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A Descriptive Study To Assess The Knowledge Regarding Care Of New Born Under Phototherapy Among Staff Nurses With The View To Develop Information Pamphlets In Muskan Hospital, Unnao, U.P

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Abstract
A descriptive study to assess the knowledge regarding phototherapy among staff nurses in Muskan Hospital, Unnao with the view to develop information pamphlets. The objectives of the study are
1. *To assess the existing knowledge of staff nurses regarding care of new born under phototherapy.*
2. *To find out the association between the level of knowledge of staff nurses with their selected demographic variables.*
3. *To develop and distribute the information pamphlets.*
The research design used for this study was non-experimental. The conceptual frame work used for this study is based on general system Theory developed by ***Bertanlanffy, 1968.*** *The data was collected to assess the level of knowledge about the care of new born under phototherapy. The data collected were analyzed and interpreted by using descriptive and inferential statistics. Major findings of the study revealed that the knowledge score of the study, 33.66% of the staff nurses have adequate knowledge, 56.67% of the staff nurses moderate knowledge level and 6.67% of the staff nurses haveinadequate knowledge level and mean was 7.8 , median was 17 , mode was 20 and standard deviation was 33.3%.The study proved that there was significant association between of staff nurses and the demographic variables such as age, gender, residential area, religion, year of experience, professional education. It can be concluded that in our study knowledge score was average regarding care of new born under phototherapy after implementation of questionnaire programme the knowledge of staff nurses was improved. Hence the questionnaire programme was effective.*

Keywords: *Phototherapy, Newborn, Pamphlet.*

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I. Introduction

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 new born. However, any newborn with a total serum bilirubin greater than 359 µmol/l (21md/dL) should receive phototherapy. Phototherapy consists of the application of fluorescent light to the infants exposed skin. Studies indicate that blue fluorescent light is more effective in introducing bilirubin. However, because blue light alters the coloration of the infants, the normal light of fluorescent bulbs in the spectrum of 420 to 460 nano-meter is often preferred.

History of phototherapy or light therapy: The term phototherapy literally means the use of light, especially ultraviolet light, to treat medical condition. Natural sunlight has been known to be beneficial in certain skin disorders for thousands of Years, and it is the ultraviolet part of the radiation produced by the sun that is used in phototherapy. Indian medical literature dating to 1500 BC describes a treatment combining herbs with natural sunlight to treat non-pigmented skin areas.

It was in the 19th century that the use of artificial light source of phototherapy happened **Prof. Niels Ryberg Finsen** is known as the father of phototherapy.Phototherapy is the use of visible light to treat severe jaundice in the neonatal period approximately 60% of term babies and 80% of pre term babies will develop clinically apparent jaundice, which classical becomes visible on day 3, peaks 5-7 and resolves by 14days of age of in a term infant and by 21 days in the pre term infant.Jaundice refers to the yellow appearance of the skin that occurs with the deposition of bilirubin in the dermal and subcutaneous tissue. Normally in the body, bilirubin is processed through the liver, where it is conjugated to glucuronic acid by the enzyme uridine diphosphate glucuronictransferase A1. Jaundice occurs in as many as 60% of all normal new born with in the first week of life.Phototherapy also known as light therapy is a therapeutic method that is done with the non-ionizing operation of the electromagnetic spectrum.The objective of phototherapy is to heal a clinic condition

minimizing the adverse effect.Phototherapy has used since 1958 for the treatment of the neonatal hyperbilirubimia. It causes unconjugated bilirubin to be mobilised from the skin by structural isomerisation to a water soluble from that can be excreted in the urine. Decision to start phototherapy on the level and the rate of rise of serum bilirubin, the gestational and postnatal age of infant and the underlining cause of the hyperbilirubimia.

In most infant with psychological jaundice bilirubin concentration do not rise to a point that required treatment. However, in some infants with exaggerated psychological jaundice and in many infants with pathologic jaundice, bilirubin in the blood research very high concentration that put the infant at risk from acute and chronic bilirubin encephalopathy. In this cases, treatment aimed at decreasing bilirubin concentration is required in order to avoid kernicterus.

The effect of light on jaundice in neonates and the ability of light to decrease serum bilirubin level, was first described by Cremeretal in 1958. This observation lead to the development of light sources use in the treatment of infant with hyperbilirubinimia, a treatment now referred to as phototherapy. Phototherapy has been effectively used as a relatively inexpensive method of treating neonatal hyperbilirubinimia. The decline in the number of exchanging transfusion in recent year is, at last in a part, likely a direct reflection of effectiveness of phototherapy at treating hyperbilirubinimia in modern neonatal ICUs (NICUs) exchange transfusion are rare and are only used as a rescue therapy to avoid kernicterus in newborns with server jaundice when phototherapy is inadequate. At its most basic phototherapy refers to use of light convert bilirubin molecules in the body in to water soluble isomers that can be excreted by the baby.

The rational use of phototherapy and outline the care of neonates receiving phototherapy delivery and minimize complications of phototherapy. The absorption of light by bilirubin also results is the generation of excited –state bilirubin molecules that react with oxygen to provide colorless oxidation products or photo oxidation products. This process occurs more slowly configurational or structural isomerisation. Photo oxidation products are primarily excreted in the urine. Phototherapy is a treatment for jaundice where the expsosure of skin to a light source converts unconjugated bilirubin molicules into water soluble isomerse that can be excreted by the usual pathways. Blue- green light is most effective for phototherapy.The skin absorbed by bilirubin to have the photochemical.

All phototherapy units are to be set on high intensity at all times, regardless of the amount of blue light via light emitting diodes (LEDs). Therefore, a single unit is classified as a single light and single, double or triple lights refers to the amount of unit not the intensity setting. As per neonates BLUE LED phototherapy in-service guide, mini neo BLUE LED phototherapy units deliver the same intensity as the standard units on high intensity, the only difference is in the surface area coverage.

Phototherapy can provide control over the intensity and type of ultraviolet rays it emits, unlike exposing one's self to the sun. The duration of the therapy, the affected area in expose to UV light through either a light box or smaller devices, such as handheld UVB lamps, for direct expose. The eyes are always secured with goggles in every session. Since excessive exposure to, or improper use of light therapy can cause sun burn and other side effects, phototherapy is usually left to seasoned dermatologist who are qualified to administered this room of treatment and observe its side effects on the body. They prescribe treatment option and time table that are based on each patient condition.

NEED FOR THE STUDY

"The children of today are the adult of tomorrow the deserve to inherit a safer, fairer and the healthier world there is no task more important than safe guarding their environment ".

WHO, 2003

The world IMR (infant mortality rate) on an average is 43.52 per 1000 live and the world incidence rate for neonatal jaundice is 1-10 of about 1,33,000 Among that our country has the highest IMR estimation to about 34.6 per 1000 live birth and Indian incidence rate for neonatal jaundice is 1 to 10 for about 1,12000.

(CIA world feet book 2007)

A recent study that claims that neonatal phototherapy increases the risk of a child developing nevi, those little brownish things on our skin that are commonly called moles. In study the demographic, French investigators reported that 8-9year old kids who had received as new borns had more nevi sized 2-5millimeters than kids who did not receive phototherapy.

The most common and relatively non-invasive treatment for jaundice is phototherapy (light therapy) around 1958, a very intelligent nurses in England noticed that the babies near the window in the hospital nursery were less likely to become jaundiced. Eventually it was discovered that light causes a chemical reaction in the bilirubin changing it to a form which can be excreted directly without needing to be conjugated in the liver.

Health care is continually changing in the way nurses organize and deliver care to clients for this reason, nursing knowledge must continuously grow and expand to keep nursing care approaches relevant, current, and appropriate, without, new knowledge, nursing cannot improve techniques for therapies such as

infant care, client education. research based practice is essential if the nursing profession is to meet the needs of society for safe effective, and efficient nursing care.

Certain precautions must be taken to prevent injury to the infant during the use of phototherapy. Because the side effects that can occur with phototherapy include loose green stools due to accelerated intestinal transit time a rash "Bronze body syndrome "(a bronzing or greenish brown discoloration of the skin if phototherapy is used in the presence of underlying liver disease). Hyperthermia, priapismincreased. Insensible water loss, lethargy, and possibly behavior difficulties due to deprivation of stimulation because of eye batching.

STATEMENT OF THE PROBLEM

"A descriptive study to assess the knowledge regarding care of new born under phototherapy among staff nurses with the view to develop information pamphlets in Muskan HospitalUnnao, U.P."

OBJECTIVES OF THE STUDY

1. To assess the existing knowledge of staff nurses regarding care of new born under phototherapy.

2. To find out the association between the level of knowledge of staff nurses with their selected demographic variable's.

3. To develop and distribute the information pamphlets

II. Review Of Literature

M Yurdakok(2015)

A comparative study was conducted to assess photo therapy use in jaundiced newborn in California. They had selected new born infant included were at least 37 weeks of gestation had birth weight of at least 2500gm. The primary out-come variable for the study was receipt of phototherapy total serum bilirubin measurement. The result of the study showed that compared with chart review, phototherapy codes in the data base were 94.4 percent.

The effectiveness of neonatal hyperbilirubinaemia treatment depends directly on the amount of energy emitted by light. This cross sectional study determines the irradiance of phototherapy equipment in maternity wards in Maceio, AL, brazil. All equipments use in neonatal units in Maceio was include in study, totalling 36 devices, accept those in maintenance. The measurement of irradiance was carried out with a radiometer. We observed that 72.20% of the equipment presented efficient irradiance and 27.76% were inefficient. The conclusion is that the majority of phototherapy devices are emitting the minimum required irradiance for neonatal jaundice treatment.

TB Newman (2012)

A descriptive study was conducted to assess the knowledge of primary health care worker's about the description causes effective treatment and phototherapy, and squealer of neonatal jaundice in Nigeria. They had selected a local government area i.e. an administration district, south western part of Nigeria. Community health workers in this area were interviewed by means self-administered questionnaire which focused on neonatal jaundice its causes, treatment complication. The result of the study sixty-six community health workers participated in survey and male to female ratio was 15, they concluded that primary health care workers may have inadequate knowledge and misconceptions on neonatal jaundice, they recommended regular training workshops and seminars for this purpose.

Faer Goel (2007)

New jersey, the result of the study the adjusted response rate of 49.1 percent (in=365) was calculated from the 725 eligible respondents. They concluded the pediatrician practices regarding the low utilization of laboratory diagnosis for the quantification of jaundice after discharge and underestimation of risk factor that contribute to the development of severe hyperbilirubinemia are associated with initiation of photo therapy at lower than American academy of paediatrics (AAP) recommended treatment parameter and recognition of neonatal hyper-bilirubinemia as an important public health concern.

faerman AI (2008)

A descriptive study was conducted to assess phototherapy and exchange transfusion for neonatal hyperbilirubinemia neonatal academic hospital at South Africa. They had selected the current lack of consensus regarding the management of hyperbilirubinemia may cause kernicterus and ultimately death and the severity of neonatal jaundice often underestimated clinically. The result of the study showed that a simplified version for use in a primary care setting is also presented. All academic heads of neonatology department throughout South Africa were consulted in the process of drawing up this documents and consensus was achieved.

III. Materials And Method

A qualitative research approach was used to assess the level of knowledge of staff nurses regarding care of newborn under phototherapy. For the present study the research design was non experimental descriptive research design.The present study was conducted in NICU, Pediatric ward, Gynae ward at Muskan Hospital, Unnao. The target population is 30 staff nurses posted in (NICU, PEDIATRIC, GYNAE). The sample comprised of staff nurses who satisfy the inclusion criteria, with a sample size of 30 staff nurses. The sample was selected by Non probability purposive sampling technique as it was most suitable one for the present study.

DEVELOPMENT OF TOOLS

A self-structured questionnaire will be prepared with the help of review of literature i.e. book journals, internet expert opinions, personal experiences and discussion with expert.

DESCRIPTION OF TOOL

The tools may contain two sections-

Section 1: Demographic Data

This section of tool consists of items pertaining of demographic variable like age religion, residential area, year of experience, professional educational status, source of information.

Section 2: Self structured questionnaire

This section questionnaire to the knowledge regarding phototherapy among staff nurse in a selected Hospital of Unnao(U.P.). Total member of question is 30 related to phototherapy.

SCORING PROCEDURE

For the convenience, the level of knowledge of the staff nurses regarding phototherapy will be divided in to adequate, moderate, inadequate.

MAXIMUM-30

MINIMUM-0

LEVEL OF KNOWLEDGE SCORE

Adequate **20-30**

Moderate **10-19**

Inadequate **0-9**

CRITERION MEASURES

All the items of the tools were analyzed by using descriptive statistics (frequency distribution, percentage distribution and graphs) and inferential statistics (chi-square).

CONTENT VALIDITY

The instruments were validated by expert. The expert suggested addition, deletion of certain items and re-organization of questions. Appropriate modifications were made and the tool was finalized.

RELIABILITY OF THE TOOL

The knowledge questionnaire was tried out of 10 staff nurses who are posted in Muskan Hospital, Unnao in NICU, Pediatric, OBST ward co-efficient co-relation was found which indicate the high degree of reliability.

Data analysis and interpretation

Table 1: level of knowledge scoring regarding care of new born under phototherapy among staff nurses.

Level of Knowledge score	Test of method score		
	Score	N	Percentage (%)
Adequate	20-30	11	36.66
Moderate	10-19	17	56.67
Inadequate	0-9	2	6.67

It shows that frequency and % distribution of respondents according to the level of knowledge score related to care of new born under phototherapy among staff nurse.

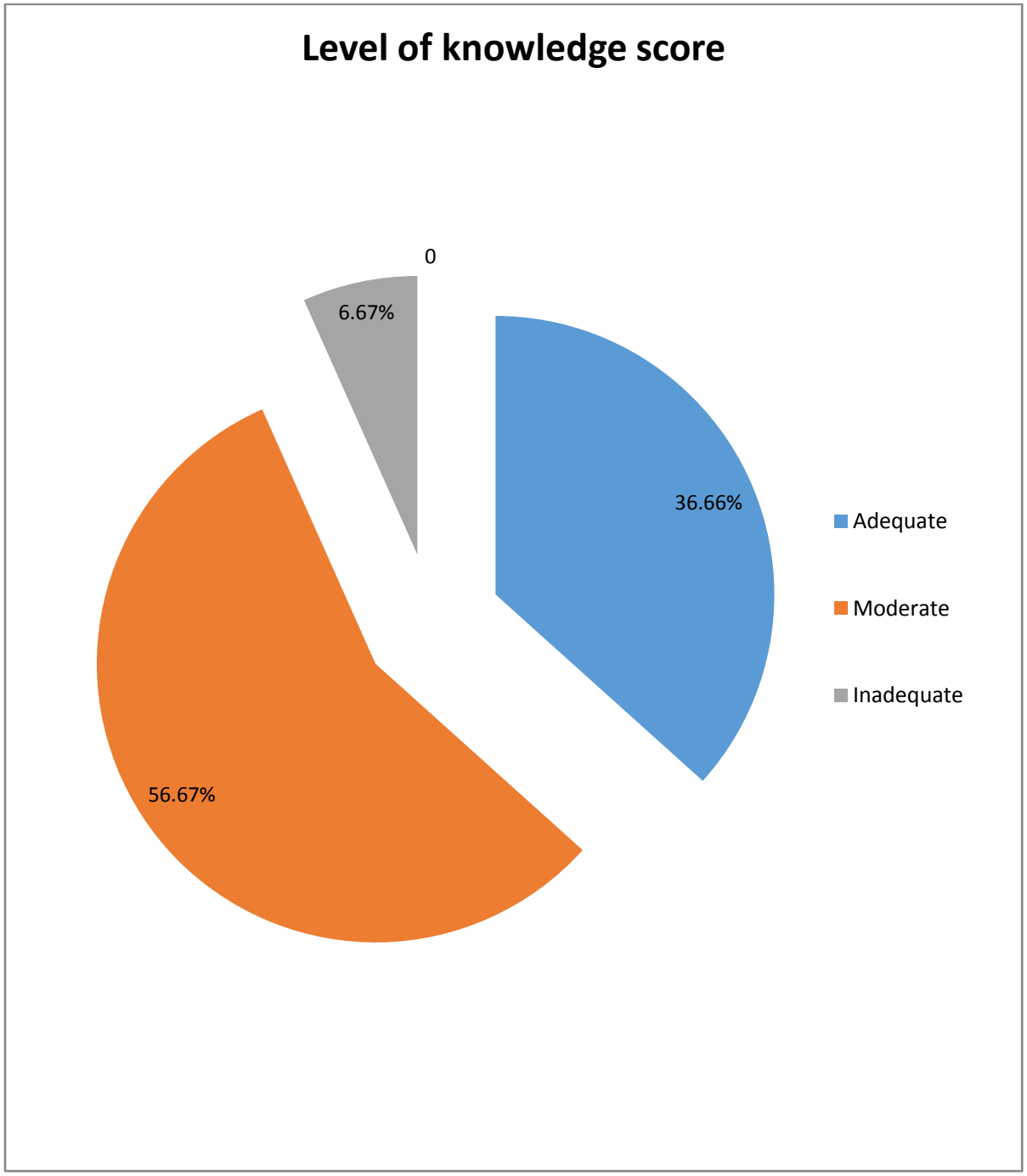

Figure 1: Percentage wise distribution of knowledge score according to level of knowledge regarding care of new born under phototherapy among staff nurses.

Figure 1 Shows that 36.66%test of respondents had adequate knowledge score (20-30), 56.67% of respondents had moderate knowledge score (10-19), 6.67% of respondents had knowledge score (0-9). Hence it is inferred that the majority of respondent had moderate knowledge score.

Table: 4-Asaociation between level of knowledge and demographic variables among staff nurses of Muskan Hospital, Unnao, U.P. regarding care of new born under the phototherapy. N=30

	Demographic Variable	Adequate		Moderate		Inadequate		Degree Of Freedom (df)	Calculated value	Tabulated value	Level of significance
		M/F	%	M/F	%	M/F	%				
1	Age in years a).20-25 b).26-30 c).31-35 d).36-above	 6 3 0 0	 6% 3% 0% 0%	 4 7 0 0	 7.33% 3.66% 0% 0%	 10 0 0 0	 6.6% 0% 0% 0%	6	32.90	12.59	*
2	Gender a).Male b).Female	 4 4	 1.6% 6.13%	 1 8	 2.1% 6.9%	 2 11	 3.03% 9.96%	2	10.79	5.99	*
3	Residential area a).Urban b). Rural c).Others	 2 5 0	 4.9% 2.5% 0%	 7 2 0	 6.3% 2.7% 0%	 12 2 0	 9.8% 4.2% 0%	4	25.69	9.49	*
4	Source of information a). Mass media b).Literature c). Health team member	1 4 3	1.6% 1.6% 4.8%	2 2 5	1.8% 1.8% 5.4%	3 0 10	2.6% 0% 7.8%	4	23.98	9.49	*
5	Religion a). Hindu b). Muslim c). Christian d). Others	 5 3 0 0	 6.13% 1.06% 0% 0%	 11 1 1 0	 9.96% 1.73% 1.3% 0%	 7 0 2 0	 6.9% 0% 1.2% 0%	6	168.1	12.59	*
6	Years of experience a). 0-3 b). 4-6 c). 7-9 d). 10-above	 4 1 0 0	 3.83% 1% 0% 0%	 7 1 1 0	 6.9% 1.8% 0.3% 0%	 12 4 0 0	 12.26 % 3.2% 0% 0%	6	938.1	12.59	*
7	Professional Education a). GNM b). ANM c). B.sc nursing d). M.sc nursing	 5 3 2 0	 7% 1.6% 1.33% 0%	 7 1 1 0	 6.3% 1.5% 1.2% 0%	 9 1 1 0	 7.7% 1.83% 1.46% 0%	6	86.22	12.59	*

IV. Conclusion

On the basis of findings of the study obtained, following conclusion were drawn. The level of knowledge was less when assessed after conducting Data, whereas the score had increased after distribution of pamphlets on phototherapy.

From the findings of the study, it is concluded that highest percentage of staff nurses was in age group 20-25 (76.67%), gender are shows that highest percentage of female(76.67%), maximum samples (70%) belong to urban area, most of the staff nurses(60%) have gained knowledge from health team member, maximum samples (76.67%) belong to Hindu religion, highest percentage of 0-3 year experience(76.67%), staff nurses to their highest percentage of GNM(70%).

During questionnaire programme level of knowledge was improve. After assessment of level knowledge regarding care of newborn under phototherapy we found that the staff nurses have gained adequate knowledge regarding phototherapy.

Thus the investigator concluded that the knowledge questionnaire was helpful in increasing the knowledge of regarding care of newborn under phototherapy among staff nurses in Muskan Hospital, Unnao U.P.

RECOMMENDATIONS

Based on the finding of the study, there are following recommendations for further research:

- The large scale study can be concluded on large sample to generalize the findings.
- The study can be carried out among mothers.
- An experimental study can be conducted to assess the level of knowledge regarding care of new born under phototherapy.
- The study can be done on students regarding care of new born under phototherapy.

LIMITATIONS

The study limited to:

- Assessment of knowledge is limited to the questionnaire.
- Sample size was limited to 30.
- Those who are able to understanding English.
- Those who are willing to the participate in the study.
- Those who are posted in Muskan Hospital, Unnao.

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