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# Community and Public Health Nursing

*Volume 6 Number 3  
September – December 2021*

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## Contents

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### ***ORIGINAL ARTICLES***

- Pervasiveness of Leucorrhoea and Health Seeking Behavior of Women with Leucorrhoea: A Cross Sectional Survey** 71  
Mohammed Rafi, Vaishali Maurya, Yanik, Varsha Gupta, Varsha
- Assess the Knowledge and Attitude of Parents towards Mental Illness** 77  
A Vimala, Jayanthi P,
- A Comparative Study among Sars, Mers and Covid-19** 81  
Yajnaseni Jena, Dipanweeta Rourtray, Swetaleena Ashe, Lora Mishra

### ***REVIEW ARTICLE***

- A Study to Assess the Effectiveness of Video Assisted Teaching Regarding Knowledge of Care of Neonate Undergoing Phototherapy** 89  
Alka D Tajne
- Subject Index** 93
- Author Index** 94
- Guidelines for Authors** 95

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## Pervasiveness of Leucorrhoea and Health Seeking Behavior of Women with Leucorrhoea: A Cross Sectional Survey

Mohammed Rafi<sup>1</sup>, Vaishali Maurya<sup>2</sup>, Yanik<sup>3</sup>, Varsha Gupta<sup>4</sup>, Varsha<sup>5</sup>

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### Abstract

The researchers conducted A cross sectional survey study to explore the Pervasiveness of leucorrhoea, and health seeking behavior of women with leucorrhoea living in rural areas at Varanasi district. With the study objectives of to assess the demographic variables, to assess the pervasiveness of leucorrhoea and to assess the health seeking behavior of leucorrhoea. The study was conducted among 400 purposefully selected women of the selected rural areas in Varanasi India. The levels of pervasiveness and health seeking behavior of leucorrhoea were collected using a validated tool. After organizing and analyzing the data the study shows that 81% of the study sample had whitish discharge, 74.25% had less than 5ml leucorrhoea discharge, 52% had transparent watery discharge, 62% had odorless discharge, 31.75% had leucorrhoea for less than a year, 77.75% had pain in menstruation, 75.5% had general weakness, 65.875% had pain & heaviness in lower abdomen, and 63.75% of the population did not seek any medical help in case of leucorrhoea or its associated symptoms. 36.25% of the women have health seeking behavior to the problems of leucorrhoea and 63.75% of the samples don't seek medical help in case of any leucorrhoea or its associated signs and symptoms The problem of leucorrhoea is not been considered a big issue by the women in the community. Yet the problem which is just being seen is just the tip of the iceberg and yet the actual problem is below the tip of the iceberg. The importance of bringing this problem to lime light is the need of the hour and women need motivation and encouragement in understanding their problems and seek medical advice.

**Keywords:** Leucorrhoea, Pervasiveness, Health Seeking Behaviors, Women Health.

### Introduction

Leucorrhoea is a common condition faced by many women across the world. Though usually it is not a cause for serious concern, it is better to seek treatment to avoid complications. Leucorrhoea is a white, greenish or a slightly yellow discharge from the vagina. Almost all women experience vaginal discharge, which is white and odourless, and this is a natural function of the body to maintain a healthy vagina and flush out harmful micro-organisms. But if there is any infection, the discharge changes colour. Leucorrhoea in pregnancy is common. It is normal in adolescent girls and may sometimes be evident in new born girls too.

Excessive discharge of a thick, whitish or yellowish, sticky, foul-smelling material from the vagina is called Leucorrhoea. This common problem may occur due to unhygienic conditions, infection of the genital tract, or

impaired immune function. Unfortunately, most women are highly embarrassed by this problem. Well, women's are not only embarrassed in front of others because of this, but most of them also avoid discussing the problem with their medical health care providers, which is why the treatment for vaginal discharge caused by leucorrhoea could be a bit of a challenge.

Every woman has periodically some normal vaginal discharges, which maintaining chemical balance and the flexibility of vaginal muscles, serve as normal defensive system for vagina. If such discharges exceeds normalcy and become white or yellow thick liquid with a foul smell, it is called 'Leucorrhoea' that may be a sign of infection.

Abnormal leukorrhoea may be caused by infections

with bacteria, yeast, or other microorganisms. For example, many sexually transmitted diseases, which involve the transmission of viruses or bacteria and include diseases such as gonorrhoea and chlamydia, are major causes of leukorrhoea. These diseases lead to infection of the cervix, which is indeed one of the most common gynecological disorders. The infection has a tendency to irritate the mucus glands of the cervix, causing them to secrete an excess of mucous mixed with pus. Leukorrhoea is also a sign of vaginitis (inflammation of the vagina), which is often caused by infection with the fungus *Candida albicans* or by infection with the protozoan parasite *Trichomonas vaginalis*. Infection with these organisms may give rise to an irritating discharge that is often quite resistant to treatment. A tampon, diaphragm, or other foreign object left too long in the vagina can also cause leukorrhoea.

## Methodology

The researchers conducted a cross sectional survey study to explore the Pervasiveness of leukorrhoea, and health seeking behavior of women with leukorrhoea living in rural areas at Varanasi district. With the study objectives of to assess the demographic variables, to assess the pervasiveness of leukorrhoea and to assess the health seeking behavior of leukorrhoea. The study was conducted among 400 purposefully selected women of the selected rural areas in Varanasi India. A checklist on pervasiveness of the leukorrhoea, its associated symptoms and the health seeking behavior was formulated. Before using the checklist to the study population, the face validity of the checklist was censured by a committee of experts in research methodology, Obstetrics and Gynecological Nursing, Community health Nursing and Sociology. On calculating the sample size with one sample study method (dichotomous) with confidence level 99%, Margin of error 5%, Population Proportion 40%, and a population size 2000, the sample size was calculated to 372 samples with 10% attrition rate the sample size was finalized to 372±30 samples. Around 400 samples were conveniently selected for the study after obtaining informed consent from the study participants. Before the collection of data, permission was obtained from the principal of Apex College of Nursing and Gram Pradhan (Sarpanch) of selected village of Varanasi District. The researchers then introduced themselves, took required oral and written consent from the study samples and gave instructions regarding the checklist. Each sample was asked for 5-10 mins of their time to finish the checklist. The data was summarized, organized, tabulated & analyse according to the objectives of the study by using descriptive (frequency and percentage) statistics.

## Results

Data were collected, organized and analyzed according to the objectives laid down by the researchers. Out of the 400 sample, 15 basic demographic details were collected and as the table 1 depicts 49.25% were women of age group 20 - 30 years, 27.25% were women had only primary education, 90.75% were unemployed, 27% of the samples had a monthly family income 10,000 - 15,000, 86% were married marital status, 62.25% of, the sample

had a multigravida, 41.75% were the no. of children 1 - 2, 59.25% of the samples natural family planning, 79.5% of the samples whenever necessary in duration of uses, 59% were mixed food intake, 92% of the sample personal habits nil, 91.25% of the samples no history of exercise, 91.5% of the samples duration of exercise never practiced, 99.5% of the samples no history of yoga.

Table 1: Demographic Variables.

N=400			
Demographic Variable	Options	Number	Percentage
<b>Age</b>	20-30	197	49.25%
	31-40	126	31.5%
	41-50	58	14.5%
	51-60	19	4.75%
<b>Education</b>	Primary	109	27.25%
	Secondary	103	25.75%
	Graduate	76	19%
	Post Graduate	6	1.5%
<b>Occupation</b>	Illiterate	106	26.5%
	Own Business	122	30.5%
	Unemployed	363	90.75%
<b>Family Monthly Income</b>	Private Employee	10	2.5%
	Government Employee	5	1.25%
	Less Than 10,000	105	26.25%
	10,000 - 15,000	108	27%
<b>Marital Status</b>	15,000 - 20,000	98	24.5%
	Above 20,000	89	22.25%
	Married	344	86%
	Unmarried	48	12%
<b>Parity</b>	Divorced	1	0.25%
	Separated	7	1.75%
	Prim gravida	72	18%
<b>No. of Children</b>	Multigravida	249	62.25%
	Null gravida	79	19.75%
	No Children	89	22.25%
	1 - 2	167	41.75%
<b>History of Contraception</b>	3 - 5	122	30.5%
	More Than 5	22	5.5%
	Copper - T	4	1%
	Oral Contraceptive	2	0.5%
<b>Duration of Uses</b>	Barrier Method	31	7.75%
	Natural Family Planning	237	59.25%
	Nil	126	31.5%
	Whenever Necessary	318	79.5%
<b>Types of Food Intake</b>	Less Than One Year	11	2.75%
	1 - 3 Year	13	3.25%
	More Than 3 Years	58	14.5%
<b>Types of Food Intake</b>	Vegetarian	158	39.5%
	Non Vegetarian	6	1.5%
	Mixed	236	59%

Table continues...

Personal Habits	Alcohol Intake	0	0%
	Tobacco Chewing	0	0%
	Smoking	5	1.25%
	Betel Nuts	7	1.75%
	Any Others	20	5%
	Nil	368	92%
History of Exercise	Yes	35	8.75%
	No	365	91.25%
Duration of Exercise	Less Than 6 Months	4	1%
	6 - 12 Months	9	2.25%
	1 - 3 Years	21	5.25%
	Never Practiced	366	91.5%
History of Yoga	Yes	2	0.5%
	No	398	99.5%
Duration of Yoga	Less Than 6 Months	2	0.5%
	6 - 12 Months	0	0%
	1 - 3 Years	0	0%
	Never Practiced	398	99.5%

The distribution of the incidence of color of the leucorrhoea showed that 81% of the study sample had whitish discharge, 10.5% had Creamish colored discharge, 8.25% had Yellowish discharge, no one had brownish discharge and 0.25% had black discharge.

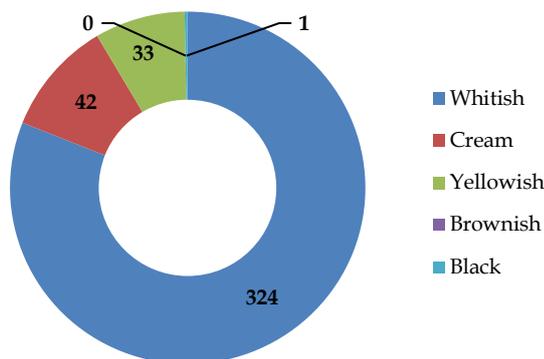


Fig. 1: Color of the Leucorrhoea.

The distribution of the amount of leucorrhoea among the study samples is about 74.25% had less than 5ml, 25.5% had using pad to absorb leucorrhoea and 0.25% had changing pad more per day.

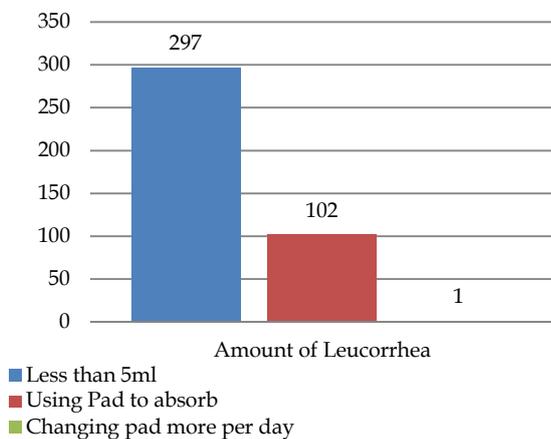


Fig. 2: Amount of Leucorrhoea.

The distribution of the consistency of the leucorrhoea among the study participants was 52% had transparent watery discharge, 18.25% had frothy discharge, 29% had foamy discharge and 0.75% had cheesy discharge.

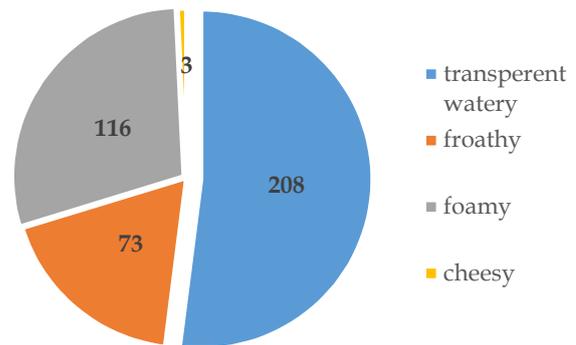


Fig. 3: Consistency of the Leucorrhoea.

The distribution of the odor of the leucorrhoea among the study participants was 62% had odorless discharge, 33.75% had foul odor and 4.25% had fishy odor.

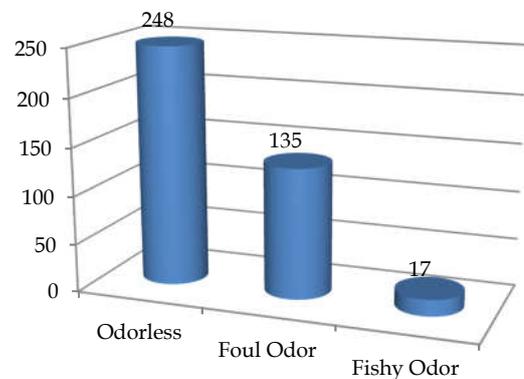


Fig. 4: Odor of the Leucorrhoea.

The distribution of the duration of the leucorrhoea among the study participants was 31.75% had leucorrhoea for less than a year, 31% had leucorrhoea for 1-4 years, 16.75% had leucorrhoea for 4-6 years and 20.5% of the study participants had the complaint of leucorrhoea for more than 6 years.

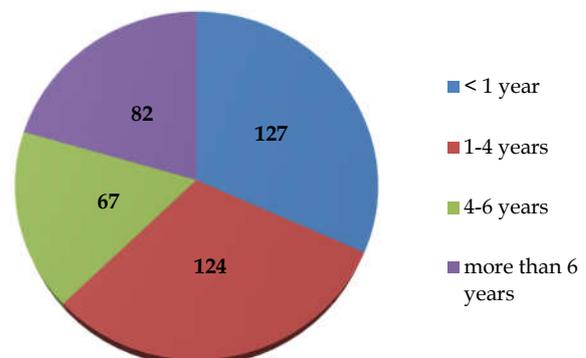


Fig. 5: Duration of the Leucorrhoea.

The distribution of the associated signs and symptoms of the leucorrhoea was about 0.75% of the study participants had breathlessness, about 46% had head ache and giddiness, 8% had indigestion, 1% had paleness, 27% had anorexia, 77.75% had pain in menstruation, 75.5% had general weakness, 5.75% had poly urea, 65.875% had pain

& heaviness in lower abdomen, 1% had constipation, 2.25% had anemia, 1.5% local soreness, 64.5% had lumbago, 35.75% Malaise and 6.5% had pruritis.

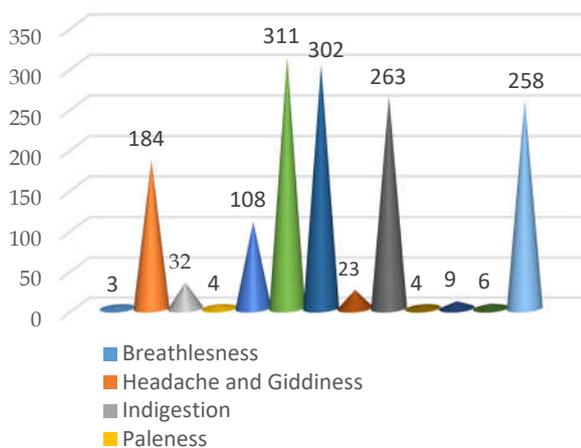


Fig. 6: Associated signs and symptoms of leucorrhoea.

On assessing the distribution of the health seeking behavior of the leucorrhoea among the 400 samples it shows that 36.25% of the women have health seeking behavior to the problems of leucorrhoea and 63.75% of the samples don't seek medical help in case of any leucorrhoea or its associated signs and symptoms.

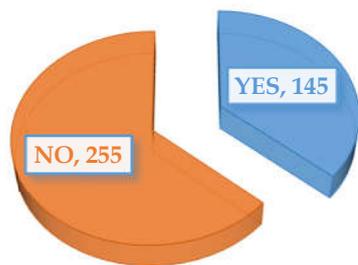


Fig. 7: Health Seeking Behaviour.

## Conclusion

The problem of leucorrhoea is not been considered a big issue by the women in the community. Yet the problem which is just being seen is just the tip of the iceberg and yet the actual problem is below the tip of the iceberg. The importance of bringing this problem to lime light is the need of the hour and women need motivation and encouragement in understanding their problems and seek medical advice.

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## Assess the Knowledge and Attitude of Parents towards Mental Illness

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### Abstract

**Background:** Mental Health and physical health are interrelated, interdependent and around 15 million people suffer from one or other serious psychiatric illness which require active mental health services. **Aim:** To assess the knowledge and attitude of parents with regard to different aspects of mental illness. **Materials and Methods:** A descriptive, comparative design was used. 20 fathers and 20 mothers who were attending outpatient department along with their mentally sick children were chosen for the study through convenient sampling technique. A structured interview schedule was administered to assess the knowledge and attitude of parents towards mental illness. **Results:** The study results showed that 51.4% of fathers and 55% of mothers had moderate knowledge, 63.8% to 58.3% of fathers and mothers had favorable attitude towards mental illness. **Conclusion:** Health care personal has to create awareness programme on mental health importance and involvement of family members in caring the mentally ill persons.

**Keywords:** Knowledge; Attitude; Mental illness; Parents.

### Introduction

Mental health does not mean mere absence of mental illness. It is a sense of well being as individual feels. There should be some positive qualities in every human being that enable him to live happily in society. Mental Health and physical health are interrelated and interdependent. As the saying goes, 'A sound mind in a sound body'.

According to World Health Organization, approximately 400 million people in the world suffer from mental or from psychological problem such as those related to substance abuse. In addition every four people who seek health services for help the problem of at least one or none being diagnosed properly and therefore not treated successfully.

It is of great significance that 5 out of 10 leading causes of disabilities in this world are mental problems 15-20% of all help seeker in general health services in both developed and developing countries, do so for emotional and psychosocial problems.

The prevalence of mental illness is not low in our

country. The health surveys have revealed that around 15 million people suffer from one or other serious psychiatric illness which require an active management while about 30 million people suffer from distressing and socially incapacitating emotional disorders (about 45 million i.e about 60-70 mentally sick patients for every 1000population). Every year, about 3,50,000 new cases start needing mental health services.

WHO reported that mental health problem currently constitute about 8% of the global burden of disease and more than 15% of adults in developing societies are established to suffer from mental illness and these problems are expected to increasing considerably in the years to come.

In India with the total population of 1,049,549,000 the seriousness of the problem is indicated by the fact that the overall prevalence rate of mental illness vary from 95/1000 to 102.5/1000. It is further estimated that nearly 30 million suffer from mental illness every year. About

10-12% of children have mental retardation. People do not get the care they need because of lack resources.

Experiences of mental illness often differ depending on one’s culture or social group. If the family members accept the reality and it is treatable but in certain conditions it cannot be curable but can reduce the symptoms and problem occurred by that. The family members even though they are stressed they should provide love and affection towards the mentally ill person. When they provide love and affection it improves their condition but along with that medicine also should be continue.

**Statement of the problem:**

A study to assess the knowledge and attitude towards mental illness among parents in a selected hospital in Chennai.

**Objectives**

- To assess and compare the knowledge of fathers and mothers towards mental illness.
- To assess and compare the attitude of fathers and mothers towards mental illness.
- To determine the association between the knowledge of fathers and mothers with their selected demographic variables.
- To determine the association between the attitude of fathers and mothers with their selected demographic variables.

**Materials and Methods**

Researchers adopted a descriptive, comparative research design. 20 fathers and 20 mothers who were attending the outpatient department along with their mentally sick children were chosen through convenient sampling technique from the selected hospital in Chennai. Researcher obtained formal permission from the hospital authorities and written informed consent from the parents who were fulfilling the inclusion criteria. The purpose of the study was explained to the parents and a structured interview schedule was administered to the parents in order to assess the knowledge and attitude of parents towards mental illness. Statistical Social Sciences Programme (SPSS) version 17.0 was used for analysis.

**Results and Discussion**

With regard to age, 70% (14) of the fathers were in the age group of above 45, 55% (11) of the mothers were in the age group of 40-45 years.

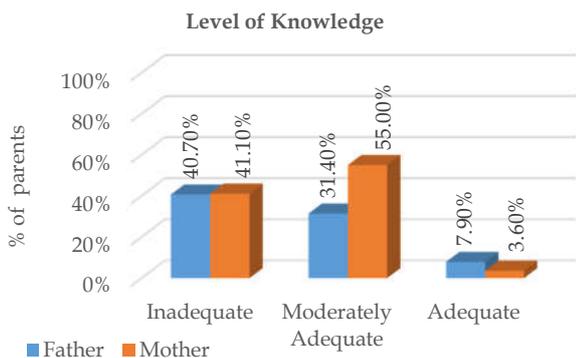


Fig. 1: Knowledge of father and mother.

In regard to educational status 45% (9) and 5% (1) of father and mother were completed their higher education. 25% of fathers and 35% of mothers had history of mental illness in the family, 75% (15) belonged to Hindu religion, 80% (16) of mothers were unemployed, 45% (9) of fathers were government employees, 80% (16) of them were earning Rs. 3000 and above.

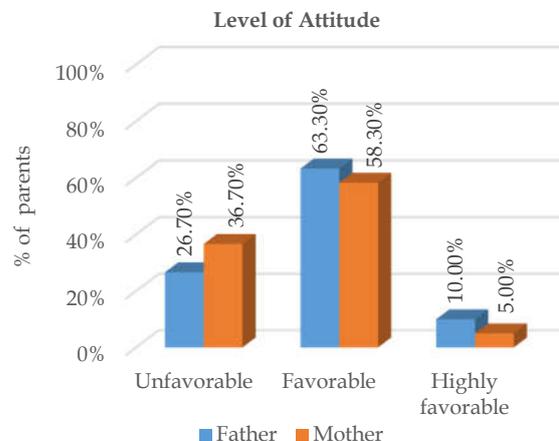


Fig. 2: Attitude of father and mother.

Table 1: Relationship between knowledge and attitude of father and mother.

Group	Variable	Mean	SD	'r' value	'p' value
Mother	Knowledge	25.40	4.08	.023	0.924
	Attitude	45.65	3.27	38df	NS
Father	Knowledge	28.20	3.30	.091	0.702
	Attitude	48.45	5.38	38df	NS

The mean score of the overall knowledge of fathers (43.38) was higher than the mean score of mothers (39.08). The 't' value was 2.384 at p<0.001 level which indicates that there was a significant difference between the mean score of father and mother in overall knowledge.

Researcher focused on seven aspects of knowledge on mental illness such as reason for mental illness, precipitating factor, early signs and symptoms, late signs and symptoms, prevention, Treatment and improvement on mental illness. 100% of both father and mother had inadequate knowledge on reason for mental illness and treatment aspects. But in other aspects 85-90% of father and mother had moderately adequate knowledge and 10% of fathers and 5% of mothers had adequate knowledge towards mental illness. The study findings were consistent with the study conducted by Oye Gureje and results showed that poor knowledge of causation was common. The study results also supported by a study conducted by Charmaine J Hugo and results showed that misinformation regarding mental illness existed which influence the preferred treatment modality and help seeking behavior.

There was a positive correlation between the knowledge and attitude of fathers and mothers towards mental illness which was statistically not significant. None of the demographic variables had influence on the

knowledge and attitude of fathers and mothers regarding mental illness except duration of illness.

### Conclusion

The investigator concluded that it is the responsibility of health care personal to create awareness, imparting knowledge and motivate the family members to participate in the care of mentally ill persons in order to reduce the relapse of mental illness.

*Conflict of Interest:* None

*Source of Funding:* Nil

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## A Comparative Study among SARS, MERS and Covid-19

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### Abstract

Epidemics have been inevitable part of human race since ages. Beta coronavirus family is known to have caused 3 highly infectious diseases namely SARS, MERS and COVID-19, spreading over maximum part of world. This review paper aims to compare all the 3 pandemic under sub-headings i) origin ii) viral pathogenicity iii) receptors used by the virus to infect the cells iv) symptoms v) public health measures taken. Research papers published in Google scholar and PubMed were used to gather information. It was summarized that SARS-CoV, MERS-CoV, SARS-CoV-2 have zoonotic sources and MERS spreading through dromedary camels. The case fatalities of MERS are noticed to be highest due to its high virulence. The infection rate of SARS-CoV-2 is highest all three. Both SARS-CoV and SARS-CoV-2 use the same antigen receptor called ACE-2 and MERS-CoV using DPP-4 as receptor protein. All the 3 are respiratory syndromes but may have other clinical symptoms owing to the presence of receptors. Strict public health interventions have to be helpful to control SARS and MERS. Various countries have reacted differently to the COVID-19 emergency and it has shaped the way virus affects the country. The gathered data can be useful in further research and also help in assessment of the diseases better.

**Keywords:** SARS; Coronavir US; COVID-19; MERS; Public Health.

### Introduction

Epidemics have been inevitable part of human race since ages. In past centuries, the world has witnessed many pandemics like bubonic plague, influenza etc. Coronavirus have been a notorious group of viruses. Beta coronavirus family is known to have caused 3 highly infectious diseases spreading over maximum part of world hence to be coined pandemic. Viruses namely, SARS-CoV, which originated in Hubei province of China in 2002 and MERS-CoV, which originated in Saudi Arabia in 2012 and most recently SARS-CoV -2 originating in Wuhan city of China in 2019.

### Aim

This review paper is an attempt to investigate and elaborate all three coronavirus epidemics in this century.

### Methods

The review paper is divided into 5 sub headings and is

written under topics.

- Origin
- Viral pathogenicity
- Receptors used by the virus to infect the cells
- Symptoms
- Public health measures taken

### Inclusion Criteria:

Research papers published in Pubmed and Google scholar are used in the review paper. Cross sectional studies, observational studies and univariate and multivariate analyses, longitudinal studies and review studies are used to track data for the comparison in the review paper.

### Exclusion Criteria:

Single case reports are avoided in the study. The review paper is written under proper ethical guidance.

### Origin:

SARS-CoV its emergence was noted in 2003 in China. Its origin is believed to be zoonotic and human to human transmission is noted. According to Yuan J et al<sup>1</sup>, small carnivores, including civet cats and raccoon dogs are carrier of Scovs and hence thought to act as intermediate sources of the epidemic. The study suggested that there is potential recombinant origin of Rp3 and Rs672 viruses, whose major parent has a relatively closer phylogenetic relationship with human-Scov which suggested the direct ancestry of Human – Scovs. In another study done by Ben Hu et al in 2017<sup>2</sup>, reported that all bat SARS-CoVs described so far are quite distinct from SARS-CoV in S gene and accessory genes such as ORF3 and ORF8 and concluded that they are not likely the direct ancestor of SARS-CoV. Hence throwing light towards the recombinant origin.

MERS-CoV its first case was reported in 2012, affecting Qatar, Saudi Arabia and Egypt. According to Corman VM et al (2014)<sup>3</sup>, MERS-CoV antibodies in dromedary camels have been circulating as early as 1992, hence is in their more than 20 years. Their study suggested that lower seroprevalences in young dromedary camels point that they are more likely to carry infectious virus. Hence young, immunologically naïve animals support virus amplification in dromedary camel populations. In another study conducted by Yang Y et al, in 2014<sup>4</sup>, found out that MERS-CoV have originated from bat corona viruses, genetically related to HKU4. Dipeptidyl peptidase4 (DPP4), the receptor of MERS-CoV also serves as receptor for HKU-4 but not of HKU-5. It was noticed that there are functional differences where MERS-CoV prefers human DPP4 over Bat DPP4 whereas HKU-4 shows opposite. (HKU-4 and HKU-5 being the bat coronaviruses).

SARS-CoV-2 COVID-19 caused by the virus SARS-CoV2 out broke in Wuhan, China in late December. As studied by Guo YR et al, in 2020<sup>5</sup>, SARS-CoV-2 belongs to beta-coronavirus, with highly identical genome to bat coronavirus. The epidemic is likely to originate from Huanan seafood market. SARS-CoV2 shares 80% similarity with SARS-CoV and 96% with bat coronavirus BAT-CoV RaTG13.<sup>6</sup> Tang X et al<sup>7</sup> carried a population genetic analysis of 103 SARS-CoV-2 genomes and classified into 2 categories according to evolution. L type and S type. L type is derived from S type and is evolutionarily more aggressive and contagious.

### Viral Pathogenicity

SARS-CoV According to study conducted by Sins A et

al<sup>21</sup>, that SARS-CoV generally affected cells in the lower respiratory system through the apical surface exceeded  $10^6$  PFU/ml and viral titers in the basolateral compartments were low with peak titers below  $10^5$  PFU/ml. The study even suggested that ciliated cell-types had cytoplasmic vesicles filled with viral particles and were seen within the between the microcilia/villi shafts pointing towards the enormous capability for release of large quantities of SARS-CoV into the lumen of the conducting airway during viral replication. As per the studies<sup>22</sup> on PH dependence of SARS-CoV using

retroviral and lentiviral vectors that have been pseudo typed with the SARS-CoV protein, it was found that the spike protein mediated entry into the target cells. Neither M nor E protein alone was able to support viral entry in the absence of spike protein hence recommending other functions to these viral glycoproteins. The study also found out that S glycoprotein is fusion competent and able to function in viral entry through a PH dependent mechanism. The pathological changes are stated by the study conducted by Nichollas J et al<sup>23</sup>, in which post mortem tissue samples from 6 patients who died from SARS and open lung biopsy was obtained. It was found that alveolar pneumocytes also showed cytomegaly with granular amphophilic cytoplasm. Changes in morphology of cells were notified including bronchial epithelial denudation, loss of cilia and squamous metaplasia. In one patient atrophy of white pulp of spleen was noticed. Hence SARS is a systemic disease affecting several organs but the effect of the disease is more pronounced in respiratory system.

MERS-CoV A lot of similarities is found in MERS pathogenicity to the SARS-CoV pathogenicity.<sup>25</sup> Both the diseases are prevalent in the lower respiratory tract and patients showing hypoxia is common to both.<sup>25</sup> The case fatality in MERS-CoV is higher than the SARS-CoV and it is thought that MERS-CoV has higher virulence than SARS-CoV but cannot be proved because many MERS infections went unnoticed initially.<sup>25</sup> The lesions found in chest radiography of MERS patients is quite different from those found in SARS patients which have intra-alveolar organization with bronchiolitis obliterans organising pneumonia (BOOP) like pattern.<sup>26</sup> The MERS-CoV genomes shares more than 99% sequence identity pointing towards lower variance among genomes and less mutation rate.<sup>27</sup> It was found that during infection by MERS-CoV, the S protein is cleaved into a receptor-binding subunit S1 and a membrane fusion subunit S2<sup>28-31</sup> after which S1 subunit binds to DPP4 mediating a viral attachment. It has also been noted the MERS-CoV can get itself attached to the DPP4 of other animals like humans, camels, ferrets and bats.<sup>32</sup>

SARS-CoV-2 In a study<sup>34</sup> consisting of 31 patients having mild/moderate COVID-19 symptoms and 25 patients with severe symptoms, it was found that WBC count had decreased significantly in patients showing mild symptoms. The total lymphocyte count was decreased in severe patients but not in mild patients suggesting lymphopenia in severe cases. The neutrophil to lymphocyte ratio had increased profoundly in severe patients than in mild patients suggesting a link between neutrophil to lymphocyte ratio to the severity of the disease including CD4+(cluster of differentiation 4) T helper and CD8+ cytotoxic cells. Total T cell number had decreased significantly in both mild and severe patients hence no major difference was noted in mild and severe patients. In the study it was also found that concentration of IL-6 (Interleukin-6) was significantly increased in severe patients but not in mild patients indicating towards the cytokine storm which worsens the condition of patient. In the study<sup>p</sup> conducted by Zhou J et al, had taken 173 patients whose serial plasma samples were collected during hospitalization. It was found that the seroconversion rate for Ab (total antibodies), IgM and

IgG was 93.1%, 82.7% and 64.7% respectively. The median conversion time for Ab, IgM and IgG were found to be day-11, day-12 and day-14 separately. The antibodies were detected <40% during 1 week of onset but rapidly increased to 100% (Ab), 94.3% (IgM), 79.8% (IgG) since day-15 after onset. COVID-19 patients were also detected with RNAemia, acute cardiac injury .36

#### **Receptors Used By the Viruses to Infect Cells:**

SARS-CoV-ACE2 a metalloproteinase angiotensin converting enzyme 2 is identified to be the receptor protein. In a study conducted by Wenhui li<sup>8</sup> and team in 2003, found that potential amount of ACE2 messenger RNA in bronchus and lung parenchyma as well as in the heart, kidney and gastrointestinal tracts. Lungs and kidney act as primary sites of expression of murine ACE2. According to conclusion drawn by Wenhui Li, SARS viruses are detected in faeces henceforth indicating towards the expression of ACE2 in small and large intestines. According to the study conducted by I Hamming et al 9 in 2004, on tissue distribution of ACE2 protein, the functional receptor for SARS- coronavirus, found that ACE2 expression is found in nasal and oral mucosa in the basal layer of non- keratinizing squamous epithelium. The study also pointed towards the oral faecal transmission due to presence of functional receptor of SARS-CoV (ACE2) in the small intestine provided the virus is present in the stool of the patients. It is to be noticed that despite presence of ACE2 in the endothelia of maximum organs and SARS-CoV in blood plasma infected individuals, very few organs become virus positive. This implicates towards the need of a co-receptor for cellular entry of SARS-CoV just like in case of HIV. Physiological role of ACE2 in most tissues has not been elucidated, although it is thought to act as an essential regulator of cardiac function and blood pressure control by acting as counterpart of ACE1.<sup>9</sup>

MERS-CoV-CD-26 or also called as DPP-4 (Dipeptidyl peptidase) is identified as the receptor of MERS-CoV. CD-26 is identified as the third functional coronavirus receptor after amino peptidase N and ACE2<sup>11</sup>. CD-26 is found as a homodimer on the cell surface and is classified as a type II transmembrane protein. As studied by Bosch BJ et al 11 in 2013, DPP4 is multifunctional and plays a major role in glucose metabolism by its degradation of incretins. Incretins are metabolic hormones regulating the level of glucose by decreasing it. Its other physiological roles as identified in T cell activation, chemo taxis modulation, cell adhesion and apoptosis. It is expressed in epithelial cells of lungs, kidney, and small intestine, liver and prostate and activated leukocytes and occurs in circulation in soluble form.

SARS-CoV-2 According to the study conducted by Hoffmann M et al in 2020<sup>12</sup>, SARS-CoV-2 uses the SARS-CoV receptor ACE2 for entry and serine protease TMPRSS 2 for 2 protein priming. Transmembrane protease, serine 2 has a type II transmembrane domain which belongs to class A domain.

#### **Symptoms**

SARS-CoV- SARS mainly affected the respiratory system. Higher fatality rates were observed among older patients

and people with co-morbidities due to less active immune system 10. SARS-CoV infection also causes massive necrosis of spleen and lymph nodes. According to a study conducted by WANG JT et al<sup>13</sup>, most occurrent symptoms at initial stages were fever, cough, myalgia, dyspnea, diarrhoea and rigor. The incubation period averages to 10 days and maximum virus excretion from the respiratory tract occurs on about 10th day illness and then declines.<sup>38</sup> In the study it was found that abnormalities on chest radiography suggested pneumonia which was found in 56 of the 76 patient<sup>13</sup>. Lesions were found in one lobe in 33 patients, in two lobes in 15 patients, in three lobes in 4 patients, in four lobes in 2 patients and five lobes in 2 patients.<sup>13</sup> Adding to these common symptoms, other were lymphopenia (69.6%), thrombocytopenia (44.8%) and elevated lactate dehydrogenase (71.0%) and elevated creatine kinase (32.1%).<sup>14</sup> Inspiratory crackles could be heard at the base of lungs.<sup>15</sup> According to a study<sup>10</sup>, of the infected people 20% to 30% required mechanical ventilation and nearly 10% died.

MERS-CoV-MERS shares many clinical features with SARS as it also primarily involves respiratory system. Of the many symptoms included severe atypical pneumonia, yet key differences are evident like patients with MERS have prominent gastrointestinal symptoms and often acute kidney failure.<sup>10</sup>

In severe cases multi organ failure may even lead to death. In a descriptive study conducted by Assiri A et al<sup>15</sup> in 47 cases it was found that 98% had fever, 87% patients had fever with chills or rigor, 83% patients reported to have cough and 32% of patients had myalgia. Gastrointestinal symptoms were also frequent; including diarrhoea (26%), vomiting (21%) and abdominal pain (17%). All patients had chest findings having unilateral or bilateral abnormalities in chest radiography. Biochemically the same study suggested, raised concentration of lactate dehydrogenase (49%) and aspartate aminotransferase (15%) and thrombocytopenia (36%) and lymphopenia (34%). In another study conducted by Zumla A et al<sup>16</sup>, it was found that patients infected with MERS have neutrophil and macrophage infiltration and alveolar oedema in infected lung tissue. Ineffectual B-cell and T-cell responses with prolonged cytokine expression have been detected with severe disease whereas a more rapid shut off of innate immune response and a potent anti-SARS-CoV antibody response was reported in recovered patients.

SARS-CoV-2-clinical symptoms of COVID-19 patients include fever, cough, fatigue and gastrointestinal infection was also found in some patients. More recently one study<sup>18</sup> on 214 COVID-19 patients by MAO et al further found that about 88% among serious patients showed neurologic problems that consist of acute cerebrovascular diseases and impaired consciousness. Study conducted by Young BE<sup>19</sup>, virus was detectable in the stool sample (50%) and blood sample (8%) collected from patients of Singapore by PCR technology but virus was not found in urine sample. Lymphopenia (<1.1\*10<sup>9</sup>/L) was present in 7 out 16 patients and an elevated C-reactive proteins (>20mg/L) in 6 out of 16 patients.

### *Public Health Measures Against Epidemics*

SARS-CoV Some public health measures were implemented pursuant to world health organization and others were implemented by the governments of respective countries. Infra-red scanners were used to detect fever which is a most common symptom of SARS-CoV among people at international borders or at gatherings.<sup>38</sup> Airline transmission was noted to be one of the main causes of rapid transmission of SARS in different parts of world.<sup>38</sup> In Canada (Toronto), nosocomial transmission was responsible for transmission at the beginning of the outbreak due to infection in healthcare workers prior to implementation of hospital wide infection control precautions.<sup>38</sup> Separate hospitals were not designated as SARS hospitals which further added to number of cases.<sup>38</sup> In China, 2 super spreaders were identified. The Guangzhou infection resulted in transmission in two hospitals with 3 generation of infections.<sup>38</sup> The 2nd super spreading incident travelled to Guangdong province.<sup>38</sup> The epidemics in Hong Kong, mainland China, Singapore, Taiwan and Toronto have been of particular concern because of the multiple generations of local transmission seen in those areas.<sup>38</sup> One of the key reasons that Hong Kong could combat SARS is the good quality data capture systems to permit detailed epidemiological analyses day by day, to inform both health policy formulation and the evaluation of intervention impact.<sup>39</sup> The Chinese government introduced draconian measures designed to strictly regulate movements and mixing or crowd gathering.<sup>39</sup> The Beijing government began purchasing emergency supplies both nationally and from abroad.<sup>40</sup> All hospitals were closed as early infection transmission was noticed among health workers due to lack of information and proper steps were not taken.<sup>40</sup> Separate hospitals for SARS patients were opened and a large number of healthcare faculties were trained to treat patient through video clips and printed materials about PPEs and infection control.<sup>40</sup> Negative pressure chambers were made available.<sup>40</sup> The close contacts of a patients were traced and were quarantined for at least 14 days.<sup>40</sup> All sites of public entertainment (theaters, bars libraries and indoor sports) facilities were closed.<sup>40</sup> Fever checks were instituted through thermal scanner at airports and major train stations.<sup>40</sup> For better information transmission to the public and to avoid all kinds of rumours based on SARS, the Beijing television ran daily 2 hours educational programs about SARS.<sup>40</sup> Proper dissemination of information was ensured so that to avoid panic among the citizens.<sup>40</sup>

MERS the Middle East respiratory syndrome (MERS) outbreak in Korea in 2015 may be attributable to poor nosocomial infection control procedures implemented. In MERS, both community acquired and hospital acquired cases have been reported with little human to human transmission reported in the community.<sup>41</sup> Most human cases of MERS have been linked to lapses in infection prevention and control in healthcare settings, with approximately 20% of all virus detections reported among healthcare workers (HCWs) and higher exposures in those with occupations that bring them into close contact with camels.<sup>42</sup> Surprisingly, testing of adult pilgrims performing Hajj in 2012 to 2014 have not detected any MERS-CoV.<sup>42</sup> Most pilgrims arrived had

arrived were from MERS free countries.<sup>43</sup> Infection prevention and control implications included the need for hand hygiene and personal protective equipments to minimize self-contamination and to protect against inoculation of mucosal surfaces and the respiratory tract and enhanced surface cleaning and disinfection in healthcare settings.<sup>43</sup> According to a study conducted by Alqahtani AS et al<sup>45</sup> investigating the awareness about MERS in the population of middle east countries, found out that over 79% of participants knew that MERS-CoV transmits through coughing and sneezing. Intensified public health measures, including contact tracing, quarantine and isolation of all contacts and suspected cases and infection prevention and control had brought the MERS in control in the Republic of Korea.<sup>46</sup>

SARS-CoV-2 the spread of SARS-CoV-2 has already taken over 100 countries. The global health systems worldwide are implementing strict public health interventions to control the pandemic.<sup>47</sup> A coordinated global response is must at this time. Italy and Spain have faced the hardest blow of COVID-19 among the European countries counting 34,167 deaths in Italy and 27,136 deaths in Spain as of 12th June 2020. Italy and Spain have a highly socially citizens, moderate weather and a few densely populated cities. The population of both countries has an affectionate social physically and large percentage of population comprises of elderly people. The government of both countries neglected the facts and did not impose any regulatory actions against pandemic. Spain also celebrated Women's day where a huge gathering took on to streets and the infection just spread over the masses. Lombardy and Veneto are worst hit cities of Italy. Italy had different policies put on different cities which had a clear impact on the clear impact on the virus spread. Spain had to impose one of the world's strictest lockdowns on March 14 till April 25 to handle the situation. The initial exponential curve of infected persons of Italy matched with that of China's curve<sup>47</sup>. The change in curve's slope is the most important concern otherwise clinical and social problems will take on unmanageable dimensions resulting in catastrophe only<sup>48</sup>. Lombardy implied non-pharmacological and pharmacological interventions, including antiretroviral medications<sup>48</sup>. Trust of public on government official also plays a crucial roles imposing public measures as it ensures how obediently public follows them<sup>49</sup>. Indian governments seeing the situation of COVID-19 announced to maintain social distancing (1 m distance) which was unaffordable by people of weaker section like daily wage workers.<sup>50</sup> The government announced complete lockdown in phases and curfews were issued in different parts of the country.<sup>50</sup> Few state governments ensured monetary help for the weaker section so that their condition would not be perished.<sup>50</sup> Focus was maintained on personal hygiene and sanitization.<sup>50</sup> Gatherings were strictly prohibited and police force was deployed to ensure to crowding takes place.<sup>50</sup> Separate infrastructures to treat COVID-19 patients were made to avoid nosocomial infection.<sup>50</sup> In India, the management of patients with coronavirus was divided into several stages including 1. Management of Mild Cases 2. Management of Moderate Cases 3. Management of Severe Cases. Mild cases are managed at Covid Care Centre, First Referral Units (FRUs), Community Health

Centre (CHC), sub-district and district hospitals.<sup>52</sup> The government of USA did not completely shut down the affected areas even after cases getting reported.<sup>51</sup> Lack of enough ventilators and medical staffs was also a concern in the country.<sup>51</sup> Lack of enough testing kits to test for COVID-19 positive patients also concerned the officials.<sup>51</sup>

## Results

SARS-CoV originated from zoonotic sources and phylogenetically resembles Bt-SCoV and sourcing towards recombinant in origin. MERS-CoV spread through dromedary camels and phylogenetically it also originates from bats. The recent SARS-CoV-2 has 96% genetic similarity with bat coronavirus BAT-CoV RaTG13. All the coronaviruses normally attack the lower respiratory system. The case fatalities of MERS being higher than SARS and its spread was limited due to its high virulence nature. The pathogenicity of SARS-CoV-2 is less than SARS-CoV and MERS-CoV but its infection rate is quite higher than both. Both SARS-CoV and SARS-CoV-2 use same receptor to infect the cell that is ACE-2 which is a metalloproteinase. MERS-CoV use DPP-4 as receptor protein. All the 3 syndromes have quite similar symptoms like fever, cough, myalgia, dyspnea, diarrhoea, rigor and abnormalities in chest radiographies.

Strict public health interventions in past has proved to be helpful to control SARS and MERS. Efficient and good quality data capture to analyse the epidemiology of the epidemic is a must in every country. Immediate lockdown and shutdown of public institutions and boycotting every gathering, is one of the measures that has been taken during SARS-CoV-2. Separate hospitals for the infected people should be built to avoid nosocomial infection. Hence the data collected was compiled and reviewed systematically by the authors.

**Table 1:** Severity Vs Clinical Features (According to study by Wang Y<sup>20</sup>).

Severity	Features
Mild	Mild symptoms without radiographic features.
Moderate	Fever, Respiratory symptoms with radiographic features.
Severe	<ul style="list-style-type: none"> <li>• Dyspnea, respiratory rate greater than 30 times/min.</li> <li>• Oxygen saturation less than 93% ambient air.</li> <li>• PaO<sub>2</sub>/FiO<sub>2</sub> less than 300 mm hg (ratio of arterial oxygen partial pressure to fractional inspired oxygen).</li> <li>• *Should meet one of the 3 criterias.</li> </ul>
Critical	<ul style="list-style-type: none"> <li>• Respiratory failure.</li> <li>• Septic shock.</li> <li>• Multiple organ failure.</li> <li>• *Should meet one of the 3 criterias.</li> </ul>

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## A Study to Assess the Effectiveness of Video Assisted Teaching Regarding Knowledge of Care of Neonate Undergoing Phototherapy

Alka D Tajne

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### Abstract

A study to assess the effectiveness of video assisted teaching regarding knowledge of care of neonate undergoing phototherapy among the 3rd year GNM student of Aminaben M Gangat Memorial School of Nursing, Surat was conducted by the investigator, in partial fulfilment as a requirement for the degree of Basic B.Sc. (N) Veer Narmad South Gujarat University during year 2015-2016. **Objectives of the Study:** 1. To assess the knowledge regarding care of neonate undergoing phototherapy among students. 2. To determine effectiveness of video assisted teaching regarding care of neonate undergoing phototherapy. **Methods:** An evaluative research approach with pre-experimental design was used for the study. The study was conducted in Aminaben M. Gangat Memorial School of Nursing rampura, Surat. The sample comprised of 30 students of the 3rd year GNM. Sample was selected by using purposive sampling technique. Data was collected using a self structured questioner. Data was analyzed using descriptive and inferential statistics. The results of this study showed that highest percentage (53.33%) of student were in the age of 20 years. Majority (60%) of the students have previous exposure related to topic. The findings of the study concluded that students had inadequate knowledge regarding care of neonate undergoing phototherapy. The Video assisted teaching on care of neonate undergoing phototherapy was highly effective in improving the knowledge of students regarding care of neonate undergoing phototherapy.

**Keywords:** Neonate; Undergoing Phototherapy; Newborn.

### Introduction

A child is the gift of god or the greatest treasure of mankind, child's health wellbeing safety and future are in the hands of parents from birth to death newborn are consider to be tiny and powerless. The first year of child life is crucial laying the foundation to good health. At this time certain specific care and precautions are essential to ensure the survival of health of child to a future adult during this physiological process or adaptation for its survival of the infants life or neonates have to face life threatening problems such as asphyxia, hypothermia, hyperthermia, infections and hyperbilirubinemia etc. so the assessment and care of newborn is very essential.<sup>1</sup>

Among these problems of neonates hyperbilirubinemia is the commonest problem among infants in neonatal period. High levels of bilirubin can occur in the blood called hyperbilirubinemia. In cases the etiology of these disorder multifactorial. Several factors must be

considered before treatment is begun in icteric newborns. First, it is important that the obstetric history of the mother and delivery be analyzed to allow identification of the factors that may be contributing to the occurrence of hyperbilirubinemia, such as drugs taken by the mother (diazepam, oxytocin's), type of delivery (forceps, pelvic, cesarean section), delay in umbilical cord clamping, blood type, Rh factor, and maternal comb's test.<sup>1</sup>

Phototherapy is the most common form of treatment for jaundice. The bilirubin level for initiative of phototherapy varies depends on the age and health status of the newborn. However any newborn with a total serum bilirubin greater than 21 mg/dl should receive phototherapy. Phototherapy consists of the application of fluorescent light to the infants exposed skin. Light promotes bilirubin excretion by photo-isomerization, which alters the structure of bilirubin to a soluble form

for easier excretion. Studies indicate that blue fluorescent light is more effective in reducing bilirubin. However, because blue light alters the coloration of the infant, the normal light of fluorescent bulbs in the spectrum of 420 to 460 nm is often preferred. So that the infants skin can be better observed for colour (Jaundice, pallor and cyanosis) or other condition.

## Objectives

- To assess the knowledge regarding care of neonate undergoing phototherapy among students.
- To determine effectiveness of video assisted teaching regarding care of neonate undergoing phototherapy.
- To assess the post test knowledge regarding care of neonate undergoing phototherapy among the students.

## Hypotheses

**H1:** There will be significant difference between mean pre and post test knowledge score of the students regarding care of neonate undergoing phototherapy.

**H2:** There will be significant association between pre-test knowledge score of students regarding care of neonate undergoing phototherapy and the selected demographic variables.

## Materials and Methods

An evaluative research approach with pre-experimental design was used for the study. The study was conducted in Aminaben M. Gangat Memorial School of Nursing rampura, Surat.

The sample comprised of 30 students of the 3rd year GNM. Sample was selected by using purposive sampling technique. Formal written permission from collage authorities was obtained prior to data collection process. Data was collected using a self-structured questioner. Data was analyzed using descriptive and inferential statistics.

**Research Approach:** Research approach used for this study was evaluative approach.

**Research Design:** A pre experimental design, pre and post test without control group.

## Variables:

**Independent Variables:** In present study independent variables was video assisted teaching regarding knowledge of care of neonate undergoing phototherapy.

**Dependant Variables:** In present study; knowledge regarding knowledge of care of neonate undergoing phototherapy among 3rd year GNM students, age of the students and previous exposure regarding the topic.

## Sample, Sample Size & Sampling Techniques:

### Sample:

- Sample defined as a representative unit of a target population, which is to be worked upon by researchers during their study.
- The third year GNM student's were the sample for the present study.

**Sample size:** The sample size is 30 students of GNM 3rd year.

**Sampling technique:** Sampling refers as a process of selecting a representative segment of the population under study. Convenient sampling was used for this study.

## Finding of Study:

The major findings of the study are summarized as follows:

- Majority 16 (53.33%) of sample was 20 years old.
- Majority 18 (60%) of the sample had the previous exposure related to topic.
- Most of the samples i.e. students in pre test were having 18(60%) poor knowledge score.
- In the post-test majority of the students i.e. 22(73.33%) had good knowledge score.
- Highly significant difference found between the pre test and post test Knowledge Scores at the level of ( $P < 0.05$ ).
- **Structured teaching programme** is proved to be effective in improving the knowledge of the mother regarding care of LBW newborns.

## Recommendations for Further Study:

Based on the findings of the present study recommendations offered for the future study are:

- Similar study can be conducted on a larger sample covering the different department of the hospitals.
- Similar study can be conducted on a Staff Nurses working in the Pediatric Units.
- A similar study can be conducted with control group design.
- The comparative study can be conducted related to phototherapy in Government hospital attached Medical Collage and in Private Hospital of the Gujarat State.
- A comparative study can be conducted to find out the effect of different teaching methods in improving knowledge and Practices of Nurses.

## Conclusion

The findings of the present study showed that highest percentage 16 (53.33%) of students belonged to the age of 20 years old. The post-test knowledge score was higher than the pre-test knowledge score range. The mean post-test knowledge score (23.5) also was higher than the mean pre-test knowledge score (15.63).

The comparison of pre-test and post-test knowledge score showed that there was a significant gain in knowledge scores of students after VAT at 0.05 level ( $t = 22.6, p < 0.05$ ). This shows that video assisted teaching was effective.

The study findings concluded that students had inadequate knowledge regarding care of neonate undergoing phototherapy. The video assisted teaching had great potential for accelerating the awareness regarding care of neonate undergoing phototherapy.

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## Subject Index

Title	Page No
A Comparative Study among Sars, Mers and Covid-19	81
A Study to Assess the Effectiveness of Structured Teaching Programme on Osteoporosis Among Middle Aged Women Residing at Selected Rural Area of Bangalore District Karnataka	41
A Study to Assess the Effectiveness of Video Assisted Teaching Regarding Knowledge of Care of Neonate Undergoing Phototherapy	89
Adverse effects on Covid 19 vaccination	25
Assess the Knowledge and Attitude of Parents towards Mental Illness	77
Effectiveness of Planned Teaching Programme on Knowledge Regarding Selected Thyroid Disorders among Women	19
Knowledge Regarding Cervical Cancer Among Women at Selected Setting	49
Pervasiveness of Leucorrhoea and Health Seeking Behavior of Women with Leucorrhoea: A Cross Sectional Survey	71
Play Needs of Children: Knowledge among Mothers	11
Prevalence of Pelvic Floor Dysfunction among Reproductive Age Group Married Women	9
Role and Responsibility of Community Mental Health Nurse	15
Study to Identify the Causes for Increase in the Incidence of CAUTI and to Implement Planned Teaching	53

## Author Index

Name	Page No	Name	Page No
A Vimala	77	S Jayashree	9
Asha Lekshmi S	41	S Rajath	49
C Nallathai	49	Sheeba Minerva Salins	53
David Pascaline J	19	Sukare Lata V	19
Dipanweeta Rourtray	81	Swetaleena Ashe	81
Lora Mishra	81	Tajne Alka D	25
M Hemamalini	49	Tajne Alka D	89
M Hemamalini	9	Tembhare Megha S	19
Mohammed Rafi	71	Vaishali Maurya	71
Namita Batra Guin	11	Varsha Gupta	71
Nikhil Nandaragi	53	Varsha	71
Pallavi Rao	15	Yajnaseni Jena	81
Pushap Lata	11	Yanik	71

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