Research Article

A Study to Assess the Effectiveness of Self Instructional Module Regarding the Knowledge of Kangaroo Mother Care among the Postnatal Mothers in Selected Hospitals of Gwalior

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Abstract

Aim of study: Low birth weight (LBW) babies are a public health problem in developing countries and they are a major cause of mortality and morbidity. Kangaroo Mother Care (KMC) is a special way of caring for the LBW babies.

Materials and Methods: The present study aims to assess the effectiveness of self-instructional module regarding KMC among the post-natal mothers in selected hospitals of Gwalior. Hence, an interventional evaluative research approach was found to be effective for the present study.

Results: Sample size of present study is 60; out of that majority, that is, 58 participants had average knowledge in the pretest. There were some, that is, two participants with poor knowledge. There were no participants with good and excellent knowledge. In the post-test, it reveals that the study participants have maximum knowledge in the area of benefits of KMC, that is, 97.66%.

Conclusion: Post-natal mothers have average knowledge regarding KMC. There was a significant increase in the knowledge of the participants after the administration of self-instructional module. The paired "t" test computed between mean pre-test knowledge score and mean post-test knowledge score, indicated a highly significant difference in the knowledge scores in all the areas.

Keywords: Assess, effectiveness, kangaroo mother care, knowledge, self-instructional module.

Introduction

Skin-to-skin contact has been shown to significantly increase and stabilize infant temperature, breathing, increase blood glucose, and improve breastfeeding duration and aid to lasting maternal infant bonding.[1] It improves their health and well-being by promoting effective thermal control, breastfeeding, infection prevention, and bonding. KMC is initiated in the hospital and continues at home.[2] Low birth weight (LBW) babies are a public health problem in developing countries and they are a major cause of mortality and morbidity. It gives a sense of satisfied feeling to the baby as well as to the parents.[3] With advancement in technology in obstetrics and proliferation of neonatal care units, survival rate of LBW babies has increased. This improved survival because of advanced technology has however resulted in separation of infants from mothers. Sophisticated neonatal care is very expensive and often not affordable by many and may not be available in all parts of the world.[4]

In India, 26% of newborn babies are LBWs. A large number of deliveries, especially in rural areas, are attended by experts. There is paucity of neonatal care equipment and experts at Primary Health Centers, sub centers and even in District Hospitals Kangaroo Mother Care (KMC) appears to be an alternative in this scenario. **Bergman** defines KMC from a child's point of view as "Hold me, Feed me, And Love Me.[5]" At present scenario, we need to focus on the different approaches on the taking care of the client. New born babies

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are needed to be cared with different approaches to make the holistic concepts into true. Kangaroo Care is a way of holistic, family centered approach. It gives a sense of satisfied feeling to the baby as well as to the parents.[6]

LBW babies are at greater risk for diseases and mortality. Babies in KMC are secured between their mother's breasts in an upright position, day, and night.[7] Physiologic parameters for infants receiving Kangaroo Care remained within clinically acceptable ranges and the infants did not experience any adverse physiologic events.[8] KMC is a simple and feasible intervention; acceptable to most mothers admitted in hospitals. There may be benefits in terms of reducing the incidence of hypothermia with no adverse effects of KMC in the study. The present study has important implications in the care of LBW infants in the developing countries; where expensive facilities for conventional care may not be available at all place.[9]

Materials and Methods

Study Design and Setting

Research design is an overall plan for how to obtain answer to the question under study and how to handle some of the difficulties encountered during research process.[10]

The study design for the present study is a quasi-experimental one group pre-test and post-test without control group.

In this study, setting is post-natal wards of selected hospitals in Gwalior.

Sample Size and Sampling Method

Sample size is the total numbers of subjects actually participating in the study. The sample size of the present study is 60.

Sampling is the process of selecting a portion of the population to represent the entire population so that inferences about the population can be made.[11] In this study, sampling technique used is non-probability convenience sampling technique for selecting 60 post-natal mothers who met the designated set of eligibility criteria during the period of data collection.

Data Collection Tool and Technique

The self-administered questionnaire consists of two sections.

Section I consists of demographic characteristics of postnatal mothers, that is, age, education, occupation, type of family, family income, residence area, and parity.

Section II consists of multiple choice questions to assess the knowledge regarding KMC. In all 30 items of multiple choice type are constructed on various aspects of KMC. A score of 1 was given to each correct response and 0 score for each wrong response.

Period of Data Collection

The data were gathered during 3 weeks from March 15 to April 5, 2013.

Process of Data Collection

The following schedule was followed for data collection:

- The subjects were explained about the nature and purpose of study in the language they understand and only after this, written consent was obtained from them. In addition, relatives accompanying to them in the hospitals were also explained about the nature and purpose of the study
- The subjects were given self-administered questionnaire
- It took 30 min to fill the pretest
- Post-test was conducted on 7th day after the pre-test.

Data Management and Analysis

Descriptive statistics such as mean, mean percentage, standard deviation, and percentage would be used to describe the variations in the demographic data.[12]

Reliability of the tool was estimated by Spearman Brown reliability Coefficient which was 0.73 at $P = 0.03$. Thus, the tool was found reliable. Validity of a research instrument assesses the extent to which the instrument measures what it is designed to measure. It is the degree to which the results are truthful.[13]

The suggested changes were in the demographic data structure and some in the knowledge questionnaire which was implemented.[14]

Results

Description of the Post-natal Mothers According to their Demographic Characteristics

The blueprint of the tool is given in Table 1.

Table 2 distribution of subjects with regards their type of family shows that majority 60% of the samples belonged to joint family, 31.7% of subjects belonged to nuclear family and only 8.3% of the subjects belonged to extended family.

Table 3 shows maximum knowledge in the area of benefits of KMC, that is, 55.66% and least knowledge in the area of procedure of KMC, that is, 29.44% in the pre-test. The overall mean score was 11.53 and mean percentage was 38.44%.

Table 4 shows the majority, that is, 58 participants had average knowledge in the pre-test. There were some, that is, two participants with poor knowledge. There were no participants with good and excellent knowledge.

Table 5 shows knowledge scores regarding KMC with their mean, standard deviation and mean score percentage in posttest. In the post-test, it reveals that the study participants have maximum knowledge in the area of benefits of KMC, that is, 97.66%.

Table 6 shows the level of knowledge scores of majority of postnatal mothers, that is, 59 in the post-test regarding KMC

Table 1: Blueprint of the tool

Tool	Knowledge	Skills	Attitude	Total
Self-administered questionnaire on Kangaroo mother care	23 (77%)	4 (13)%	3 (10)%	30 (100%)

Table 2: Percentage wise distribution of postnatal mothers according to their demographic characteristics. *n*=60

Demographic variables	Frequency	Percentage
Age (years)		
19–21	17	28.3
22–24	17	28.3
25–27	23	38.5
28 and more	3	5.0
Education		
Primary school	7	11.7
Secondary school	16	26.7
Higher secondary	26	43.3
Graduates and above	11	18.3
Occupation		
Housewife	45	75.0
Daily wages	10	16.7
Private employees	5	8.3
Government job	0	0.00
Monthly income (Rs.) per month		
2001–4000	8	13.3
4001–6000	21	35
6001–8000	16	27
>8000	15	25
Type of family		
Nuclear	19	31.7
Joint	36	60
Extended	5	8.3
Residential area		
Rural	37	61.7
Urban	23	38.3
Parity		
Primipara	34	56.7
Multipara	26	43.3

Table 3: Area-wise distribution of mean, SD and mean score percentage of pre-test Knowledge scores regarding kangaroo mother care *n*=60

Area of knowledge	Maximum score	Mean	Standard deviation	Mean percentage
Knowledge regarding meaning and components of KMC	5	2.15	0.95	43.00
Benefits of KMC	5	2.78	1.16	55.66
Criteria/Eligibility of KMC	6	1.96	0.89	31.11
Preparation of KMC	2	1.00	0.66	50.00
Procedure of KMC	6	1.76	0.83	29.44
Duration of KMC	3	1.06	0.66	35.55
Follow up of KMC	3	0.90	0.68	30.00
OVERALL	30	11.53	2.18	38.44

was excellent. There were no participants having poor or average knowledge after administration of self-instructional module.

Table 7 is interpreted that the self-instructional module regarding different aspects of KMC was effective in all areas. Thus, H_0 can be safely rejected without any doubt.

Table 8 shows the comparison of levels of knowledge scores in the pre-test and post-test of postnatal mothers regarding KMC. This indicates that after the administration of self-instructional module there was increase in the knowledge scores of the study participants. Thus, H_0 is rejected.

Table 4: Assessment of level of knowledge scores of the postnatal mothers regarding kangaroo mother care before administration of self-instructional module *n*=60

Level of knowledge score	Score range	Percentage range	Frequency	Percentage
Poor	0–7	0–25	2	3.33%
Average	8–15	26–50	58	96.67%
Good	16–22	51–75	0	0.00%
Excellent	23–30	76–100	0	0.00%

Table 5: Area wise distribution of mean, SD and mean score percentage of posttest knowledge scores regarding Kangaroo Mother Care *n*=60

Area of knowledge	Maximum score	Mean	Standard deviation	Mean percentage
Knowledge regarding meaning and components of KMC	5	4.75	0.50	95.00
Benefits of Kangaroo Mother Care	5	4.88	0.37	97.66
Criteria/Eligibility of KMC	6	5.11	0.58	85.27
Preparation of Kangaroo Mother Care	2	1.86	0.36	92.50
Procedure of Kangaroo Mother Care	6	4.61	0.64	79.91
Duration of Kangaroo Mother Care	3	2.21	0.45	73.88
Follow up of Kangaroo Mother Care	3	2.03	0.36	67.77
Overall	30	25.46	1.11	84.88

Table 6: Assessment of level of knowledge scores of the post-natal mothers regarding kangaroo mother care after administration of self-instructional module *n*=60

Level of knowledge score	Score range	Percentage range	Frequency	Percentage
Poor	0–7	0–25	0	0.00
Average	8–15	26–50	0	0.00
Good	16–22	51–75	1	1.67
Excellent	23–30	76–100	59	98.33

Table 9 shows that there is significant difference in the overall pretest and posttest knowledge scores regarding KMC among the postnatal mothers. This statistically proves the effectiveness of self-instructional module in all areas of KMC. Thus, H_0 is rejected.

Association of Pre-test Knowledge Scores with Demographic Variables

Table 10 can be interpreted that parity of the study participants is associated with the pre-test knowledge scores. The previous experience of pregnancy and puerperium in some participants must have contributed to their higher scores.

Association of Post-test Knowledge Scores with Demographic Variables

Table 11 shows that parity of the study participants is associated with the posttest knowledge scores. The inquisitiveness of the

Table 7: Area-wise comparison of pre-test and post-test knowledge scores $n=60$

Knowledge area	Pre test			Post test			*t*-value	*P*-value
	Mean	SD	Mean%	Mean	SD	Mean%		
Knowledge regarding meaning and components of KMC	2.15	0.95	43.00	4.75	0.50	95.00	18.98	0.000 S, $P<0.05$
Benefits of KMC	2.78	1.16	55.66	4.88	0.37	97.66	13.52	0.000 S, $P<0.05$
Criteria/Eligibility of KMC	1.96	0.89	31.11	5.11	0.58	85.27	23.93	0.000 S, $P<0.05$
Preparation of KMC	1.00	0.66	50.00	1.86	0.36	92.50	9.61	0.000 S, $P<0.05$
Procedure of KMC	1.76	0.83	29.44	4.61	0.64	79.91	21.95	0.000 S, $P<0.05$
Duration of KMC	1.06	0.66	35.55	2.21	0.45	73.88	12.16	0.000 S, $P<0.05$
Follow-up of KMC	0.90	0.68	30.00	2.03	0.36	67.77	11.75	0.000 S, $P<0.05$
Overall	11.53	2.18	38.44	25.46	1.11	84.88	57.51	0.000 S, $P<0.05$

Table 8: Comparison of pre-test and post-test levels of knowledge scores $n=60$

Level of knowledge score	Score range	Percentage range	Pre-test (%)	Post-test (%)
Poor	0–7	0–25	2 (3.33)	0 (0.00)
Average	8–15	26–50	58 (96.67)	0 (0.00)
Good	16–22	51–75	0 (0.00)	1 (1.67)
Excellent	23–30	76–100	0 (0.00)	59 (98.33)

Table 9: Significance of difference between overall knowledge scores in relation to Kangaroo Mother Care among postnatal mothers before and after administration of self-instructional module $n=60$

Overall	Max. score	Mean	Standard deviation	Mean percentage	*t*-value	*P*-value
Pre test	30	11.53	2.18	38.44	57.51	0.000 S, $P<0.05$
Post test	30	25.46	1.11	84.88		

Table 10: Association between age, education, occupation, monthly income, type of family, residence area, parity, and knowledge of Kangaroo mother care among post-natal mothers. $n=60$

Demographic data	Frequency	Pretest knowledge score	F/t values	*P*-values
Age				
19–21	17	10.82±1.97	F-value	0.20 NS,
22–24	17	11.29±2.54	1.58	$P>0.05$
25–27	23	12.04±1.96		
28 more	3	13±2.00		
Education				
Primary	7	10.00±2.16	F-value	0.22 NS,
Secondary	16	11.50±1.96	1.50	$P>0.05$
Higher Secondary	26	11.73±2.25		
Graduates and above	11	12.09±2.16		
Occupation				
Housewife	45	11.80±2.19	F-value	0.01 S,
Daily wages	10	9.80±1.61	4.58	$P<0.05$
Private employees	5	12.60±1.34		
Government job	0	0.00±0.00		
Monthly income (Rs.)				
2001–4000	8	11.25±3.01	F-value	3.63 S,
4001–6000	21	11.00±1.54	0.03	$P<0.05$
6001–8000	16	13±1.86		
>8000	15	10.93±2.31		
Type of family				
Nuclear	19	11.84±2.00	F-value	0.75 NS,
Joint	36	11.44±2.11	0.36	$P>0.05$
Extended	5	11±1.58		
Residence area				
Rural	37	11.35±2.06	*t*-value	0.74 NS,
Urban	23	11.65±2.40	0.33	$P>0.05$
Parity				
Primi	34	10.61±1.92	*t*-value	0.000 S,
Multi	26	12.84±1.78	4.76	$P<0.05$

primipara participants have contributed to their significant high scores in post-test.

Discussion

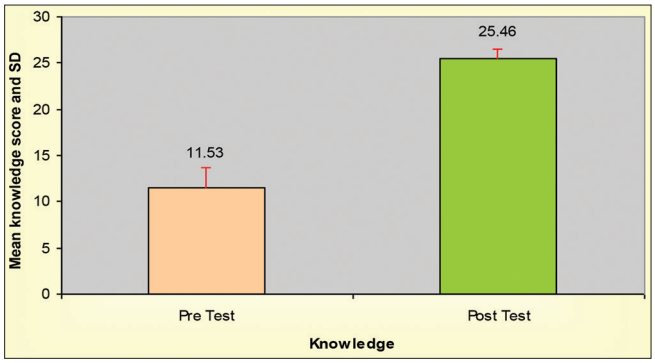
The study participants have maximum knowledge in the area of benefits of KMC, that is, 55.66% and least knowledge in the area of procedure of KMC, that is, 29.44% in the pre-test. The overall mean score was 11.53 and mean percentage was 38.44%. The level of knowledge scores of postnatal mothers in the pre-test regarding KMC. It shows that majority, that is, 58 participants had 96.67% knowledge in the pretest. There were some, that is, two participants with3.33% knowledge.

In the post-test, it reveals that the study participants have maximum knowledge in the area of benefits of KMC, that is, 97.66%. In all the areas of knowledge regarding KMC there is remarkable gain in the knowledge scores. The overall mean score was 25.46 and mean percentage was 84.88%. The level of knowledge scores of postnatal mothers in the post-test regarding KMC. In the post-test majority, that is, 59 participants had excellent knowledge. There were no participants having poor or average knowledge after administration of self-instructional module.

The area wise comparison of pre-test and post-test knowledge scores of the study participants regarding KMC. Means, standard deviations, and mean score percentage values are compared and paired "*t*-test" is applied at 5% level of significance. The tabulated "*t*-value" for n-1, that is, 59 degrees of freedom is 2.0. The calculated values are 18.98, 13.52, 23.93, 9.61, 21.95, 12.16, and 11.75, respectively, for the areas knowledge regarding meaning and components of KMC, Benefits of KMC, Criteria/Eligibility of KMC, Preparation of KMC, Procedure of KMC, Duration of KMC, and Follow-up of KMC. The calculated "*t*-values" are much higher than the tabulated values at 5% level of significance which is statistically acceptable level of significance. In addition, the calculated "*P*-values" for all the areas of knowledge regarding

Table 11: Association between age, education, occupation, monthly income, type of family, residence area, parity and knowledge of kangaroo mother care among postnatal mothers. ***n*** = 60

Demographic data	Frequency	Pretest knowledge score	F/t values	*P*-values
Age				
19–21	17	25.17±1.18	F-value	0.03 S,
22–24	17	25.23±1.14	3.03	*P*<0.05
25–27	23	25.65±0.89		
28 and more	3	27.00±1.00		
Education				
Primary	7	24.57±0.97	F-value	0.84 NS,
Secondary	16	25.68±0.70	1.89	*P*>0.05
Higher Secondary	26	25.50±1.02		
Graduates and above	11	25.63±1.62		
Occupation				
Housewife	45	25.51 ±1.14	F-value	0.70 NS,
Daily wages	10	25.20±1.13	0.35	*P*>0.05
Private employees	5	25.60±0.89		
Government Job	0	0.00±0.00		
Monthly income (Rs.)				
2001–4000	8	25.37±1.06	F-value	0.73 NS,
4001–6000	21	25.42±0.81	0.82	*P*>0.05
6001–8000	16	25.81±1.16		
>8000	15	25.21.42		
Type of family				
Nuclear	19	25.21±1.08	F-value	0.47 NS,
Joint	36	25.61±1.18	0.80	*P*>0.05
Extended	5	25.4±1.67		
Residence area				
Rural	37	25.45±0.96	*t*-value	0.95 NS,
Urban	23	25.47±1.34	0.06	*P*>0.05
Parity				
Primi	34	25.05±1.04	*t*-value	0.001 S,
Multi	26	26.00±0.97	3.55	*P*<0.05



Graph showing overall effectiveness of self instructional module regarding kangaroo mother care

KMC are 0.000 which is ideal for any distribution. Hence, it is interpreted that the self-instructional module regarding different aspects of KMC was effective in all areas. Thus, H_0 can be safely rejected without any doubt.

After the intervention of 1 day skill based awareness program the participants' knowledge improved significantly in all the areas of KMC such as components, benefits, and KMC adaptation. Thus, the need for training health personnel regarding KMC to implement KMC countrywide is emphasized.[15]

KMC does not need expensive and sophisticated equipment, and for its simplicity it can be applied almost everywhere, including peripheral maternity units of very low-income countries.[16]

The preterm newborn has a greater heat loss than older children. Once the small baby is critically stable and tolerates holding without instability, warmth can be provided for periods by cradling the necked baby directly against the parents skin beneath the, that is, "Kangaroo care method.[17]"

Kangaroo Care originated in Bogota, Columbia, as a necessity for providing preterm infants with warmth and closeness with the mother. Kangaroo care consists of a parent holding an infant, unclothed except for a diaper, upright on the mother's or father's chest. The parents are instructed to wear a shirt that opens in the front. This technique also is called skin-to-skin holding.[18]

Conclusion

Comparison of levels of knowledge scores regarding KMC shows that self-instructional module was effective as 59 of the participants had excellent knowledge in the post-test and one participant had good knowledge in the post-test.

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