

Effectiveness of Educational Program on Nurses' Knowledge Regarding Partograph in Al-Najaf City

Zainab Neamat Jumaah Al-Tae, M.Sc. *, Kafi Mohammed Nasir Al-Asadi, Ph.D. **

*M.Sc. Maternal and Newborn Health Nursing, Faculty of Nursing, University of Kufa.

**Assistant Professor, Community Nursing Branch / MCH, Faculty of Nursing, University of Kufa.

Abstract- Objective: this study aimed to evaluate the nurse's knowledge regarding partograph and to determine the effectiveness of nursing educational program by comparing the pre-test and post-test score on nurse's knowledge regarding partograph. **Methodology:** A quasi-experimental (pre and post-test) study had been used through the present study with application of pre and post-test approach for both studied and controlled groups during the period from November 1st, 2015 to July 1st, 2016. In this study the target population was consisted of all nurses who working in delivery room of Al-Zahra Maternity and Pediatric Teaching Hospital and Al-Furat Al-Awsat Hospital at Al Najaf city. Purposive sample was selected which consist of (80) nurses. The sample is divided in to two groups; (40) nurses as a study group are exposed to the nursing education program, and the other (40) nurses are not exposed to the program considered as the control group. The measurement effectiveness of the educational program through the knowledge assessment includes (56) items. Data was analyzed by using descriptive data analysis and inferential data analysis. **Results:** the results show that the educational program was effective on nurses' knowledge regarding partograph. It also shows that there is good improvement with highly significant differences in study group between pre and post-test, in overall items. **Conclusion:** The study concludes that partograph educational program is the effective and appropriate method to increase nurse's knowledge. **Recommendation:** This study recommends Asserting on Ministry Of Health to offer in service training programs for nurses and midwives in order to improve their knowledge.

Index Terms- effectiveness, educational program, Partograph, nurses, knowledge.

I. INTRODUCTION

Maternal deaths are preventable with access antenatal care in pregnancy, skilled care during childbirth, and support in the postnatal weeks after childbirth. Maternal health is closely related to newborn health, approximately 2.7 million newborn babies die every year, and an additional 2.6 million are stillborn. Time management and treatment for all births are attended by skilled health professionals that make the difference between life and death for both mothers and the babies⁽¹⁾. WHO reported that of the estimated 211 million pregnancies occur each year, 46 million end with abortion. Maternal mortality due to pregnancy complications is 830 women around the world every day and roughly 303 000 women will have died by the end of

2015 from preventable causes related to pregnancy and childbirth. (2). Obstructed labor remains not only the important cause of maternal death but also short- and long-term disability. Obstructed labor comprises one of the five major causes (obstructed labor, postpartum, hemorrhage, puerperal sepsis, eclampsia, and abortion) of maternal morbidity and mortality in developing countries.^(3,4). Initial detection of unusual progress of labor and the avoidance of prolonged labor would considerably reduce the risk of postnatal hemorrhage, sepsis, reduce obstructed labor, uterine rupture and its sequel. A partograph is a detailed record of development of labor and noticeable conditions for mothers and fetus⁽⁵⁾. The first graphic assessment of progress of labor was designed by Friedman in 1954 and further improved by Philpott and Castle in 1972⁽⁶⁾. Rapid increase in rate of cesarean births without evidence of associated decreases in maternal or neonatal morbidity or mortality raises noteworthy concern that cesarean delivery is overworked. uterine rupture, anesthetic problems, shock, cardiac arrest, acute renal failure, mechanical ventilation, venous thromboembolism, major infection, or nosocomial wound infection or hematoma have increased threefold for cesarean delivery as compared with vaginal delivery^(7,8,9). Partograph is a useful graphical record of labor course for optimum results in labor management. Its usefulness and efficiency cut across developed and undeveloped countries. Acquisition of knowledge of its use and guaranteeing proper application of that knowledge would reach a peak in reduction of the incidence and outcomes of prolonged and obstructed labor, related with 8%–10% of maternal mortality^(10, 11). Using partograph for labor management reveals to be beneficial in distinguishing normal from abnormal progress in labor and recognizes women probably who are in need for intervention. A Modified WHO Partograph with a simple management protocol improves childbirth outcome for mothers and neonates prospectively⁽¹²⁾. Partograph requires skill-nurse plotting information regarding normal labor and childbirth, performing Leopold's maneuver to determine fetal descent and vaginal examination to define cervical dilation on a graph⁽¹³⁾. Nursing and midwifery services are a vital source for attaining well-being and developmental goals. They create the mainstay of health systems in any country and provide a policy for supporting efforts to reduce illnesses that cause infirmity and disease. Iraq needs experienced health team of nurses & midwives who are able to convey quality care of nursing services in a favorable well measured environment are crucial health services^(8,14). Training nurses on partograph can help in behavioral reinforcement and early decision making about augmentation of childbirth, enabling practicing nurse-midwives to identify approaching problems during management of labor in

mother and fetus. Knowledge, and practice of nurses is important in improving labor results and to maintain mother's condition in the labor ward and the delivery rooms⁽¹⁵⁾.

II. METHODOLOGY

Design of the Study: A quasi-experimental (pre-post test) study had been used through the present study with application of pre-post test approach for both studied and controlled group during the period of 1st November, 2015 to 1st July, 2016. Purposive sample consist of (80) nurses. The sample is divided in two groups; (40) nurses as study group are exposed to the nursing education program, and the other (40) nurses are not exposed to the program considered as the control group. The two groups have proximately the same demographic characteristics. Those who met the criteria for selection were nurses who were working at the maternity units and delivery rooms.

The educational program is designed to provide the nurses with information to partograph, Fetal condition, Membranes and liquor, Fetal head molding and caput formation, Uterine Contraction, Cervix dilation and effacement, Decent of fetal head, The Alert and Action lines in partograph, Obstructed labor and labor dystocia, Oxytocin Administration, Fetal distress during labor, Maternal condition, Recording and interpreting the progress of labor on partograph.

The study instrument was constructed by the researcher in order to reached aims of the study. It consists of (2) parts:

- I. Self-administered questionnaire sheet related to (demographic characteristic of the nurses).

This part is concerned with the collection of basic socio-demographic data, this part is filled by the nurses (age, level of education, duration of nursing experiences at the hospitals, duration of nursing experiences at the Maternity unit, number

and duration of participation in partograph training sessions in the hospital).

- II. Self-administered questionnaire sheet related to (nurses knowledge regarding Partograph).

It was constructed to assess nurse's knowledge about partograph in maternity units and labor rooms. The questionnaire sheet is also filled by the nurses, purpose of the study is explained prior to get questionnaire sheet. The participants are requested to answer the questionnaire within 60 minutes.

This knowledge test was composed of (53) multiple choice question. The test is covered with the relevant points from the major content area of educational program. For the purpose of this study, the number of correct responses of the knowledge questionnaire is used as the measure of the level of knowledge. Each question is scored as the correct answer get (2) score and the wrong answer get (1) score.

Statistical Analysis

Data was analyzed through the use of SPSS (Statistical Package for Social Science) version (19) application statistical analysis system and Excel application. Data analyzed through the application of two statistical approaches. **Adescriptive data analysis** includes a-Tables (Frequencies, Percentages, and Mean of scores), b- Cutoff point (0.66), c- Statistical figure (Bar Charts) and d- Pearson's Correlation Coefficients (Reliability), and **Inferential Data Analysis includes** a- Chi-Square, b- t-test independent sample between study and control group and finally c- t-test paired t-test between pre and post-test.

Objective of the study:

This study aimed to assess the nurses' knowledge regarding partograph and to determine the effect of nursing educational program by comparing the pre-test and post-test score on nurse's knowledge regarding partograph.

III. RESULTS

Table (1): Statistical Distribution of the Study and Control Groups Demographic Data with Statistical Difference

Demographic Data	Rating and Intervals	Study Group		Control Group		Sig Difference		
		Freq.	%	Freq.	%	T-Value	D.F.	P-Value
Age / Years	<= 27.00	9	22.5	6	15	0.14	58	0.889 Ns
	28.00 - 35.00	14	35	16	40			
	36.00 - 43.00	8	20	6	15			
	44.00 - 51.00	6	15	8	20			
	52.00+	3	7.5	4	10			
	Mean	35.5		34.6				
Levels of Education	Nursing college graduated	2	5	0	0	0.43	58	0.669 Ns
	Institute graduated / Nursing Department	7	17.5	12	30			
	Nursing & Midwifery Secondary school graduated	27	67.5	26	65			
	Other	4	10	2	5			
Years of Experience	1-5	4	10	2	5	0.591	58	0.557 Ns
	6.00 - 10.00	22	55	22	55			

	11.00 - 15.00	7	17.5	2	5			
	16.00 - 20.00	4	10	2	5			
	21.00 - 25.00	2	5	10	25			
	26.00+	1	2.5	0	0			
	Mean	9.42		9.9				
Years of experience in maternity units	1-5	29	72.5	22	55	0.551	38	0.584 Ns
	6.00 - 10.00	3	7.5	6	15			
	11.00 - 15.00	3	7.5	6	15			
	16.00 - 20.00	1	2.5	4	10			
	21.00 - 25.00	1	2.5	0	0			
	26.00+	3	7.5	2	5			
	Mean	7.22		7.25				
Participation in a training sessions	Yes	19		47.5		0.18	58	0.858
	No	21		52.5				
Number of training sessions	No participation	21	52.5	20	50	0.205	58	0.839 Ns
	1	12	30	12	30			
	2	5	12.5	6	15			
	3	2	5	2	5			
Duration of training sessions	No participation	21	52.5	20	50	0.266	58	0.791 NS
	1	10	25	14	35			
	2	4	10	2	5			
	3	5	12.5	4	10			
Use of Partograph	Yes	17	42.5	16	40	0.182	58	0.856 NS
	No	23	57.5	24	60			

Sig: Significant; **No.:** Number %: percentage; **Freq.:** Frequency; **Ns:** Non-significant **P Value:** probability value; **Df:** degree of freedom; **T value:** t-test

This table shows that the mean of study sample age is (35.5 years) at the study group and (34.6 years) at the control group. Regarding the level of education in both study and control groups the highest percentage of participants were nursing and midwifery secondary graduates (67.5% and 32.5%) respectively. Concerning year of employment, the study results indicate that the mean of the nurses' years of experience is (9.4 and 9.9 years) at the study and control groups respectively. In addition, the

study results indicate that the mean of years of experience in maternity units is (7.2 years) at both study and control groups. Furthermore, the study results indicate that (57.5% and 60%) of the nurses at study and control groups respectively had never used a Partograph form before. Finally in this table, the study results indicate that there is a non-significant difference between the study and control group demographic data at p-value more than 0.05.

Table (2): Distribution of the Study group by their Responses to Pre-Test and Post-Test Items

List	Items	Pre-Test		Post - Test	
		M.s.	Assess	M.s.	Assess
1	Partograph is a valuable tool to help nurse to detect the unusual progress in birth	1.575	Good	1.95	Good
2	Partograph has been designed to record information on fetus health condition, birth progress And mother health status	1.4	Poor	2	Good
3	Partograph helps the nurse to identify and avoid prolonged birth and dystocia, fetal distress and maternal bleeding and infection	1.575	Good	1.95	Good
4	The most appropriate definition of the Partograph is an official record composite of key data of the mother and fetus health condition during labor that recorded in especial intervals on one page of sheet	1.65	Good	1.95	Good
5	In the identification sections of the Partograph ,Gravida stand for number of the previous pregnancies	1.425	Poor	1.975	Good
6	Multipara is a medical term for woman who has given birth more than once to live babies	1.8	Good	1.85	Good
7	gestational age should be recorded in the identification section of	1.275	Poor	1.875	Good

	Partograph				
8	fetal heart rate is Recorded at first and then every 30 minutes	1.55	Good	2	Good
9	Partograph covers fetal heart rate in the range of 60-190 beats per minute	1.525	Good	2	Good
10	The normal heart rate for the term fetus with gestational age of 37 weeks and more is 120-160 beats / minute	1.7	Good	1.875	Good
11	The reasons for the fetal heart rate deviation is placental aging or damage, decreased blood volume in pregnant woman and oligohydramnios	1.6	Good	1.85	Good
12	Fetal Heart rate less than 120 and more than 160 beats / min indicate fetus distress	1.6	Good	1.925	Good
13	When the nurse detects any abnormalities in the fetal heart rate, Should repeat counting and if the condition persists for more than 10 minutes must report to medical staff	1.125	Poor	1.95	Good
14	Fetal heart rate deviation is immediate indicator on fetus distress during childbirth	1.25	Poor	1.7	Good
15	Liquor is the term for amniotic fluid that surrounds the fetus in Partograph	1.5	Good	1.875	Good
16	Amniotic fluid color must be recorded at least every 4 hours in Partograph	1.175	Poor	1.9	Good
17	Stained liquor accompanied with fetal heart rate deviation is an indicator to fetus distress	1.55	Good	1.975	Good
18	If amniotic sack is ruptured but amniotic fluid not comes out "A" (Absent) should record on Partograph	1.65	Good	1.8	Good
19	The extent of overlapping of fetal skull bones is Definition of molding	1.7	Good	1.925	Good
20	Nurse should identify and record the molding degree on the Partograph By palpating the suture lines and fontanel of the fetal head during a vaginal examination	1.55	Good	2	Good
21	+4 Bones are overlapping and fused completely is not within the Moulding degrees recorded on Partograph	1.275	Poor	1.925	Good
22	The molding degree +3 with the very slow progress in the birth, refers to blockage or disproportion between the fetus head and the mother pelvis, which leads to dystocia	1.7	Good	1.775	Good
23	Nurse must assess the degree of Moulding at first and then every 2 hours	1.175	Poor	1.8	Good
24	Caput is the swelling on one side of the newborn's head due to blood or other fluid accumulation in the skin where pressing on the cervix during labor	1.825	Good	1.925	Good
25	Caput or swelling in the fetus head is normal if develops centrally	1.425	Poor	1.9	Good
26	Good and effective uterine contractions necessary for the progress of birth are Strong contractions and last for more than 40 seconds	1.425	Poor	1.8	Good
27	Uterine contractions assessed by putting hand on the abdomen and feel the contraction	1.575	Good	1.95	Good
28	In Partograph sheet, contractions recorded every 30 minutes and scaled from 1 to 5 squares, Each square represents a contraction	1.3	Poor	1.875	Good
29	To stimulate effective uterine contractions physician may prescribe oxytocin	1.8	Good	1.875	Good
30	During oxytocin administration, nurse should Note and record the number, duration and severity of contractions on the Partograph every half hour	1.275	Poor	1.85	Good
31	At the beginning of labor the cervix is thick and long	1.225	Poor	1.925	Good
32	Cervical Effacement is the softening and thinning of the cervix	1.55	Good	1.85	Good
33	The complete effacement known as 100% effaced	1.375	Poor	1.95	Good
34	The measurement of cervical dilatation is from 0 to 10 cm	1.475	Poor	1.775	Good
35	cervical dilation is the result of uterine contractions	1.475	Poor	1.925	Good
36	Partograph recording begins at which labor stage first of labor	1.2	Poor	1.875	Poor
37	The nurse perform vaginal examination to assess Cervical dilation and effacement, fetal membranes status and fetus molding and presentation	1.55	Good	1.875	Good
38	Active phase of labor begins when the cervical dilation is 4 cm and ends	1.675	Good	1.95	Good

	with 10 cm dilation				
39	On the Partograph sheet, cervical dilation marked by (X)	1.6	Good	1.875	Good
40	If the normal childbirth progress, the recording cervical dilation remain on The Left of alarm line	1.15	Poor	1.825	Good
41	Action line on the Partograph is Parallel to the alarm line and located 4 hours to the right of the alert line	1.1	Poor	1.625	Good
42	Nurse estimates the descent of the fetus head by measuring fetal head station through vaginal examination	1.575	Good	1.95	Good
43	When the fetus head is in the same level as the ischial spine in the estimation called station zero	1.325	Poor	2	Good
44	Negative number in the station such as -3 or-4 mean the fetal head is still 'floating' and not yet engaged	1.3	Poor	1.925	Good
45	If the fetus head is lower the birth canal than the ischial spines station is given a positive number	1.275	Poor	1.875	Good
46	In +3 station the fetus head crowning, that means the presenting part of the baby's head remains visible between contractions	1.3	Poor	1.9	Good
47	To record the level of the fetal head descent, using the scale -3 to 3+	1.325	Poor	1.825	Good
48	On Partograph sheet, fetal head descent is marked by (O)	1.525	Good	1.95	Good
49	The maternal health monitored by measuring vital signs	1.8	Good	2	Good
50	Pregnant temperature should be recorded every two hours	1.25	Poor	1.925	Good
51	Nurse must measure pregnant blood pressure every 4 hours	1.1	Poor	1.925	Good
52	Pulse are measured every 30 minutes and recorded as points	1.5	Good	1.875	Good
53	The amount of urine should be record each time when the pregnant urinating and analyzed for the presence of protein and acetone	1.225	Poor	1.9	Good

Ms: Mean of score (1.5)

This table shows that most the study group have been poor in (78%) of the items in pre-test, while they knowledge level become (98%) of the items in post-test after exposed to

educational program. Furthermore the residual (22%) of items which was good in pre-test shows progress in their mean of score in post-test.

Table (3): Statistical distribution of the study group by their overall responses with Significant Difference between Pre-Test and Post-Test Scores

Overall assessment for study group	Pre-test				Post-test			
	Freq.	%	M.s.	Assessment	Freq.	%	M.s.	Assessment
Good	8	22	1.44	Poor	39	98	1.89	Good
Poor	32	78			1	2		
t-value (20.843), d.f.(39), p-value (0.001)HS								

%; percentage; Freq.: Frequency HS: High significant; P Value: probability value; Df: degree of freedom T value: t-test

The results of this table shows that high Significant Difference between pre-test and post-test scores of study group members at p-value (0.001).

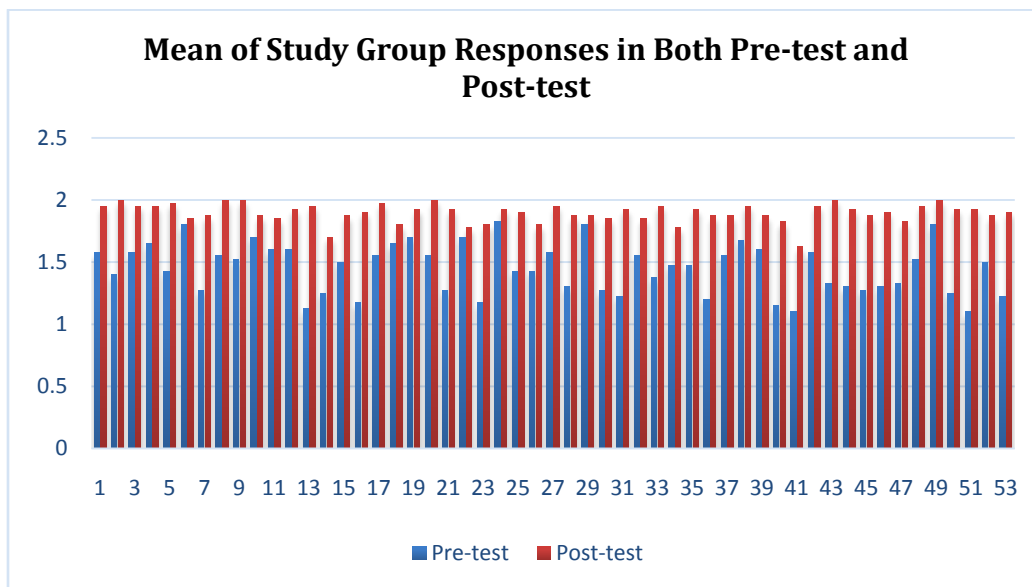


Figure (1): Assessment of study group knowledge in pre-test and post-test.

Table (4): Distribution of the Control Group by their Responses to the Pre-Test and Post-Test Items

List	Items	Pre-Test		Post - Test	
		M.s.	Assess	M.s.	Assess
1	Partograph is a valuable tool to help nurse to detect the unusual progress in birth	1.55	Good	1.55	good
2	Partograph has been designed to record information on fetus health condition, birth progress And mother health status	1.2	Poor	1.2	Poor
3	Partograph helps the nurse to identify and avoid prolonged birth and dystocia, fetal distress and maternal bleeding and infection	1.45	Poor	1.25	Poor
4	The most appropriate definition of the Partograph is an official record composite of key data of the mother and fetus health condition during labor that recorded in especial intervals on one page of sheet	1.4	Poor	1.45	Poor
5	In the identification sections of the Partograph ,Gravida stand for number of the previous pregnancies	1.3	Poor	1.4	Poor
6	Multipara is a medical term for woman who has given birth more than once to live babies	1.45	Poor	1.45	Poor
7	gestational age should be recorded in the identification section of Partograph	1.4	Poor	1.35	Poor
8	fetal heart rate is Recorded at first and then every30 minutes	1.4	Poor	1.4	Poor
9	Partograph covers fetal heart rate in the range of 60-190 beats per minute	1.2	Poor	1.25	Poor
10	The normal heart rate for the term fetus with gestational age of 37 weeks and more is 120-160 beats / minute	1.55	Good	1.4	Poor
11	The reasons for the fatal heart rate deviation is placental aging or damage, decreased blood volume in pregnant woman and oligohydramnios	1.35	Poor	1.35	Poor
12	Fetal Heart rate less than 120 and more than 160 beats / min indicate fetus distress	1.6	Good	1.55	Good
13	When the nurse detects any abnormalities in the fetal heart rate, Should repeat counting and if the condition persists for more than 10 minutes must report to medical staff	1.15	Poor	1.05	Poor
14	Fetal heart rate deviation is immediate indicator on fetus distress during childbirth	1.3	Poor	1.25	Poor
15	Liquor is the term for amniotic fluid that surrounds the fetus in Partograph	1.4	Poor	1.4	Poor
16	Amniotic fluid color must be recorded at least every 4 hours in Partograph	1.1	Poor	1.05	Poor
17	Stained liquor accompanied with fetal heart rate deviation is an indicator to fetus distress	1.45	Poor	1.55	Good
18	If amniotic sack is ruptured but amniotic fluid not comes out "A" (Absent)	1.3	Poor	1.35	Poor

	should record on Partograph				
19	The extent of overlapping of fetal skull bones is Definition of molding	1.65	Good	1.5	Good
20	Nurse should identify and record the molding degree on the Partograph By palpating the suture lines and fontanel of the fetal head during a vaginal examination	1.25	Poor	1.35	Poor
21	+4 Bones are overlapping and fused completely is not within the Moulding degrees recorded on Partograph	1.35	Poor	1.25	Poor
22	The molding degree +3 with the very slow progress in the birth, refers to blockage or disproportion between the fetus head and the mother pelvis, which leads to dystocia	1.45	Poor	1.5	Good
23	Nurse must assess the degree of Moulding at first and then every 2 hours	1.15	Poor	1.1	Poor
24	Caput is the swelling on one side of the newborn's head due to blood or other fluid accumulation in the skin where pressing on the cervix during labor	1.5	Good	1.65	Good
25	Caput or swelling in the fetus head is normal if develops centrally	1.25	Poor	1.2	Poor
26	Good and effective uterine contractions necessary for the progress of birth are Strong contractions and last for more than 40 seconds	1.5	Good	1.45	Poor
27	Uterine contractions assessed by putting hand on the abdomen and feel the contraction	1.15	Poor	1.3	Poor
28	In Partograph sheet, contractions recorded every 30 minutes and scaled from 1 to 5 squares, Each square represents a contraction	1.25	Poor	1.15	Poor
29	To stimulate effective uterine contractions physician may prescribe oxytocin	1.55	Good	1.65	Good
30	During oxytocin administration, nurse should Note and record the number, duration and severity of contractions on the Partograph every half hour	1.2	Poor	1.15	Poor
31	At the beginning of labor the cervix is thick and long	1.25	Poor	1.2	Poor
32	Cervical Effacement is the softening and thinning of the cervix	1.35	Poor	1.25	Poor
33	The complete effacement known as 100% effaced	1.15	Poor	1.2	Poor
34	The measurement of cervical dilatation is from 0 to 10 cm	1.25	Poor	1.15	Poor
35	cervical dilation is the result of uterine contractions	1.3	Poor	1.35	Poor
36	Partograph recording begins at which labor stage first of labor	1.25	Poor	1.2	Poor
37	The nurse perform vaginal examination to assess Cervical dilation and effacement, fetal membranes status and fetus molding and presentation	1.25	Poor	1.25	Poor
38	Active phase of labor begins when the cervical dilation is 4 cm and ends with 10 cm dilation	1.1	Poor	1.25	Poor
39	On the Partograph sheet, cervical dilation marked by (X)	1.45	Poor	1.45	Poor
40	If the normal childbirth progress, the recording cervical dilation remain on The Left of alarm line	1.15	Poor	1.1	Poor
41	Action line on the Partograph is Parallel to the alarm line and located 4 hours to the right of the alert line	1.3	Poor	1	Poor
42	Nurse estimates the descent of the fetus head by measuring fetal head station through vaginal examination	1.25	Poor	1.3	Poor
43	When the fetus head is in the same level as the ischial spine in the estimation called station zero	1.3	Poor	1.2	Poor
44	Negative number in the station such as -3 or -4 mean the fetal head is still 'floating' and not yet engaged	1.3	Poor	1.15	Poor
45	If the fetus head is lower the birth canal than the ischial spines station is given a positive number	1.25	Poor	1.15	Poor
46	In +3 station the fetus head crowning, that means the presenting part of the baby's head remains visible between contractions	1.15	Poor	1.25	Poor
47	To record the level of the fetal head descent, using the scale -3 to 3+	1.3	Poor	1.1	Poor
48	On Partograph sheet, fetal head descent is marked by (O)	1.35	Poor	1.35	Poor
49	The maternal health monitored by measuring vital signs	1.5	Good	1.6	Good
50	Pregnant temperature should be recorded every two hours	1.2	Poor	1.2	Poor
51	Nurse must measure pregnant blood pressure every 4 hours	1.05	Poor	1.05	Poor
52	Pulse are measured every 30 minutes and recorded as points	1.2	Poor	1.15	Poor
53	The amount of urine should be record each time when the pregnant urinating and analyzed for the presence of protein and acetone	1.1	Poor	1	Poor

Ms: Mean of score (1.5)

This table shows that knowledge level of control group have been poor in (95%) of the items in pre-test, While in the post-test the same group pass only (10%) of the items, and there were unobservable progress in good items among control group post-test because they did not exposed to any intervention related to knowledge.

Table (5):Statistical distribution of the Control group by their overall responses with Significant Difference between Pre-Test and Post-Test Scores

Overall assessment for control group	Pre-test				Post-test			
	Freq.	%	M.s.	Assessment	Freq.	%	M.s.	Assessment
good	2	5	1.31	Poor	4	10	1.28	Poor
poor	38	95			36	90		
t-value (0.56) ;d.f.(19) ;p-value (0.57) ;significance:NS								

%; percentage; Freq.: Frequency; NS: non-significant; P Value: probability value;Df: degree offreedom T value: t-test; Ms: Mean of score

The results of above table shows that no Significant Difference between Pre-Test and Post-Test Scores of control group members at p-value (0.577).

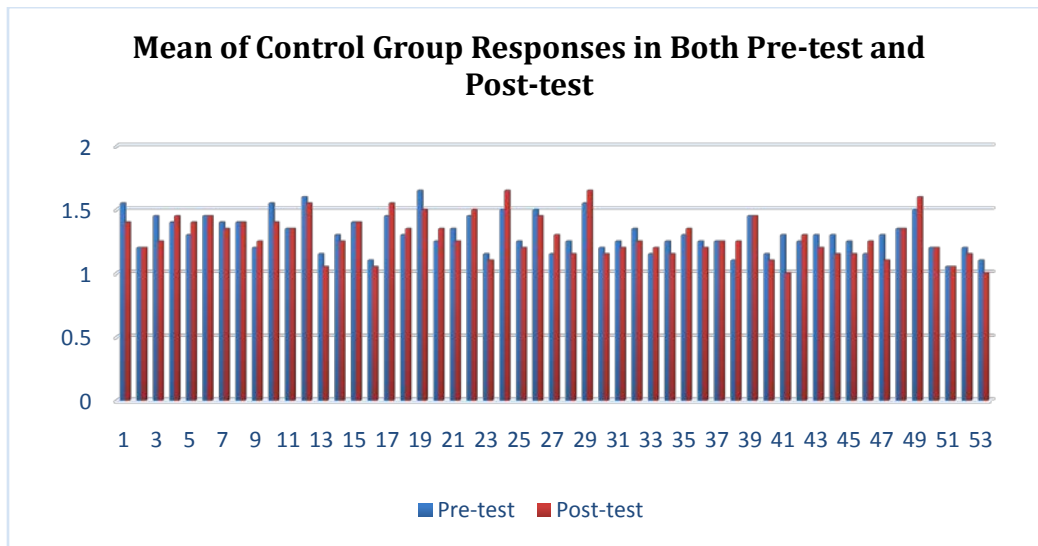


Figure (2): Assessment of control group knowledge in pre and post-test.

Table (6):Significant Difference between Study and Control Groups regarding Pre-Test Scores

Pre-test	Study group				Control group			
	Freq.	%	M.s.	Assessment	Freq.	%	M.s.	Assessment
Good	8	22	1.44	Poor	2	5	1.31	Poor
Poor	32	78			38	95		
t-value (0.676); d.f.(58); p-value (0.502); significant: NS								

%; percentage ; Freq.: Frequency; NS: non-significant; P Value: probability value; Df: degree of freedom T value: t-test; Ms: Mean of score

Table (6) shows that there is no significant differences between study and control groups in pre-test at p-value (0.502) which clearly indicated poor knowledge of both groups in pre-test.

Table (7): Significant Difference between Study and Control Groups regarding Post-Test Scores

Post-test	Study group				Control group			
	Freq.	%	M.s.	Assessment	Freq.	%	M.s.	Assessment
Good	39	98	1.89	Good	4	10	1.28	Poor
Poor	1	2			36	90		
t-value (14.607); d.f.(58); p-value (0.001); significant: HS								

%: percentage; Freq.: Frequency; HS: High significant; P Value: probability value;Df: degree of freedom value;t-test;Ms: Mean of score

T

The results of table (7) shows that a highly significant difference found between the post-test of the study group members at p-value (0.001) who were participated in the educational program and the control group who did not exposed to any intervention related to knowledge.

IV. DISCUSSION

According to (Table 1) in the results, the study shows no significant difference between both study and control groups regarding all demographic data. In regards to age, the majority of study and control groups were at age group of (28-35) years. Age of nurses in this study is in agreement with other study done by Oladapo and others (2011) in Nigeria that studied the Knowledge and utilization of partograph among healthcare providers at maternity centres.⁽¹⁶⁾ besides that, the present results are similar to the conducted study Salama & Heeba, (2010) in Cairo who found the majority of nurse's age-group (28.5- 36.5) years was (69.6%).⁽¹⁷⁾

Regarding the level of education, the majority of the sample in both study and control groups the highest percentage of participants were nursing and midwifery secondary graduates (67.5% and 65%) respectively. Other studies are in consistent with this study which shows that the nursing and midwifery secondary school graduates with Diploma degree are the main health care staffs in health facilities and with more educational level more practical care can be delivered. Many previous studies were in agreement with this result they found that the majority of study subjects in maternity units were graduate from nursing and midwifery secondary school^(12,18).

Concerning years of experience, this study illustrates that the majority (55%) in the study and control groups had been working in maternity units between (1-5) years of nursing experience. This result is in agreement with Clarke & others (2012) who stated that the mean of experience level was less than 5 years among the employed nurses indicates mainstream of low average nurse's experience in American hospitals but nurses remain the largest human resources of health care providers⁽¹⁹⁾. Regarding to the years of experience in maternity units, the present study shows that the majority (72.5%, 55%) in the study and control groups had been working in maternity units between (1-5) years of nursing experience. These findings are in the same line with the study conducted by Mohamed, Abd Elati and Zaki in Egypt (2015), on Knowledge and attitude of maternity nurses about partograph, they discovered that the mean of experience level was less than 5 years among the employed nurses and there is a significant association between nurse's

knowledge with years of experience and attendance in maternity units⁽²⁰⁾.

About training sessions regarding partograph, the study result reveals that the majority (52.5%, 60%) in the study and control groups respectively have no a chance to attend training sessions or unable to participate the continuous teaching programs. This result come along with Khomeiran and others, (2010) their study reveals that (48.0%) were able to participating in training programs⁽²¹⁾.

Regarding use of partograph the study indicated that the majority of (57.5%) in the study and (60%) control groups had never used or applied Partograph before. This finding is consistent with that of Toppo (2010) and Lavender (2013) who stated that majority of the study subjects never used partograph during labor^(22, 23).

According to the results shows in tables 2; 3; 4 and 5. The present study indicated that the study sample knowledge was poor that less than fourth of study group had passed the pre-test, and 5% of control group had almost passed the pre-test. Many studies found that there is a non-significant difference between study and control groups for pre-test related to nurses' knowledge at $P > 0.05$ ^(20,23). Elbashir, *et al.*, (2015) concluded in their study they that there is a deficit in nurse's knowledge and skills regarding partograph prior to participation in the educational Training Program⁽²⁴⁾. In Toppo (2010) study mentioned that there were obvious difference between pretest and posttest as the study sample nurses answering questions showing that the mean percent in pretest was 34.3% and it became 92.5% in posttest which shows an increase about 58.2% in most questions in posttest⁽²²⁾.

In regards to the result in tables 3; 5; 6 and 7, these tables shows that nurse's knowledge regarding partograph in the study group has been improved after exposure to educational program. This was indicated by the significant difference between pre-test and post-test results, which was supported by another study which reveals that there is a high significant difference between pre-posttest^(20, 22, 23). In addition another study found that there is recognized improvement in nurses' knowledge regarding partograph after exposing the study sample to educational program. Moreover the study claimed that a significant increase in posttest score was recognized⁽¹⁶⁾. In the present study the researcher confirm that nurses' knowledge deficit in pretest in both study and control groups regarding partograph might be due to less emphasize on nurses filling partograph sheet in maternity units with inadequate participation in educational sessions. The educational program regarding partograph associated with a significant increasing knowledge of study group. This result was in agreement with Jaber, (2014), who indicated that providing partograph educational sessions to nurses and midwives can be

successful in increasing their knowledge⁽²⁾. Therefore, the implemented educational program was effective and has an impact on nurse's knowledge about partograph. Present study was supported by many studies which mentioned that there are highly significant difference about nurses' knowledge in post-test between study and control groups^(2, 22, 24).

V. CONCLUSIONS

The study concluded that majority of nurses are young age and had few years of experience in nursing field with lack of educational training sessions regarding partograph, which makes most of the nurses in maternity units and labor room had knowledge deficiency concerning partograph usage. Educational program was found to be an appropriate and effective way to improve the nurses' knowledge regarding partograph.

VI. RECOMMENDATIONS

Based on the study results discussion and conclusions the study recommended that:

1. Asserting on Ministry of Health to offer in service training programs for nurses and midwife, also encouraging nurses to be enrolled in educational sessions and programs to improve their knowledge and keep their knowledge up to date about partograph.
2. Developing of follow up system in maternity units to evaluate the performance of nurses who had previously attended the partograph teaching program and encourage peer mentoring for nurses to learn from other.
3. Emphasize on the importance of using partograph in delivery rooms in all Iraqi governorates.

REFERENCES

- [1] Neilson J.: Obstructed labor Reducing maternal death and disability during pregnancy. *Br Med Bull* (2003) 67 (1): 191-204.
- [2] Jaber, E.; Ali R.: Impact of an Education Training program upon Nurse-Midwives Practices Concerning First Stage of Labor. *Kufa Journal for Nursing Sciences*, 2014, 2(3).
- [3] Say, L.; Chou, D.; Gemmill, A.; Tunçalp, Ö.; Moller, A.; Daniels, J.: Global Causes of Maternal Death: A WHO Systematic Analysis. *Lancet Global Health*. 2014, 2(6), P.P.323-333.
- [4] UNICEF, WHO, the World Bank, United Nations Population Division. The Inter-agency Group for Child Mortality Estimation (UN IGME). Levels and Trends in Child Mortality. Report 2015. New York, USA, UNICEF, 2015.
- [5] Kwast, B.; Poovan, P.; Vera, E.; Kohls, E.: The Modified WHO Partograph: Do We Need A Latent Phase? *British Journal of Midwifery*. 2008, 16(8), P.527
- [6] Yisma, E.; Dessalegn, B.; Astatkie A.; Fesseha N.: Knowledge and Utilization Of Partograph Among Obstetric Care Givers In Public Health Institutions Of Addis Ababa, Ethiopia. *BMC Pregnancy and Childbirth*. 2013, 13(1), P.P.101-109.
- [7] Aaron, R.: Safe Prevention of the Primary Cesarean Delivery. *Obstetric Care Consensus*. The American College of Obstetricians and Gynecologists. *Obstet Gynecol*. 2014, 23(1), P.P.693-711.

- [8] Liu, S.; Liston, R.; Joseph, K.; Heaman, M.; Sauve, R.; Kramer, M.: Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term. *Maternal Health Study Group of the Canadian Perinatal Surveillance System. CMAJ*, 2007, 17(2), P.P.455-60.
- [9] Spong, C.; Berghella, V.; Wenstrom, K.; Mercer, B.; Saade, G.: Preventing The First Cesarean Delivery: Summary Of A Joint Eunice Kennedy Shriver National Institute Of Child Health And Human Development, Society For Maternal-Fetal Medicine, And American College Of Obstetricians And Gynecologists Workshop. *Obstetrics and Gynecology*. 2012, 120(5), P. 81.
- [10] Taukuheke, L.: Midwives knowledge of the use of the Partograph in the regional training Hospital in Namibia. *Common wealth nurses conference Journal*, 2014, 2(1), P.8.
- [11] Tayade, S.; Jadhao, P.: The impact of use of modified who partograph on maternal and perinatal outcome. *International Journal of Biomedical and Advance Research*, 2012, 3(4), P.P.256-262.
- [12] World Health Organization, Preventing Prolonged Labor: a practical guide. The partograph. Part I: Principles and Strategy, 2014.
- [13] Daniel, G.: The Partograph: An Essential Tool for Decision-Making during Labor. *Nutrition and Maternal Health, U.S.* 2012, 12(2), P.38.
- [14] MOH, Iraq: National strategy and plan of action for nursing and midwifery development in Iraq 2003-2008, P.5.
- [15] Neal, J.; Lowe, N.; Patrick, T.; Cabbage, L.; Corwin, E.: What is the Slowest-Yet-Normal Cervical Dilation Rate among Nulliparous Women with Spontaneous Labor Onset. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*. 2010, 39(4), P.P.361-369.
- [16] Oladapo, O.; Daniel, O.; Olatunji, A.: Knowledge And Use Of The Partograph Among Healthcare Personnel At The Peripheral Maternity Centres In Nigeria. *Journal Of Obstetrics And Gynaecology*. 2011, 26(6), P.P.538-541.
- [17] Lindelow, M.; Kanchanachitra, C.; Johnston, T.; Hanvoravongchai, P.; Lorenzo, F.; Huong, N.; Wilopo, S.; Rosa J.: Human Resources For Health In Southeast Asia: Shortages, Distributional Challenges, And International Trade In Health Services. *The Lancet*. 2011 377(9767), P.P.769-781.
- [18] Thompson, J.; Fullerton, J.; Sawyer, A.: The International Confederation Of Midwives: Global Standards For Midwifery Education (2011) With Companion Guidelines. *Midwifery*. 2011, 27(4), P.P.409-416.
- [19] Clarke, S.; Rockett, J.; Sloane, D.; Aiken, L.: Organizational Climate, Staffing, And Safety Equipment As Predictors Of Needlestick Injuries And Near-Misses In Hospital Nurses. *American Journal of Infection Control*. 2012 Jun 30;30(4):207-16.
- [20] Mohamed, A.; Abd Elati, I.; Zaki, M.: Knowledge And Attitude Of Maternity Nurses Regarding Perinatal Care. *Journal of Nursing Education and Practice*, 2015, 5(2).P. 141.
- [21] Khomeiran, T.; Yekta, P.; Kiger, A.; Ahmadi, F.: Professional Competence: Factors Described By Nurses As Influencing Their Development. *International Nursing Review*. 2010, 53(1), P.P.66-72.
- [22] Toppo, N.: Planned Teaching Programme On The Use Of Partograph Among Trained Midwives. *Indian Journal Of Nursing Studies*; 2010, 01(2), P.13.
- [23] Lavender, D.; Omoni, G.; Lee, K.; Wakasiaki, S.; Campbell, M.; Watiti, J.; Mathai, M.: A Pilot Quasi-Experimental Study To Determine The Feasibility Of Implementing A Partograph E-Learning Tool For Student Midwife Training In Nairobi. *Midwifery*. 2013, 29(8), P.P.876-884.
- [24] Elbashir, A.: Effect Of Partogram Training Program On Village Midwives' Knowledge And Skills For Normal And Abnormal Labor. *European Journal Of Pharmaceutical And Medical Research*. 2015, 2(3), 65-72.

AUTHORS

First Author – Zainab Neamat Jumaah Al-Tae, M.Sc, M.Sc. Maternal and Newborn Health Nursing, Faculty of Nursing, University of Kufa.

Second Author – Kafi Mohammed Nasir Al-Asadi, Ph.D, Assistant Professor, Community Nursing Branch / MCH, Faculty of Nursing, University of Kufa.

