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Pre-experimental study to assess the effectiveness of self-instructional module on knowledge regarding phototherapy among staff nurses working in a selected hospital of Srinagar Kashmir.

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Abstract
More than half of the deaths during infancy occur during the neonatal period. Even within this period, it is the first week of child's life when the deaths take place due to birth asphyxia, hypothermia, jaundice and infections. Babies born with a low birth weight are at higher risk of dying due to these causes especially jaundice .By taking care of the health of the mother during pregnancy and by providing essential newborn care in the health facility and even at home, the neonatal mortality can be reduced significantly. Newborn usually refer to a baby from birth to about 2 months of age. Among these disorders Jaundice is one of the most common conditions that can affect newborn babies. Jaundice is nowadays a common and usually harmless condition in newborn babies that causes yellowing of the skin, palms of hands and soles of foot as well as dark and pale of urine even though whitish of the eyes. The medical term for jaundice in babies is neonatal jaundice. Jaundice is caused by the build-up of bilirubin in the blood. Jaundice is common in newborn babies because babies have a high number of red blood cells in their blood, which are broken down and replaced frequently. Phototherapy is preferable treatment with a special type of light (not sunlight) commonly used to treat newborn jaundice by lowering the bilirubin levels in baby's blood through a process called photo-oxidation. So in view of this pre-experimental one group pre-test post-test research design study was conducted to as assess the effectiveness of self-instructional module on knowledge regarding phototherapy for which 60 subjects were selected by proportionate stratified random sampling technique. After data collection structured knowledge questionnaire was used to assess the knowledge among subjects. The data was analyzed by descriptive and inferential statistics by using chi-square and t-test. The findings revealed that in posttest majority of the study subjects ***57((95%)*** *had excellent knowledge,* ***3(5%)*** *had good knowledge and none of the subjects had neither average nor below average knowledge with posttest mean score* ***43.55*** *standard deviation* ***2.831*** *with mean difference* ***15.38****. Study concludes that there was gain in knowledge among staff nurses after providing self-instructional module. The study also concluded that there was statistically significant association between professional qualification and working experience (p=0.000) of staff nurses with their pre-test knowledge scores at 0.05 level of significance.*

Key Words:-Knowledge, intensive care unit, Staff nurses, Neonatal resuscitation, jaundice, phototherapy, Self-instructional module.

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I. Introduction

A child is the gift of God or greatest treasure of mankind. Childs health, wellbeing, safety and future are in the hands of parents from birth to death. New born are considered to be delicate 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 survival of neonates have to face many life threatening problems such as asphyxia, hypothermia, hyperthermia, infections and hyperbilirubinemia etc. So the assessment and care of newborn is very essential.[1] 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 most cases, the etiology of this disorder is 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 e.g. (diazepam, oxytocin) , type of delivery (forceps, , cesarean section), blood groups , Rh factor, and Coombs' test.[1]

Jaundice is common abnormality in a newborn baby during the first week of life. Clinical jaundice manifests as yellow colour of the skin when the bilirubin level exceeds 5 mg/dl. When the trunk of the baby is yellow stained, bilirubin level is likely to range between 10 and 15 mg/dl. Yellow staining of the palms and soles indicates that bilirubin level has exceeded 15 mg/dl. Onset of jaundice within 24 hours of age, with yellow staining of the palms and soles are suggestive of pathological jaundice. Jaundice which appears between 24 and 72 hours of age, and bilirubin level which is less than 15 mg/dl is physiological jaundice.[2]

In neonates, this condition may be caused by physiologic immaturity of liver function or by blood group incompatibility leading to increased erythrocyte destruction. Higher levels of bilirubin are reached in premature neonates, with peak levels of 8 to 12 mg/dl. The goal of treatment of physiologic jaundice is to prevent the level of bilirubin from rising. The main form of therapy for neonates with physiologic jaundice is phototherapy.[3]

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 and stool. Baby is undressed completely but diaper is kept on in male neonates to protect the gonads. Eyes are covered to prevent damage to the retina. Nude baby is kept under the light source at a distance of 45 cm. The baby is turned every 2 hours or after each feed for maximum exposure.[4]

Side effects for which the nurse should be alert include loose, greenish stools, transient skin rashes, mild hyperthermia, increased metabolic rate, and dehydration and electrolyte disturbances. To prevent or minimize these effects, the nurse monitors the temperature to detect early signs of hypothermia or hyperthermia, and observes the skin for evidence of dehydration. Oily lubricants or lotions are not used on the skin to prevent increased tanning effect. Full term neonates receiving phototherapy may require additional fluid volume or feeds to compensate for insensible and intestinal fluid loss. Loose stool may indicate accelerated bilirubin excretion.[5]

Neonatal deaths are serious concern, both in developing and developed countries, although its magnitude is notably higher in developing countries. Every year in India, over one million newborns die before they complete their first month of life, accounting for 30% of the world's neonatal deaths. Approximately three quarters of Indian neonatal deaths occur within one week of birth while 90% occur within the first two weeks of life. Therefore, it is important to know about specific neonatal diseases, neonatal sepsis, pneumonia or neonatal jaundice.[6]

The WHO reveals the source of incidence of hyperbilirubinemia is 50 to 60,000 neonates reported. 2% has total serum bilirubin levels over 20mg/dl, the total serum bilirubin level in normal range is 0.3 to 1mg/dl.0.15% had levels over 25 mg/dl and 0.01% has over 30mg/dl. Hyperbilirubinemia is one of the most common problems encountered in newborns.[7]

From the above findings, it was found that phototherapy is the most common treatment used for neonates with unconjugated hyperbilirubinemia. The nurses working in this area must possess adequate knowledge regarding phototherapy as well as the assessment and care of neonates during the treatment in order to reduce the complications. Nurses play very important role in caring the baby receiving phototherapy. Nurses usually spend most of the time with neonates. So the researcher felt that there is need to give knowledge regarding phototherapy and decided to administer a self- instructional module among staff nurses regarding phototherapy.

II. Objectives Of The Study

1. To assess the pre-test knowledge score regarding phototherapy among staff nurses working in Selected Hospital of Srinagar Kashmir
2. To assess the post-test knowledge score regarding phototherapy among staff nurses working in Selected Hospital of Srinagar Kashmir
3. To assess the effectiveness of self-instructional module on knowledge regarding phototherapy among staff nurses by comparing pre-test and post-test knowledge scores.
4. To determine the association of pretest knowledge scores of staff nurses regarding phototherapy with their selected demographic variables (Professional qualification, working experience, in-service education attended regarding phototherapy).

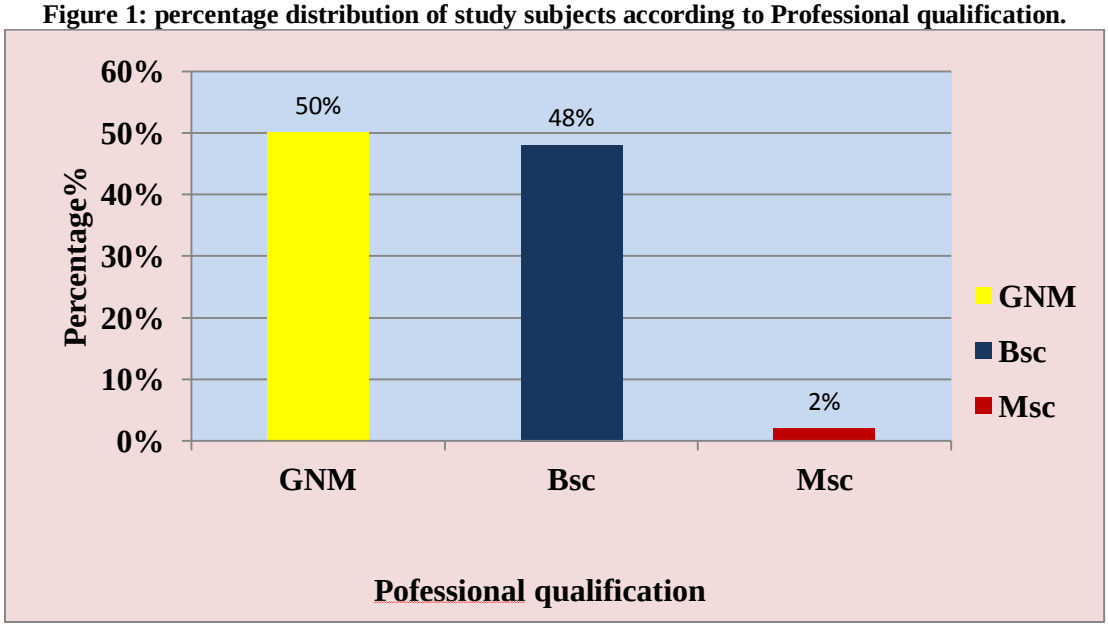
III. Methodology

A pre-experimental study design was conducted to assess the knowledge of staff nurses regarding phototherapy in selected hospital Srinagar Kashmir. 60 subjects were selected by proportionate stratified random sampling technique. Structured Knowledge questionnaire was adopted to collect the information from the participants in selected hospital Srinagar Kashmir. The tool consisted of demographic variables (professional

qualification, working experience and in-service education) and staff nurses. Prior to data collection informed consent was obtained from the participants. The data was analyzed using descriptive and inferential statistics.

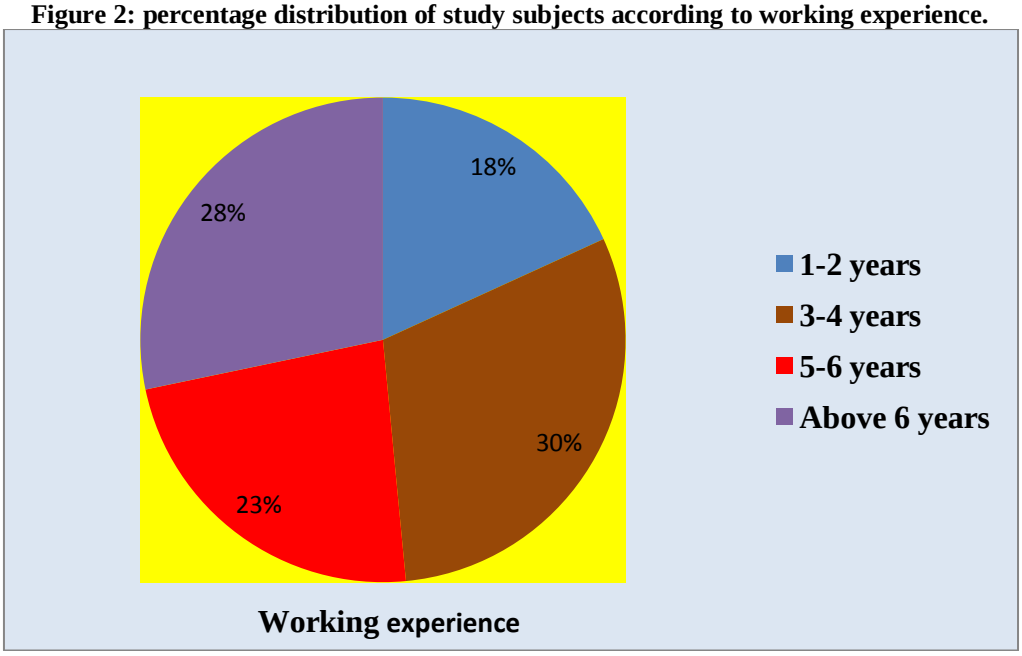
IV. Results

Figure 1: percentage distribution of study subjects according to Professional qualification.



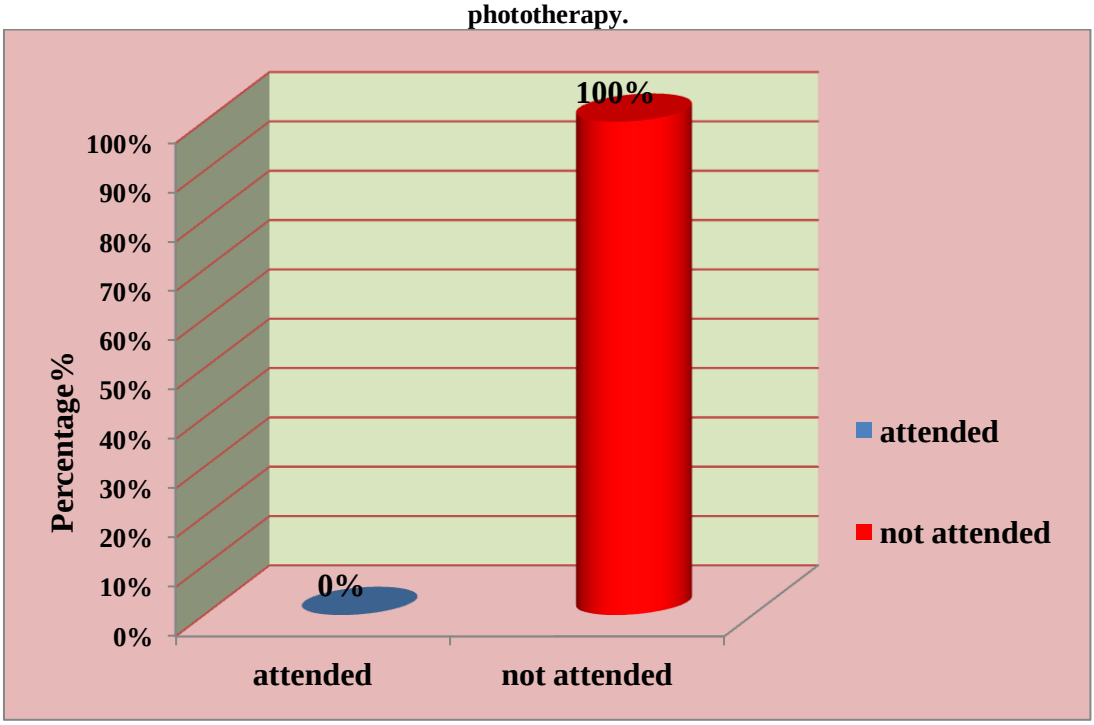
The data presented in figure 1 revealed that majority of the subjects 30(50%) had professional qualification of General Nursing and midwifery, 29(48%) had professional qualification of B.sc Nursing and1 (2%) had M.sc Nursing.

Figure 2: percentage distribution of study subjects according to working experience.



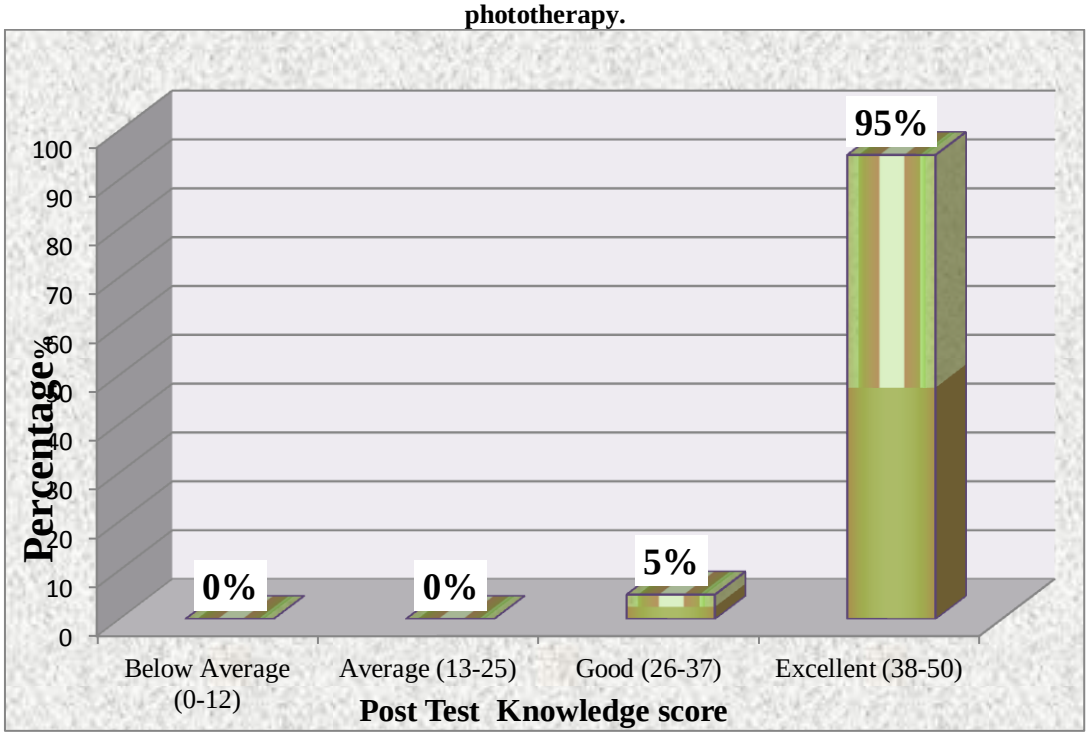
The data presented in figure 2 revealed that study subjects 11(18%) had working experience of 1-2years, 18 (30%) had working experience of 3-4 years, 14(23%) had working experience of 5-6 years and 7(28%) had working experience of above 6 years respectively.

Figure 3: Percentage distribution of study subjects according to in-service education regarding phototherapy.



The data presented in figure 3 revealed that none of the subjects have attended in-service education regarding phototherapy.

Figure 4: Percentage distribution of study subjects according to post-test level of knowledge regarding phototherapy.



The data presented in figure 4 revealed that majority of the subjects 57(95%) had excellent knowledge score, 3(5) % had good knowledge Score and none of study subjects had neither average knowledge scores nor below average knowledge scores during post-test.

Table 5:Post-test Mean score, SD, Median score, Maximum score, Minimum score, Range, Mean percentage of study subjects regarding phototherapy.

Post-Test Knowledge Score	Mean ±SD	Median score	Maximum	Minimum	Range	Mean Percentage
	43.55±2.831	43.5	49	37	12	87.10

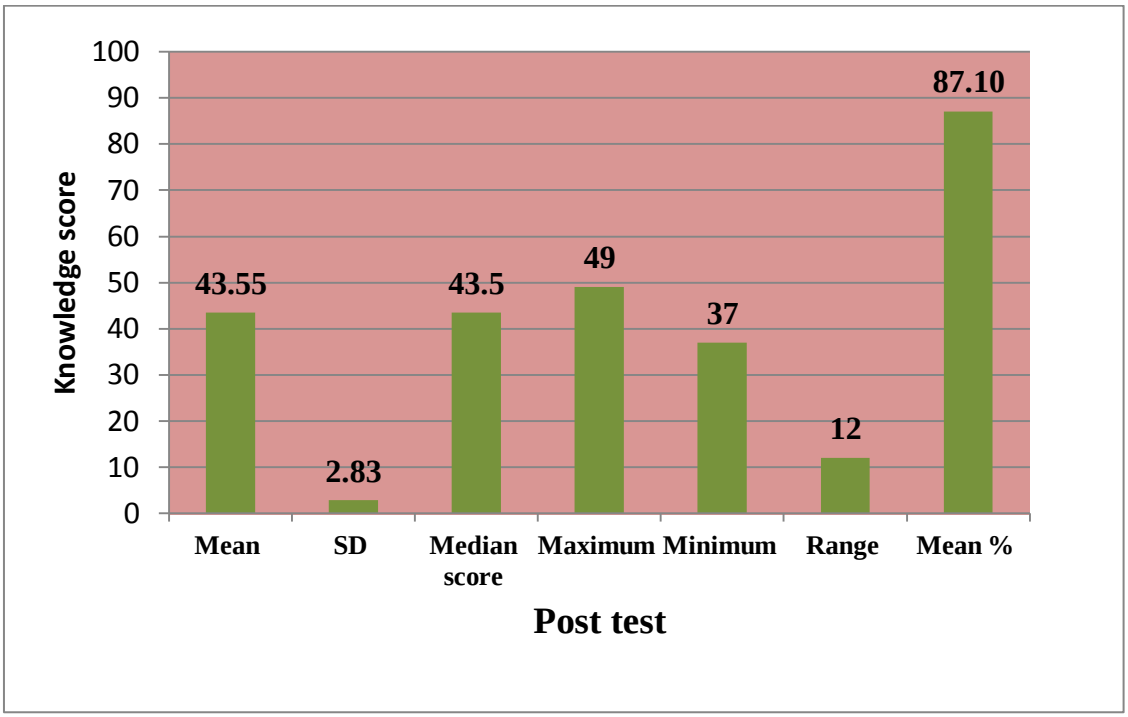
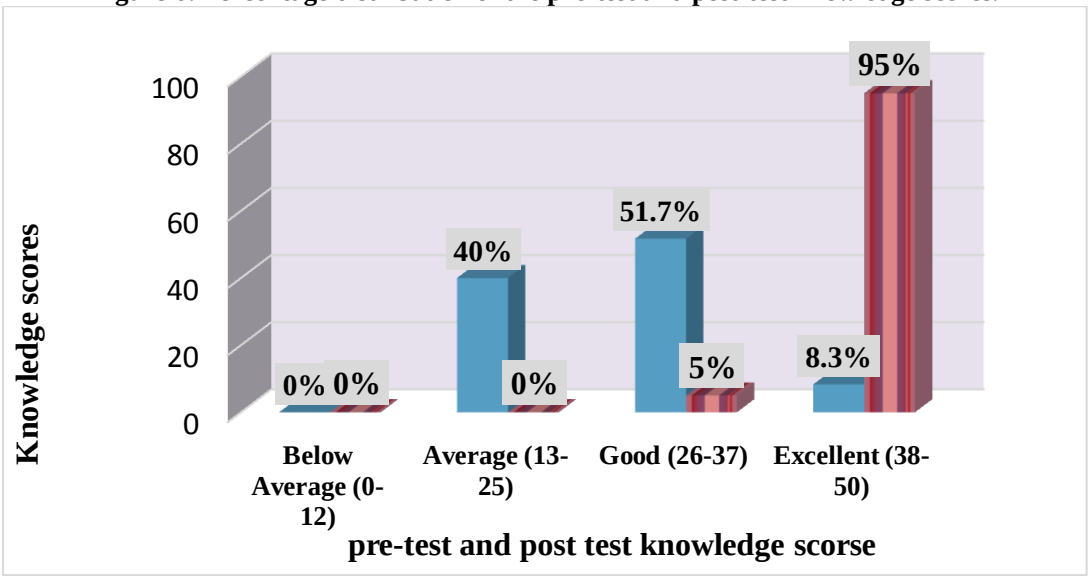


Figure 5:Post-test Mean score, SD, Median score, Maximum score, Minimum score, range, Mean percentage of study subjects regarding phototherapy

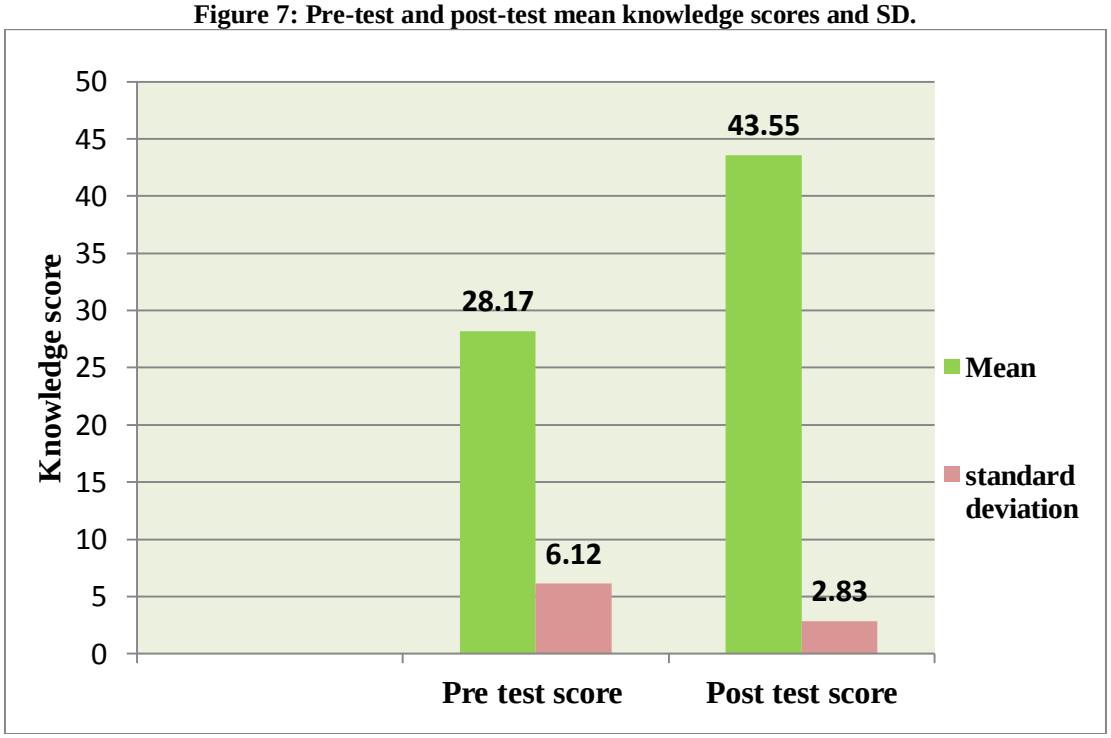
The data presented in table and figure 5 revealed that the post-test Mean knowledge score and SD was 43.55±2.831, Median score was 43.5, Maximum score was 49, Minimum score was 37, Range was 12 and Mean percentage knowledge was 87.10.

Figure 6: Percentage distribution of the pre-test and post-test knowledge scores.



The data presented in figure 6 revealed that 8. 3 **%** of the subjects had excellent knowledge in pre-test and 95% of subjects had excellent knowledge in the post-test, 40% of subjects in the pre-test had average knowledge and in the post-test none of subjects had average knowledge, 51.7% of subjects had good knowledge in the pre-test and 5% had good knowledge in post-test.

Figure 7: Pre-test and post-test mean knowledge scores and SD.



It is evident from the data presented in figure 7 that (Mean ±SD) post test knowledge score (43.55±2.83) was higher than (Mean ±SD) pre test knowledge (28.17±6.12) score of study subjects with mean difference (15.38) regarding phototherapy and was found to be significant($p<0.001$).

V. Recommendation

The Following studies can be undertaken in relation to present study

- A similar study need to be undertaken with a large number of samples for better generalization.
- A similar study can be conducted by seeking other variables.
- A true Experimental research approach can be used.
- The study can be conducted among nursing student's to assess their knowledge regarding phototherapy.
- Setting can be changed by involving more hospitals and nursing homes.
- A comparative study can be conducted to assess the knowledge and attitude regarding phototherapy among nurses in hospitals.
- A comparative study can be conducted between nurses and students related importance of phototherapy.

VI. Conclusion

The following conclusions were drawn on the basis of the findings of the study.

- Pretest findings showed the Knowledge among staff nurses working in selected hospitals were found below average regarding phototherapy in pre-experimental group.
- There was improvement in knowledge of study subjects after the implementation of self-instructional module regarding phototherapy in pre-experimental group.
- The self-instructional module was found effective in improving the knowledge regarding phototherapy as it was evident from posttest knowledge scores and when compared with pretest knowledge score.
- There was significant association between professional qualification and working experience of staff nurses with their pre-test knowledge as (p-value<0.001). So H_2 was accepted. However there was no statistically significant association between pre-test knowledge score with this demographic variables (in- service education) at ($p >0.05$). Hence H_2 was rejected for this variable at 0.05 level of significance.
- This indicated that self-instructional module can remain effective if provided regular basis to nursing students and staff nurses in order to increase the knowledge regarding phototherapy because they are dealt

with pediatric and maternity hospitals and there by reduce the rate of prenatal, neonatal and infant mortality among children.

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