

Effectiveness of SIM on Knowledge of Staff Nurses Regarding Infection Control in Labour Room

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Abstract

Nurses play vital role in reducing risks for infection through a variety of direct and indirect care. The rate of maternal deaths in the world is 1 death in every 8 minutes and the maternal mortality in the India is 230/100,000 live births. The major causes of these deaths are related to infection. This study was conducted on 45 staff nurses selected by systemic random sampling in MKCG Medical College Hospital, Ganjam using a quasi-experimental, design with experimental approach involving self-instruction module. Highly significant ($p < 0.01$) difference was found between pre- and post-test knowledge which shows effectiveness of SIM. No significant association was found ($p > 0.05$) between post-test knowledge scores and the selected demographic variables of the staff nurses.

Nurses help in reducing risks and morbidity and mortality in patients and care givers at all levels. Labour room is an area where personhood is achieved. For getting a healthy mother & child both mother and child should have an environment which is healthy, clean, free from infection as they have a tendency of getting the nosocomial infection.

WHO reported that every minute a mother dies from complication in pregnancy and child birth that means 1400 mothers die every day and more than half a million mothers die every year. The rate of maternal deaths in the world is 1 death in every 8 min and the maternal mortality in India is 230 / 100,000 live births. The major cause of these deaths are related to infection. The puerperal infections are due to carelessness in hand washing, breaks in aseptic techniques, improper perineal care, prolonged labour, with ruptured membranes, which is the main cause of sepsis.

Neonates can also acquire nosocomial infection after delivery (postnatal infection) from other neonates, nursing personnel, their mother, or contaminated supplies and equipments. Prevention and control measures of nosocomial infection for both mother & baby is essential. Proper cleaning of wash basins, sinks can minimise the infection.

Nursing personnel working in the labour room unit should be knowledgeable and skilful in pre-

vention of maternal infection.

Objectives

The study was carried out with the twin objectives :

1. To assess the effectiveness of information guideline regarding Infection control in labour room on the knowledge of staff nurses .
2. To find out association between the post-test knowledge score (KS) of the staff nurses with their selected demographic variables.

Hypotheses

H₀₁ : There is no significant difference between the pre- and post-test knowledge score of staff nurses regarding infection control.

H₀₂: There is no significant association between the post-test knowledge scores of staff nurses regarding infection control with their demographic variables.

Methodology

The study was conducted in MKCG Medical College Hospital, Ganjam District (Orissa) using convenient sampling technique 45 staff nurses were selected by systemic random sampling. A quasi experimental, design with pre- and post-test without control group with experimental approach was used to evaluate the effectiveness of information guidelines regarding infection control in labour room on the knowledge of staff nurses.

A structured 2-part interview schedule was used to collect the data, part A and part B. Part A con-

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tained demographic characteristics of the Staff nurses and Part-B had 30 multiple choice items pertaining to prevention of infection in labour room with 30 maximum scores. An information guideline was prepared to improve the knowledge of the Staff nurses which consisted of Basic Concept of Infection, Universal Precautions, Labour room cleaning, Perineal care and Bio-Medical Waste Management. The data was collected by the investigator herself by pre-test, providing information guideline and post-test during 12 - 24 July 2012 after obtaining written permission of concerned authority.

Review of literature

Patel Rekuna R (2009), who conducted a study on effectiveness of information guideline regarding infection control in labour room on the knowledge and practice of staff nurses and found that there is a significant relationship between pre- and post-test knowledge and practice of staff nurses on infection control in labour room. In the overall and specific content area, mean gain scores were comparatively higher after exposure to Self Instructional Module on Infection Control Strategies. The findings indicated that the Self Instructional Module is a suitable and effective method of instruction for updating and enhancing the knowledge as well as skills of staff nurses on aspects of Infection Control Strategies.

Rajesh Mehta et al (2011) in their study on infection control in delivery care units in Gujarat stated that 70 percent of respondents had good knowledge

regarding standard infection control procedures.

Philomena Fernandes et al (2013) conducted a study evaluating the effect of an information booklet on knowledge among staff nurses regarding perineal tear during normal delivery. An evaluative approach with one group pre-test post-test design was used in the study. The collected data were analysed using descriptive and inferential statistics. A significant difference was found between pre-test and post-test knowledge ($t=23.09$, $p<0.05$). The study showed that the information booklet was effective in improving knowledge of staff nurses regarding prevention and management of perineal tear during labour. There was no significant association between the level of knowledge and demographic variables.

Results

Highest percentage (55.55) of the Staff nurses were 21-30 years, 74 percent had professional qualification GNM, 55 percent had less than 5 years of experience. The overall pre-test mean knowledge score was 20.15 ± 0.11 which is 67.16 percent of the total score revealing good knowledge whereas in post-test mean score was 27.48 ± 1.15 , which is 91.63 percent revealing excellent knowledge of the staff nurses; and effectiveness was 24.44 percent.

The staff nurses had good knowledge (67%) before implementation of module whereas it increased to 92 percent after implementation of module revealing excellent knowledge (Fig 2).

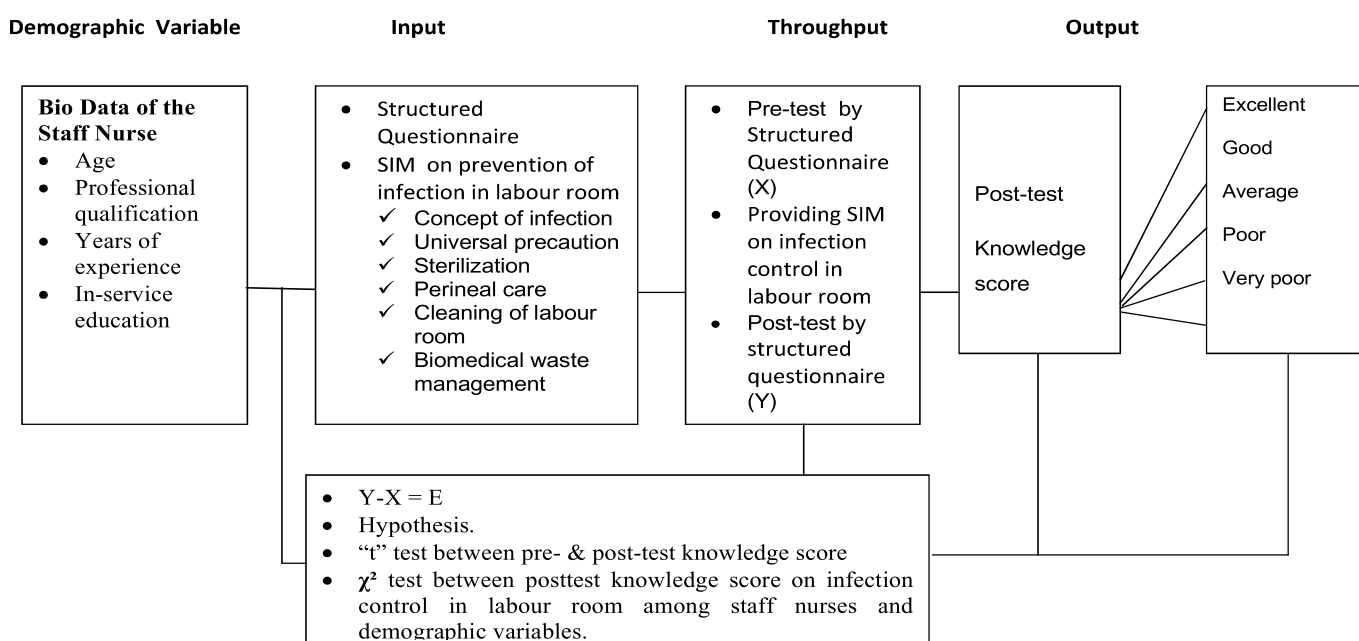


Fig 1: Theoretical framework based on General System theory of Bertalanffy (1968)

Table 1 : Comparison of mean, SD and mean % of pre- and post-test KS of staff nurses on infection control in labour room

Knowledge Scores								
Area	Max score	Pre-test			Post-test			Difference in mean %
		Mean	SD	Mean %	Mean	SD	Mean %	
Concept of infection	2	1.35	0.45	67.5	1.97	0.09	98.5	31
Universal precaution	6	4.6	0.47	76.66	5.04	0.73	90	13.34
Sterilisation	8	4.9	0.75	61.25	7.4	0.28	92.5	31.25
Perineal care	4	2.6	0.47	65	3.6	0.23	90	25
Cleaning of labour room	4	2.9	0.06	72.5	3.75	0.17	93.75	21.25
Biomedical waste management	6	3.6	0.43	60	5.64	0.45	94	34
Overall	30	20.15	0.11	67.16	27.48	1.15	91.6	24.44

Table 2: Comparison of Overall Pre-test and post-test knowledge scores

Pre-test knowledge score percentage					Post-test knowledge score percentage				
Very poor	Poor	Average	good	Very good	Very poor	poor	Average	good	Very good
0	0	16	84	0	0	0	0	11	89

Comparison of overall and area wise knowledge scores reveal that overall pre-test mean was 20.15 ± 0.11 whereas it was 27.48 ± 1.15 during post-test showing a 24.44 percent difference in mean score. Further, area wise assessment showed the highest post-test mean score of $1.97 + 0.09$, which was 98.5 percent of total score obtained for the area, "concept of infection". Lowest mean score 90 percent of total score in the area of universal precaution and perineal care revealing excellent knowledge. The highest effectiveness (34%) was found. However, the lowest effectiveness of 23 percent was found (Table 1).

Comparison of overall pre-test and post knowledge score depict that during pre-test highest (84%) of nurses had good knowledge and 16 percent had average knowledge whereas in post-test highest (89%) of nurses had excellent knowledge and 11 percent had good knowledge which shows highest effectiveness of video (Table 2).

O-give curve drawn to find out the effectiveness of SIM shows that post-test score was higher in entire graph when compared to pre-test showing the effectiveness of SIM (Fig 2). In the pre-test 25th, 50th and 75th percentile score was 17, 19 and 20 whereas it was 23, 25 and 27 in post-test respectively. Thus, the difference of lower extremes of the

two scores of knowledge is more when compared to the middle and upper extremes revealing the effectiveness of SIM among staff nurses on infection control in labour room (Fig 2).

Line graph drawn to assess the difference between pre- and post-test KS shows that the lowest score of pre-test was 16 to 18 whereas in post-test it ranged between 22 to 24. Similarly highest score of pre-test was between 22 to 24 whereas, in post-test it was between 28 to 30. The mean and median plotted on line graph shows that during the pre-test mean and median score values were 20.15 and 20 respectively, whereas during the post-test the values were

24.44 and 26, respectively showing effectiveness of module (Fig 3).

Paired 't' test, done to find out the effectiveness of video depicted that highly significant difference was found between pre- and post-test KS of the staff nurses in all areas of infection control in labour room, as Basic Concept of Infection, Universal Precautions, Labour room cleaning, Perineal care & Bio

Fig 2 : O-give curve

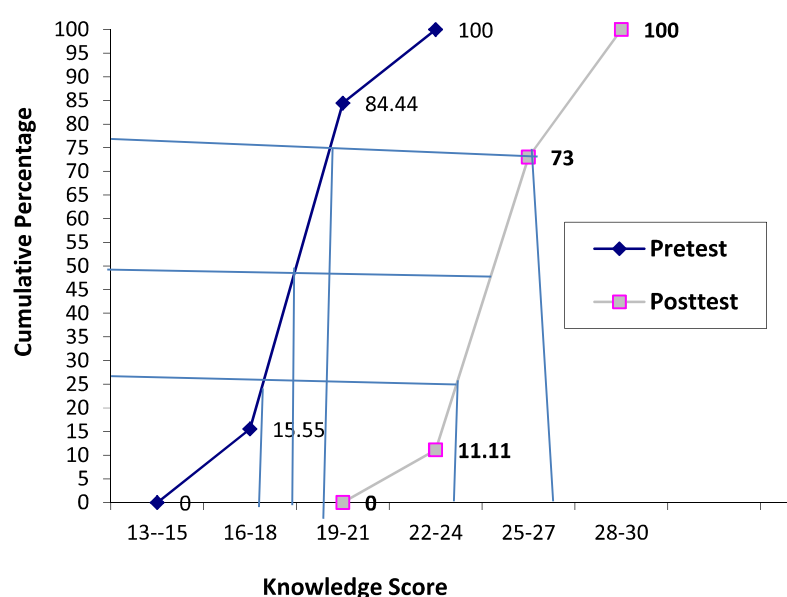
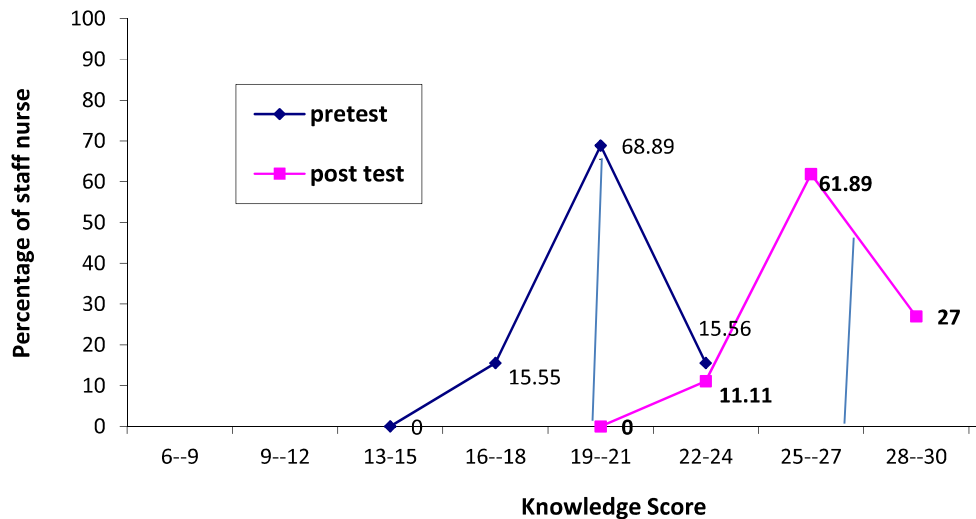


Fig 3: Line graph



Medical Waste Management ($p < 0.01$) showing effectiveness of SIM Which was supported by Patel Rekuna R. In her study there was a significant relationship between pre- and post-test knowledge of

Table 3: Paired “t” values of pre- and post-test KS of staff nurses

Area	“t” value	Remarks
Concept of infection	8.11	Highly significant
Universal precaution	5.11	Highly significant
Sterilization	9.11	Highly significant
Perineal care	7.89	Highly significant
Cleaning of labor room	7.52	Highly significant
Biomedical waste management	9.14	Highly significant
Overall	8.56	Highly significant

Table value 2.326, df-44, (P value < 0.01).

staff nurses on infection control in labour room (Table 3).

Chi-Square analysis was done to find out association between post-test knowledge of staff nurses with the demographic variables. No significant as-

Table 4 : Chi-Square value showing association between post-test knowledge of staff nurse with the demographic variables

Demographic variables	Chi-Square value	Level of significance
Age	1.83	Not Significant
Professional Qualification	0.98	Not Significant
Year of Experience	0.79	Not Significant
In-service education attended	1.27	Not Significant

p-value = > 0.05), df=1; t-value=3.84

sociation was found between post-test knowledge score when compared to staff nurses’ age, professional qualification, years of experience, in-service education attended (Table 4).

Discussion

The staff nurses had good (67%) knowledge before implementation of module whereas it increased to 92 percent after implementation of module revealing excellent knowledge which is supported by Patel (2009) who in her study on effectiveness of information guideline regard-

ing Infection control in labour room on the knowledge and practice of staff nurses and found that there is a significant relationship between pre- and post-test knowledge of staff nurses on infection control in labour room. Post-test area-wise assessment shows highest mean score (98.5%) was obtained for the area “concept of infection” and lowest mean score (90%) was obtained in the area of universal precaution and perineal care. This is also supported by Mehta et al (2011) who found that 70 percent of respondents had good knowledge regarding standard infection control procedures which is contradictory with the study conducted by Chang et al, on midwives students having poor knowledge regarding standard precaution followed in clinical practice.

Conclusion

The staff nurses had good knowledge (67%) before implementation of module whereas it increased to 92 percent after implementation of module revealing excellent knowledge. So it is clear that self-instructional module is an effective method for educating the staff nurses and it is essential for infection control .

Implications for Nursing

The SIM will help the staff nurse to gain knowledge regarding infection control strategies such as hand washing techniques, wear a hair covering cap, wear a mask, wear a gown, wear gloves, etc. and enable them to put it in practice. This study could be a help to staff nurses in understanding the relation between infection control strategies and reduction the maternal mortality and morbidity. This study

can help nurse researchers to conduct more research on infection control in labour room.

Recommendations

Similar studies can be conducted on larger samples to generalise the findings. Studies can be conducted to observe the actual practice of the staff nurses on infection control in labour room. Similar studies can also be conducted with control group. A video-assisted teaching module can be prepared and tested for its effectiveness. Similar study can be conducted either on B.Sc. (N) or G.N.M. students to assess their knowledge.

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