ORIGINAL ARTICLE

A Study to Assess the Effectiveness of Planned Teaching Program on Knowledge Regarding Partogram Among Fourth Year B.Sc. Nursing Students of Karnataka College of Nursing at Bangalore

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ABSTRACT

The present study was designed in order to assess the level of knowledge on partogram among fourth year B.Sc. nursing students in pretest, to develop planned teaching program on partogram among fourth year B.Sc. nursing students, to assess the level of knowledge on partogram among fourth year B.Sc. nursing students in posttest, to compare the pre-test and posttest level of knowledge on partogram among fourth year B.Sc. Nursing, and to correlate the findings of knowledge score with selected demographic variables.The target population of the study was 4th year B.Sc. Nursing student in Karnataka College of Nursing at Bangalore. A total number of 50 subjects were chosen for the study. A planned teaching program was selected for the study. In the present study the following tools were used (the first was consisted of 5 items related to demographic data of the subjects such age, Sex, religion, and previous exposure to training, and previous knowledge on partogram; and the second was a self-administered questionnaire consisted of 50 items on knowledge about partogram).84% of the respondents were in the age group of 19-22 years.64% of the respondents who participated in the study were females.74% were Hindus in the study. About 88% of them did not have previous knowledge regarding partogram.Only 4% of the respondents received teaching from workshop/training.Overall mean knowledge score of respondents in pre-test was 18.8% and in posttest was 84.20%.In terms of association of the knowledge score with demographic variables, it was found that the variables of religion, previous knowledge and source of teaching had significant association with the knowledge scores of the respondents. After administration of plan teaching program, a significant improvement was achieved in post-test score.
Keywords: Planned teaching program, partogram, nursing students, Bangalore.

INTRODUCTION

Maternal mortality is still a concern in India. Approximately 40% of all maternal deaths in India are due to hemorrhage (most postpartum) and another 5% due to obstructed labor. Over the past one decade WHO has shown beyond any doubt that active management of the third stage of labor (AMTSL) reduces bleeding from pregnancy by almost 50%, and plotting a partograph enables the service providers in the early identification of prolonged labor, thereby avoiding delayed labor and the resultant complications from exhausted or ruptured uterus[1].

The world health organization (WHO) recommends partograms with a four hours action line from alert line. Denoting the timing of intervention for prolonged labor others recommend earlier intervention to allow for referral[2].

Adequate use of a partogram requires adequate number of skilled health workers with a positive attitude towards its use especially midwives at various level of health care and actual availability of the partogram tools at all times3.Under child survival and safe motherhood program a lot of emphasis was given on

training to use these tools, however, follow up was missing. Members felt that the current increase in institutional deliveries because of the Janani Suraksha Yojana (JSY) scheme. It demonstrates the need for close monitoring of quality of delivery care in institutions to bring significant improvement in maternal and perinatal mortality [1].

The WHO version of Partograph is a most simplified version. It helps in correlating the fetal condition, strength of uterine contraction, and progress of labor very clearly. Only issue is to learn to note the cervical dilation properly. The transition from antenatal care to management of labor is critical for both the mother and the fetus[1]. It poses a challenge to midwifery care. In the labor ward, the partograph is a major instrument used during this transition. Also, recent advances in safe motherhood and the challenge to reduce maternal and infant morbidity and mortality by at least 50% by the year 2000, have put health staff, including midwives, under constant pressure. All the countries were called upon by the world health organization (WHO) to put strategies in place that will ensure that the health care system has the capacity to provide maternity care services with appropriately trained and supported midwives. These service should be based on establish norms and procedures for example standardized tools for practice such as the partogram[1].

Prolonged labor in the developing countries is commonly due to cephalopelvic disproportion (CPD), which may result in obstructed labor, maternal dehydration, exhaustion, uterine rupture and vesicovaginal fistula. In countries where CPD is not prevalent, abnormal progress of labor is often due to inefficient uterine action4. Early detection of abnormal progress of labor and the prevention of prolonged labor significantly reduce the risk of postpartum hemorrhage and sepsis, and eliminate obstructed labor, uterine rupture and thereby reduce the maternal mortality[4]. The use of a partogram for the management of labor has been shown to be beneficial in that it clearly differentiates normal from abnormal progress in labor and identifies women likely to require intervention [4].

Approximately half a million women lose their lives every year because of complication of pregnancy and about 99% of these occur in developing countries. The risk of woman dying as a result of complication related to pregnancy in developing countries can be as much as a hundred times that of women in Western Europe or North America. An average of 450 women died for every 100,000 live births in the developing world[5].

Recognizing the unacceptable high maternal mortality, the preventable nature in the majority, and the social consequences of a mother's death to the family and children, the safe motherhood conference organized jointly by The World Bank, WHO and the united Nations Fund for Population Activities held in Nairobi in February 1987 concluded with a "call to action". This call demands that health workers involved in the care of mothers and children do take positive action now to reduce maternal mortality and morbidity. Among the actions called for, is the need to ensure that all pregnant women are screened by supervised and appropriately trained non-physician health workers where appropriate, with relevant, and to provide prenatal care and care during labor, as expeditiously as possible[5].

Post-partum hemorrhage and sepsis are the most common causes of maternal death in developing countries, but obstructed labor and ruptured uterus may cause as many as 70% of all maternal deaths in some situations[5]. Prolonged labor in the developing world is commonly due to cephalopelvic disproportion (CPD) which may result in obstructed labor, maternal dehydration, exhaustion, uterine rupture and vesicovaginal fistula. Protracted labor is more common in primigravid women than in multipara and the complications and effects of CPD differ between them. In countries where CPD is not prevalent, abnormal progress of labor is often due to inefficient uterine action. Universally, less direct consequences of prolonged labor include maternal sepsis, postpartum hemorrhage and neonatal infection[5]. Early detection of abnormal progress of labor and the prevention of prolonged labor would significantly reduce the risk of postpartum hemorrhage and sepsis and eliminate obstructed labor, uterine rupture and its sequelae[5].

The partograph, a graphic recording of progress of labor and salient features in the mother and fetus has been used since 1970 to detect labor that is not progressing normally, to indicate when augmentation of labor is appropriate and to recognize cephalopelvic disproportion long before labor, becomes obstructed[5]. The partograph serves as an "early warning system" and assists in early decision on transfer, augmentation and termination of labor. It also increases the quality and regularity of all observations of the fetus and the mother in labor, and aids early recognition of problems with either[5].

Skilled management of labor by using a partograph, a simple chart for recording information about the progress of labor and the condition of a woman and her baby during labor, is key to appropriate prevention and treatment of prolonged labor and its complications. Following the recommendation of the World Health Organization (WHO), the Maternal and Neonatal Health (MNH) Program promotes the use of the partograph to improve the management of labor and to support decision-making regarding interventions. When used appropriately, the partograph helps providers identify prolonged labor and

know when to take appropriate actions [6]. The first obstetrician to provide a tool for the assessment of individual labor was Friedman [1].

It is interesting to note that the Department of Public Health, government of Tamil Nadu has given guidelines to all the PHCs for the implementation of active management of third stage of labor and partograph. Even though many of the PHCs are following the guidelines, there are no followers for these steps in the secondary and tertiary care centers when more than 60% of cases managed in such centers are normal deliveries[1].

A study was conducted by Tokyo development learning center on" blended learning on partograph" in 2010. The main result of this study is the obstructed labor is one of the five major causes of material death in many countries. Many of those who survive prolonged and obstructed labor suffer long term disabilities such ac obstetric fistulae, and often become outcasts from society. Prolonged obstructed labor may lead to death and disability for the infant. The World Health Organization (WHO) recommends the use of the partograph which is a simple and reliable tool for graphic recording of progress of labor and monitoring the health of the mother and the fetus. The partograph serves as an "early warning system" and assists in early decision making on interventions in labor[7]. Another study conducted on to assess the effect of partogram use on outcomes for women in spontaneous labor at term in 2009. The finding revealed in reduction of caesarean section rate, instrumental delivery and APGAR score less than seven at five minutes. On the basis of the findings of this review, we cannot recommend routine use of the partograms as part of standard labor management and care. We do recommend that the evidence presented should be used as a basis for discussion between clinicians and women. Further trial evidence is required to establish the efficacy of partogram use[8]. A study conducted regarding partogram as an instrument to analyze care during labor and delivery in 2008. Both the World Health Organization and the Brazilian ministry of health recommend using the partogram to follow labor. The main result of this study was to analyze the use of obstetrical intervention, the type of delivery and perinatal outcomes according to zones, I, II & III of the partogram. This cross sectional study was performed with 233 low risk pregnant women. The practices use in the different partogram zones with statistical significance of ($p=0.05$) were bath, movement ad walking (zone-III) artificial rupture of the membranes' (zone II) and oxytocin (zone-I). Caesarean sections were performed on 24% of women in none-III. The interventions occurred at a timely moment, indicating that the partogram is an instrument that can be used as a guide when adopting interventions during labor[9].

Objectives of the present study can be divided as follows:
- To assess the level of knowledge on partogram among fourth year B.Sc. nursing students in pretest.
- To develop planned teaching program on partogram among fourth year B.Sc. nursing students
- To assess the level of knowledge on partogram among fourth year B.Sc. nursing students in posttest.
- To compare the pre-test and post test level of knowledge on partogram among fourth year B.Sc.. Nursing.
- To correlate the findings of knowledge score with selected demographic variables.

Also, the following hypotheses were taken into account:
- H1: There will be a significant difference in the level of knowledge among fourth year B.Sc.. Nursing students regarding partogram before and after administration of planned teaching Program.
- H2: There will be a significant association between the level of knowledge and their selected demographic variables.

METHODOLOGY

Research Approach

In view of the nature of the problem selected, the present study is to assess the effectiveness of planned teaching program on partogram. An evaluative approach was considered appropriate In order to accomplish the objectives.

Research Design

The research design selected for the study was a pre-experiment one group pre testpost test design .the design used is depicted below:

Purposive sampling	Pretest	Intervention	Posttest
4th year B.Sc.. nursing student of Karnataka College of Nursing at Bangalore	Knowledge test	Planned teaching program	Knowledge test
	O1	X	O2

O1- Knowledge test for 4th year B.Sc..nursing student regarding on partogram (Pretest).

O2 -Knowledge test for 4th year B.Sc..nursing student regarding on partogram (Posttest)

X- Teaching strategy on partogram.

Variable under study

Independent variable (IV): Planned teaching program

Dependent variable (DV): Performance in Pre Test and Performance in Post Test

Attribute variable (AV): personal characteristics which include Age, Sex, Religion, previous Exposure to training and previous knowledge on filling partogram.

Setting of the Study

The study was conducted in Karnataka College of Nursing at Bangalore. Familiarity with the setting and availability of the required sample were also considered while selecting the study group.

Population

The target population of the study was 4th year B.Sc..Nursing student in Karnataka College of Nursing at Bangalore. A total number of 50 subjects were for chosen for the study.

Sample and Sampling Technique

The sample consists of a population selected to participate in a research study. In the study Non-probability convenient sampling method was used for selection of subjects.

Criteria for selection of the samples.

Students of 4th year B.Sc..nursing who were willing to participate in the study and could speak and understand English were included.Students who were not available at the time of data collection were excluded

Selection and Development of Tool

A planned teaching program was selected for the study. It was considered to be the most appropriate instrument to elicit the response from subjects who are not able to read English.

It helps the investigators to selects most suitable method of knowledge assessment tool.

Development of the Tool.

In the present study, the following tools were used

Part-I: Consisted of 5 items related to demographic data of the subjects such age, Sex, religion, and previous exposure to training. Previous knowledge on partogram.

Part-II: Self-administered questionnaire consisted of 50 items on knowledge about partogram each items of the schedule has one correct answer, every correct answer would fetch one mark, and total score of the knowledge schedule is 50.

Each correct answer was given a score of "one' mark and wrong answer 'zero' score.

$$percentage = \frac{obtained\ score}{total\ score} \times 100$$

To find the association with the selected variable, the knowledge aspect was categorized 1into three groups.

- Below 50% = Inadequate Knowledge
- 51-75% = Moderate Knowledge
- Above 75% = Adequate Knowledge

Content Validity of the tool

The prepared blue print of the tool along with objectives of the study was submitted to the experts of content validity. Six experts from the Nursing faculty, one Obstetrician & gynecologist and one statistician validated the tool content. The suggestions given by them were incorporated and tool was modified.The final tool got its shape after modification based on the opinions of the guide. It consisted of demographic data 5 items and knowledge 50 items which has 100 % agreement.

Reliability of the Tool.

The tool, after validation was subjected to test for its reliability. The structured interview schedule was administered to 50 samples. The reliability of the tool is computed by using split half kari person's correlation formula (raw score method). The reliability of split half test was found by using Karl pear son correlation. Spearman Brown's prophecy formula was used to find out the reliability of the full test.

$$R = \frac{2r}{1+r}$$

Where *R* stands forreliability coefficient of correlation of whole test and *r* stands for reliability coefficient of correlation of half test. The reliability coefficient on knowledge found to be 0.93(alpha), 0.86 (split half) and validity coefficient worked to be 0.925.Revealing the tool is feasible for administration for the main study. Since the knowledge reliability co-efficient for scale is r>0.70. The tool was found to be reliable and feasible. 2-6- Development of Planned Teaching Program

The planned teaching program was developed based on the review of the related research/non-research literature and the objective stated in the blue print.The following steps were adopted to develop the planned teaching program:

- Development of content blue print.
- Development of planned teaching program.
- Establishment of content validity of planned teaching program.
- Pretest of planned teaching program.

Content blueprint

A blue print of objectives and content items pertaining to knowledge regarding on partogram was prepared for the construction of planned teaching schedule. Objectives were distributed under the following learning areas.

- General information of partogram.
- Meaning of partogram.
- History of partogram.
- WHO partograph
- Advantages of partogram
- Indications of partogram

Preparation of Planned Teaching Program

I.   Preparation of first draft of planned teaching program: A first draft of planned teaching program was developed, keeping in mind the objectives, criteria checklist, literature reviewed and the opinion of experts. The main factors that were kept in mind while preparing the planned teaching program were: literacy level of the sample method of the teaching to be the adopted simplicity of language, relevance of teaching aids and attention span of partogram.

II. Content validity of the teaching plan: The initial draft of planned teaching program was given to experts in the field along with the tool. The suggestions were incorporated in the planned teaching program.

III. Preparation of final draft of planned teaching program: The final draft of planned teaching program was prepared after incorporating expert's suggestion the final teaching plan got its shape after the modification based on the opinion of guide.

IV. Selecting the method of teaching: Lecture cum discussion method was selected as an appropriate method of teaching on partogram.

V.   Selection and preparation of appropriate audio-visual aids: Flash cards and charts were considered appropriate to increase the impacts of teaching.

VI. Planning to implement the planned teaching program: The time and date to implement the planned teaching program was planned and decided in co-ordination with Karnataka College of Nursing at Bangalore.

VII. Determining the method of evaluating the planned teaching program: The evaluation of planned teaching program was planned by conducting post test after 7 days of implementation of planned teaching program.

VIII. Description of planned teaching program: The planned teaching program was titled "Effectiveness of planned teaching program on partogram at Karnataka College of nursing at Bangalore. Planned teaching program was structured for one session, which was prepared to enhance knowledge of 4th year B.Sc..nursing students on partogram.It consists of the following content area:

- General information of partogram.
- Meaning of partogram.
- Function of partogram
- History of partogram.
- WHO partograph
- Advantages of partogram
- Indications of partogram

Pilot study

A pilot study was conducted from 1, 10, 10, to 20, 10, 10 in the Karnataka college of nursing at Bangalore. The purpose of the pilot study was to:

- assess the effectiveness of planned teaching program.
- find out the feasibility of conducting the final study.
- determine the method of statistical analysis

10 students were selected conveniently for 2 days that is a 50 question paper on each day. One day pretest was conducted and after 7 days the post test was administered by using the same self - administered questionnaire to evaluate the effectiveness of planned teaching program on knowledge regarding partogram.

The mean percentage knowledge score in post test (42.1000%) was higher than the mean percentage knowledge score in pre test (9.4400%). The enhancement mean percentage knowledge scores (32.66%) were found to be significant at 5% (P<0.05) level. The finding of the pilot study is feasible.

Procedure for data collection

Formal prior permission was obtained from Karnataka college of nursing at Bangalore. The data was collected from 01.11.10 to 30.11.10.

Plan of data analysis

The data obtained was analyzed in terms of achieving the objectives of the study using descriptive and inferential statistics. Statistical analysis of data includes:

- Entry of data in master sheet.
- Frequency and percentage to be used for analysis of demographic characteristics.
- Calculation of mean, standard deviation of pre-test and post-test scores.
- Application of paired 't' test to ascertain whether there is significant difference in the mean knowledge score of pre-test and post-test values.
- Application of chi-squares to find the association between demographic variables with knowledge scores.

RESULTS

The data was entered in a master sheet for tabulation and statistical processing. The findings have been presented under the following headings:

Section A – Distribution of respondents according to demographic variables

Section B – Component-wise distribution of scores during pre-test and post-test

Section C – Association between pre-test and post-test knowledge scores

Distribution of respondents according to demographic variables

Table 1: Distribution of respondents based on age

Age (yrs)	No. 4th Year Student Subjects	Percent
19-22	42	84
23-26	8	16

Distribution of sample based on age reveals that out of 50 subjects, the highest percent 42% were in the age group of 19-22 years where as the lowest percent 8% were between 23-26 years.

Table 2: Distribution of respondents based on sex

Sex	No. of 4th Year B.Sc... Nursing Student	Percent
Male	18	36
Female	32	64
Total	50	100

The findings from the above table and figure reveal that majority of the subjects 32(64%) were female and only 18(36%) were male.

Table 3: Distribution of respondents based on religion

Religion	No. of 4th Year B.Sc.. Nursing Student	Percent
Hindu	37	74
Muslim	2	7
Christian	10	20
Other	1	2
Total	50	100

It is observed from the above table and figure that maximum respondents were Hindu 37 (74%) only 2 (4%) were Muslims and Christian being 20% from 10 subjects and other 1 (2%).

Table 4: Distribution of subjects based on previous knowledge on partogram

Previous knowledge	Frequency	Percent
Yes	6	12
No	44	88
Total	50	100

Data from the above table and figure depicts that maximum number of subjects, 44 (88%) did not receive any previous knowledge. Whereas only 6 (12%) of them had received knowledge.

Table 5: Distribution of respondents based on source of teaching

Source of Teaching	No. of Subjects	Percent
Workshop / training	2	4
No exposure	48	96
Total	50	100

Observation made from the above table and figure reveal that majority of the subjects, 48 (96%) of them did not receive any teaching from any source at all, whereas only 2 (4%) received teaching from workshop/training.
Component-wise distribution of scores during pre-test and post-test

Table 6: Component-wise analysis from pre-test knowledge scores

Component-wise (Pre-test)	Max Score	Range	Median	Mean	SD	Mean %
Knowledge regarding general information of partogram	5	4	2	2.4	1.07	20%
Knowledge regarding meaning of partogram	4	4	2	2.36	1.21	21.45%
Knowledge regarding interpreting partogram chart	4	4	2	2.32	0.84	19.33%
Knowledge regarding function of partogram	4	4	1	1.28	1.26	14.5%
Overall pre-test knowledge scores	14	8	10	9.44	2.02	18.8%

The knowledge of the 4th year B.Sc.. Nursing Student of Karnataka College during the pre-test was assessed under the following different aspects as given in table 6.
1) Knowledge regarding general information of partogram – this component comprised of a maximum score of 5. The range is 4. The subjects had a mean of 2.40 with a standard deviation of 1.07. They had a mean percentage of 20% on knowledge regarding partogram.
2) Knowledge regarding Meaning of Partogram – This component consists of a maximum score of 4 in which the knowledge score ranged between1-4. The mean score is 2.36 with standard deviation of 1.21. They had 21.45% mean percent of knowledge on meaning of partogram.
3) Knowledge regarding interpreting partogram chart – this component consists of a maximum score of 4. The knowledge score range is 4. The mean is 2.32 with standard deviation of 0.84. The mean percentage of knowledge regarding interpreting partogram chart was 19.33%.
4) Knowledge regarding function of partogram – this component consists of a maximum score of 4 in which the knowledge score ranged from 4. The mean score is 1.28 with standard deviation of 1.16. The mean percent of knowledge on function of partogram was 14.5%.

The overall pre-test knowledge scores consisted of a maximum score of 14. The scores ranged from 8. The mean score was 9.44 with SD if 2.02. The mean overall pre-test knowledge score was 18.8%.

Table 7: Component-wise analysis from post-test knowledge scores

Component-wise (Post-test)	Max. Score	Range	Median	Mean	SD	Mean%
Knowledge regarding general information of partogram	12	4	10	10.26	0.92	85.5%
Knowledge regarding meaning of partogram	11	4	9	8.9	1.11	81%
Knowledge regarding interpreting partogram chart	11	4	10	9.82	0.92	81.83%
Knowledge regarding function of partogram	8	2	7	7.14	0.61	89.25%
Overall post-test knowledge scores	45	8	43	42.10	2.12	84.20%

The knowledge of the subjects during the post test was assessed under the following different aspects as given in table 9.
1) Knowledge regarding general information of partogram – this comprised of a maximum score of 12. The range was 4. The subjects had mean of 10.26 with a standard deviation of 0.92. They had a mean percentage of 85.5% on knowledge regarding partogram.

2) Knowledge regarding Meaning of partogram – this compromised of a maximum score of 11. The range was 4. The subjects had a mean of 8.9 with a standard deviation of 1.11. They had a mean percentage of 81% on knowledge regarding meaning of Partogram.
3) Knowledge regarding interpreting partogram chart – this comprised of a maximum score of 11. The range was 4. The subject had a mean of 9.82 with a standard deviation of 0.92. They had a mean percentage of 81.83% on knowledge of interpreting partogram chart.
4) Knowledge regarding function of partogram – this comprised of a maximum score of 8. The range was 2. The subjects had a mean of 7.14 with standard deviation of 0.61. They had a mean percentage of 89.25% on knowledge regarding function of partogram.

The overall post – test knowledge scores consisted of a maximum score of 45 which ranged 8. The mean score is 42.10 with SD of 2.12. The mean overall post-test knowledge score was 84.20%.

Table 8: Results of statistical data analysis of pre-test and post-test knowledge scores (component-wise)

Component wise (Pre-test)	Max. Score	Pre-test			Post-test			Percentage of enhancement
		Mean	SD	Mean%	Mean	SD	Mean%	
Knowledge regarding general information of partogram		2.40	1.07	20%	10.26	0.92	85.5%	65.5%
Knowledge regarding meaning of partogram		2.36	1.21	21.45%	8.90	1.11	80.90%	59.45%
Knowledge regard of interpreting partogram chart		2.32	0.84	19.33%	9.82	0.92	81.83%	62.5%
Knowledge regarding of function of partogram		1.28	1.16	16%	7.14	0.60	89.25%	73.25%
Overall knowledge scores		9.44	2.02	18.88%	42.1	2.12	84.2%	65.32%

The results of statistical data analysis in table 8 shows that in each of the question area, the mean percentage of the knowledge score of the subjects in the post-test score has increased significantly when compared to the pre-test knowledge score. The mean percentage enhancement values of the knowledge scores present in the last column shows that there has been an minimum increase of 59.45% in the question area about meaning of partogram, whereas the enhancement of mean percentage was 73.25% in the question area about function of partogram. The data shows that planned teaching program was effective in increasing the knowledge score of the subjects with the maximum enhancement in the area of knowledge regarding function of partogram.

Table 9: Levels of pre-test scores based on different components

Pre-test	≤50%		50 – 75%		> 75%		Total	
	No.	%	No.	%	No.	%	No.	%
Knowledge regarding general information of partogram	32	64%	12	24%	6	12%	50	100%
Knowledge regarding meaning of partogram	28	56%	10	20%	12	24%	50	100%
Knowledge regard of interpreting partogram chart	28	56%	20	40%	2	4%	50	100%
Knowledge regarding function of partogram	40	80%	8	16%	2	4%	50	100%
Overall knowledge scores	6	12%	38	76%	8	16%	50	100%

The analysis of the levels during pre-test reveals the following observation.
1) Knowledge regarding general information of partogram - Among the 50 fourth years B.Sc.. Nursing Student 24% had moderately adequate knowledge 64% of them had inadequate knowledge and 12% had adequate regarding partogram.
2) Knowledge regarding meaning of partogram - among the 50 fourth years B.SC... Nursing studied, about 56% of them had inadequate knowledge, 20% had moderately adequate knowledge and only 24% had adequate knowledge regarding meaning of partogram.

3) Knowledge regarding Interpreting Partogram chart – among the 50 fourth year B.Sc.. Nursing Student studied, about 40% of them had moderately adequate knowledge, 56% had inadequate knowledge and only 4% had adequate knowledge regarding.
4) Knowledge regarding Function of Partogram – among 50 subjects studied,80% of them had inadequate knowledge, 16% had moderately adequate knowledge and only 4% of them had adequate knowledge regarding.

In overall pre-test knowledge score among 50 4th year B.Sc.. Nursing Students 76% of them had moderately adequate knowledge, 12% of them had inadequate knowledge and 16% of them had adequate knowledge.

Table 10: Levels of post-test based on different components

Pre-test	≤50%		51 – 75%		> 75%		Total	
	No.	%	No.	%	No.	%	No.	%
Knowledge regarding general information of general information of partogram	29	58%	18	36%	3	6%	50	100%
Knowledge regarding meaning of partogram	21	42%	25	50%	4	8%	50	100%
Knowledge regard of interpreting partogram chart	0	0	39	78%	11	22%	50	100%
Knowledge regarding function of partogram	6	12%	44	88%	0	0	50	100%
Overall knowledge scores								

The analysis of the levels during the post-test reveals the following observation:
1) Knowledge regarding General Information of Partogram - among the 50 fourth yearB.Sc.. Nursing Student studied, 58% had adequate knowledge, 36% had moderately adequately knowledge and only 6% had inadequate knowledge regarding partogram.
2) Knowledge regarding meaning of partogram – among the 50 subject.42% had adequate knowledge, 50% had moderately adequate knowledge and only 8% had inadequate knowledge regarding meaning of partogram.
3) Knowledge regarding Interpreting partogram chart – among the 50 fourth year B.Sc.. Nursing Student studied, they had 22% adequate knowledge, 78% had moderately adequate knowledge and nobody had inadequate knowledge regarding interpreting partogram chart
4) Knowledge regarding Function of Partogram – among the 50 fourth years B.Sc.. Nursing Student studied, 12% had adequate knowledge, 88% had moderately knowledge and no one had inadequate knowledge regarding Function of partogram.

Association between pre-test and post-test knowledge scores
Table 11: Comparison between different aspects of knowledge from pre-test to post-test

	Pre-test		Post-test		t-value	P-value	Inference
	Mean	SD	Mean	SD			
Knowledge regarding general information of partogram	2.40	1.07	10.26	0.92	37.78	0.000	t(49)=37.78,p=0.000,a= .01.
Knowledge regarding meaning of partogram	2.36	1.21	8.90	1.11	29.50	0.000	t(49)=29.50,p=0.000,a= .01.
Knowledge regard of interpreting partogram chart	2.32	0.84	9.82	0.92	41.38	0.000	t(49)41.38,p=0.000, a=.01.
Knowledge regarding function of partogram	1.28	1.16	7.14	0.60	31.27	0.000	t(49)31.27,p=0.000,a=.01.
Overall knowledge scores	9.44	2.02	42.1	2.12	68.36	0.000	T(49)68.36,p=0.000, a=.01.

The improvement in the knowledge score of the 50 fourth year B.Sc.. Nursing Student from the pre-test to post-test is tested for statistical significance using student paired "t" test and the result is considered significant wherever p≤ 0.05.

1) Knowledge regarding general information of partogram- It is observed from the study that in the aspect of knowledge regarding general information of partogram. The mean ± SD during the pre-test is found to be 2.40± 1.07 whereas during the post-test it is 10.26 ± 0.92. There is an increase of 37.78% of knowledge which is statistically highly significant (p<0.001).

2) Knowledge regarding meaning of partogram – It is observed from the study that in the aspect of knowledge regarding meaning of partogram. The mean ± SD during the pre-test is found to be 2.36 ± 1.21 whereas during the post-test it is 8.90 ± 1.11. There is an increase in knowledge of 29.50% of knowledge which statistically highly significant (p<0.001).

3) Knowledge regarding interpreting partogram chart – It is observed from the study that in the aspect of knowledge regarding interpreting partogram chart. The mean ± SD during the pre-test is found to be 2.32 ± 0.84 whereas during the post-test it is 9.82 ± 0.92. There is an increase in knowledge of 41.38% of knowledge which statistically highly significant (p<0.001).

4) Knowledge regarding function of partogram – It is observed from the study that in the aspect of knowledge regarding function of partogram. The mean ± SD during the pre-test is found to be 9.44 ± 2.02 whereas during the post-test it is 42.1 ± 2.12. There is an increase of 68.36% of knowledge which statistically highly significant (p<0.001).

Association between selected demographic variable and overall pretest knowledge score

The analysis of association between the selected demographic variables and the overall knowledge score of 4th year B.Sc.. Nursing Student during pre-test reveals the following information. For the purpose of establishing the association between the demographic variables and the overall knowledge scores, the overall knowledge score is divided into two categories as below median and above median. The demographic variables have been categorized relevant to the situation. However, for some demographic variables, wherever necessary, the data has been merged, to make it suitable for the application of Chi-square test. This is because, for the application of Chi-square test, it is essential that, the expected cell frequencies should be more than 5. As the number of cell frequencies in some demographic variables are very less, the demographic variables like age, sex, and religion which are continuous are categorized as below mean and above mean. Further, wherever the expected frequencies are less than 5 the fisher's exact probabilities are computed. The results are considered statistically significant whenever p≤0.05.

Table 12: summary of Association between selected demographic variable and overall pretest knowledge score

Demographic variable	Responses	Overall pre-test knowledge scores		Chi-square value	df	P-value	Inference
		Below Median	Above Median				
Age (yrs)	Below Mean	18	24	0.139	1	0.709	a=.05,Test is not significant at5% level
	Above mean	4	4				
Sex	Male	13	19	0.411	1	0.522	a=.05,Test is not significant at 5% level
	Female	99					
Religion	Hindu	13	24	Fisher's Probabilities Exact =Exact sig(2sided=.051)(1sided=.035)			a=.05 Test is significant at 5% level
	Muslim/Christian	9	4				
Previous Knowledge	Yes	3	3	Fisher Probabilities Exact =Exact sig(2 sided=1.0000)(1sided=0.543)			a=.05 Test is not significant at 5% level
	No	19	25				
Source of teaching	Work Shop	2	0	Fisher's Probabilities Exact =Exact sig(2sided=0.189)(1sided=0.189)			a=.05,test is significant at 5% level
	None	20	28				

Note:
- Critical value: 0.139 for 1 degree of freedom; NS-Not significant

- Since some of the expected cell frequencies are less than 5, the data is merged by combining the responses, and accordingly the degrees of freedoms are adjusted.
- In this case Ch-square test is not applicable and hence fisher's exact probabilities are computed.
- Association between age and overall knowledge score:The association between distribution of data for the age and overall Knowledge score tested using Chi-square test is found to be not statistically significant (p=0.709).
- Association between sex and overall knowledge score:The association between distribution of data for the qualification and overall knowledge score is tested using chi-square test, which shows that the association is not statistically significant (p=0.522).
- Association between religion and overall knowledge score:The association between distribution of data for the religion and overallscore cannot be tested using chi-square as the frequency of one of the cell is less than 5 and hence, the Fisher's probabilities are computed which shows that the association is statistically significant at 5% level (p=.051).
- Association between previous knowledge and overall score: The association between distribution of data for previous knowledge and overall knowledge score cannot to tested using chi-square, as the expected cell frequencies in two of the cells are less than 5 and hence, Fisher's exact probabilities are computed which shows that the association is not statistically significant at 5% level (p=0.543).

Association between selected demographic variable and overall posttest knowledge score

Table 13: Association between selected demographic variable and overall posttest knowledge score

Demographic variables	Responses	Overall post-test knowledge scores		Chi-square value	df	P-value	Inference
		Below median	Above Median				
Age (yrs)	Below mean	9	33	0.335	1	0.563	a=.05 Test is not significant at 5% level
	Above mean	1	7	0.335	1	0.563	
Sex	Male	4	14	0.087	1	0.768	a=.05, Test is not significant at 5% level
	Female	6	26	0.087	1	0.768	a=.05 Test is significant at 5% level
Religion	Hindu	9	28	Fisher's Probabilities Exact =Exact sig (2 sided =o.258)(1 sided=0.191)			
	Muslim/Christian	1	12				
Previous Knowledge	Yes	2	4	Fisher's Probabilities Exact =Exact sig(2 sided =0.586)(1 sided =0.344)			a=.05,Test is significant at 5% level
	No	8	36				
Sources of Teaching	Workshop/Training	1	1	Fisher's Probabilities Exact =Exact sig(2 sided=0.363)(1sided =0.363)			a=.05,Test is significant at 5% level
		9	39				

Note:
- Critical value: 3.841 for 1 degree of freedom; NS-Not significant.
- Since some of the expected cell frequencies are less than 5, the data is merged by combining the responses, and accordingly the degrees of freedoms are adjusted.
- In this case Chi-square test is not applicable and hence fisher's exact probabilities are computed.
- Association between age and overall knowledge score:The association between distribution of data for the age and overall knowledge score tested using chi-square is found to be not statistically significant (p=0.563).
- Association between sex and overall knowledge score:The association between distribution of data for sex and overall knowledge score tested using chi-square is found not to be statistically significant (p=0.768)
- Association between religion and overall knowledge score:The association between distribution of data for religion and overall knowledge score cannot be tested using chi-square, as the

frequency in one of the cell is less than 5 and hence, the Fisher's exact probabilities are computed which shows that the association is statistically significant at 5% level. (P=0.258).

- Association between previous knowledge and overall knowledge score:The association between distribution of data and overall knowledge score cannot be tested using chi-square, as the expected cell frequencies in two of the cells are less than 5 and hence, the fisher's exact probabilities are computed which shows that the association is statistically significant at 5% level. (p=0.586)
- Association between source of teaching and overall knowledge score:The association between distribution data and overall knowledge score cannot be tested using chi-square, as the expected cell frequencies in two of the cells are less than 5 and hence, the Fisher's exact probabilities are computed which shows that the association is statistically significant at 5% level. (p=0.363).

DISCUSSION AND CONCLUSION

The pretest was conducted with 50 multiple choice questionnaires among 50 fourth years B.Sc.. Nursing Student and their knowledge were assessed. In that 48 (96%) had inadequate knowledge and two (4%) had moderate knowledge in pretest.After administration of planned teaching program among all the 50 fourth year B.Sc.. Nursing student, the post test was conducted. In post test 49 (98%) had adequate knowledge and only one (2%) student had moderate knowledge regarding on partogram.

A study was conducted on assessment of partogram utilization in Benin. The findings revealed that one of the methods used to decrease maternal mortality and morbidity was the partogram. Partograms were used in 89% of all cases, in 13.3% of files all in rural areas partogram completion stopped before delivery. Over all completion was less good, of the 984 partograms examined, administration data were complete on only 20% and medical delivery data on 50% action taken before the alert line was crossed was incorrect in 48% of cases. (Particularly oxytocin use). The alert line was crossed in 13.5% of the cases but correct action always followed (artificial rupture of membranes, oxytocin administration). These results show very high coverage of partogram use.

The demographic data distribution of subjects who participated in the study has been presented from tables 1-5. The age - wise distribution pattern reveals that the maximum numbers of subjects 84% were from the age group of 19-22 years. The number of female who participated in the study was more 64% than male 36%. Majority of them belonged to Hindu community 74% and only 20% of them were Christians. Majority of the respondents 88% had no previous knowledge whereas only 4% of them received teaching from workshop.These findings are supported by the study conducted on "Partogram" in India in which it was found that the female to male ratio of student in college was 2:1. The mean age for 4th year B.Sc.. Nursing Student was 20.5years. The mean age among males was 20 years and that for females was 19 years.

The present findings revealed that the overall mean percentage of the pre-test knowledge score of the subjects was less (18.8%) with the individual component mean percentage values being as follows: 20% in the general information of partogram 21.45% in the aspect of meaning of partogram 19.33% in the aspect of interpreting partogram and 14.5% in the aspect of function of partogram.

In the present study, there is a significant increase in the mean percentage of knowledge score of each component in the Post-test when compared to the Pre-test mean percentage knowledge score. In the component of general information about the partogram mean percentage knowledge scores of pre-test are 20% and 85.5% respectively. The 4th Year B.Sc.. Nursing Student had an inadequate knowledge about the partogram.These findings are supported by a similar study on "knowledge of health worker in use of partogram in Nigeria "which demonstrated that only 76.9% of the whole nurse/midwife reported that they knew about partogram.

In the present study the pre-test knowledge score is 20% and post-test knowledge score was 85.5% regarding general information of partogram. These results were similar to the above study.Another similar study conducted in Uganda to assess the level of knowledge of nursing students about using partogram reported that 69.9% nursing student had knowledge to use partogram. This suggested that health care providers need to be trained in the areas of information, education and communication, provision of guidelines and adequate resources is recommended.Thus, in the present study, in all the components, there is a good increase in the post test knowledge score of the respondents with significant enhancement of knowledge in each component indicating that the planned teaching program was effective in improving the knowledge level.In terms of association of the knowledge score with demographic variables, it was found that the variables of age, sex had no significance association with the knowledge score of the respondents. However, at a level of significance of 5%, the demographic variable of religion, previous knowledge, source of teaching were significantly associated with the post test knowledge core.

The results of application of student paired t test to pre-test and post-test knowledge scores in Table 11 show that the computed p value, for all component is≥0.05. Thus the results of t-test, at a level of significance of 5%, show that the improvement of the mean value of knowledge scores of post-test when compared to the lesser values of pre-test are not by chance by due to the gain in knowledge because of planned teaching program.Therefore, there is significant difference between the pre-test and post-test knowledge scores of respondents is accepted. With regard to association of demographic variables with knowledge scores, it was found that the variables of religion, previous knowledge and source of teaching had association with the knowledge score of the respondents since the calculated Chi-square value at a level of significance of 5%. Therefore, for these demographic variables, the research hypothesis is accepted. The chi-square test results show that at a level of significantly associated with the post-test knowledge score resulting in the acceptation of null hypothesis is rejected.The above findings strongly suggest that nurses should take educate about the filling partogram as a part of the routine nursing care. After the administration of the PTP, the investigator identified that some student had inadequate knowledge in some of the components due to their inability to fully understand the PTP.

The following conclusions were drawn on the basis of the major findings of the study:

- 84% of the respondents were in the age group of 19-22 years.
- 64% of the respondents who participated in the study were females.
- 74% were Hindus in the study.
- About 88% of them did not have previous knowledge regarding partogram.
- Only 4% of the respondents received teaching from workshop/training.
- Overall mean knowledge score of respondents in pre-test was 18.8% and in post test was 84.20%.
- In terms of association of the knowledge score with demographic variables, it was found that the variables of religion, previous knowledge and source of teaching had significant association with the knowledge scores of the respondents.
- After administration of plan teaching program we had significantly improved in post-test score.

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