Investigation of Nursing Training Program about Partogram on Labour Outcomes

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ABSTRACT

Aim of the study: was to investigate nursing training program about partogram on labour outcomes. **Setting of this study:**labour ward at Mansoura University Hospitals. **Study design:**An interventionalquasi– experimental design. **Sample:** included 226 labouring women according to certain criteria and divided into (control group: 113 and intervention group: 113). **Tool of data collection:**One tool was used to collect the data; it included maternal and fetal outcomes.**Results:** the study findings revealed that, there was improvement of labour outcomes after implementing partogram. **Conclusions:** Highly statistically significant improvement of labour outcomes post-intervention compared to pre-intervention. **Recommendations**: Modified World Health Organization Partogram must be utilized in all labour wards with availability of guidelines and training. Nursing Faculties must be enhanced to teach the principles of actual implementation of partogram. Continues in-service partogram training to all nurses in labour wards.

Keywords: implementing partogram, labour outcomes.
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INTRODUCTION

Childbirth is a physiological process during which a viable fetus and all products of the conception are expelled from the uterus; it is characterized by regular painful uterine contractions leading to progressive effacement and full dilation of the cervix**(Cheng, 2014**). According to World Health Organization (WHO), normal labour was defined as spontaneous in onset, low-risk throughout all stages of labour, the newborn is born spontaneously, in vertex position, between 37 and 42 completed weeks gestation and the woman and newborn are in good condition after birth**(El Kurdy, 2014)**.

Maternal mortality represents the greatest health disparity between high and low income countries **(Gans – Lartey, 2013)**. Globally, 300, 000 women die every year per 100, 000 live births due to pregnancy-related complications, most of which in developing countries (**World health organization, 2012)**.

Worldwide, over eight million women suffer from complications of pregnancy or childbirth and over half million women die during birth annually**(Jody and Amy, 2010).**

Every year approximately 1400 Egyptian women and half of their babies

die from complication of pregnancy and childbirth **(Abdel-Hadyet al., 2007).**

Evidence based approach stated that every labouring woman must be attended by skilled birth attendants who can accurately observe, regularly monitor by using partogram and act accordingly when complications arise **(jhpiego, 2012).**

Globally, WHO promotes partogram as an effective and low cost-efficient tool for monitoring labour, preventing obstructed labour and complications. Using partogram correctly provides early detection of maternal and fetal complications during labour. Early detection allows quick decisions to be made in the right time for performing emergency obstetric procedures **(Orhue et al., 2012)**.

WHO partogram is a graphical record (simple one page tool). It can be used to assess fetal condition, maternal condition and progress of labour to identify when intervention is necessary. It is used as a part of safe motherhood initiative for improving labour management and reducing maternal and fetal morbidity and mortality**(Khonje, 2012**).

Maternity nurses have the unique opportunity to care for mothers through the childbirth process. Nursing care during childbirth is very important to avoid millions serious complications for women during and immediately after delivery **(Godet and Chevillotte, 2013).**

This stimulates the current study to apply partogram and assess the effect of its implementation on the labour outcomes.

Aim of the study:

To investigate nursing training program about partogram on labour outcomes

Research Hypothesis

Implementing nursing program about partogram significantly improved labour outcomes.

Significance of the study

Childbirth complications are the major causes of both maternal and perinatal deaths. These complications can be prevented by the accurate implementation of modified WHO partogram which provide early detection and management of complications to reduce maternal and perinatal mortality and morbidity**(Enchill, 2010).** Although partogram is a simple, inexpensive tool and has several benefits, it is not widely used. Egyptian hospitals practices for normal labour were largely not in accordance with WHO evidence-based classification of practices for normal birth **(Khalil, 2012).**

Many factors may be contributed to that such as insufficient knowledge about its benefits, lack of training, non-availability of preprinted partogram sheets and workload pressure. These problems can be solved with further education, training aboutpartogram and local managerial support**(Orhue et al., 2012).**

No previous study was conducted related to nursing training program about partogram at Woman's Health and Midwifery Nursing department, Faculty of Nursing, Mansoura University.

Materials and Method

Setting:

This study was carried out at labour ward in Mansoura University Hospitals during the period from August 2013 to April 2014.

Study Design

An interventional quasi – experimental design was used.

Subjects and sample size:

Included 226 labouring women who fulfilled the inclusion criteria. They were divided into two groups: an intervention group (n=113) and control group (n=113). Laboring women were eligible to participate in the study.

Inclusion criteria:

Normal pregnancy, primipara and multipara, aged from 20 to 40 years, normal vaginal delivery, in active phase of labour, vertex presentation, and full term 37-42 weeks

Sample type:

Convenience sample.

Tool: To achieve the aim of this study, one tool was used for data collection

Maternal and fetal outcomes assessment

It included three parts;

Part I – General characteristics: Included age, education, occupation and residence.

Part II – Labour outcomes: Included duration of each stage, mode of delivery and labour complications.

With zero score for cesarean section, instrumental delivery and occurrence of complications, and one score for normal delivery, normal delivery with episiotomy and no complications.

Part III – Apgar score

The researcher assessed fetal condition at one and five minutes after the baby is born with the scoring of (7-10): means good baby condition, (4 – 6): baby needs suctioning and massage and (≤ 3): baby needs immediate lifesaving resuscitation.

Content validity and reliability:

Content validity was tested by a jury consisted of 3 professors and experts in obstetrics and gynecology at Mansoura University.They reviewed the tool for clarity, relevance, comprehensiveness, understanding, and ease for administration. Reliability test was done, using Cronbach`s alpha that measured the degree of reliability. It showed high reliability.

Administrative Design

An official approval to carry out the study was obtained from Dean of Faculty of Nursing and Head of Obstetrics and Gynecology Department of Mansoura University Hospitals. The researcher introduced herself to all participants and explained the study aim prior their participation to obtain their acceptance and cooperation as well as their written consent.

Pilot Study

Pilot study was carried out before starting data collection and excluded from the sample. It was conducted on 10% of the total sample to identify the time needed to complete the tools, and to evaluate the clarity and applicability of the tool.

An instructional supportive material was given to each nurse pre-intervention about partogram.

Partogram training program was applied by the researcher to all nurses in the form of lectures, discussion, clinical training, Arabic partogram poster and Arabic written booklet. Training was done two day weekly during the cold days

(Saturday and Monday) from 11 am to 12 pm. The conduction of the program took 12 weeks including 5 sessions

After the completion of the program the researcher repeated the evaluation two day weekly during the hot day in the morning and afternoon shifts until intervention group was completed (n=113 parturient women), to assess the effect of partogram implementation on labour outcomes.

Ethical considerations

Ethical approval was obtained from Research Ethics Committee at Faculty of Nursing - Mansoura University.

A written consent was obtained from all participants included in the study.

Participation in the study is voluntary. Each participant has the right to withdraw from the study at any time without any consequences.

Confidentiality of the collected data was maintained. The results were used as a component of doctorate study, as well as for future publications and education.

Results

Table 1. Frequency of General Characteristics of the Study Groups. It was found that, the mean age of the participant women was 26. 1 ± 4. 7. The majority of women were housewife and more than half of them lived in rural area. No statistical significant difference was found in general characteristics between both groups (P>0.05).

Table 2.Frequency of Labour Duration Pre and Post-intervention. It was found that, There was statistical significant difference between the study groups before and after implementing partogram regarding to duration of the first and the second stage of labour (P<0.001). In the same table, There was no statistical significant difference between the study groups regarding to duration of the third and the fourth stage of labour (P=0.287 &1) respectively.

Figure 1.Frequency of Mode of Delivery Pre and Post-intervention. It was found that, more than two third of the intervention group (76. 1%) delivered normally compared to 46. 9% of the control group. Additionally, 23. 9 % of the intervention group delivered normally with episiotomy compared to 38. 1 % of the control group while 15% of the control group delivered with cesarean section compared to zero of the intervention group.

Table 3.Frequency of Delivery Complications of the Parturient Women Pre and Post-intervention. It was found that, 6. 2 % of the intervention group had lower genital injury compared to 39. 8 % of the control group and only 2. 7 % of the intervention group had post-partum hemorrhage compared to 12. 4 % of the control group. Also it was found that, prolonged labour, mal-use of ecbolic and intra-partum hemorrhage in the control group were 33. 6%, 12.4% and 4. 4% respectively compared to zero of the intervention group.

Table 4. Frequency Related to Fetal Outcome (by Apgar Score) Pre and Post-intervention. It was found that, the mean Apgar score at one minute was 9. 1 ± 1. 11in the control group compared to 9. 36 ± 0.78 in the intervention group. There was statistical significant difference between the study groups regarding to the first minute (P=0.002). While the mean Apgar score at five minute was 9. 62 ± 0. 78 in the control group compared to 9. 75 ± 0.47 in the intervention group. There was no statistical significant difference between the study groups regarding to Apgar score at the five minute(P=1)

Table 1. Frequency of General Characteristics of the Study Groups.

General	Control (n=113) Pre		Intervention (n=113) Post		Chi square test	
characteristics	n	%	N	%	X^2	P
Age (years)						
<30	89	78. 8	80	70. 8	1. 90	0. 168
≥30	24	21. 2	33	29. 2		
Mean ±SD	26. 1 ±4. 7					
Occupation						
Housewife	101	89. 4	107	94. 7	2. 173	0. 140
Work	12	10. 6	6	5. 3		
Residence						
Urban	45	39. 8	46	40. 7	0. 018	0. 892
Rural	68	60. 2	67	59. 3		
* Significant (P<0.05)						

Table 2. Frequency of Labour Duration Pre and Post-intervention

Duration of labour (minutes)	Control (n=113) pre	Intervention (n=113) post	Student's t test	
	Mean ±SD	**Mean ±SD**	**t**	**P**
First stage (active phase)	417.1 ±35.6	269.9 ±24.4	36.196	<0.001*
Second stage	45.3 ±7.9	15.2 ±3.2	37.551	<0.001*
Third stage	12.3 ±4.6	12.9 ±4.8	1.067	0.287
Fourth stage	120 ±0	120 ±0	0	1

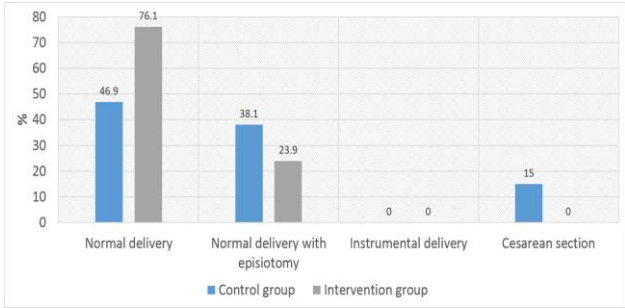

Figure 1. Frequency of Mode of Delivery Pre and Post-intervention (control & intervention)

Table 3. Frequency of Delivery Complications of the Parturient Women Pre and Post-intervention

Delivery complications	Control (n=113) pre		Intervention (n=113) post		Chi square test	
	n	%	n	%	X^2	P
Lower genital injury	45	39. 8	7	6. 2	36. 068	**<0. 001***
Prolonged labour	38	33. 6	0	0	45. 681	**<0. 001***
Mal-use of ecbolic	14	12. 4	0	0	14. 925	**<0. 001***
Intra-partum hemorrhage	8	4. 4	0	0	5. 113	**0. 024***
Post-partum hemorrhage	14	12. 4	3	2. 7	7. 697	**0. 006***

Table 4. Frequency Related to Fetal Outcome (by Apgar Score) Pre and Post-intervention

Apgar Score	**Control (n=113) pre**		**Intervention (n=113) post**		**Chi square test**	
	n	%	n	%	X^2	P
At first minute						
0 – 3	0	0	0	0	9. 373	**0. 002***
4 – 6	9	8	0	0		
7 – 10	104	92	113	100		
Mean ±SD	9. 1 ±1. 11		9. 36 ±0. 78			
At five minutes						
7 – 10	113	100	113	100	0	1
Mean ±SD	9. 62 ±0. 78		9. 75 ±0. 47			

Discussion

Maternal mortality ratio continues to be the major index of the widening discrepancy in the level of care and the outcome of reproductive health between the advanced and developing countries **(Malhotraet al, 2012).**

The majority of maternal deaths and complications attributable to obstructed and prolonged labour can be prevented by use of partogram which is effective and inexpensive health interventions**(Magon, 2011).**

Based on the present study results, there was a statistical significant difference between the study groups before and after partogram implementation regarding to the duration of the first and the second stage of labour. These results were supported by **Khonje (2012)**who revealed that, partogram implementation is recommended for routine monitoring of labour, and helps the health care provider in identifying slow progress in labour to prevent prolonged and obstructed labour. Additionally**, Magon (2011)** supported the present study results; that partogram was a necessary tool in the management of labour as it reduced prolonged labour.

The current study findings showed that, after implementing partogram the rate of normal delivery increased and the rate of normal delivery with episiotomy and cesarean section decreased. These findings were in the line with **Kwast and Rogerson (2013)**they showed that, cesarean section rate decreased with partogram use in labour monitoring,While the current study results in contracted with **Lavender et al., (2012)** they showed that, there were no reduction in cesarean section rate and vacuum extraction with the use of partogram.

There were statistical significant differences between study groups regarding to lower genital injury, prolonged labour, mal-used of ecbolic, intra-partum hemorrhage, and post-partum hemorrhage. The present study results agreed with **Kwast and Rogerson (2013)**they reported that,partogram is effective in reducing rate of labour augmentation and reducing the number of still births. Also, the current results were supported by **Underwood (2013)** who showed that, early detection and timely intervention on obstetric complications by using partogram are the most important activities to prevent complications, maternal and perinatal mortality and morbidity. Another study supported the present study results which conducted with **Modares et al., (2009)** they stated that, the frequent use of partogram was one of the main causes of the low rate of complications, maternal and infant deaths.

Lavender et al., (2008) also supported the present study results, they stated that, partogram was a necessary tool in the management of labour as it reduced the proportion of labour augmentation (from 20. 7% to 9. 1%), emergency caesarean section (from 9. 9% to 8. 3%) and still births from (0. 5% to 0. 3%). Therefore, proper implementation of partogram in labour monitoring contributes to reduction of complications, maternal mortality and morbidity.

The present study results agreed with **Khonje (2012)**who showed that, there was improvement in maternal and fetal outcomes through use of partogram and reduction in augmentation, vaginal examinations, postpartum haemorrhage and perinatal mortality.

According to the present study results, when partogram is not used to monitor the labour process, 8% of the newborn babies had Apgar score <7 at one-minute while Apgar score was >7 for all babies when partogram is used. these findings were in agreement with **Ogwang et al., (2009)** they revealed that, the

number of babies with Apgar scores < 7 almost increased when the partogram is not used or poorly documented. the present results also were supported by **Orji et al., (2007)** they showed that improper documentation of fetal condition in partogram had negative effect on the Apgar score.

Therefore, nursing training program about partogram leads to high nursing quality in labour management which contributes to reduction of complications, maternal and fetal mortality and morbidity.

Conclusion

Based upon the present study results, it can be concluded that, highly statistically significant improvement of labour outcomes post-intervention compared to pre-intervention.

Recommendations:

In the light of the study findings, the following are recommended

- Modified World Health Organization partogram should be utilized in all labour wards with availability of guidelines and training.
- Partogram must be integrated into under graduate and post graduate nursing curriculum.
- Refreshing course for all nurses to ascertain their retained knowledge regarding partogram.
- The present study research findings must be sent to all maternity departments at ministry of health and university hospitals.

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