

Research Article

A Quasi Experimental Study to Assess the Effectiveness of Self-Instructional Module on Knowledge regarding Kangaroo Mother Care among Staff Nurses in Selected Hospitals at Jaipur City, Rajasthan

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A B S T R A C T

Background: Kangaroo Mother Care (KMC) is the care given to new born immediately after the birth in which SSC is provided to boost growth in LBW along with other benefits. KMC is a novel method of care of infants under 2000 grams of birth weight. KMC has been developed for fostering neurobehavioral development and supporting parent-infant intimacy and attachment. The current study aims at assessing the efficacy of SIM about KMC amid registered nurses.

Objective: To assess existing knowledge about KMC, to develop, validate and administer SIM on KMC, to find efficacy of SIM on knowledge of registered nurses about KMC and to associate the knowledge score of staff nurse about KMC and their selected demographic variables.

Methods: This study was conducted in Jaipur, Rajasthan. Five hundred staff nurses from hospital were enrolled through simple random sampling. A pre-test done to assess pre-interventional knowledge. Followed by SIM introduction to subjects. After 7 days, post-test was conducted.

Result: Results showed that about two-third (77.2%) of the total sample were within age group 21 to 30 years. 86.8% of staff nurses had major source of knowledge related to KMC through academic. The result showed mean knowledge score in pre-test was 23.60 and in post-test was 49.16 among staff nurse. It showed the all the nurses had achieved good level of knowledge after implementation of SIM. The findings ($Z=40.78$) showed that calculated value (40.78) was more than tabulated value (1.96) at 0.001% significance. Hence, it indicated significant difference and efficacy of SIM on knowledge gained by the staff nurses. The level of knowledge of post-test among staff nurses was higher than pretest.

Conclusion: The SIM facilitated them to update their knowledge related to KMC. Hence, more awareness and training programmes should be conducted so that this method can be implemented throughout the country.

Keywords: Kangaroo Mother Care, Low Birth Weight, Preterm, Neonatal Intensive Care Unit

Introduction

Nature's most adorable gift is a new-born and every woman wants to have a healthy baby. Newborn refers to neonate till 28 days of life age. The term "neonate" includes pre-term infants, post-term neonates and full-term new-borns. Neonates with weight below 2.5 kg, heedless of their gestation period, are called as LBW babies. LBW neonate is a comprehensive problem and it is the most cogent factor contributing to infant mortality. In India, 30% to 35% children are LBW and more than half of these LBW newborn are full term babies.¹

Research Methodology

Research methodology described the activity of research that inquiry, how it progresses, guess process and shows the success, the methodological decisions explain the important insinuations for validity and credibility of the research results (Figure 1). Methodology of the research expresses the general pattern for conducting the procedure for the empirical research together with the method of gathering valid and reliable data for an investigation. This chapter deals with description and various steps adapted to collect and organize data for study.

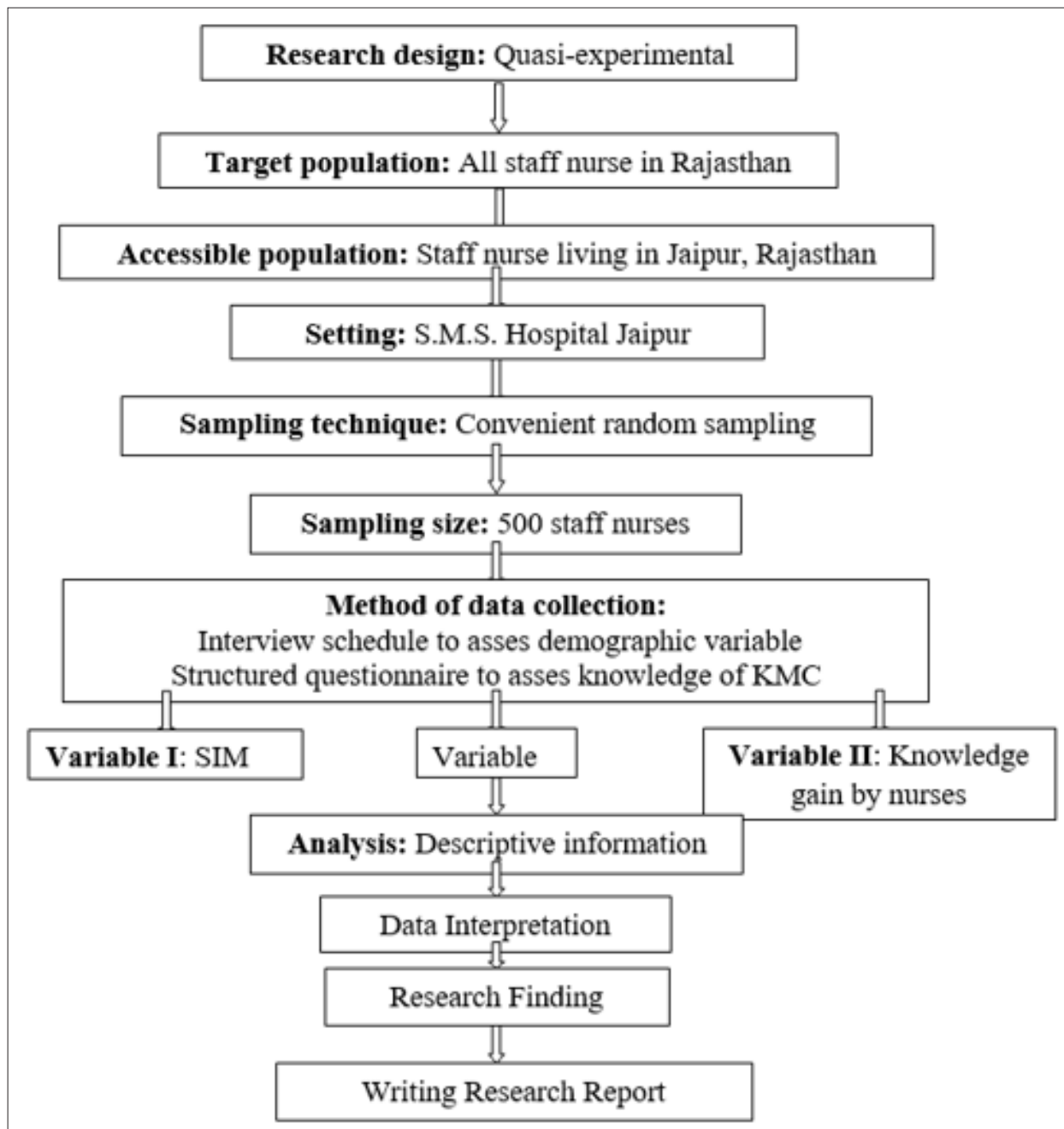


Figure 1. Representation of Research Methodology

Research Design

Research design is a comprehensive plan to obtain the question being evaluated and to manage some of the trouble found during research process. The research design aid investigator in choose the problem, control of the experimental variables, procedure of data collection. The investigator has employed quasi-experimental design with one group pre- and post-test

Data is gathered through structured questionnaire. The design of the study is the “one group pre- and post-test” design where knowledge among staff nurses in government S.M.S. Hospital, Jaipur is assessed before and after imparting the self-instructional module regarding kangaroo mother care. One group pre- and post-test design involves one group subjects that is accessible but beyond control to study the effect of extraneous variable for a period of time.

Structured questionnaire to determine knowledge of staff nurse was applied after their consent.

The design of the study is as follows: 01 X 02

‘01’: Assessment of knowledge as pre-test.

‘02’: Post-test knowledge on the seven day after self-instructional module.

X - Self-instructional module imparted on the first day of the study.

Settings

Research was organized at the Government Hospital of Jaipur city which was a 1200 bedded hospital. Nurses duty were scheduled as 3 shifts in 24 hours morning shift from 8 am to 2 pm, evening shift from 2 pm to 8 pm, night shift from 8 pm to 8 am in each shift nurses on duty. The investigator investigated the samples from morning and evening excluding night shifts.

According to the duty rosters of routine posting in the various wards, the samples were selected who were fulfilling the inclusion criteria. The proximity of residence of staff nurses to the hospital, personal acquaintance cooperation from authorities’ land proximity were specific reasons which made the investigator for choosing the setting.

Sample

Sample is subset of population. An element is fundamental unit from data collected in nursing research subjects (humans).

In this study, the samples were 500 registered nurses (RNs), who were fulfilling inclusion and exclusion criteria.

Size of Sample

Research sample sizes were 500 registered staff nurses working in the government hospital in Gwalior city.

Sample Technique

Sampling defines pursuit of electing the part of the population to represent the whole population.

The sampling technique used in the study was simple random sampling technique.

It is a subset of individuals selected from a bigger set (a population). Each person is selected on random basis and by chance, such that individual sample has the same chance of being chosen at any stage during the above said process.

The lottery method: Individual unit of the population is found by a number disc or slip or any other means. They are mixed and then the appropriate number of samples if selected.

S.M.S Hospital has 30 wards. Those wards, which were deployed for operation theatres, were not included for this study. Left over wards, out of which with the probability sampling the investigator chose 18 wards:

- Special Neonatal care unit (SNCU)
- Pediatric care unit
- Children surgical ward
- Children ward-I
- Children ward-II
- Children ward-III
- Antenatal ward
- Postnatal ward
- Gynaecological ward
- Labour ward
- Labour ICU
- SMTU
- Pediatric neurology
- Neuro medicine
- Neuro surgery CCU
- Head injury Trauma ward
- Post-operative ward
- Special ward

The samples were selected from government hospitals using simple random sampling. Each subject was assigned a unique number. All the individuals bearing the number picked by researcher were the subjects for study. This will be carried out for staff nurses of Government Hospital.

Criteria for Sample Selection

The criteria for the sample selection are mainly depicted under the following two headings:

Inclusion Criteria

- Staff nurse willing to participate in research.
- Staff nurse present during data gathering.
- Staff nurse who can understand Hindi/English

Exclusion Criteria

- Staff nurse working in the night duties, operation

theatres.

- Staff nurse not willing to participate in research.
- Staff nurse not present during data gathering.
- Staff nurse who could not understand Hindi/ English.

The investigator developed the instrument by going through the following process:

First Draft

The first draft had 53 items covering the different aspects regarding kangaroo mother care that include meaning of kangaroo mother care, clothing, benefit, position, special cases. All of the 53 items were multiple choices. It was written in English, then it was translated into Hindi. Again, it was translated into English and given to English and Hindi experts for corrections.

Second Draft

Investigator gave questionnaire to 50 staff nurses to assess awareness among staff nurses about KMC. The scores were then analysed and item analysis done. Only two items with low internal consistency of 0.2 was deleted from the instrument. Thus, the third and final draft was prepared.

Third Draft

This draft was used for the final study and it is given as Appendix 1 at the end of article.

Representation of Data Collection Tools

Development of a Criteria Checklist

A criteria checklist was prepared to evaluate instructional module content. In the criteria checklist, the experts were asked to rate as Strongly agree, Agree, Disagree and Remarks and Suggestions against the sub-heading of content.

Preparation of the First Draft of the Instructional Module

The first draft was prepared on the basis of extensive review of literature and opinion of the experts. The convenience, independent learning and level of understanding of the students were considered for effectiveness. The different areas explained in the module were:

- Meaning of kangaroo mother care
- Clothing
- Benefit
- Position
- Procedure

Content Validation of the Instructional Module

The instructional module developed by the investigator along with the questionnaire was given was given to 6 experts for validation. The experts were asked to give their suggestions and opinions about the content against the criteria checklist. All the suggestions were considered for the development of the module.

Pre-testing of the Instructional Module

The module was pre-tested on 10 staff nurses. It was found comprehensive and understandable.

Preparation of Final Draft of Instructional Module

The final draft of module was prepared by simplifying language. The final draft consisted of:

- General and specific objectives
- Table of contents
- Content on various aspects of kangaroo mother care
- References

Validity of Self-Instructional Module

Content validity of self-instructional module was assessed by distributing instructional module to the same six research experts who validated questionnaire. Agreement of experts was hundred percent which was accepted for the finalization of the self-instructional module. Their valuable suggestions were taken into consideration and the modifications were incorporated in the final preparation of the structured questionnaire and the self-instructional module.

Ethical Consideration

For this study, the investigator took in to consideration the ethical issues. No ethical issues were raised by conducting this study. Prior permission was obtained from higher authorities of the Government Hospital to conduct the main as well as pilot study. Informed consent was obtained from the study samples (staff nurses) at Government Hospital in Jaipur where the pilot study was conducted.

Samples were informed that the confidentiality of the data will be maintained. The subject's presence was purely on the spontaneous basis and he could back out from research at time.

Feasibility

Tool was tested on 50 samples that were eligible for the study and the investigator found that tool was feasible. These samples were excluded for the main study.

Pilot Study

The study was planned to test the methods to be used in the parent study. Pilot studies neither are just studies with a smaller number of subjects nor are they small, exploratory studies.

The main aim of pilot study was to assess clarity, unambiguity, feasibility, practicability and assessment of adequacy of measurement.

Pilot study was conducted as per laid down criteria. Fifty samples were selected from Global Heart and General Hospital using simple random sampling technique.

The investigator conducted the pilot study in a selected

hospital at Jaipur. The sample size for pilot study was 50. Formal permission was obtained from authorities and participant.

On the first day before tests were conducted. Researcher met each participant individually and explained the purpose of study. She assured confidentiality of their responses, consent was obtained from each participant. Once the samples were ready, structured knowledge questionnaire was administered to assess knowledge.

Participants filled the questionnaire. Average time taken for pre-test was 50 to 55 minutes. On the same day, self-instructional module was given to each participant for further reference and study. The participants were asked to go through the instructional module and were informed that post-test would be conducted after 1 week.

Result

The data were tabulated, analysed, organized and presented under following headings:

Section 1: Findings on sample characteristic of staff nurses of Government Hospital of Jaipur city.

Section 2: Findings to assess level of knowledge on KMC before administration of self-instructional module among staff nurses.

Section 3: Findings to assess the knowledge score after administration of SIM among staff nurses.

Section 4: Findings to assess effectiveness of SIM among nurses about KMC.

Section 5: Findings related to association of post-test knowledge score about KMC amid staff nurses with selected demographic variable.

Section I: Distribution of Staff Nurse

Age

77.2% majority of staff nurse were from age group 21 to 30 years, 16.6% were 31 to 40 years, 4.6% were 41 to 50 years and 1.6% were in the age above 51 years (Figure 3).

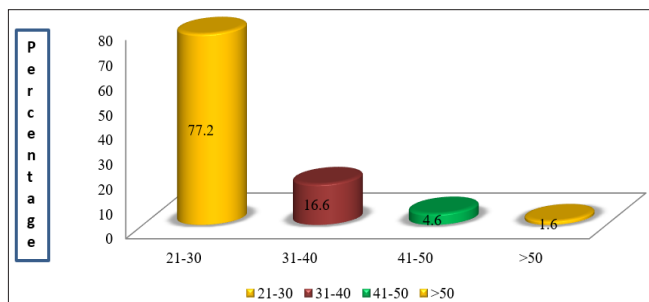


Figure 3. Distribution of Staff Nurses in Age Groups Religion

When considering religion out of 500 staff nurses, majority

92.2 % of subjects were Hindus whereas the minimum number (4.6%) of them was Christian and 24% of them were Muslim and the remaining 0.8 % were in the other group (Figure 4).

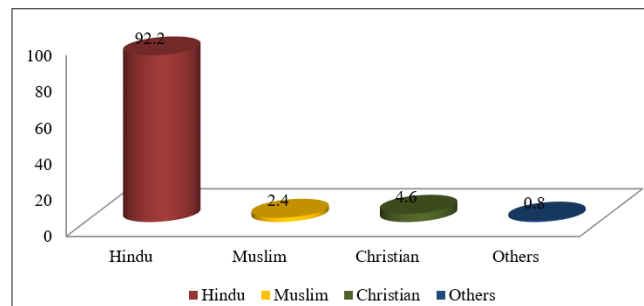


Figure 4. Distribution of Staff Nurses with Religion Marital Status

57.8% of staff nurses were married and 41.6% were unmarried while 0.6% were widow and no subject belonged to other category (Table 1).

Table 1. Distribution of Staff Nurses with Marital Status

Marital status	Frequency	Percentage
Married	289	57.8
Unmarried	208	41.6
Widow	3	0.6
Any other	0	0
Total	500	100

Professional Qualification

The break up showed that majority (78%) had done GNM, whereas 7.6% had done post-basic nursing and 14% had done B.Sc. nursing and 0.4% have done M.Sc. nursing (Table 2).

Table 2. Distribution of Staff Nurses with Professional Qualification

Professional qualification	Frequency	Percentage
GNM	390	78.0
Post Basic Nursing	38	7.6
B.Sc. Nursing	70	14.0
Any other	2	0.4
Total	500	100

Professional Experience

With regard to clinical experience, out of 500 staff nurses 82% were having 10 years' experience, whereas 14.2% had 11 to 20 years' experience, 2.4% were having 21 to

30 years' experience and 14% were having 31 to 40 years' experience.

Area of Working

With regard to area of working, out of 500 staff nurses 162% were working in maternity ward. 28.8% were working in paediatric ward and 38.6% were working in medical ward whereas 16.4% were working in another ward.

Participation in Education Programme on KMC

The break up showed that majority (12.4%) had participated in education programme on KMC whereas 87.6% had not participated in education programme on KMC.

Major Source of Knowledge

86.8% of staff nurses had major source of knowledge related to KMC through academic and 12.2% had source of knowledge related to KMC through workshop/seminar. Whereas 1% of staff nurses had major source of knowledge related to KMC through professional journal.

Section 2: Findings Related to Knowledge Score before Administration Self-Instructional Module about KMC among Staff Nurses

- In the research, in pre-test, out of 500 subjects, majority 239 (47.8%) of them had poor knowledge and 109 (21.8%) of them had average knowledge and 152 (30.4%) of them had good knowledge.
- Mean value for overall level of knowledge regarding KMC among staff nurse in pre-test was 23.60 and this value indicates that staff nurse had poor knowledge regarding KMC.
- The data presented in study indicated that score of SD (14.49) revealed knowledge of nurses was poor.
- The findings show that area-wise mean knowledge score with regard to introduction was 32.21%, with regard to time of initiation 30.55 %, with regard to clothing and position 26.89%, with regard to benefits 38.46%, with regard to special cases 26.14% and attitude of staff 32.30% in pre-test among staff nurses.

Section 3: Findings Related to Knowledge Score after Administration SIM about KMC Amid Nurses

- In present study, it was observed that in post-test out of 500 subjects, majority 482 (96.4%) had good knowledge and 12 (24%) of them had average knowledge and 6 (1.2%) of them had poor knowledge.
- The data presented in study indicates that mean value for overall level of knowledge regarding KMC among staff nurse in post-test was 49.16.
- The findings show that standard deviation (5.239) depicted that after reading the SIM staff nurse had improved their knowledge on the various aspects such as clothing position, benefits of KMC.

- The data presented in study indicates that mean knowledge score with regard to introduction was 67.79%, time of initiation of KMC 69.45%, clothing and position 73.11%, benefits of KMC 61.54 %, and special cases was 73.86 % and attitude of staff 67.70% in area wise post-test.

Section 4: Findings Related to Effectiveness of SIM among Nurses about KMC

- To test significance difference of mean of two large independent groups and as the sample size is greater than 30. Efficacy of SIMI about KMC by Z test.
- Mean difference between before and after knowledge was 25.57 and SD difference. The findings show that calculated value of t (40.78) was more than tabulated value (1.96) at $p=0.001$.
- The data presented in study indicates that significant difference and efficacy of SIM in information gained by the staff nurses and that the level of knowledge of post-test among staff nurses was higher than pretest.
- This indicates that the self-instructional module which was administered by the investigator to the subjects were effective, since the subjects had significant improvement in knowledge scores on KMC.

Section 5: Finding Related to Association of after Test Knowledge Score about KMC Amid Staff Nurses with Selected Variable

- To find association of levels of knowledge scores regarding KMC among staff nurses with selected demographic variables chi-square was applied.
- The demographic variables were age, religion, marital status, professional qualification, professional experience, area of working and major source of KMC knowledge.
- The result revealed the calculated χ^2 value (3.02) was less than tabulated value (5.99) at $p>0.05$.
- No significant association amid post-test knowledge scores regarding KMC among staff nurse with religion. The calculated χ^2 value (1.58) is less than tabulated value (12.59) at $p>0.05$.
- No significant association amid post-test knowledge scores regarding KMC among staff nurse with marital status. The calculated χ^2 value (1.71) was less than tabulated value (9.49) at $p>0.05$. Hence, the research hypothesis HA2 was rejected.
- There is significant association between post-test knowledge scores regarding KMC among staff nurse with professional qualification. The calculated χ^2 value (17.90) was greater than tabulated value (12.59) at $p<0.006$.
- There are significant associations in post-test knowledge scores regarding KMC among staff nurse with professional experience; the calculated χ^2 value

(13 70) was greater than tabulated value (12 59) at $p = 0.033$.

- There is significant association between post-test knowledge scores regarding KMC among staff nurse with area of working the calculated χ^2 value (14.11) was greater than tabulated value (1259) at $p < 0.03$.
- There was not any significant relationship of participation in in-service education or workshop or seminar on KMC of staff nurses with knowledge on kangaroo mother care in post-test, it was recorded the calculated χ^2 value (0.28) was less than tabulated value (5.99) at $p > 0.05$.
- Significant association amid knowledge score on KMC with major source of knowledge. The calculated χ^2 value (417.60) was greater than tabulated value (9.49) at $p < 0.006$.

Discussion

KC is a scientifically sound and socially acceptable method. The name KC has arisen because the kangaroo's babies are also premature and their full growth and development occurs in the mother kangaroo's pouch. One teat is attached to the pouch and it nourishes the baby by mother's milk.

The mother is the responsible person to take care of her baby and to meet the specific basic needs of the baby, which includes love, touch, warmth, safety and security; KMC is believed to be beneficial to both infants and parents.

Kangaroo mother care is the care given to new born immediately after the birth in which SSC is provided to enhance growth of LBW along with other benefits. KMC can be given to infants at home. When small newborn are discharged from hospital, they should sustain to get KMC at home till they achieve weight 2.5 kg.

Synchronously, KMC diminishes workload of nursing personnel. Considering the advantages, KMC education for staff and mother is seen too critical to its outstanding application.

Aim of research is to provide the health facility with information on how effectively KMC policy is executed and to use knowledge to help advance in application of KMC. KMC is a practice of care that can be used for all children.

This practice involves placing the neonate putting diaper and cap on the maternal chest. Child is kept in an upright position amid the breast of maternal. These positions confirm SSC. For KMC to be effectual, it is suggested that the neonate must have SSC for 24 hours of the day. By using SSC mother produces large volume of breast milk and can lactate for a longer span.

Findings of research were discussed with reference to the objectives stated. Present research was efficacy of SIM on kangaroo mother care amid nurses in hospital of Jaipur, Rajasthan.

Review of literature indicated that most of studies indicated knowledge level of KMC varied among staff nurses. Research was to assess efficacy of SIM on knowledge on KMC among staff nurses.

KMC is method applied for heat protection of LBW child. This renders efficient heat control with declined danger of hypothermia in child. In the present study, knowledge level of staff nurse is assessed.

In the present study, the staff nurses are the study subjects. Out of 500 participants, 30.4% of staff nurses had good knowledge, but 21.8% of staff nurses had average knowledge scoring and remaining 47.8% of staff nurses had poor knowledge. The analysis revealed that most of staff nurses had less knowledge about KMC.

The finding was supported by a study Nirmala² conducted on perception of maternal and registered nurses of kangaroo mother care. Result revealed that perception of maternal and health personnel was positive toward KMC.

The findings were supported by a study Dalal³ about KMC amid healthcare providers. Finally, the study additionally shows that 47 healthcare providers had information about low weight child and 13% healthcare providers rendered information that KMC may be provided by any member of family. Summing up, KMC is favourable for parent and neonate, raises connection between parent and child was understood by healthcare provider.

The findings of the present study also show the knowledge difference before and after administration of self-instructional module (SIM) on knowledge on KMC among staff nurses. The result shows that the mean difference knowledge scoring between before- and after-test were 25.56.

Findings was supported by a study Mamta⁴ conducted to find efficacy of structured teaching protocol on knowledge related to KMC amid staff nurses. Results showed that structured teaching protocol efficient in boosting awareness of staff nurses regarding KMC.

Hence, more and more awareness and training programmes should be conducted so that this method can be implemented throughout the country and a healthy, happy generation can be developed.

The present study shows that 86.8% of staff nurses had major knowledge related to KMC through academic study. For supporting this study, Geetha⁵ studied on effects of KMC among the mothers of hospitalized newborn. Results from this research indicated that pre-test knowledge mean score was 12.7 with SD= 4.2 and post-test knowledge mean score was 24.7 and t test = 20.8.

Present study shows that, 174 out of 500 (35.2%) know breastfeeding is possible while giving KMC. In the confirmation of this study, Jagadale⁶ has done research to

assess the efficacy of KMC on LBW neonate. It showed that good effect of KMC from 1st day in arousal and temperature regulation as compared to conventional method care (CMC).

Conclusion

Ambition of research was to assess the existing knowledge about KMC. It evaluated the effectiveness of SIM on knowledge about KMC among staff nurses. Information was given to staff nurses through SIM which included various aspects of KMC which would help the staff nurses to prevent hypothermia of newborn and carry out care activities after gaining through knowledge. After detailed analysis, this study led to the following conclusion:

Pre-test knowledge of nurses about KMC was poor.

The introduction of SIM among subjects helped them more about kangaroo mother care, which was evident in post-test knowledge score. Effective teaching methods of SIM proved to be one of the information transmissions.

All over the world, 24 million neonates (16%) are low weight and mostly belong to low income nations. These LBW children suffer from huge rates of mortality. LBW child demands extra care and warmth. Therefore, low-income nations have recognized, KMC is required to stimulate child's well-being in contrary condition.

Advantages of KMC comprise boosting parent to nurse low weight child, decline neonate mortality, supportive EBF and decreasing repetition of LBW child visiting clinics after discharge from hospital.⁷

Growth of science and technology has given rise to rapid advancement in the field of research in KMC. Several misconceptions, ignorance and inadequate knowledge on KMC are prevalent among the health professionals especially.

As the standard and expectations raise, it becomes increasingly clear that complement and efficient KMC cannot be delivered unless the professionals get advanced knowledge in specific fields. This helped the investigator to conduct the study to assess effectiveness of SIM on KMC. The data was collected from 500 respondents who were staff nurses by structured self-administered questionnaire before and after administration of self-instructional module.

Based on the findings of the self-instructional module was efficient in boosting the knowledge and favourable thinking towards kangaroo mother care. Thus, SIM played an important role in improving knowledge and attitude of registered nurses.

SIM which was proved very effective and this would help the nurses to carry the booklet to any place; it will be convenient for the nurses to refer then and there; help the nurses teach the student nurses in the wards, to upgrade

their knowledge, is inexpensive and readily available and can be tried in any clinical settings.

Hence, based on the above findings, it was concluded that Staff nurses were having different levels of knowledge.

Conflict of Interest: None

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Appendix I

Section A: Structured Interview Schedule To Assess

Demographic Variables

Instruction: Please listen to every item carefully and give appropriate answer.

Demographic Variables

1. Age (yrs.)
 - a) 21-30
 - b) 31-40
 - c) 41-50
 - d) above 51
2. Religion
 - a) Hindu
 - b) Muslim
 - c) Christian
 - d) Other
3. Marital status
 - a) Married
 - b) Unmarried
 - c) Widow
 - d) Other
4. Professional qualification
 - a) GNM
 - b) Post Basic nursing
 - c) B.Sc. nursing
 - d) M.Sc. nursing
5. Area of working
 - a) Maternity ward
 - b) Paediatric ward
 - c) Medical ward
 - d) Other
6. Professional experience
 - a) 0-10 year
 - b) 11-20 year
 - c) 21-30 year
 - d) 31-40 year
7. Participation in any in-service education programme or workshop or seminar or conference related to KMC
 - a) Yes
 - b) No
8. Major source of KMC knowledge
 - a) Academic
 - b) Newspaper
 - c) Professional journal, Research publication
 - d) workshop/ Seminar

