Original Research Article

Effect of structured teaching programme on knowledge regarding modified partograph among auxiliary nurse midwives in selected community health centers

Thounaojam Bidyani Devi[1,*]

[1]Dept. of Nursing, Index Nursing College, Indore, Madhya Pradesh, India

A R T I C L E   I N F O

A B S T R A C T

Introduction: Maternal mortality remains one of the major problems in developing countries. In India the incidence of women dying while giving birth is among the highest in the world. The partograph has been considered as one of the valuable tool in the improvement of maternity services. Partogram serves an "early warning system" and assist in early decision on transfer, augmentation and termination of labour. It also increases the quality and regularity of all observations on the fetus and the mother in labour, and aids early recognition of problems with either. Partograph prevents prolonged labour effectively and thus reduces the risk of postpartum hemorrhage, sepsis uterine rupture, operative interventions and improving neonatal outcomes and reducing fetal mortality and morbidity.

Materials and Methods: A pre-experimental one group pre-test, post-test design was used to observe the effect of structured teaching programe among Auxiliary Nurse Midwives regarding modified partograph. Reliability of the tool was tested by Karl Pearson (Correlation Coefficient) formula and it was found reliable r = 0.803. 60 samples were selected for the main study by non-probability convenient sampling technique.

Result: Highest percentage of Auxiliary Nurse Midwives (38.3%) were in the age group >35 years and (88.3%) were married. Highest percentage of Auxiliary Nurse Midwives (66.6%) were having high school basic qualification and (85%) were from 18 months revised auxiliary nurse midwives MPHW (F). Highest percentage of Auxiliary Nurse Midwives (58.3%) had 9 years and above total clinical experience, (41.6%) had 7 and above years of experience in labour room and (33.3%) Auxiliary Nurse Midwives had seldom used partograph in labour room. Highest percentage of Auxiliary Nurse Midwives (86.6%) had previous source of information during training. Highest percentage of Auxiliary Nurse Midwives (46.6%) agreed that partograph sheet is been supplied by the concerning department, (75%) agreed that use of partograph is allowed by medical officers / gynaecologists where (63.3%) are confident in using partograph.

1. Background of The Study

Today in public health, maternal mortality remains one of the major problems especially in developing countries where maternal mortality is estimated to be 100 times higher than in developed countries.

The development of the partograph provided health professionals with a pictorial overview of the labour to allow early identification and diagnosis of the pathological labour. The first obstetrician to provide a realistic tool for the study of individual labours was Emanuel Friedman. In 1954, Friedman introduced the concept of a partogram by graphically depicting the dilation of the cervix during labour. In his study of 100 primigravidae at term, cervical dilatation was determined by frequent rectal examinations. For reproducibility, the examination was carried out at the peak of the contraction and for uniformity, measurements were recorded in centimetres. A simple, but effective

* Corresponding author.
E-mail address: bidyanidevi87@gmail.com (T. B. Devi).

chart was devised whereby square graph paper was used, with 10 divisions representing the cervical dilatation. The measurements were recorded and joined to the previous measurement in a straight line. The slope of each line was determined in terms of centimetres of dilatation per hour. Friedman's explanation divided the first stage of labour into two parts: firstly, the latent phase which extends over 8–10 h and up to 3 cm dilatation; secondly, the active phase, characterized by acceleration from 3 to 10 cm, at the end of which is a decelerative phase. The major criticism of the development of this curve was the fact that no exclusions were made for malpresentations, malpositions or multiple pregnancies. Similarly, women receiving oxytocin infusions, caudal analgesia and/or operative delivery were included. The current partogram is designed to monitor not only the progress of labour, but also the condition of the mother and the fetus during labour. [1–5]

In late sixties and early seventies several extensive studies were carried out and it was inferred that labour in primipara and multipara behaved differently and deviation from normal could be diagnosed by the use of the partograph. Over last two decades several developed and developing countries have used partograph pragmatically in variety of different setting and have found it to be inexpensive and effective tool for diagnosing labour outcome. An estimated 358,000 women died due to complications developed during pregnancy and childbirth.

WHO, UNICEF and UNFPA produced a report with statistics gathered. The world average per 100,000 was 400, the average for developed regions were 20, and for developing regions 440. Seventy-five percent of maternal deaths occur during childbirth and postpartum period.

The studies above revealed that partogram is a valuable tool in the improvement of labour outcome and among these skilled attendances during pregnancy, labour and delivery have been identified as the most important factor in the reduction of maternal mortality and morbidity. Keeping the above facts in view, the investigator took up the task to assess the knowledge of ANM's regarding partogram so that making aware of the standard protocol on partogram can fill missing links and knowledge gaps. [6–11]

1.1. Statement of the problem

A pre experimental study to evaluate the effect of structured teaching programme on knowledge regarding modified partograph among auxiliary nurse midwives in selected community health centers of Bhopal division, M.P.

1.2. Objectives of The Study

1. Assess the pre test knowledge on modified partograph among auxiliary nurse midwives.
2. Assess the post test knowledge on modified partograph among auxiliary nurse midwives.

3. Compare the pre and post test knowledge on modified partograph among auxiliary nurse midwives.
4. Associate the pre test level of knowledge on modified partograph among auxiliary nurse midwives with their selected demographic variables.

1.3. Research hypotheses

1. H_1:- There is significant difference between pre-test and post-test knowledge score on modified partograph among auxiliary nurse midwives at 0.05 level of significance.
2. H_2:- There is significant association of pre test knowledge score on modified partograph with selected demographic variables of auxiliary nurse midwives at 0.05 level of significance.

2. Materials and Methods

2.1. Research approach

An experimental research approach was selected to evaluate the effect of structured teaching programme on knowledge regarding modified partograph among auxiliary nurse midwives.

2.2. Research design

In present study pre-experimental one group pre-test, post-test design was used to observe the effect of structured teaching programe among Auxiliary Nurse Midwives regarding modified partograph.

2.3. Research setting

The study is being conducted in Community Health Center Gandhinagar, Bhopal division.

2.4. Variables

2.4.1. Independent variable
Structured teaching programme on modified partograph was the independent variable in the study.

2.4.2. Dependent variable
Knowledge of auxiliary nurse midwives on modified partograph was the dependent variable in the study.

2.4.3. Population
In this study population is Auxiliary Nurse Midwives working in Community Health Center, Gandhinagar, Bhopal division.

2.4.4. Sample
In this study sample is a part of population which consists of auxiliary nurse midwives who fulfills the inclusive criteria.

2.4.5. Sampling technique

Auxiliary nurse midwives who fulfilled the inclusion criteria and working in the selected community health centers are selected as sample by non-probability convenient sampling technique because of the availability of subjects according to the inclusive sampling criteria within the limited time period.

2.5. Criteria for sample selection

2.5.1. Inclusive criteria

1. Auxiliary nurse midwives who are willing to participate in study.
2. Auxiliary nurse midwives who are available at the time of data collection.
3. Auxiliary nurse midwives who has at least 1 year of experience.

2.5.2. Exclusive criteria

Auxiliary nurse midwives who had special exposure or in-service training on partograph.

2.6. Development of tool

On the basis of the objectives of the study and review of literature, tools are developed. The tool for the study are:

1. Structured teaching programme on modified partograph.
2. Close ended questionnaire to assess the knowledge regarding modified partograph among Auxiliary Nurse Midwives.

2.7. Description of tool

2.7.1. Structured teaching plan

Structured teaching plan was organized for enhancing knowledge among auxiliary nurse midwives consisting of introduction, definition, purpose, labour, principles of assessing partograph, components of partograph, process of partograph recording, advantages of partograph and conclusion.

2.7.2. Closed ended questionnaire

It was prepared to assess the knowledge of Auxiliary Nurse Midwives regarding modified partograph. The closed ended questionnaire consists of 2 parts.

1. Part A: It consists of structured questionnaire to collect demographic data**.** It contains eleven items to obtain information regarding age, marital status, basic qualification, professional qualification, clinical experience, experience in labour room, practice of partograph in labour room, previous information and its source, supply of partograph, use of partograph and their confidence in using partograph.

2. Part B: It consists of structured questionnaire to assess knowledge on modified partograph. The structured questionnaires regarding modified partograph consist of thirty multiple choice questions under aspects such as introduction, definition, purposes, stages of labour, principles, charting of partograph.

3. Data analysis and interpretation

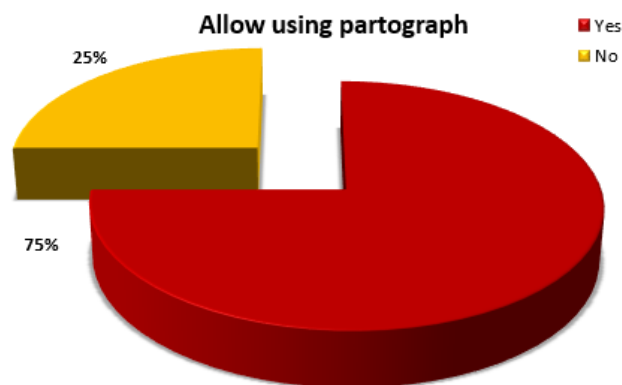*Section-I:* Distribution of auxiliary nurse midwives according to their demographic variable.

Fig. 1: Pie diagram showing the percentage distribution of auxiliary nurse midwives according to allowance of partograph to use
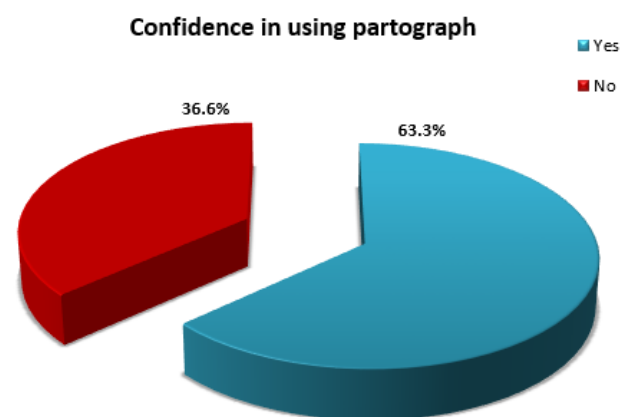
Fig. 2: Pie diagram showing the percentage distribution of Auxiliary Nurse Midwives according to their confidence in using partograph

Section-II Assessment of pre test knowledge score of auxiliary nurse midwives regarding modified partograph

The data in the figure reveals that in the pre test knowledge scores of auxiliary nurse midwives on modified partograph more than half of samples (51.67%) had inadequate knowledge where (48.3%) had satisfactory

Table 1: Frequency andpercentage distribution of auxiliary nurse midwives according to their demographic variables N = 60

Characteristics	Respondents	
	Frequency	**Percentage**
Age in years		
a. 20-25 years	6	10
b. 26-30 years	12	20
c. 31-35 years	19	31.667
d. > 35 years	23	38.333
Marital status		
a. Single	7	11.667
b. Married	53	88.333
c. Divorced	0	0
d. Separated	0	0
Basic qualification		
a. High School	40	66.667
b. Higher secondary	12	20
c. Graduate	6	10
d. Post graduate and above	2	3.333
Professional qualification		
a. 18 months revised Auxiliary nurse	51	85
b. midwives MPHW(F)		
c. 2 years Auxiliary nurse midwives	9	15
(ANM)		
Total years of clinical experience		
a. 1-4 years	15	25
b. 5-6 years	4	6.667
c. 7-8 years	6	10
d. 9 years and above	35	58.333
Year of experience in labour room		
a. 1-3 years	22	36.667
b. 4-5 years	4	6.667
c. 6-7 years	9	15
d. 7 years and above	25	41.667
Whether the partograph is being routinely used in labour room		
a. Always	15	25
b. Almost always	15	25
c. Seldom	20	33.333
d. Never	10	16.667
Previous source of information		
a. No	52	86.667
b. Yes	8	13.333
If yes		
a. During training	52	86.667
b. In service education attended		
c. Internet		
d. All of the above		
Whether the partograph sheet is being supplied by the concerning department		
a. Yes	28	46.667
b. Sometimes	14	23.333
c. No	18	30
Whether medical officers / gynaecologists allow to use partograph		
a. Yes	45	75
b. No	15	25
Are you confident in using partograph		
a. Yes	38	63.333
b. No	22	36.667

Table 2: Frequency and percentage distribution of pre test knowledge scores on modified partograph among auxiliary nurse midwives N = 60

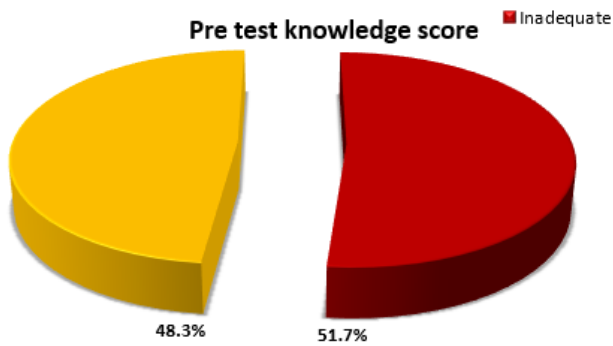| Grade	Pre test		Mean	S.D.
	Frequency	Percentage		
Inadequate	31	51.7		
Satisfactory	29	48.3	10.65	3.82
Adequate	0	0		

Fig. 3: Pie diagram showing thepre test knowledge scores on modified partograph among auxiliary nurse midwives

knowledge.

Section-III: Assessment of post test knowledge score of auxiliary nurse midwives regarding modified partograph
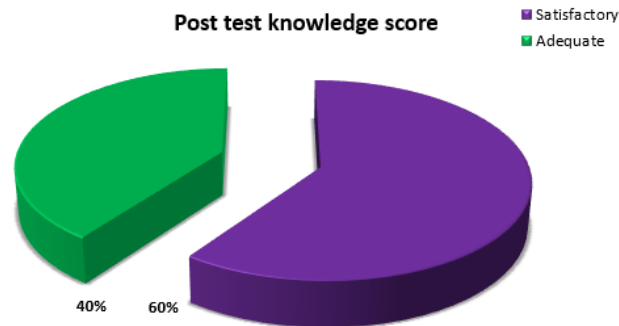

Fig. 4: Pie diagram showing thepost test knowledge scores on modified partograph among Auxiliary Nurse Midwives

The data in the figure depicts that in the post test knowledge scores of auxiliary nurse midwives on modified partograph more than half of the samples (60%) had satisfactory knowledge where (40%) had adequate knowledge.

Section IV: Comparison between the pre and post test knowledge score of auxiliary nurse midwives regarding modified partograph.

The data in the table depicts that the pre test mean score of knowledge assessed by structured knowledge questionnaire was 10.65 with SD of +/- 3.82. In the post test mean score was 19.17 with SD of +/-3.92. This indicates that there is significant difference between pre-test and post-test knowledge score on modified partograph among auxiliary nurse midwives at 0.05 level of significance hence research hypothesis H_1 is accepted.
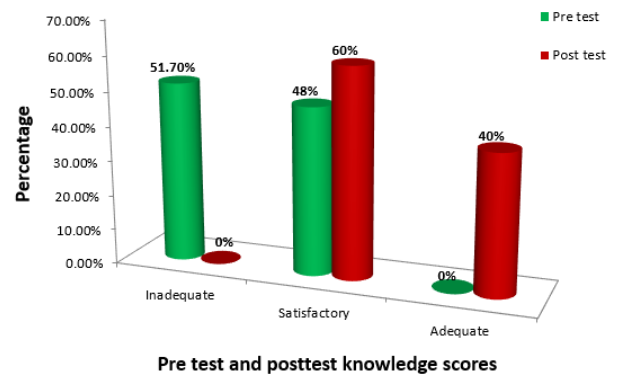

Fig. 5: Cylindrical diagram showing the comparison between pre test and post test knowledge scores on modified partograph among auxiliary nurse midwives.

The data in the figure depicts that in the pre test knowledge scores of auxiliary nurse midwives on modified partograph more than half of the samples (51.7%) had inadequate knowledge where (48%) had satisfactory knowledge. Whereas in post test knowledge scores of auxiliary nurse midwives on modified partograph more than half of the samples (60%) had satisfactory knowledge where (40%) had adequate knowledge.

Line diagram was drawn to compare the pre test and post test knowledge scores of Auxialiary Nurse Midwives regarding modified partograph shows that the lowest pre test score values were between 4-6 obtained by 17% Auxialiary Nurse Midwives and highest score values were between 19-21 obtained by only 3% Auxialiary Nurse Midwives. However, during the post test, the lowest score values were between 10-12 obtained by 5% Auxialiary Nurse Midwives and highest score values were between 25-27 obtained by only 11% Auxialiary Nurse Midwives. Further, during the pre test the highest percentage (35%) Auxialiary Nurse

Table 3: Frequency and percentage distribution of pre test knowledge scores on modified partograph among auxiliary nurse midwives

Grade	Post test		Mean	S.D.
	Frequency	Percentage		
Inadequate	0	0		
Satisfactory	36	60	19.17	3.92
Adequate	24	40		

Table 4: Comparison of mean, mean percentage and standard deviation of pre and post test knowledge score of Auxiliary Nurse Midwives regarding modified partograph N = 60

Group	Mean	Mean difference	Mean percentage	Standard deviation	't' value
Pre test	10.65	8.52	35.5	3.82	12 S****
Post test	19.17		63.9	3.92	

*p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0005
Df = 43, Table value = 3.460, p < 0.0005
S – Significant at 0.0005 level of significance

Midwives score between 10-12, whereas during post test the highest percentage (27%) Auxialiary Nurse Midwives scored between.[12–14]

Further, the mean and median plotted for pre and post test scores shows that during pre test mean and median values were 10.65 and 10, whereas during post test it was 19.17 and 19 respectively revealing that the difference of approximately 9 scores. Hence, it can be interpreted that the STP was effective in improving the knowledge of Auxialiary Nurse Midwives regarding modified partograph.

O-give curve showing the comparison between pre test and post test cumulative percentage of knowledge scores on modified partograph among Auxiliary Nurse Midwives shows that the O-give curve values on post test score was higher than the pre test scores.

In the pre test 25th percentile score was 2.8, whereas it was 5.5 for the post test that the difference of 2.7. The 50th percentile score for pre test was 3.5, which was 6.2 for the post test revealing the difference of 2.7. The 75th percentile score of pre test was 4.2, which was 7.5 for the post test revealing the difference of 3.3. It reveals that difference between pre and post test curve is highest at 75th percentile revealing the effect of STP regarding modified partograph among Auxiliary Nurse Midwives

Section V: Association of pre test knowledge score of auxiliary nurse midwives with their selected demographic variables.

The data in the table depicts that the association of pre test knowledge score on modified partograph with their selected demographic variables. In relation to age, marital status, basic qualification, professional qualification, clinical experience, experience in labour room, practice of partograph in labour room, previous information and its source, supply of partograph and their confidence in using partograph with modified partograph, the chi square value obtained 0.028, 0.232, 3.202, 1.337, 4.558, 0.39, 1.253, 0.466, 3.338 and 1.654 respectively. It is identified that there

is no significant association of pre test knowledge score on modified partograph in relation to age, marital status, basic qualification, professional qualification, clinical experience, experience in labour room, practice of partograph in labour room, previous information and its source, supply of partograph and their confidence in using partograph of auxiliary nurse midwives except the allowance of using partograph by medical officers / gynaecologists with chi square value 4.869 at 0.05 level of significance.[15,16]

4. Conclusion

On the basis of the findings of the study, the following conclusions were drawn:

Highest percentage of Auxiliary Nurse Midwives (38.3%) were in the age group >35 years and (88.3%) were married. Highest percentage of Auxiliary Nurse Midwives (66.6%) were having high school basic qualification and (85%) were from 18 months revised auxiliary nurse midwives MPHW (F). Highest percentage of Auxiliary Nurse Midwives (58.3%) had 9 years and above total clinical experience, (41.6%) had 7 and above years of experience in labour room and (33.3%) Auxiliary Nurse Midwives had seldom used partograph in labour room. Highest percentage of Auxiliary Nurse Midwives (86.6%) had previous source of information during training. Highest percentage of Auxiliary Nurse Midwives (46.6%) agreed that partograph sheet is been supplied by the concerning department, (75%) agreed that use of partograph is allowed by medical officers / gynaecologists where (63.3%) are confident in using partograph.

Prior to the administration of structured teaching plan the highest percentage of Auxiliary Nurse Midwives (51.7%) had inadequate knowledge whereas highest percentage of Auxiliary Nurse Midwives (60%) had satisfactory knowledge after administration of structured teaching plan.

The mean pre test knowledge score was 10.65 whereas the mean post test knowledge score was 19.17. The post

Table 5: Association of pre test knowledge score with their selected demographic variables N = 60

Demographic variables	Inadequate 0-10		Satisfactory 11-20		df	Chi-square value
	No.	%	No.	%		
Age in years						0.028
20-25 years	3	5	3	5		N.S.
26-30 years	6	10	6	10	3	
31-35 years	10	16.7	9	15		
> 35 years	12	20	11	18.3		
Marital status						
Single	3	5	4	6.7	1	0.232
Married	28	46.7	25	41.7		N.S.
Basic qualification						
High School	22	36.7	18	30		
Higher secondary	7	11.7	5	8.3	3	3.202
Graduate	2	3.3	4	6.7		N.S.
Post graduate and above	0	0	2	3.3		
Professional qualification					1	1.337
18 months revised Auxiliary nurse midwives MPHW (F).	28	46.7	23	38.3		N.S.
2 years Auxiliary nurse midwives (ANM).	3	5	6	10		
Total years of clinical experience					3	4.558 N.S.
1-4 years	7	11.7	8	13.3		
5-6 years	4	6.7	0	0		
7-8 years	2	3.3	4	6.7		
9 years and above	18	30	17	28.3		
Year of experience in labour room						
1-3 years	11	18.3	11	18.3		
4-5 years	2	3.3	2	3.3		
6-7 years	4	6.7	5	8.3	3	0.39
7 years and above	14	23.3	11	18.3		N.S.
Whether the partograph is being routinely used in labour room						
Always	9	15	6	10	3	1.253
Almost always	7	11.7	8	13.3		N.S.
Seldom	11	18.3	9	15		
Never	4	6.7	6	10		
Previous source of information						
No	5	8.3	3	5	1	0.466
Yes	26	43.3	26	43.3		N.S.
Whether the partograph sheet is being supplied by the concerning department						3.338 N.S.
Yes	18	30	10	16.7		
Sometimes	6	10	8	13.3		
No	7	11.7	11	18.3		
Whether medical officers / gynaecologists allow to use partograph Yes	27	45	18	30	1	4.869 S*
No	4	6.7	11	18.3		
Are you confident in using partograph						
Yes	22	36.7	16	26.7	1	1.654
No	9	15	13	21.7		N.S.

*p > 0.05   **p > 0.01   ***p > 0.001
N.S. – Not significant, S – Significant

test scores proved that the structured teaching programme given by the investigator, helped auxiliary nurse midwives to improve their knowledge.

There is no significant association of pre test knowledge score on modified partograph with their selected demographic variables of Auxiliary Nurse Midwives except the allowance of using partograph by medical officers / gynaecologists with chi square value 4.869 at 0.05 level of significance.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Author biography

Thounaojam Bidyani Devi, Professor