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A Study to Assess the Effectiveness of Video Assisted Teaching Module (VATM) on Knowledge Regarding Care of Newborn Baby under Photo Therapy among Female Health Workers in Selected Hospital, Bhubaneswar, Odisha

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Abstract A quasi experimental study with pre and posttest without control group design was undertaken on 30 female health workers of Capital Hospital, Bhubaneswar, Odisha selected by purposive sampling technique. The data collected by multiple choice close ended questionnaire and analyzed by using descriptive and inferential statistics. Area wise posttest highest mean percentage is 90% with mean (2.7±0.46) for area “Indication and contraindication of Phototherapy” and (3.6±0.49) for area “Techniques of Phototherapy”. The lowest mean percentage in posttest is 76.66% with mean score (2.3±0.53) for area “Types of Phototherapy”. Further effectiveness varies from 56.69% to 73.5%. Item wise comparison shows that there is effectiveness of VATM in increasing knowledge of the female health workers on care of the newborn baby under Phototherapy. A significant difference between pre and posttest knowledge was found ($t=25.48$, $p\leq0.05$). No significant association was found between posttest knowledge and demographic variable.
Keywords *Newborn Baby; Phototherapy; Female Health Worker*

1. Introduction

“We bring children into the world, but we are not committed to the tremendous time & effort which takes to nurture, train & teach them and they are the future citizens of this world & our legacy.” (By S.R. Covey)

The main form of therapy for neonates with hyperbilirubinemia is phototherapy. It is believed that this light in the blue range acts to decompose bilirubin by the process of oxidation, phototherapy is effective in preventing or reducing an increase in bilirubin levels. When the large surface area is exposed to the light phototherapy produces its greatest effect, so the infant must be unclothed during

the treatment. In order to prevent chilling, an external means of maintaining normal body temperature must be used. The vital signs are taken at least 4 hours to monitor the infant temperature [1].

Phototherapy is a non-invasive method to bring down the bilirubin level by exposing the skin of the baby to blue or cool white light. Light converts the bilirubin to non-toxic water soluble compounds which is excreted in urine & stool. Baby is undressed completely but diaper is kept onto protect the gonads. Eyes are covered to prevent damage to the retina. Nude baby is kept under the light source at a distance of 45c.m. the baby is turned every 2 hours or after each feed for maximum exposure. Phototherapy is stopped when severe bilirubin returns to a safe value as per unit protocol. Phototherapy is a primary treatment in neonates with un-conjugated hyperbilirubinemia. Proper nursing care should be given to enhance its effectiveness & to minimize the adverse effects & its complications [2].

WHO reveals the source of incidence of hyperbilirubinemia is 50 to 60,000 neonates reported. 2% has total serum bilirubin level over 20 mg/dl; the total serum bilirubin level in normal range is 0.3 to 1 mg/dl. 0.15% had levels over 25mg/dl & 0.01% had over 30mg/dl. Each year in India over 1 million newborn dies before they complete their first month of life, accounting for 30% of the world's neonatal death. Neonatal mortality rate is higher in rural areas. Orissa has the highest neonatal mortality rate of 61 per 1000 live births [3-4].

In United States 4.3% of 47,801 infants had total serum bilirubin (TSB) levels in a range in which phototherapy was recommended by the 2005 American Academy of Pediatrics (AAP) guidelines suggests considering phototherapy [5-6].

Nurses play a very important role in caring the baby during phototherapy. Of all the care givers in the NICU, nurses usually spend the most time at the baby's bedside. So that I felt that there is a need to provide more knowledge regarding the care of newborn during phototherapy among female health workers and decided to administer a VATM among female health workers regarding care of newborn during phototherapy.

1.1. Objectives

1) To assess the existing of knowledge of female health workers regarding care of the newborn baby under phototherapy.
2) To evaluate the effectiveness of VATM on care of the newborn baby under phototherapy among female health workers.
3) To compare the pre and posttest knowledge score with their selected demographic variables.
4) To find out the association between posttest knowledge score with their selected demographic variable.

1.2. Hypothesis

H_{01}

There will be no significant association between posttest knowledge scores among female health workers regarding care of newborn baby under phototherapy with their selected demographic variables.

H_{02}

There will be no significant difference between pre and posttest knowledge score among female health workers on care of newborn baby under phototherapy.

2. Materials and Methods

The research design used for this study was Quasi-experimental in nature. The study was conducted at Capital Hospital, Bhubaneswar, Odisha. The sample included 30 female health workers on the basis of inclusion & exclusion criteria were selected. Purposive sampling technique was used for this study. The tool used for the study was the structured knowledge questionnaire consisting of section I (Socio-demographic variables such as age, year of professional experience, duration of experience of working in neonatal unit, previous exposure to care of newborn baby under phototherapy & section II (consisting of 40 items related to knowledge regarding care of newborn baby under Phototherapy). The content validity of structured questionnaire was ensured by submitting the tool to the expert in the field of pediatricians for content validation. Pilot study was conducted (who were not included in the study) at District Head Quarter Hospital, Khordha, Odisha. The reliability of tool was computed by applying split half technique & was calculated by Karl Pearson's coefficient of correlation formula, which was found 0.86.

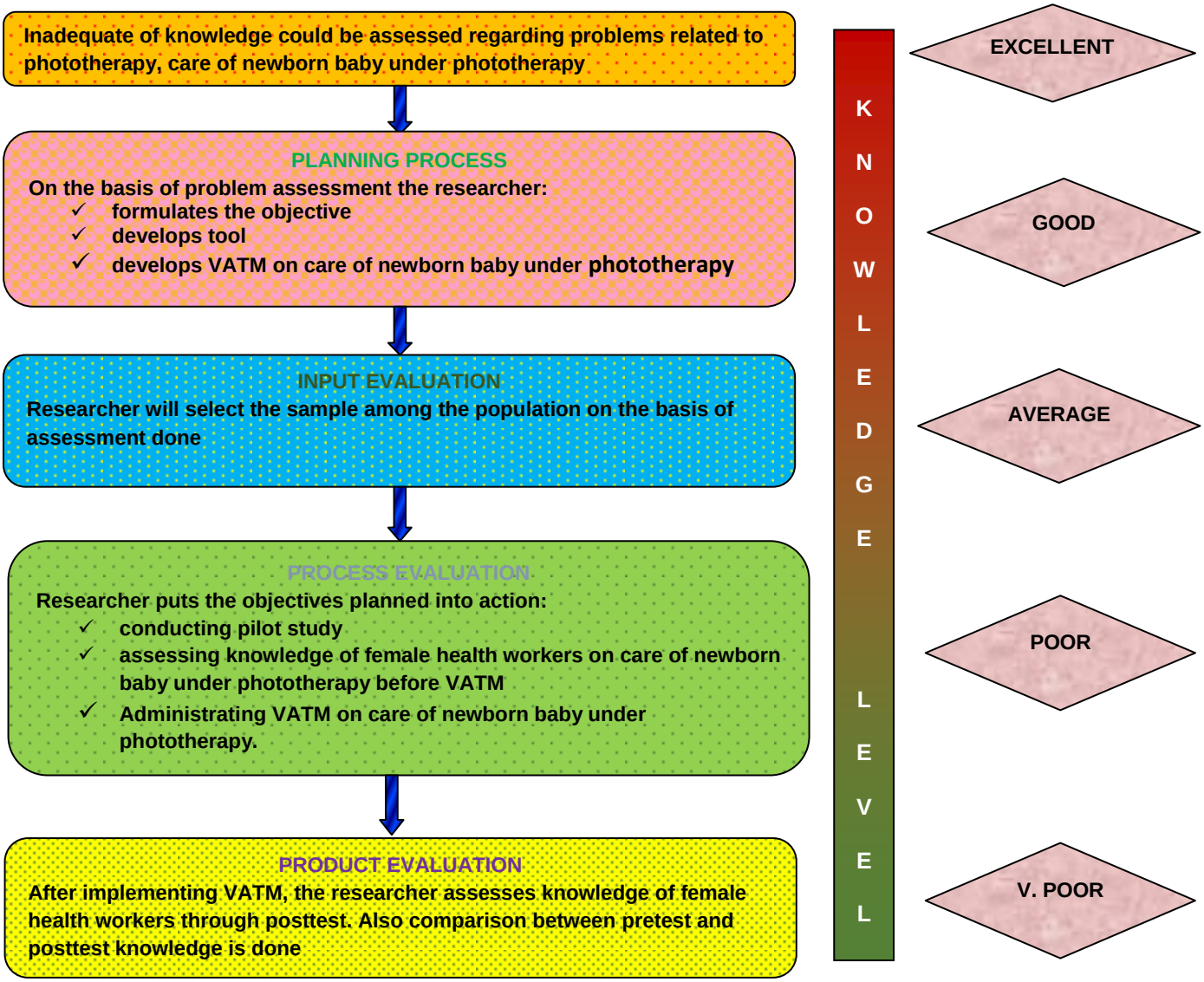

Figure 1: *Conceptual Framework based on Modified Deniel Stuffle Beam's Cipp Model (2002)*

3. Results and Discussion

Distribution of demographic variable shows that maximum of female health workers 12 (40%) were in the age group 30-34 years and majority of sample 15 (50%) samples had >5 year experience in workplace. 17 (57%) had <1year experience in paediatric unit & 13 (43%) had no experience in pediatric unit where as in this study majority of sample 17 (57%) samples had no exposure to care of newborn baby under Phototherapy & 13 (43%) of samples are exposure to care of newborn baby under Phototherapy.

Figure 2 the level of knowledge of the staff nurses reveals that in pretest, (53%) of the female health workers had V. POOR knowledge, (37%) of them had POOR knowledge & (3%) them had AVERAGE knowledge. But in posttest majority (93%) of the female health workers have EXCELLENT knowledge & (7%) have GOOD knowledge.

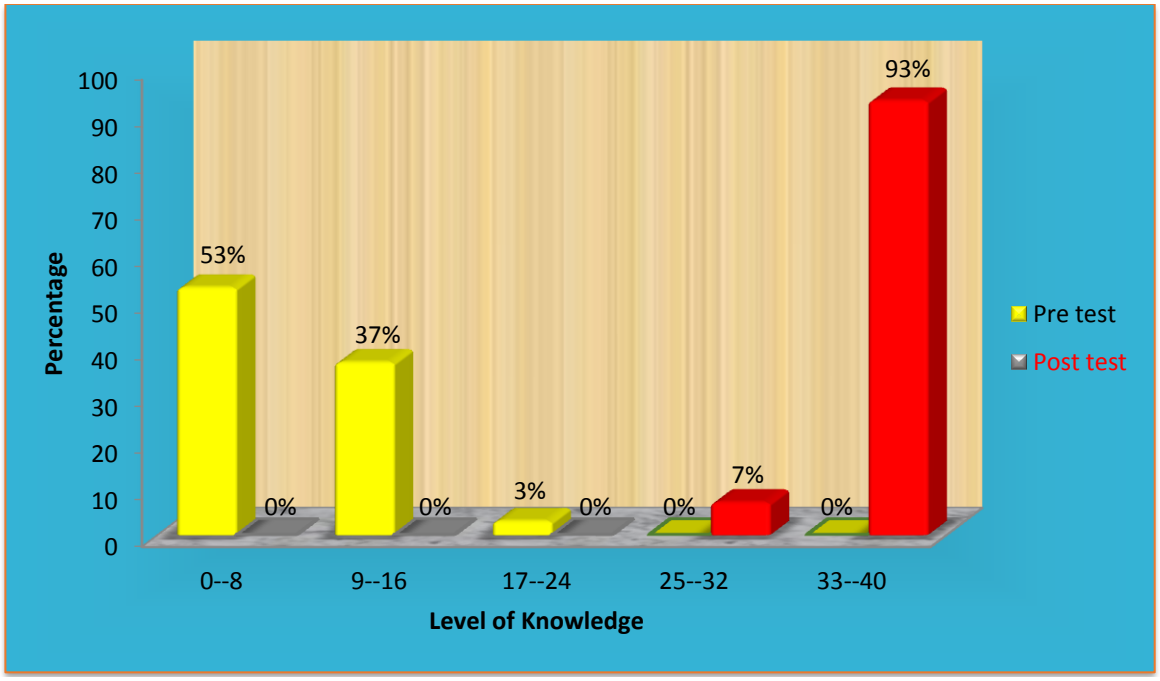

Figure 2: *Comparison of Level of knowledge of Pre and Post Test Knowledge Scores of FHWs Regarding Care of Newborn Baby under Phototherapy*

Table 1: *Frequency and Percentage Distribution of FHW According to their Demographic Variable*

Demographic Variable	Frequency	% Distribution
Age(in year)		
20-24yrs	0	0%
25-29yrs	8	27%
30-34yrs	12	40%
>35yrs	10	33%
Year of Prof. Experience		
<1yrs	0	0%
1-3yrs	5	17%
3-5yrs	10	33%
>5yrs	15	50%
Duration of Exp. In Neonatal Unit		
0	17	57%
<1yrs	13	43%

Previous Exposure To Care of the Newborn Baby Under Phototherapy		
yes	13	43%
No	17	57%

***Table 2**: Overall and Area Wise Comparison of Mean, SD, and Mean Percentage of Pre & Posttest Knowledge Scores of Female Health Workers Regarding Care of Newborn Baby Under Phototherapy*

Sl. No.	Area	Pre test			Post test			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
1	General information on phototherapy	**4.2**	**1.73**	**30**	**12.56**	**0.93**	**89.71**	**59.71**
2	Indication and contradiction	0.9	0.66	30	2.7	0.46	90	60
3	Types of photo therapy	0.5	0.68	16	2.3	0.53	76.66	60.66
4	Technique of phototherapy	0.66	0.80	16.5	3.6	0.49	90	73.5
5	Care of newborn under phototherapy	**5.13**	**1.88**	**32.06**	**14.2**	**0.61**	**88.75**	**56.69**
	Overall	**11.4**	**4.91**	**28.5**	**35.36**	**1.58**	**88.4**	**59.9**

Table 2 Area wise posttest highest mean percentage is 90% with mean (2.7±0.46) for area “Indication and contraindication of Phototherapy” and (3.6±0.49) for area “Techniques of Phototherapy”. The lowest mean percentage in posttest is 76.66% with mean score (2.3±0.53) for area “Types of Phototherapy”. Further effectiveness varies from 56.69% to 73.5%. It is observed that overall mean score during posttest was (35.364±1.58) which is 88.4% of the total score and the difference in mean percentage between pre and posttest knowledge score was 59.9% revealing the effectiveness of VATM for all the areas.

***Table 3:** Area Wise Comparison between Pre and Posttest Knowledge Score among FHWS Regarding Care of the Newborn Baby under Phototherapy*

Sl. No.	Area	‘t’ Value	Level of significant
1	General information on phototherapy	8.27	Highly significant
2	Indication and contradiction	12.85	Highly significant
3	Types of photo therapy	12	Highly significant
4	Technique of phototherapy	17.29	Highly significant
5	Care of newborn under phototherapy	25.19	Highly significant
	Overall	25.2	Highly significant

(df = 49) (Table value=2.00), (p<0.05)

Table 3: Paired‘t’ test was calculated to assess the significant difference between the area wise score values of pretest and posttest. Thus, the difference observed in the mean score value of pretest and posttest were true difference and not by chance. Hence stated null hypothesis is rejected (p<0.05) and statistical hypothesis is accepted it can be interpreted that VATM was effective for all the areas.

***Table 4:** Association between Posttest Knowledge Scores of FHWs on Care of Newborn Baby under Phototherapy with Their Demographic Variable*

Sl. No.	Variables	Chi-square Value	df	Table Value	Level of Significance
1	Age	1.89	3	7.82	Not significant
2	Experience	3.13	3	7.82	Not significant
3	Experience in neonatal unit	0.8	3	7.82	Not significant
4	Prior exposure to educational programme related to care of baby under phototherapy	0.8	1	3.84	Not significant

(p>0.05)

Table 5: From the Chi square test it interpreted that there was no significant association between knowledge scores among the health worker Female in posttest when compared to relationship with the demographic variable ($p>0.05$). Hence the difference in mean score related to the demographic variables only by chance and not true hence the null hypothesis is accepted.

4. Implication

4.1. Nursing Practice

- ✓ The content of Video Assisted Teaching Module will help the FHWs for reinforcing their knowledge on care of newborn baby under phototherapy.
- ✓ The FHWs can utilize this VATM in their work field.

4.2. Nursing Education

- ✓ The nurse educator can use the video assisted teaching module to teach the students about care of the newborn baby under phototherapy.
- ✓ The finding will help the nursing faculty to give more importance for planning and organizing VATM to improve the knowledge of FHWs so that they can implement in the clinical practice.

4.3. Nursing Administration

- ✓ With technological advances and ever growing challenges of nursing, the nurse administrators have responsibility to provide the nurses with substantive educational opportunities.
- ✓ Nursing administrator should provide necessary facilities and opportunities for nursing students and staffs.

4.4. Nursing Research

- ✓ The findings can be utilized as evidence based practice in clinical practice beneficial for pediatric nursing students and staffs.
- ✓ A large scale study can be done for replication to standardize the video assisted teaching module on care of newborn baby under phototherapy.

5. Recommendations

Keeping in view the findings of the present study, the following recommendations were made:

- ✓ A similar study on a large sample may help to draw more definite conclusion and make generalization.
- ✓ A similar study can be conducted among staff nurses.

6. Conclusion

Based on the findings of the study there was increase in knowledge after administration of Video Assisted Teaching Module (VATM). Thus, it was inferred that VATM was the best teaching strategy to improve the knowledge of the FHWs on care of the newborn baby under Phototherapy.

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