pandemic. During travel, there has been lockdown & crowding in religious sites. Though disparities in India are triggered by 'vertical distancing,' 'horizontal distancing' introduced in aftermath of COVID19 has intensified them. The lack of adequate safety nets (e.g., food safety) for those most affected by lockdown is most concerning factor. Government's proposals are woefully insufficient in terms of problem's enormity. Lockout has raised likelihood of hunger for those of low socioeconomic status. As part of government of India's battle against COVID19, Food Corporation of India recently allotted 12.96 lakh metric tonnes of food grains under Pradhan Mantri Garib Kalyan Anna Yojna (PMGKAY). Scheme's efficacy & adequacy of food delivery continue to be seen. [9]

Health Consequences, Emerging Illnesses, & National Services

In India, COVID19-related morbidity & mortality are primarily due to co-morbid conditions, such as non-communicable diseases like diabetes, hypertension, & cardiovascular disease. Furthermore, early onset of NCDs, which is normal in India, puts even younger people at risk for COVID19. COVID19 has power to threaten India's health & health systems in variety of ways. For example, used statistical models to estimate that length of lockout is directly proportional to deterioration of glycemic regulation in diabetic patients, as well as increase in diabetes-related complications. Increasingly overburdened national healthcare system would be burdened even more by surge in diabetes-related complications. Furthermore, patients' COVID19 incidence may be exacerbated by unregulated glycemia & elevated cardiovascular risks. Because of poor physical exercise, increased snacking, & ingestion of calorie-dense foods, lockout may also be source of weight gain during COVID19 pandemic. In observational study undertaken by our group, carbohydrate intake & snacking frequency increased by 21% & 23%, respectively, exercise time was shortened in 42% of patients, & weight gain resulted in 19% of type 2 diabetes patients. Obesity & weight gain can worsen COVID-19 & increase risk of developing diabetes & cardiovascular disease in future. Control of some of these, which had previously seen positive pattern, could also increase. Compared to scenario without COVID-19 pandemic, HIV infection, tuberculosis, & malaria-related deaths could rise by 10%, 20%, & 36%, respectively, over 5 years. There are several explanations for this; disruption of ART causes decline in prompt treatment of tuberculosis. Reduced malaria prevention programmes, including cancellation of scheduled malaria net campaigns. Economic downturn, as previously mentioned, may exacerbate malnutrition. Loss of daily wage earnings or joblessness will make it impossible for low-income persons to purchase even simple food products. Inadvertently, this will have negative impact on most disadvantaged population, including children & pregnant mothers, thereby negating past maternal gains. Mental wellbeing is another critical upcoming health issue. Lockout has been linked to increase in persistent stress, anxiety, depression, alcoholism, self-harm, & increased physical aggression (domestic violence). Overall, reversal of National Program improvement & deterioration of health indices are real possibilities in India. [10]

What methods do people use to keep themselves safe?

Preventive steps are always only way to stay COVID-free, & this is so for younger generation as well. Using mask, cleaning hands often, keeping social distance, & adhering to instructions can protect susceptible communities from virus mutations.

The Type of Strain Cannot Be Determined By Standard RT-PCR Test

Although RT-PCR (Reverse transcription-polymerase chain reaction) test, which is considered stronger & rapid antigen & antibody tests, will detect existence of corona virus, they do not have ability to determine type of strain present, according to Dr Rakesh Mishra, director of Centre for Cellular & Molecular Biology in Hyderabad. Only whole-genome sequencing of virus can detect strain, according to him, & this can help determine how common & prevalent new strain is. COVID-19 positive samples are sent to sequencing facility, where genome's sequence is determined, & can identify even tiniest variations in virus, he explained. New varieties are specified by these improvements. WHO proposes that all countries improve regular SARS-CoV-2 virus sequencing & share findings with rest of world to better detect same strain in other countries. According to WHO, this will aid in research partnerships aimed at containing & combating strain. [11]

Vaccines are currently effective against new variants, according to experts.

According to Dr V K Paul, Member-Health, NITI (National Institution for Transforming India) Aayog, new variant has not yet caused any changes in immune system's response to vaccines that are currently available or being created, especially in India. Biotech, German pharmaceutical firm that produced COVID-19 vaccine in partnership with Pfizer in United States, said in statement that it is certain that its corona virus vaccine works against new UK strain, but that further testing is needed to be certain. COVID-19 vaccines from Pfizer-Biotech have been approved for emergency use in few countries, including United Kingdom & United States. Vaccines developed by Pfizer-Biotech or Moderna, according to Dr. Mishra, are mRNA (messenger RNA) dependent vaccines that target one specific protein (spike protein in case of SARS-CoV-2 virus) & shift in mutated virus is very small, so vaccine's efficacy is unaffected. Vaccines cause immune system to produce several antibodies against same antigen, & antibodies help immune system recognise various types of viral proteins. Other vaccines, such as those produced in India, such as Bharat Biotech's Covaxin or AstraZeneca-vaccine, Oxford's which is manufactured as Covishield by Pune-based Serum Institute of India, attack whole virus rather than only one protein. As these vaccines target several virus proteins, they will not be affected by mutations in any way.

FUTURE PERSPECTIVES

These viruses are major threat to public health. They are leading cause of mortality, with persistently negative social repercussions. As result, it is necessary to establish potential treatment initiatives & alternatives. To begin with, India is taking requisite precautions to avoid viral spread. Second, ICMR & Ministry of AYUSH published guidance on how to improve COVID-19 immunity using traditional prevention & treatment techniques. These recommendations can help elderly patients live longer by reducing severity of their viral infection. According to new study from director of ICMR, India will participate in randomised controlled trials using convalescent plasma from fully healed COVID-19 patients. Convalescent plasma therapy is strongly recommended, as it has proved to be effective in treatment of SARS & MERS patients. India has specialised medical/pharmaceutical industries with manufacturing facilities, & government has set up fast-tracking research to produce low-cost rapid diagnostic test kits & vaccines. In addition, India's Serum Institute has begun designing vaccine to protect against SARS-CoV-2 infection. It is strongly advisable that we scan red zoned areas before we procure effective vaccine to prevent further virus spread. Low-cost WISK (Walk-in Sample Kiosk) was introduced by medical college doctors in Kerala, India, to gather samples without overt exposure or touch. SARS-CoV-2 research can be done with current diagnostic facility in India after swab collection. Without need for personal protective equipment kits, this service can

be used for large-scale scanning or at very least in red-zoned zones. As medical professionals in India & around world have recommended, India has attempted to extend its research facilities & move toward studying general public.

CONCLUSION:-To avoid long-term negative health effects, COVID19 pandemic has necessitated systemic approach to underserved & marginalised communities. Economic burdens on entire population must be alleviated, & legislative reforms must be enforced effectively. Finally, national health programmes for communicable diseases & no communicable diseases (NCDs) must be revitalised & improved.

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Detection of COVID-19 Using a Novel Deep Convolutional Neural Network Model

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Abstract-The new coronavirus, also called COVID-19, first appeared in December 2019 in Chinese Wuhan Province. This virus is more contagious than previous coronaviruses, which causes a decrease in the overall population. As soon as the virus was found, the COVID-19 study gained a lot of attention. To diagnose COVID-19 disease, currently the gold standard is noses and throats swabs, which takes longer and is more prone to human error. Many of these tests might not be sensitive enough to find cancer early enough.The downsides of this COVID-19 disease diagnosis system highlight the value of developing a fully automated system using deep learning techniques and generallyobtainable X-ray conventions. Aoriginal, efficient, and healthy Convolutional Neural Network (CNN) prototypicalremains developed alsosuggested in this paper, which is capable of differentiating COVID-19 disease from all other medical conditions. This model has a 99.2% hit rate in screening on behalf of COVID-19 on a patient's chest X-ray image. The findings in clinical datasets demonstrate the effectiveness of the proposed model. This study predicts that findings from the study will affect doctors in treating COVID-19 disease in the real world.

Keywords-Deep learning;image classification; medical image processing;coronovirus detection

INTRODUCTION: - In December of 2019, Wuhan, China, saw the debut of a new flu strain that is currently named the Coronavirus. The infectiousness and death is thought to be more common than the seasonal grip. It can cause death after the ailment develops interested in pneumonia[1]. Since people can remain infectious until signs show, the infection cannot be spread. It is difficult. According to the research carried out until this paper has been written, any vaccine may take up to 12 months to make [2]. The WHO has declared Covid-19, a corona virus, a pandemic as of 11 March. There are a total number of 10,173,722 confirmed cases worldwide, with 4,510,716 active cases and 50,517 deaths according to the Johns Hopkins University of Medicine Coronavirus Information Centre. The new coronavirus can be fatal, at a rate of 4.94 percent, according to these figures.Early identification of COVID-19 disease remains important intended formedical care preparation, patient tracking, and treatment outcome assessment. COVID-19 disease is usually diagnosed using swabs from the nose and mouth, based on existing medical technical developments [3]. The procedure's main drawbacks are that it takes a long time and is prone to sampling error, making it inefficient. The sensitivity of these studies, recognized as reverse-transcription polymerase chain reactions (RT-PCR), consumesremained reported towards be insufficient for early detection [4]. These systems are designed to assist experts in making fast and precise decisions. COVID-19 sickness detection as of medical images remains an essential module of the latest wave of CAD machineries that consumesappearedin current years. X-rays are a popular imaging technique for detecting, classifying, also analysing diseases producedthrough viruses.For the first time, researchers interested in AI and its branches have modelled human reasoning and judgement ability and proposed a model that tests brain functions [5].Since it was emphasised that deeper networks must be built in order to build goodness of fit neural networks, the term Deep Learning (DL) was coined to highlight the conceptual

importance of the levels [6]-[8].CNNs are the undeveloped architectural representations in deep learning, according to this important research area. These are intended to learn as ofstatisticsdeprived of the use of user-defined topographies [9]. Artificial Neural Networks have been developed and extended into CNNs (ANN). CNN refers to the deepening of a network because of increasing the amount of hidden layers in ANN. 2-Dimensional filters was used to achieve this depth in the CNN.The remaining part of the paper is structured in the following manner. The materials and methods are presented in Section II. This section contains all of the measures for the proposed architecture. Experimental findings are presented in section III, and these consequences are associated to state-of-the-art approaches. Lastly, section IV tells about deductionof this paper.

MATERIALS ALSOAPPROACHES

A. Architecture of the Suggested CNN Model--This study designs and tests a novel, effective, and healthy CNN framework for detecting COVID-19 disease. In the diagram in Fig. 1, the CNN architecture consists of 12 layers with variously weighted features, including two that use convolutional filters and one that is fully connected. Convolutional layers and max pooling layers use ReLU and activation layers respectively. ReLU is rummage-sale as anbeginningpurpose in the suggestedconstruction, because it is a commonly used stimulationmeaning in image organisation tasks. The Softmax classifier accepts as input the feature vector obtained by fully connecting the units in the input layer to create a final prediction about whether or not there is a coronavirus. Two neurons were required for this model because it is meant to identify images into two categories: positive COVID-19 or negative COVID-19. Each convolutional layer contains two sets of 128 5x5 kernels with stride 1 and padding of [2 2 2 2]." the 227x227x3-pixel images remainadvanced to all architectures.

B. Presentation Evaluation Matrix:-The accuracy of the classification must be tested once the algorithm has finished running. This paper employs the confusion matrix to analyse the algorithm's overall accuracy. Inferring images using confusion matrices is an excellent way to understand current image labels, as well as what the method's projected image labels will be. This helpful information can be put to use when trying to asses different facets of classification outcomes.Cutting-edge the misperception matrix, true positives remain exposed through crosswise standards. The TP stands for the number of samples that are included in the calculation even though they are not entirely accurate. In testing, samples that are inaccurately labelled as false when they are incorrect are referred to as "True Negative" (TN). This term, known as false positives, denotes the phenomenon whereby the amount of examples that are categorised as factualonce they are in fact false (FP). This phenomena is referred to as false negatives, as numbers of samples identified as negatives are, in fact, true (FN). Most widely used performance measurement indicators are Correctness, Specify, Compassion, also the ROC curve (AUC). These formula/equations are shown in (1) through (3). (4).

$$\text{Accuracy}=\frac{TP+TN}{TP+TN+FP+FN} \quad (1)$$

$$\text{Specifity}=\frac{TN}{TN+FP} \quad (2)$$

$$\text{Sensitivity}=\frac{TP}{TP+FN} \quad (3)$$

$$\text{Precision}=\frac{TP}{TP+FP} \quad (4)$$

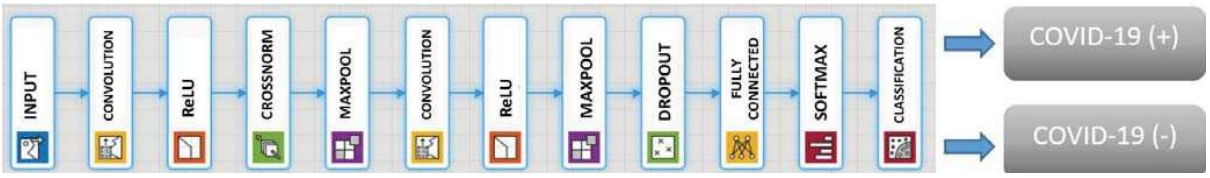

Fig. 1.Suggested CNN constructionaimed at COVID-19 disease discovery

INVESTIGATIONALCONSEQUENCESALSO DISCUSSION

A. **Dataset**

Because it is a novelnature of virus, finding the dataset of the COVID-19 disease is critical. This study serves as an essential reference for literature. This study includes 542 frontal chest X-ray images from 262 people in 26 countries, all of which can be found in the first dataset [10]. The COVID-19 Radiography Database, developed by Qatar University research team in conjunction with COVID, the American Society of Radiologic Technologists, was used to generate this dataset. The dataset used in Kermany et al. [12] was obtained at the end of the process. 625 normal images, 625 COVID-19 images, also 625 images from both the training and test datasets are being arrangedtowards train also test the suggested CNN prototypical. This report contains links to all of the datasets used in this analysis, all of which are available for use without charge.

B. **ExperimentationStagealso Time Depletion**

The following is the hardware also software location that was recycled in this research:

• Computing environment: Matlab R2019a, Windows 10 (64-bit) OS.

• NVIDIA GeForce GTX850M GM107 GPU, Intel Core i7 5400 GPU 2.60GHz, 16.0 GB RAM

• It took 7 minutes to train the deep learning classicalthrough 500 pictures.

C. **Results**

In the CNN model, the preparation, validation, and testing are done in three separate stages: Preprocessing, Data Validation, and Test Training set: The network is trained using this dataset. Test set: The network is optimised and evaluated using this dataset. The experiment included a total of 625 images, of which 375 were used for training, 125 for validation, and 125 for the test set (60 percent -20 percent -20 percent). To improve display quality, the X-ray images remain resized towards a smaller scope. The findings indicate that the architecture is capable of identifying COVID-19. The images are rescaled to 227x227 pixels before pre-processing. In Figure 2, you can see the COVID-19 + image vs. the COVID-19 image.

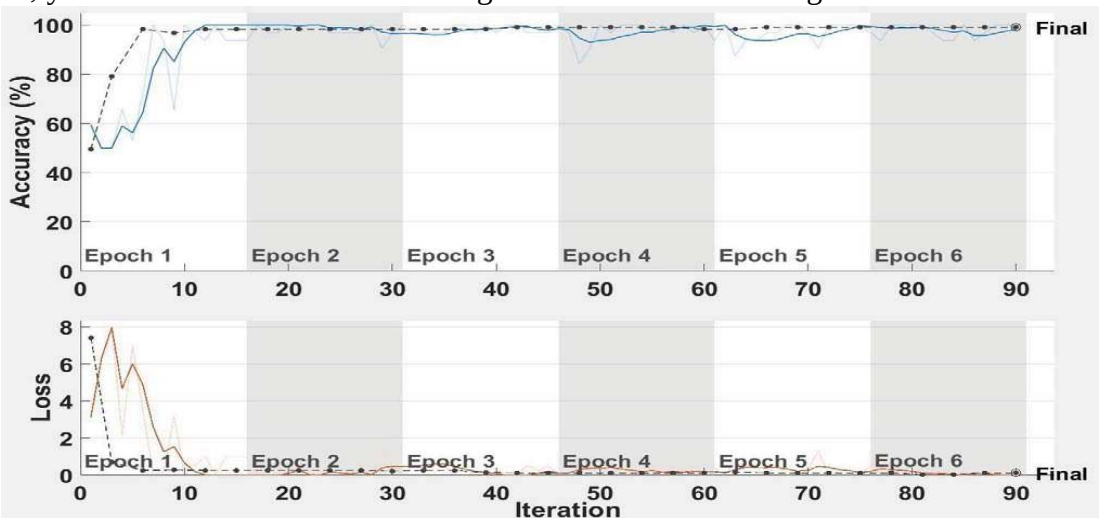

Fig.2. Accuracy also Loss consequences for the suggested CNN prototypical

Fig. 3 depicts the confusion matrix that demonstrates the system's efficiency. The X-axis represents the machine's values, while the Y-axis represents the actual values (labels) (X-axis). The architecture is measured with four metrics to determine performance: Accuracy, Specify, Sensitivity, and Precision.

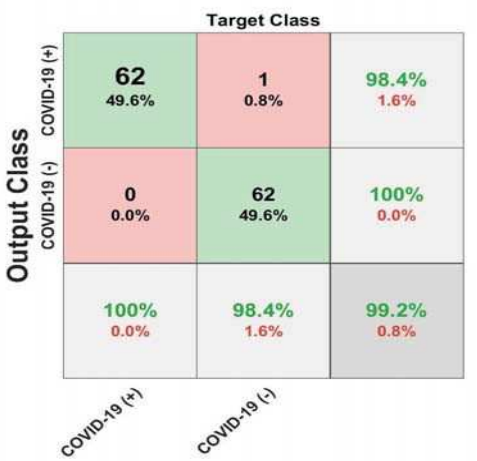

Fig.3. Misperception matrix

As shown in Table I, the results of the uncertainty matrix were used to determine the following metrics. Classified accuracy of COVID-19 (+) and COVID-19 (-) is 99.2 percent (-). The Receiver ProcessRepresentative Curve remainsadditionaltechnique of measuring architecture efficiency (ROC). Approximately 99.9% of the ROC curve's area under the curve (AUC) is observed. You can see four images with the labels projected also the prospects of those markers appearing in the images in Figure 4.

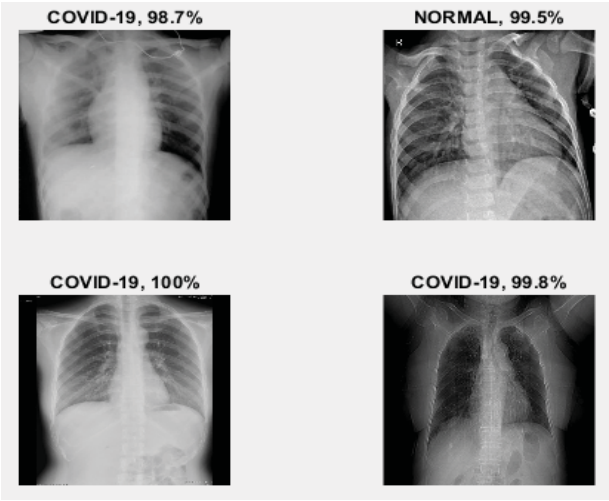

Fig.4. Images that are predicted to have labels that have been supplied and the likelihood of those labels being correct.

TableI.Correctness Metrics In Positions Of TP,TN,FP,FN,Accuracy, Specify, Sensitivity Also Precision

Classes	TP	TN	FP	FN	Accuracy	Specifity	Sensitivity	Precision	Total
COVID-19 (-)	62	63	0	1	**99.20%**	**1**	0.9841	**1**	63
COVID-19 (+)	62	62	1	0	**99.20%**	0.9841	**1**	0.9841	62

Evaluationthrough State-of-the Art Approaches As of a lack of data also images, there are some studies around COVID-19 sicknessrecognitionconsuming DL in the literature. Ozturket al. [3], recycled the DarkCovidnet deep learning prototypicaltowards identify X-ray images by means of COVID-19 also stable. They achieved a 98.08 percent overall accuracy. For COVID-19 detection, Lin et al. [4] suggested a three-dimensional DL model. COVID-19 discoveryprototypical neural network (COVNet) is the name given to their model, which is made up of ResNet50 as the backbone. They were able towardsaccomplish a classification correctness of 96%. On behalf of the detection of COVID-19 on or after X-ray images, Apostolopoulos et al. [13] used a Transfer Learning technique.They were 96.78 % correct in their classification. However, the classification accuracy obtained in this analysis using the introducedmodel is 99.20%, which is more than the previous studies.

IV. CONCLUSION:-A novel and completely automated analysis using deep CNNs on behalf ofdetection of COVID-19 illnessis described in this study. Using publicly accessible datasets, a novel, efficient, alsohealthy CNN architecture is developed alsosuggested for COVID-19 sicknessrecognition in this paper. COVID-19 detection has a more accuracy of 99.20%. The suggestedmodelnow this paper is thought to be easily usable in practise to assist physicians in identifying COVID-19 disease due to its simplicity and versatility.

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Suicidal ideation among adolescents: A Study onits prevalence

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Abstract:-Suicidal ideation is a major problem that concerns adolescents and has been increasing day by day. The quantiative study was carried out to measure the prevalence of suicidal ideation among the adolescents going to schools and junior colleges. The sample was of 300 adolescents selected by pruposive sampling technique. The data was collected by a questionnaire having eighteen items regarding signs of suicidal ideation. The data analysis showed that majority were from 13-15 years of age of which more that fifty percent were females. The individual and family demographic characteristics were included. The analysis about prevalence showed that frequently reported signs were feeling depressed, worthless, sleeplessness, having unbearable pressure in mind, experience of an intolerable emotional pain, anxiousness and frequent mood shifts.

Keywords:- Suicidal ideation, prevalence, adolescents, study

1. Introduction:-Suicidal ideation progresses to suicidal attempts and if successful may result in loss of precious lives. It happens as a sequential process that starts from getting thoughts about suicide. Thus, Suicidal ideation if detected at an early stage would prevent further deterioration of the thought processes that is due to a mental health imbalance.Suicidal ideation is a significant problem in adolescents. The need of information of prevalence of suicidal ideation in adolescents is of vital importance in order to prevent suicidal behaviours in adolescents. The knowledge of prevalence will help policy makers to plan and implement effective suicide prevention programmes targeted for adolescents.

2. Literature review:-In a study that included 10,638 students was conducted to assess suicidal ideation and behaviour in adolescents from Germany in Lower Saxony. The data collected from 672 classes vfrom randomly selected schools with Ottawa Self-Injury inventory, the Self-harm beahaviour Questionnaire and Self-harm inventory . It was found that 49.1% were females. It was found that 7.6% had a lifetime history of suicide attempts; 36.6% reported rarely having got suicidal ideation in their lifetime whereas 17.8% reported prevalence of direct self-injurious behaviour in the previous year period. The presence of suicidal ideation was more in the females than male adolescents[1].Bifftu B.B. et al described prevalence of suicidal ideation in general population in Ethiopia from various standard databases. They conducted meta-analysis on data from twelve studies on suicidal ideation. The prevalence of the ideation was from one percent to fifty-five percent. The annual pooled prevalence regaring the same showed 9%, I2=99.64% at $p<0.001$; whereas in lifetime pooled prevalence, there was heterogencity found[2].In another study, that was conducted on 737 students pursuing University education it was found that more than 43% participants self-reported to have experiences some degree of suicidal ideation in the past one year of the period of the study. Of these, 14.9% went active with the ideations however did not attempt suicides. 5.5% actively progressed with attempting suicide[3].

3. Research Methodology:-The study was approved by the Institutional Ethics Committee. The approach used was a quantitative approach. The Descriptive survey design was used for the study. The study was conducted in Schools and Junior Colleges of Nashik. A total of 300 adolescents belonging to 10 to 19 years of age group were included in the study. The sampling method used was purposive sampling for selecting the sample meeting the inclusion criteria. The

adolescents that were willing to participate in the study and thus, consented to be a part of the study were included in the study. The data was collected with the help of structured questionnaire that included two sections; i.e., Demographic data of the participants of the adolescents and a structured questionnaire to assess the prevalence of suicidal ideation among the adolescents. The question-naire consisted of the eighteen symptoms of suicidal ideation. The participants responded to these questions. The validity and reliability of the tool was obtained before administration to the participants. The questionnaire had dichotomous answer to be provided to the symptoms of suicidal ideation as listed in the questionnaire.

4. Results

The demographic data of the adolescents included in the study are as in Table 1.

Table 1 Demographic data of the adolescents (n=300)

Sr. No	Demographic variables	Frequency	%
1	**Age group**		
	10 – 12 years	80	26.7
	13 - 15 years	120	40.0
	16 – 19 years	100	33.3
2	**Gender**		
	Male	135	45.0
	Female	165	55.0
3	**Mother tongue**		
	Marathi	275	91.7
	Hindi	23	7.7
	Other	2	0.7
4	**Religion**		
	Hindu	275	91.7
	Muslim	23	7.7
	Christian	2	0.7
5	**Education**		
	High school	120	40.0
	Secondary	80	26.7
	Higher secondary	100	33.3
6	**Type of family**		
	Nuclear	202	67.3
	Joint	98	32.7
7	**Number of members in the family**		
	One	6	2.0
	Three	64	21.3
	Four	133	44.3
	More than 4	97	32.3
8	**Total number of siblings**		
	None	3	1.0
	One	58	19.3
	Two	139	46.3
	Three	79	26.3
	Four	1	0.3

	More than Four	20	6.7
9	**Father's education**		
	Illiterate	1	0.3
	Primary	86	28.7
	Secondary	144	48.0
	Graduation & above	47	15.7
	Other	22	7.3
Sr. No	**Demographic variables**	**Frequency**	**%**
10	**Mother's education**		
	Illiterate	23	7.7
	Primary	182	60.7
	Secondary	76	25.3
	Graduation & above	18	6.0
11	**Father's occupation**		
	Unemployed	2	0.7
	Government	80	26.7
	Private	63	21.0
	Self-employed	84	28.0
	Contract basis	54	18.0
	Labourer	17	5.7
12	**Mother's Occupation**		
	Housewife	159	53.0
	Government	4	1.3
	Private	29	9.7
	Self-employee	18	6.0
	Contract basis	73	24.3
	Labourer	17	5.7
13	**Family Income**		
	Up to 10000	51	17.0
	Rs. 10001-20000/-	176	58.7
	Rs.20001-30000 /-	69	23.0
	Above Rs.30000/-	4	1.3
14	**Area of Residence**		
	Chawl	61	20.3
	Building	115	38.3
	Row house / Bungalow	69	23.0
	Slum area	55	18.3
15	**Duration of use of television**		
	No use	60	20.0
	Up to 1 hour	118	39.4
	2-3 hours	115	38.3
	4-5 hours	7	2.3
16	**Duration of use of computer/laptop**		
	No Use	92	30.7

	Up to 1 hour	140	46.7
	2-3 hours	19	6.3
	4-5 hours	20	6.7
	More than 6 hours	29	9.7

Sr. No	Demographic variables	Frequency	%
17	**Duration of use of mobile/tab**		
	No Use	2	0.7
	Up to 1 hour	173	57.7
	2-3 hours	104	34.7
	4-5 hours	20	6.7
	More than 6 hours	1	0.2
18	**Living with**		
	Mother-Father	272	90.7
	Widow / Divorcee Parent	15	5.0
	Step mother	9	3.0
	Step father	4	1.3
19	**Personal Habits**		
	No	295	98.3
	Smoking	3	1.0
	Alcohol	2	0.7

As per table 1 it was found that 40% adolescents were from 13-15 years of age, more than half were females, 91.7% spoke Marathi language and belonged to Hindu religion. 40% were pursuing high school education, 67.3% belonged to nuclear families, 44.3% had a total of four members in their families. Regarding their parents' education and occupation, 48% of fathers were studied up to secondary education whereas 60.7% of their mothers were studied up to primary education; 28% fathers were self-employed whereas 53% of mothers were house-wives/ homemakers. More than half of the families' income were Rs. 10-20,000/- per month; 38.3% of them resided in buildings. Regarding gadget use, majority of the adolescents reported to use mobile/tab, computer/laptop or television reported to use for up to an hour's period.

Table 2 Prevalence of suicidal ideation among adolescents (n=300)

Sr. No.	Suicidal Ideation	Yes	
		Freq	%
1.	Feel hopeless or trapped	16	5.3%
2.	Experience intolerable emotional pain	33	11.0%
3.	Frequent mood shift – happy / sad	30	10.0%
4.	Feel anxious in all situations?	31	10.3%
5.	Feel irritable	8	2.7%
6.	Do you Consume alcohol? Has your intake of alcohol increased?	10	3.3%
7.	Feel depressed	40	13.3%

8.	Feel you are worthless	37	12.3%
9.	Desire to attempt suicide	8	2.7%
10.	Feel to have end life earlier	25	8.3%
11.	No longer like the activities I liked to do before	12	4.0%
12.	Want to say a final good bye to others	0	0.0%
13.	Regret that I am alive	10	3.3%
14.	Feel I am in a wrong place	23	7.7%
15.	Do not get sound sleep at night	36	12.0%
16.	Feel like quitting studies forever	23	7.7%
17.	Unbearable pressure in my mind	35	11.7%
18.	Feel to write a secret note regarding ending life	1	0.3%

According to table 2, it was seen that the signs of suicidal ideation as reported by the adolescents that were reported by more than 10% participants were feeling depressed (13.3%), feeling worthless (12.3%), not getting sound sleep at night (12%), having unbearable pressure in mind (11.7%), experiencing intolerable emotional pain (11%), feeling of anxiousness (10.3%) and frequent mood shifts (10%). 3.3% of them regretted that they were alive; however, no one reported to have a feeling of "saying a final goodbye to others" but2.7% desired to attempt suicide.

5. Discussion:-The present study surveyed the prevalence of suicidal ideation among the adolescent population from 10 to 19 years of age. A quantitative investigation was done to assess the prevalence of suicidal ideation in the sample of adolescents. The data was obtained from the adolescents that were attending either schools or junior colleges. These institutions are places which will nurture the personality of children but for some of them may cause a place of dissatisfaction or even to an extent can be a stressor. The participants responded to signs of suicidal ideation to the questionnaire prepared by the researcher. The responses from 300 sample were analysed for getting the data on prevalence of suicidal ideation. It was found that the majority of adolescents were belonging to 13-15 years of age and more than half of the adolescents were female. This study also included characteristics of parents and family income apart from individual characteristics and social characteristics. An international school-based study conducted on 674 students from Teresina, Piaui also had majority of female sample i.e. 56.7% and 77.4% were black. Also, 85% of the adolescents were staying with heir parents. Majority i.e. 68.8% of the mothers completed at least 8 years of schooling. More than half of the families earned income per month greater than the minimum wage criteria[4]. The other characteristics like the use of electronic gadgets of television or mobiles or tabs or a computer or laptop were also considered in this study. In the reviewed prevalence studies, these variables were not included which the researcher had explored in this study.Regarding the prevalence of the suicidal ideation, the researcher presented the analysis according to the response to the presence of signs of suicidal ideation. The frequently reported signs were feeling depressed, worthless, sleeplessness, having unbearable pressure in mind, experience of an intolerable emotional pain, anxiousness and frequent mood shifts. In a study the prevalence reported was 7.9%; its higher frequency was found in female adolescent students[4]. Almost similar prevalence was reported in an Australian study conducted on 2967 young people. The authors reported 7.5% of prevalence of suicidal ideation in adolescents of 12 to 17 years of age group. 5.2% progressed to make a plan of suicidal attempt and 0.6% were reported to seek medical treatment for a suicidal attempt. Such behaviour was seen among those with major depressive disorders. Also, other demographic characteristics were found to be having significant association with

demographic variables related to individual and family[5]. In an article on large scale cross-national prevalence of suicidal ideation along with its risk factors covering 17 countries covering 84,850 adults showed thatthe prevalence of suicidal ideation was 9.2% (0.1), 3.1% (0.1) and 2.7% (0.1). In more than half countries the transition to plans were seen from mere ideations in the first year of onset of symptoms of ideation. The risk was higher in the females, those younger in ages, not married or had any mental disorders[6]. In an extensive survey in United States, the prevalence rate was found to be higher than the previously quoted studies. It was found to be 18.8% and was more in the female students than males[7]. Thus, there were differences found in the adolescents according to region wise studies.

6. Recommendation:-The study highlighted the prevalence of suicidal ideation in the adolescent age group i.e. 10-19 years of age. Such a study can be carried out on a larger sample in Indian settings to get a clear picture of prevalence of such a vital problem which if neglected may take toll of lives of the productive population group of the country.

7. Conclusion:-The study attempted to identify the prevalence of suicidal ideation among adolescents. The knowledge of prevalence highlights the issue of the mental coping among the adolescents. Such studies if replicated on larger population would definitely throw the focus on the need of interventions in the adolescents starting from their primary support system which comprise of peers and family members and also involve the school staff which can serve gatekeepers in identification of warning signs of suicidal ideation. Such an effort can lead to identify newer strategies towards prevention of the global issue of suicidal behaviour.

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Efficacy of Simulation Based Learning on Practice Regarding Self Realization andImmediate Response during Code blue Situation among Nursing Students

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Abstract:-Simulation-based clinical instruction is a developing field that permits students to rehearse abilities, extend information, and construct self-assurance in a sheltered and controlled condition with no hazard to patients. Using a mannequin test system, students can rehearse clinical abilities, and model would react as per the understudies' activities or inactions. A quantitative pre- experimental study was initiated to evaluate the effectiveness of simulation based learning on knowledge regarding self realization and immediate response during code blue situation, 40 final year nursing understudies were chosen as representative by using non probability purposive sampling technique. Information was gathered through organized knowledge questionnaire before and after administration of simulation based learning. Nevertheless, concerns were raised for deliberate practice for purposeful practice for mock codes was actualized and has been assessed emphatically

Keywords: simulation based learning, knowledge, mannequin, self realization, response, code blue, nursing students.

Introduction:-Experiencing code blue in medical clinic just because is one of the most exceptional encounters of attendants in their profession. It tends to be pressure situation for new medical attendants as it generally happens out of the blue. Code blue is a clinic crisis code utilized in emergency clinics around the globe when a patient needs quick clinical consideration because of heart or respiratory capture. Code-blue situations can be very frightening for everybody included, particularly the individuals who have constrained involvement in these sorts of health related crises. Consistently is significant as the possibility of restoration diminishes with time. There are trainings provided for nurses so they will be skilled in responding to code blue situations appropriately. Once the code team arrives on the scene, they will continue the resuscitation efforts being done to the patient by the first responders. Directed learning goals for this situation were created, concentrating on the acknowledgment of the breaking down patient, enacting team approach to deal with care, opportune and proper Code Blue reaction inception and clear correspondence methods.

Significance of the Study:-This study may identify the barriers in providing effective use of knowledge and skills among the nursing students to work enthusiastically while caring patients in unprepared situations. It may help to motivate trainee nurses to work within the most stressful situations that nurses face in their daily practice. The investigation can likewise direct and orient the students regarding how to deal and handle to keep normalised articles in the resuscitation trolley in order to avoid confusion of their use in clinical setting. New graduate attendants as often as possible recognize mock codes as nervousness inciting occasions for them. Mock codes rehearsed in a sheltered situation can help facilitate medical caretakers' nervousness and construct certainty. Albeit one scholastic clinical focus has given fake code encounters to quite a while, the new alumni medical attendants mentioned more practice time. Late proof distinguished intentional practice as an elective method to rehearse abilities more than once and productively. Intentional practice for mock codes was actualized and has been assessed emphatically. The requirement for proceeding with obligatory trainings and their length

can be suggested dependent on the examination results. This investigation may bolster effects on the preparation quality and perceive the requirement for expanding the monitoring of adherence to the recommended guidelines

Research Statement:-A Pre-experimental study to assess the effectiveness of simulation based learning on practice regarding self realization and immediate response during code blue situation among nursing students at selected hospital, Indore.

Objectives

1. To assess pre-interventional assessment regarding self realization and immediate response during code blue situation among nursing students
2. To assess post-interventional practice regarding self realization and immediate response during code blue situation among nursing students after administration of simulation based learning.

Methodology:-A quantitative evaluative research approach was carried out to conduct pre-experimental one group pretest posttest design. 40 final year nursing under-graduates were illustrated as sample by using non probability purposive sampling from selected college Indore. Information was gathered through systematically arranged knowledge questionnaire before and after administration of simulation based learning in form of role play.

Technical Reporting:-The simulation training session was conducted in one of the renowned hospital, Indore, using a mannequin simulator. Prior to the role play, a detailed scenario situation was created and submitted to the coordinator of the play. The mannequin was then programmed, and the necessary tools for the simulation were developed and supplied. Both male and female students who were interested to participate had been taken into account for the study after prior permission

Pre -Scenario
You are a final year student posted in Critical Careunit as a part of administration duty.
Scenario: Anita, is a 52 year old female homemaker, a floor patient, has a heart rate of 160 detected on routine vital sign assessment. She presented to the Emergency Department late last night with chest pain, and was admitted by the night duty resident for unstable angina. She was transferred to the CCU early this morning. Her admission note by the physician.
Handover Notes: PMH: HTN, DM Habits: No habits of smoking , alcohol , drugs VS: T-98.2 P-160 R-22 BP-168/80 SpO2-95% on room airExam: Unremarkable Allergies :NKDA EKG: No acute ischemic changes. Chest X-ray: Normal Labs: Troponin <0.06, CK 185, MB 5, others unremarkable Assessment/plan: Diagnosed with unstable angina in ED, given aspirin and started on heparin drip. Will admit to monitored floor, R/o MI, consult cardiology re stress test vs cath. No active ischemia at present.

Pre –Case Orientation/ Pre-briefing

The learners will receive a brief orientation to simulation , depending upon their familiarity , including the following

- Simulator features and limitations
- Preceptor roles
- Availability of clinical data – labs, EKG, radiology studies, consults all available in roughly real time
- Availability of equipment or drugs – can ask for anything, but will only get what would realistically be available at the patient's level of care.

Begin Scenario: Learner Enters room

Additional data/findings	**Vitals**	**Appropriate Learners Action**
She is feeling a bit lightheaded and dyspneic, but denies chest pain at present . The fast heart rate was detected onroutine	The patient ishaving palpitations, and feels like her heart is racing. unstable angina, but denieschest pain currently, though if pressed will indicated that shehas a bit ofpressure. She isinitially hemo- dynamically stable, and will remain so for 5 minutes, at which point she willdeteriorate into pulseless VT, regardless of student actions or lack thereof.	At any point, ifstudents call for help, tell them that therapid response/code blue team has been called. If students call cardiology consult, callback as the cardiology consultant and promise to come see thepatient shortly.

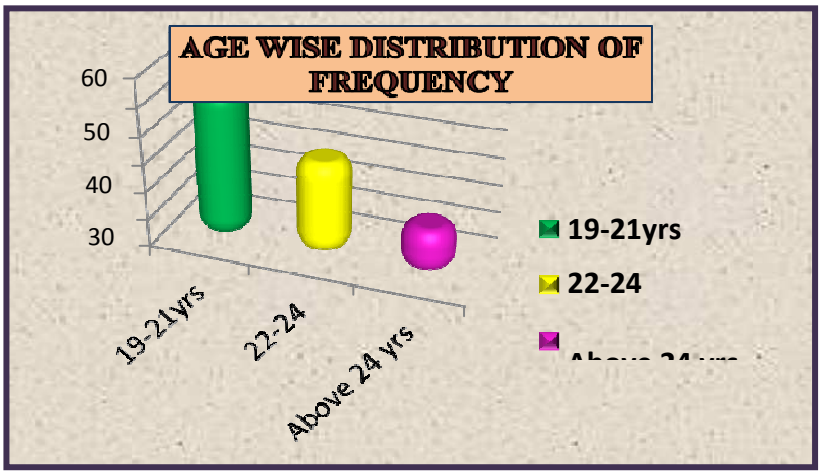
For a better accessible for the learners, the group included led a dry run of the situation. An agenda was created and utilized during the situation to give a general appraisal of learner competency. Additionally, the mannequin had the option to give input on the nature of compressions (e.g., depth, rate) and ventilation (e.g., seal, rate, saturation).A resident doctor and two staff nurses along with nurse educator, facilitated the scenario and participated in the subsequent debriefing

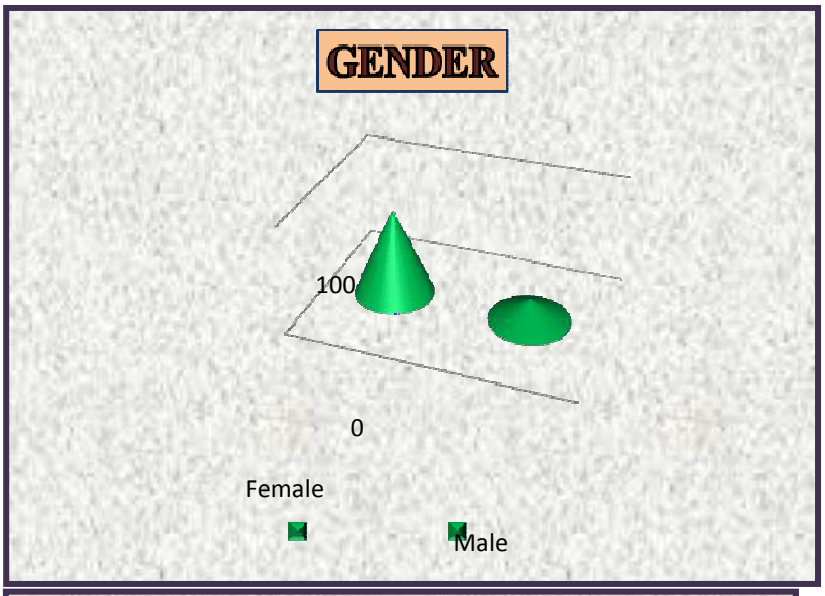
Findings :Section A: Demographic Variables under study

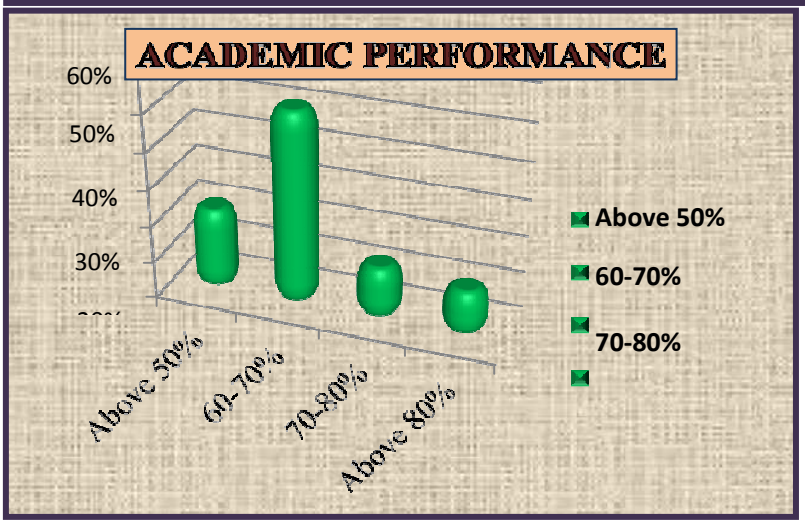
Female

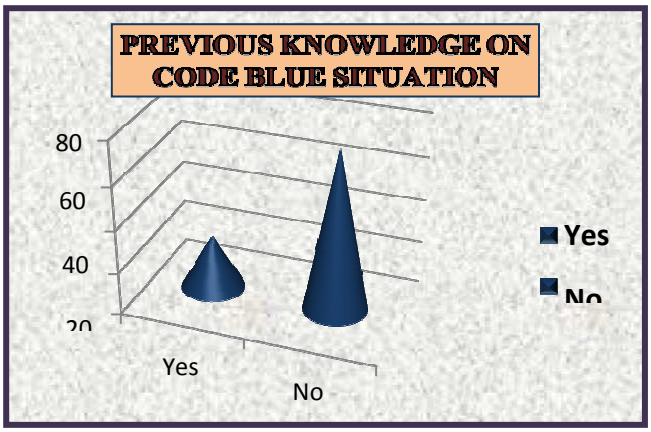
Female

Female


AGE WISE DISTRIBUTION OF FREQUENCY
60
50
40
30
19-21yrs
22-24
Above 24 yrs
19-21yrs
22-24


GENDER
100
0
Female
Male


ACADEMIC PERFORMANCE
60%
50%
40%
30%
Above 50%
60-70%
70-80%
Above 50%
60-70%
70-80%
Above 80%



Scenario Progression Outline

Time	Mannequin Action	Expected Intervention From Students
First 5 minute	Mannequin not breathing, cardiac monitor shows VT	1. Student run to call for help, receive roles 2. Asked to assess cardiac monitor 3. Informed to bring Cart . 4. Help to apply and monitor pads along with nurse incharge , 5. May asked to documentation Clears the rooms and extra equipment 6. Checks the IV and loading of drugs. 7. Cares he family member and console them . 8. Brings chart from desk and reviews order 9. Again check vital sign as order **Must Know the SBAR format S –** Situation (why are you calling**)** **B –** Background (why is the patient in the hospital) **A –** Assessment (your impression of the situation) **R –** Recommendation (suggestions you may have)
Next 5-10 minutes	Mannequin not breathing . Monitor shows V-fib (First time scenario is run, shows Asystole after defibrll) (Second time scenario is run, shows sinus rhythm after 2nd defib) Supervisor does defibrillate when called for IV nurse : Gives /vasopressin RN nurse checks cardiac monitor and report values .	

Mock Code Assessment Form

Mock Code Assessment Form Team Lead: Participants: Scenario: Facilitator(s): Date:	**Tick if done**
Critical Performance Steps	
Recognizes client deterioration	
Assess the cardiac monitoring includingvital sign	
Recognizes need for help	
Checks for responsiveness. Shakes	
shoulder, shouts patient's name, and scans chest for movement (5–10 seconds)	
Calls Code Blue or directs another rescuer to activate a Code Blue by calling (phone number) on the internal phone line	
Run to take crash cart	
Support the nurse to position the patient an to keep backboard	
Minimize the interruption in compression	
Positioning mask properly on face	
Aware of "clear" before "analyze" and "shock"	
Work with IV nurse To load the IV drugs or syringe	
Effective loop communication after directing tasks	
SBAR format report given	

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Calls Code Blue or directs another rescuer to activate a Code Blue by calling (phone number) on the internalphone line	
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Aware of "clear" before "analyze" and"shock"	
Work with IV nurse To load the IV drugsor syringe	

DebriefingFollowing the conclusion of the scenario, learners are provided with a formal debriefing. Care was taken during the interoggation to ensure that the quantity of debriefers is constrained with the end goal that the debriefer-to-student proportion doesn't surpass 1:1. The

questioning ought to be driven by an accomplished teacher. The fundamentals of good self realization and frame response of the students are kept in central to check their process. The focuses canvassed in the questioning include:

Debriefing / guided reflection question
How could you feel all through the simulation experience?
What worked out in a good way in this recreation?
What turned out poorly in this simulation?
Were you satisfied with your ability to work through thesimulation?
On the off chance that you had the option to deal with circumstance once more, how might you have act the circumstance in an unexpected way?
Was there effective closed loop communication?
Is there anything else you would like to discuss?

Post-scenario didactics

After the debriefing, a didactic session was held. During this session, instructors were able to address any learning needs, and trainees were given the opportunity to strengthen the knowledge gained through the simulation exercise. Points covered in the didactics included being aware of the proper procedure when you come upon a patient with cardiac arrest, the importance of effective communication during stressful situations, and describing staff actions as response. Learners were asked to identify ways to improve staff response and patient care during a Code Blue scenario.

Discussion:- Recognizes need for help . Checks for responsiveness. Shakes shoulder, shouts patient's name, and scans chest for movement (5–10 seconds)This scenario was created to increase the comfort level of the students nurse to make them skillful and eligible as a new graduate registered nurse during their training session. It has been observed that the student's works tactfully along with the staff nurses and physician – they respond with anxiety and seriousness during the code situation. Under high- tension condition, they were also observed to struggle with the some equipment and circumstances . It was also noted that hassle- free situation was found while comforting the patient with the devices of placing backboard placement .thus , it was recorded that during simulation , while it doesn't supplant working with patients, gives the chance to members to learn specialized abilities and assemble certainty with no hazard to the patient.

CONCLUSION:-Code Blue circumstances can be extremely demanding and emotionally charged. In this way, practice in a controlled domain can be helpful for new understudy's nursing caretakers, at last prompting improved patient results. Hence,it is a counterfeit Code Blue reenactment, alongside post-situation didactics and educating, intended for student trainees working on post of administrative duty.

ACKNOWLEDGEMENT:-Author is appreciative to the Principal of the Institution and Hospital Authority for the help given during the training session.

IMPLICATIONS:-The findings of the learning sessions have a few ramifications for nursing administration, nursing training and nursing research.

Nursing Service:-The findings of the investigation could be used as a reason for direction programs and in-administration training of the students nurses and trainees , so that constant awareness and clear understanding may be created regarding working in emergency or code blue situation as registered nurse .

Nursing Education:-The nursing faculties teachers have the obligation to refresh the information on RNs and in this way improve their insight through different instructive projects. In India the current nursing educational plan remembers content for deliberate practice in ACLS and BLS training to cope up with emergency situationboth in hospital and community area.

Nursing Administration:-Nursing organization should step up to the plate and direct direction program for cutting edge novices.They should ensure that In-Service Education Program are directed intermittently. Subsequent to preparing, the medical attendants ought to be given satisfactory offices and management to keep up the principles of information on code blue situation.

Nursing Research:-Today Nurses are actively generating, publishing and applying research in practice to improve client care and enhance scientific knowledge base of Nursing. The study throws light on the area of nurses' knowledge regarding skillful and deliberate work in code blue situation. There is a lot of scope for exploring this area. Research can be done on the factors related to anxiety and difficulty faced during the immediate response.

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Screening of Phytochemical Constituents and AntimicrobialActivity of Some Medicinally Valuable Plants

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Abstract:-The Present study was assigned to evaluate eight phytochemical constituents such as flavonoid, alkaloid, phenolic, glycoside, saponins, tannin, steroids and terpenoids for antibiotic activities. These phytochemicals possess potentiality in the medicinal field. The antimicrobial activity of five plant extract was studied against four strains of gram positive and gram negative bacteria which are important medicinally valuable plants used for theoretic purpose. The results revealed that the phytochemical with medicinal properties used for curing various ailments and possess potential antibacterial, antifungal and the isolation of novel bioactive compounds.

Keywords:Medicinal plants,Phytochemical,Antimicrobial, Theroptic use.

Introduction:-India has a rich resource of traditional medicinally valuable plants to treat human and animal diseases from ancient period. Phytochemical are naturally occurring contents in the plants, leaves, stems, fruits and roots that have defense mechanism and protect from various diseases. These phytochemicals are basically divided into two broad groups as, primary and secondary metabolites according to their important functions in plant metabolism [1]. Primary metabolites are carbohydrates, amino acids, proteins and chlorophyll and secondary metabolites are flavonoids, alkaloids, phenolic, glycoside, saponins, tannin, steroid, coumarin and terpenoids. In the present study some of the medicinal local available plant species was selected for the study purpose [2].Tinospora cordifolia called Gulvel in Marathi is a smooth and succulent shrub.T.cordifolia reported various secondary metabolites such as alkaloids,terpenoids,glycosides,lactones and steroids.Guduchi has many medicinal properties like anti-microbial, anti-diabetic,anti-cancer,anti-oxidant,anti-inflammatory, anti-osteoporotic, anti-stress and immunomodulatory etc.Withania somnifera commonly known as Ashwagandha.W.somnifera is an important herb used in the Ayurveda.This plant is used as anti-bacterial, anti-fungal,anti-inflammatory,liver tonic and more recently to treat bronchitis,asthma,insomnia,ulcers and senile dementia.Terminalia bellerica is a medicinal plant which has extensive usage as pharmaceutical and nutraceuticals.Fruit of T.bellerica is widely used in ayurvedic formulations such as Triphala churna, Avipattikara churna and many more. The presence of various phytochemicals makes the fruit a highly potent phytomedicines. Terminalia chebula is known as the king of medicine. The plant was found to contain various phytochemicals such as alkaloids, flavonoids, tannins and phenolic compounds.T.chebula showed various medicinal properties such as anti-oxidant, anti-microbial, cardio-protective, hepato-protective and wound healing activity.Curcuma longa is commonly used in Ayurveda,Unani and Siddha herbal system [3,4].It is recommended for blood purifying activity,anti-microbial,anti-viral, anti-cancer, anti-oxidant and cardio-protective etc. These plant species reported medicinal values with respects to phytochemicals and these plant species were evaluated for their presence or absence of phytochemicals and degree of antibacterial activities on four different bacterial strains.

Materials and Methods

Collection of plant materials:-The plant material were collected from Harishchandragad (Located $19^0$23'18'N $73^0$46'33'E)Ahmednagar district, Maharashtra during November 2019.A voucher specimen of all plants has been deposited in the herbarium of Department of Botany, P.V.P. College, Pravaranagar. All the plants were identified with the help of available literature.

Plant extracts preparation:-The plant parts were washed thoroughly 2-3 times with running tap water, then air dried under shade and the plant material was grinded in mixer. The powder was kept in plastic bags with paper labeling. Plant extract was prepared by soxhlet extraction method. About 5gm of powdered plant material was uniformly packed into a thimble and extracted with 250 ml of different solvents separately. Solvents used were methanol, petroleum ether, chloroform, ethanol, ethyl acetate and acetone. The process of extraction continues until the solvent in siphon tube of an extractor become colorless. After that the extract was taken in a beaker and kept on hot air oven at 30-40^{0}c till all the solvent got evaporated. Dried extract was kept in small glass bottle for their future use in phytochemical analysis.

Qualitative phytochemical analysis:-The extract was tested for the presence of bioactive compounds by using following standard methods. [5-7]

Test for Protein:

Biuret test-Crude extract mix with 2ml biuret reagent, a bluish-violet color appeared the presence of protein.

Ninhydine test-Crude extract boiled with 2ml of 0.2% ninhydrin,violet color appeared the presence of amino acids and proteins.

Test for carbohydrate:

Molisch's test-Crude extract was mixed with 2ml of reagent and 2ml of concentrated sulphuric acid was poured carefully along the side of the test tube, appearance of a violet ring at the interphase indicated the confirmation of carbohydrate.

Benedict test-Crude extract mixed with 2ml of benedict reagent and boiled, a reddish brown precipitate formed indicated the presence of carbohydrate.

Test for flavonoids:

Shinoda test-Crude extract mixed with fragments of magnesium ribbon and concentrated hydrochloric acid, pink color appeared after few minutes which indicated the presence of flavonoids.

Lead acetate test-The extract treated with 2ml of lead acetate solution, yellow color precipitate or crimson color indicated the presence of flavonoids.

Test for alkaloids:

Wagner's test- Crude extract mixed with dilute HCl and placed in water bath for five minute and then filter 1-2 ml filtrate, 2ml of Wagner reagent was added. Reddish brown color precipitate indicated the presence of alkaloids.

Dragendorff's test-The filtrate was mixed with Dragendorff's reagent and the formation of orange color precipitate indicated the presence of alkaloids.

Test for Phenolic:

Ferric chloride test-Extract was dissolved in distilled water, and then 2 ml of 5 % ferric chloride solution was added. Formation of violet color or blue green color indicated the presence of phenolic compounds.

Lead acetate test-Extract was dissolved in distilled water. Then 1 to 2 drops of lead acetate solution was added. Appearance of white ppt indicated presence of phenolic compounds.

Test for Glycosides:

Liebermann's test-Crude extract mixed with 2 ml of $CHCl_3$ and 2 ml of CH_3COOH.The mixture was cooled in ice bath and then carefully concentrated sulphuric acid was added. A color changes from violet to blue to green indicated the presence of glycosides.
Keller-Kiliani test-Extract was mixed with 2 ml of glacial acetic acid containing 1-2 drops of 2% solution of ferric chloride. The mixture was then poured into another test tube containing 2 ml of concentrated sulphuric acid. A brown ring at the interphase indicated the presence of glycosides.
Test for Saponins: -Extract was mixed with 5 to 10 ml of distilled water in a test tube and shaken vigorously. The formation of stable foam indicated the presence of saponins.
Test for Tannin:-Extract was mixed with 2 to 3 ml of 2% solution of $FeCl_3$.A blue green or black color indicated the presence of tannins.
Test for Steroids:-Plant extract was mixed with 2ml of $CHCl_3$ and concentrated H_2SO_4 was added. A red color in the lower chloroform layer indicated the presence of steroids or mixing of extract with 2ml of chloroform then 2ml of each of concentrated H_2SO_4 and CH_3COOH were poured into the mixture, dark green color indicated the presence of steroids.
Test for Micro-organisms:-Clinical isolates of bacteria were used for the antibacterial screening. The isolates were Escherichia coli, Pseudomonas aeroginosa, Bacillus subtilis and Staphylococcus aureus. These strains obtained from the laboratory unit of the Department of Microbiology,Pravara Medical Trust Loni and authenticated using standard biochemical tests as described by Cheesbrough (2002)[8].The isolates were maintained on a freshly prepared nutrient agar slant and kept refrigerated at 5^0c until required for use.
Preparation of disc (Sensitivity):-The sensitivity discs prepared using sterile Whatman's grade one filter paper.A paper puncher used to obtain disc 5 mm in diameter. These were then placed in sterile screw-capped bottles and sterilized in an autoclave at 121^0c and 15 psi for half an hour. Stock solution of the plant extract was prepared, 100 micro gram of each fraction was weighed and dissolved in 10ml of dimethyl sulphoxide (DMSO).
Antimicrobial Assay (Agar Diffusion Method):-The freshly prepared nutrient agar and potato dextrose agar plates were dried in a drier for about 15 minutes to remove surface moisture. The plates were aseptically inoculated uniformly with the test organism by spread plate techniques. With aid of a sterile forceps, paper discs that have been impregnated with the plant extracts at different concentrations were arranged radially and pressed onto the inoculated surface with each disc sufficiently spaced out. Positive control discs containing standard antibiotic ampicillin and negative control discs containing DMSO the extract were used. The petri plates were incubated at 37^0c for 24 to 36 hours in incubator. The result was observed by measuring of zone of inhibition in a diameter and recorded in millimeter [9].
Results and Discussion-The result of the present study was reported in the given tables. The phytochemical characteristics of five medicinal plants tested were summarized in table number one (Table-1).The results revealed that the presence of medicinally active phytochemical constituents in the five plants studied. It is reported that the flavonoid and alkaloid present in all plants. Phenolic, Glycosides, Steroids and Tannin present in three plants. Saponins and terpenoids were not reported from the Terminalia bellerica and Withania somnifera. The result of plants extract against antibacterial activities are presented in table number two (Table-2).The methanol extract of five medicinal plants tested against Gram negative and Gram positive bacteria using agar disc diffusion method.The medicinal plants exhibit antibacterial activity. Terminalia bellerica showed highest zone of inhibition in all bacteria followed by Terminalia chebula, Withania somnifera, Curcuma longa and Tinospora cordifolia. All five medicinal plants

species showed significant antimicrobial activity in both Gram-negative and gram-positive strains.The results of the present work suggest that some of the plant extracts possess compounds with antimicrobial properties that can be used as antimicrobial agents in new drugs for the therapy. Traditional systems around the world which utilize herbal remedies are an important source for the discovery for new antibiotic resistant strains of microorganisms. The antibiotics property of the herbal compounds is important pharmacological studies leading to synthesis of more potent drug with reduced toxicity. Plant extracts compounds are most important in the field of antibacterial and antifungal agents. As a result, the microbial activity of five medicinal plants was screened against common pathogens. The methanolic plant extracts showed the most remarkable activity. These plants can be further subjected to isolation of the therapeutic antimicrobial and carry out further pharmacological evaluation.

Table 1: Showing Phytochemical Screening Methanol Extract of Plants.

Sr.No.	Plant Species	Fla	Alk	Phe	Gly	Sap	Tan	Ste	Ter
1.	*Tinospora cordifolia*	+	+	-	+	+	-	+	+
2.	*Withania somnifera*	+	+	+	-	+	+	-	-
3.	*Terminalia bellerica*	+	+	+	+	-	+	+	+
4.	*Terminalia Chebula*	+	+	+	+	+	+	+	+
5.	*Curcuma longa*	+	+	-	-	+	-	-	+

Fla- Flavonoid,Alk- Alkaloid, Phe- Phenolic,Gly- Glycoside, Sap-Saponins, Tan- Tannins, Ste-Steroid, Ter- Terpenoid. +indicates presence and **–** indicates absence of activity.

Table 2: Showing antibiotic activities of methanol plant extract.

Sr.No.	Plant Species	Zone of Inhibition (in mm diameter)			
		Ampicillin (Gram negative and positive)			
		Escherichia coli	*Pseudomonas aeroginosa*	*Bacillus subtilis*	*Staphylococcus aureus*
1.	*Tinospora cordifolia*	13	09	11	12
2.	*Withania somnifera*	15	13	12	15
3.	*Terminalia bellerica*	14	15	15	14
4.	*Terminalia Chebula*	13	14	13	15
5.	*Curcuma longa*	12	14	12	15

Conclusion:-A present day medicinal plant gets more importance in medicinal field. Medicinal plants phytochemical study has been gives biological compounds which are in medicines. The screened plant species showed biological active constituents in *Tinospora cordifolia, Withania somnifera, Terminalia bellirica, Terminalia chebula* and *Curcuma longa*. Workers have also appraised their antibacterial activities against *Escherichia coli, Pseudomonas aeroginosa, Bacillus subtilis* and*Staphylococcus aureus.* Phytochemical analysis and antimicrobial studies of the medicinally valuable plants are important to find out new novel drugs for the treatment of various diseases.

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A STUDY AND ENHANCEMENT FOR PARADIGM TASK SCHEDULING USING CLOUD

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ABSTRACT:-The cloud infrastructure model allows for a limited number of on-demand, pay-for-use virtualized services. Scheduling is a critical component of resource control for massive heterogeneous distributed networks such as a cloud on an application as well as virtualization layer in order to achieve optimum service quality (QoS). In general, cloud planning is an NP-hard challenge because of the broad scope for solutions such that an ideal answer is impossible to locate within a suitable time frame. The activities are mapped to logic services in application layer planning (i.e. virtual machines) with the objective to refine one or more QoS parameters and to comply with many constraints. In the literature of application layer planning numerous algorithms is suggested, each of which focused on some basic techniques of architecture such as simple heuristics, metaheuristics and hybrid heuristics, most recently. While there is a broad literature survey for cloud algorithms, none of them just shows their analysis for the application layer. In this article, we are presenting a thesis on algorithms for tasks that are applied only to the cloud application layer. We define our analysis by separate specific strategies for the construction of such planning algorithms. One of the key characteristics of our analysis is that it includes a variety of applications such as individual projects, basic workflow, science and MapReduce. We often analyse current algorithms in a comparative way on different criteria such as make-up, costs, use of resources, etc.. In the end, study guidance has been given for potential work.

Keywords:- Application layer; Task scheduling; Cloud; Resource management

INTRODUCTION:-The challenge of scheduling occurs in many fields and is evolving with business and technology over time. The design of computers gained a great deal of interest, with the most prominent goal being to minimise the completion times of tasks, often known as maps. In addition to such peculiarities, fundamental values stayed the same as in the planning of manufacturing machinery. Multiprocessor programming includes several parallel processors of the same capability on supercomputers. In addition, a high-speed channel between processors considers the data source to be centralised such that operations (or jobs) may share messages rapidly. Recently, computer networks also allowed uniform clusters of computers to function as multiprocessor computers with distributed data.In comparison with supercomputers, though, the clusters first had a sluggish channel for contact between processors which would increase the cost of data sharing between processors. The planning of work in data clusters contributed to another research branch: the planning of distributed computer systems. The relation between computer nodes in clusters was faster with advancements in computer networks. In contrast, the bandwidth, storage and vast data exchange needed new software. Multimedia and e-Science are examples of technologies that now manage vast data sets, demonstrating that communications are essential for improving efficiency in distributed networks and for supporting the quality of service. Grid computing originated from homogeneous distributed computing networks in the late 90's as a heterogeneous collaborative distributed framework. Grids are common networks that include possible network-connected computing devices, from workstations to clusters.

Computing grids are infrastructures that allow sharing of resources by specifying policy and protection rules that make up VOs. Cloud storage provides customers services that mask technological problems in the area of resource processing, often virtualized, computing infrastructure. As a consequence, clusters and networks will become part of cloud storage technology datacenters that require new optimization goals and standard variables in green computing and utility computing. Kwok and Ahmad said it was a daunting way to broaden algorithms for heterogeneous platforms. As a result, new scheduling ideas have emerged as a result of their popularisation of grid and cloud computing.While essential facets of scheduling remain unchanged, the planning literature has been ballooned by new optimization priorities throughout the last decade. So much information was carried in in the area that identification of the precise contribution of recent findings has been difficult. Smith argues that the planning problems remain, and he argues that scheduling isnâ t a completely resolved issue, however he states thatâ the need to work in the framework of many self□interesting agentsâ is critical to the planning strategies that properly represent complexity, allow for a controlled approach to alter, and encourage effective negotiation and refining of constraints. As described in the next sections, this assertion coincides with some characteristics in cloud-related virtualisation and operation. In short, three main contributions are made in this paper:

1. Suggest a taxonomy for distributed applications scheduling and add an expansion of the taxonomy to include cloud calculators.
2. In the suggested taxonomy, classify the literature;
3. Identify appropriate future planning guidelines for distributed applications.

Thanks to its broad application, the scheduling dilemma has a number of approaches. This paper outlines recommendations for the preparation of researchers to assess, identify and include a summary of current methods to their study, providing an overview and incorporating existing work on the planning question for distributed systems. Next we present the issue of scheduling distributed systems to cover progress on cluster and grid computing scheduling. The proposed taxonomy would be then provided with an outline, accompanied by the cutting-edge of the taxonomic tree in each section. We then concentrate on cloud infrastructure and detail cloud planning comparisons and variations with planning in historically developed distributed networks. We add a Cloud Computing Taxonomy, which increases pre-cloud taxonomy. Finally, we address research issues that have been acquired by the cloud computing model from grid and cluster computing as well as modern problems.

LITERATURE REVIEW

T. Dillon, C. Wu, and E. Chang (2010) The modern technological model of cloud computing allows people to access Internet resources. Cloud offers its consumers with flexible, highly accessible and on-demand services. The cloud only charges its clients with the use of the services. A wide variety of programming technologies and several configurable changes is provided on the cloud framework. Therefore, cloud can be used to perform a wide range of computer and data-based functions. Effective administration of the underlying infrastructure is necessary to gain from the cloud to get the ultimate. Task planning is an open issue, which needs to be addressed and is considered to be a challenge for NP. Heart methods should also be used to provide a better approach for planning activities. Various heuristic approaches have been suggested to solve the issue of cloud scheduling, taking into account several aspects where a better plan can be found. None of them have regarded a better timetable as the complete implementation period for the virtual machine.

D. Agarwal and S. Jain (2014) We give the complete execution of the resources algorithm in this paper (TRETA). In finding an optimum time schedule the algorithm considers the whole time of machine resource execution. The algorithm is related to the current modern Min-Min, Min-Max, FCFS, and MCT heuristics for Makepan, Imbalance degree and System performance utilising Nasa Ames iPSC/860's real-world workload traces. The experimentation takes place with the CloudSim 5.0 simulator for workloads which consist of a larger range of tasks. In Makespan, degree of desequilibrium and system performance the proposed algorithm demonstrates a substantial improvement over other existing heuristics.

M. Armbrust, A. Fox, R. Griffith, A. Joseph, and RH (2009) Cloud Storage appears as a modern trend in today's field of digital technology because of its economical and organisational advantages. Cloud storage is in the position, through high computing power and distributed resources, to execute the huge data operation. If a customer has to fluctuate, the power of the cloud service is up and down. It is extremely scalable, reduces capital costs, robust recovery from disasters and can run from anywhere through the internet. Through uploading the computer mission to the cloud framework, the user may make use of these facilities. The key aim of the task planning algorithm is therefore to design activities to shorten the completion period of the task. It analyses different PSO parameters to illustrate efficacy and strength and weakness compared to other evolutionary algorithms. The purpose of this article is to analyse various PSO algorithms. This paper analyses productive cloud service virtualization and the adequacy of certain criteria in order to effectively plan tasks in a cloud computing setting.

T. Kaur and I. Chana (2015) Recent cloud infrastructure advances have rendered it an effective alternative to major science challenges. The sophistication of research workflows means that cloud services are used efficiently in order to meet customer needs. The planning in a cloud world with scientific workflows is a problem for researchers. This is seen as an NP-hard challenge. The scheduler finds challenging to completely exploit usable resources with such restrictions such as heterogeneous conditions, dependencies between activities and service and customer deadlines. The issue in the literature has been discussed thoroughly. Various scholars have focused on various parameters. This paper provides a multi-objective programme algorithm for the programming of scientific cloud computing workflows. The approach builds on a genetic algorithm designed to balance machinery, currency and loads. Second, for each parameter, the suggested algorithm seeks the best answer. The algorithm seeks a superb answer for all parameters, depending upon these solutions. The suggested algorithm is tested by means of benchmark dates and the regular genetic algorithm and optimization for the particle swarm are seen with comparative performance. The findings indicate that the algorithm proposed improves the overall outcome of a well-loaded device and decreases cost.

Z.-H. Zhan, X.-F. Liu, Y.-J. Gong, J. Zhang, H. S.-H. Chung, and Y. Li (2015) In terms of the platform and application environments, applications required in the cloud and fog architectures are typically heterogeneous. Scale these criteria on these architectures is a multiple restriction optimization challenge. After innumerable attempts, the planning of work in these architectures continues to raise several stimulating problems that may contribute to the issue of how activities interlink with various physical devices, fog nodes and the cloud. In fog the planning is quite difficult owing to the density and heterogeneity of the instruments, and few experiments have yet been performed in literature. However, the cloud schedule has been analysed extensively. Many studies nevertheless approach this problem from a service provider point of view or optimise the quality of service application (QoS) standards. They often

disregard qualitative knowledge and consumer expectations at the level of the system and end-users.

METHODOLOGY:-The tasks submitted by cloud users are mandated by the high priority substructure, that is to say, high priority tasks and low priority tasks at the bottom. Different suppliers provide different services (VM) at different costs in the cloud world. Therefore the resources in the pool are structured so as to first and foremost, high cost resource at first, or when the tasks are allocated to VM, pick the low cost VM accessible in the pool, and exclude it from the VM pool and the lowest VM would be selected for the next mission, and so on. During this test, the next lowest cost VM is tested if the allocated resource fails to reach the deadline for the mission. If there are overloads of some resource, it will be avoided before more allocation is available. If the resource list is vacuous and tasks still exist, these tasks are delegated to the free resource or to starting VMs.

Pseudocode of the proposed algorithm:

If (cloudlet list) 1.
New cloudlet list = cloudlet(id, duration, file size, priority, time limit);
{. Q fcfs[] = Nuclear ;}
. Elseif (preferences == 1)
Eight. {8.}
Cloudleti is a Q priority[];
Other Cloudleti: {Q reserve;
DataCenterScheduler = getProfile Cloudlet();
Costs effective Vm = get(from the VM list);
If ((cloudlet property <= cost effective Vm property)
{ bindcloudletToVm(vm id cloudlet);
Else {wait || New vm || suspend current proc;}
When (cloudlet work=> & vm==free)
{ Remove vm(id);
Once done, repeat phase 1 to 20
endition.

The pseudo-code of the above algorithm focuses mostly on the assignment of low-cost cloud resources in the cloud world and on high priority clouds, taking into account the deadline.

RESULTS:-To replicate the process of tasking programming, the CloudSim simulator is used. Each virtual node in CloudSim represents a single resource and has a single processor. On the virtual nodes all the requested activities are carried out. The computational capabilities of virtual nodes vary from the expense of veneration. The pool of computing resources can be created arbitrarily when the work period is altered and the costs are inversement relative to the time. In experiments we have set up a heterogeneous computer environment with 6 virtual nodes.

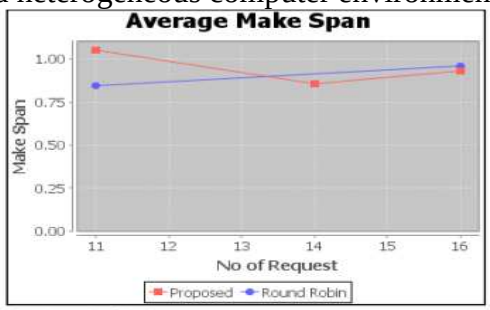

Figure Ratio of make span

This paper evaluates the scheduling performance of a variety of activities with regard to the implementation period (range). This table indicates how much time the CEUP algorithm has been suggested and opposed to the RoundRobin algorithm. On the other hand, the total amount of activities in a virtual node declines with an increase in the number of virtual nodes. Therefore, the total length of time is shortened still.

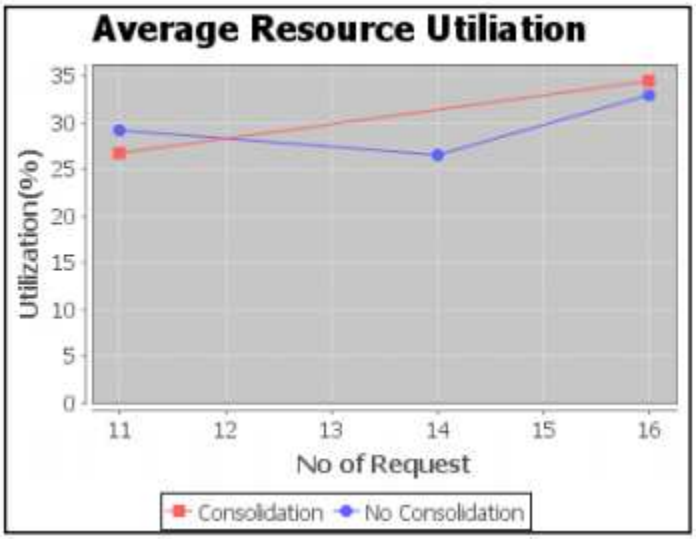

Figure Ratio of resource usage

In the X-axis, cloudlet number is shown. Cloudlets are shown in the Y-axis. The outcome reveals that machinery is growing as cloud numbers rise. The studies also reveal that the make-up once it reaches the peak value decreases somewhat. The results indicate that compared with the two other algorithms, the range of the proposed algorithm is better. Figure explains the interaction with cloud duration and objectives. The cloudlet number selected here is 10.

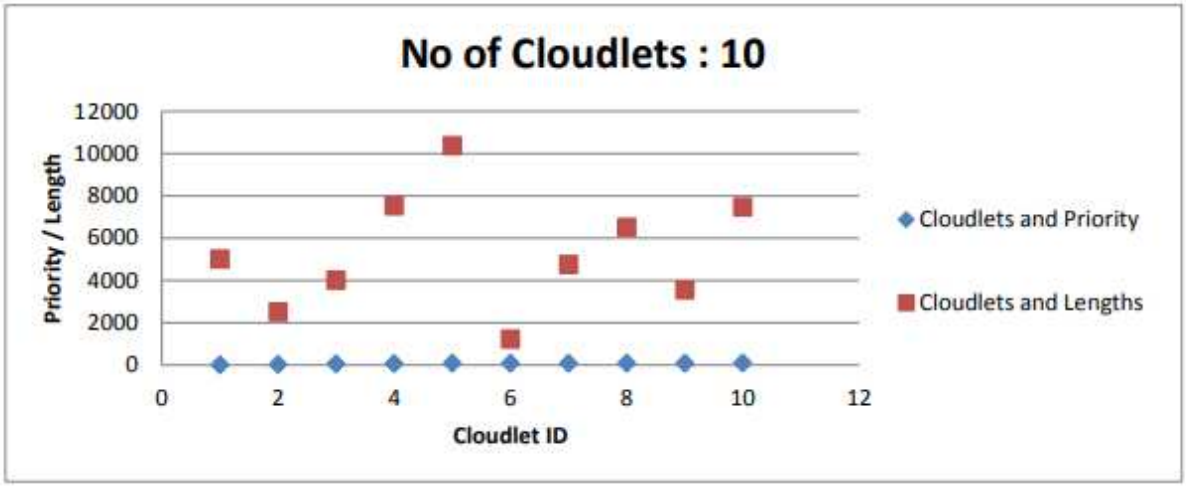

Figure Cloudlet length vs Priority

CONCLUSION:-One of the most significant problems of the cloud computing world is task planning. The key purpose of the cloud systems of planning algorithms is to manage the workload between the computer nodes and optimise the use while keeping the runtime tied. The execution order was the focus of the work, and the experimental findings showed that, in terms of overall execution and use of resources, the proposed CEUP algorithm would obtain better efficiency than the Round-Robin algorithm. Moreover, high-cost services are not taken into consideration. In this paper we will try to research and carry out the combination of activities not considered in future.

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