

## EFFECT OF NURSING CARE PROTOCOL ON NURSES' PERFORMANCE DURING THIRDSTAGE OF LABOR

Entesar Fatouh AbdAlmoniem<sup>1</sup>, Fatma Zaki Farahat<sup>2</sup>,AsmaaAbd-ElwahedAbd- Elwahed<sup>3</sup>

*Professor of Maternal and Newborn Health Nursing, Faculty of Nursing - Helwan University Egypt<sup>1</sup>.Lecturer of Maternal, Obstetrics and Gynecology Nursing, Faculty of Nursing - Port Said University Egypt<sup>2</sup>.*

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### ABSTRACT

**Background :**Management of third stage of labor one of the most important nursing care which help in preventing postpartum hemorrhage and prevalence of maternal mortality and morbidity among women. **Aim:** Evaluate the effect of nursing care protocol on nurses' performance during third stage of labor. **Subjects and method: Design:** A quasi-experimental study was adopted. **Setting:** The current study was conducted at labor units in 3 hospitals in Port-Said city, General Port Said hospital, Obstetrics and Gynecological Specialized hospital and Port-Fouad hospital. **Subjects:**A total of fifty nurses. **Tools:** Three tools were used for data collection: 1-Structured Self-administered questionnaire, 2-Knowledge assessment tool and 3- An observational checklist. **Results:**Most of the studied nurses had unsatisfactory level of knowledge and practices regarding management of third stage of labor in pre intervention and most of the studied nurses had satisfactory level of knowledge and practices in post and follow up intervention. **Conclusion:**The protocol of care had positive effect on nurses' knowledge and practices regarding third stage of labor. **Recommendations:**Periodical in service training educational programs for nurses working in obstetrics and gynecology departments in different hospitals to upgrade their knowledge and practice regarding third stage of labor.

**Keywords:** Nursing care protocol, Nurses' performance, Third stage of labor.

## **INTRODUCTION**

The period between the completion of the newborn's delivery and the completion of the placenta's delivery is known as the third stage of labor (Smith & Brennan, 2015). Blood loss more than 500 mL in the first 24 hours after delivery is classified as postpartum hemorrhage, but blood loss of more than or equal to 1000 mL in the first 24 hours after birth is described as severe postpartum hemorrhage. PPH is a primary cause of maternal mortality and illness, especially in underdeveloped nations, when hemorrhage is the most common cause of maternal death. It could be caused by the uterus failing to contract properly (Yaekob, Shimelis, Henok & Lamaro, 2015).

The nurse, who is in a key position by disseminating knowledge about the third stage of labor, ensuring and providing proper service to enhance women's role in the implementation of efficient self-care practices and becoming more independent, is the main measure to reduce maternal mortality and illness (Wasef, Abdoraboo, Ahmed & Mohamed, 2018). Nurses play an important role in labor; women who were cared for by nurses had higher self-esteem, self-efficacy, and empowerment, and they were also able to gain a sense of mastery during labor and childbirth, all of which are important aspects of a woman's birth experience (Farahat, Mohamed, Elkader & El-Nemer, 2015).

During third stage of labor, the priority of midwifery care is to ensure full separation and ejection of the placenta, as well as to avoid dangerous and severe blood loss, which can lead to maternal morbidity and mortality. Nurses play a crucial part in the healthcare system. Midwives play an essential part in third stage management since they are the essential position in distributing knowledge about the third stage of labor, as well as insuring and providing good service to strengthen the role of the woman in implementing efficient self-care practices (Smith & Brennan, 2015).

In cases of fetal or neonatal death, the placental examination is an important part of the autopsy. This examination also helps in determining a number of challenging situations, such as legal difficulties around the presence of acute versus chronic prenatal stresses and insults, as well as the timing of these insults. It also aids in the identification of certain etiologies linked to poor pregnancy outcomes (Waghmare, Upendra, Kaur, Barde & Joshi, 2019).

According to World Health Organization reports, maternal mortality is at an unacceptable level. Ninety-nine percent of maternal deaths occur in underdeveloped nations. Every day, approximately 830 women die because of pregnancy and childbirth-related complications that could have been avoided. Throughout pregnancy, everyone should have access to antenatal care, competent treatment during childbirth, postoperative care and support, and providing optimal nursing care are all well-documented health-care choices for avoiding and/or treating complications (WHO, 2016).

**Significance of the study:**

Child birth is considered a life changing event for most women and families all over the world, but child birth is also associated with great risks and in severe cases disability and even death for mother. In Egypt maternal deaths reached 15 deaths per 1000 live births (WHO, 2016).

Postpartum hemorrhage (PPH) is a major cause of morbidity and mortality among mothers throughout the world PPH is estimated to occur in 6-11% of births worldwide (McArthur & Harding, 2018). About 80% of women's deaths occur due to primary hemorrhage which is associated with post-partum hemorrhage following uterine atony in the early 24 hours (Ngwenya, 2016). All placentas should be inspected extensively, according to universal consensus, because they serve as a record of pregnancy-related events and changes in the intrauterine environment (Ministry of Health & NSW Health Guideline, 2014).

Now is the time to think about the humanity of third-stage management. The obstetric nurse has a lot of power over the outcome of the labor process. She should provide the woman with health education on both active and expectant nursing treatment of the third stage of labor, as well as the benefits and drawbacks of uterotonics and placental examination. She must also be skilled in third stage of labor management maneuvers.

**Operational definition of performance :** it means knowledge and practice.

**AIM OF THE STUDY:**

This study aimed to evaluate the effect of nursing care protocol on nurses' performance during third stage of labor.

**Research objectives:-**

- a) Assess the nurses' knowledge related to management of third stage of labor.
- b) Assess the nurses' practice related to third stage of labor management.
- c) Develop nursing protocol for nurses concerning nursing care that provided to women in third stage of labor.
- d) Implement developed nursing protocol.
- e) Evaluate the nurses' knowledge and practice after implementation of the developed nursing protocol.

**SUBJECTS AND METHOD**

**Research design:**

Quasi-experimental(one group pre /posttest) design was utilized in this study.

**Study setting**

To ensure generalization of the study results on Port Said City, the study was carried out in all delivery room of Obstetrics and Gynecology departments at three hospitals in Port Said city namely: 1. General Port Said hospital. 2. Obstetrics and Gynecological Specializedhospital. 3. Port Fouad hospital.

**Study subjects:**

All nurses practically worked in labor units in the previous mentioned setting and had experience more than six months

**Sample Size:**

A sample of 50 nurse who practically worked in labor units in the previous mentioned setting who had experience more than six months were enrolled in this study during the period of data collection (8 months).

**Tools for data collection:**

To collect data for this study three tools were used:-

***Tool I: Self-administered questionnaire:***

This tool was designed by the researcher in Arabic language mainly to collect data related to:

Personal data such as name, age, work of place, marital status, qualification, years of experience and previous training in labor and delivery unit.

***Tool II: knowledge assessment tool (pre/posttest):***

This tool was designed by the researcher in Arabic language mainly to collect data to assess the nurses' knowledge regarding third stage of labor as: definition, signs of placental separation, importance of placenta examination and its technique, effective management for third stage of labor and nursing role at third stage of labor.

**Scoring system:**

A scoring system was followed to assess nurses' knowledge. The questionnaire was contained of 69 questions, the total scores of the questionnaire were 18 grades, the correct answer was scored as a single point and the incorrect answer was scored as a zero point. These scores were summed and were converted into a percent score. It was classified into 2 categories: Satisfactory knowledge if score  $> 75\%$  and unsatisfactory knowledge if score from  $\leq 75\%$ .

***Tool III: Observational Checklist (Pre/posttest):***

- This tool developed by Prevention of Post-partum Hemorrhage Initiative (POPPHI, 2016). , modified by the researcher and to assess nurses' performance during third stage of labor. It assessed practical nursing procedure that must be done at third stage as; emotional support, preparation, administration of a uterotonic drug, controlled cord traction, uterine massage, examining the birth canal, examining the placenta, making the woman comfortable, infection prevention and decontamination, documentation and care after placenta is delivered (POPPHI,2016).

-The tool was in English language and was used with the same language; and tested for its validity and reliability.

**Scoring system:**

A scoring system was followed to assess nurses' practice. The checklist was contained of 69 steps, the total scores of the checklist were 138 grades, each step was evaluated as "done correctly" was taken two grades, "done incorrectly" was taken one grade, and "not done" was taken zero. These scores were summed and were converted into a percent score.

It was classified into 2 categories: Satisfactory practice if score  $\geq 80\%$  and unsatisfactory practice if score from  $< 80\%$ .

**Supported material (Nursing care protocol):**

The nursing care protocol was prepared and written in simple Arabic language based on related literature .It was submitted for studied nurses, it includes information about nursing care during third stage of labor to improve their knowledge and practice. It was conducted at two sessions per week, at the beginning of the first session they were oriented about the protocol content, each nurse was informed about two sessions and the protocol objectives were explained to them.

**1- Operational design:**

The operational design included preparatory phase, content validity, reliability, pilot study and field work.

**1.Preparation phase:**

This phase aimed at the preparation of the tools used in data collection based on a systematic review which focused on a single question that tries to identify, appraise, select and synthesize all high quality research evidence relevant to that question. The tools were reviewed by a jury of 7 experts in the field of obstetrics and gynecological nursing and medicine to ascertain their content validity. Then, an evidence based guideline and protocol for nurses performance regarding third stage of labor was prepared by the researcher based on past and current related literature by using national and international references related journals, conferences and books.

**2.Assessment phase:**

A Structured interviewed sheet (pre and posttest) was used to assess personal data and knowledge assessment tool(pre and posttest) to assess nurse's knowledge toward nursing care during third stage of labor.

An observation checklist was used to assess nurse's performance (pre and posttest). It was used to assess performance of practical nursing procedure that must be done at third stage of labor.

**Nursing care protocol:**

A guideline was developed, submitted to the study group. It includes the following information: third stage of labor and how to perform effective nursing care at this stage, warning signs and complications of third stage and how to deal with it, placenta examination and how to perform its technique and practical steps for nursing care at third stage of labor. The first step in the process of nursing care protocol development is defining the clinical question that the protocol will address. This is followed by defining the qualifying criteria for the studies that will be included in the protocol recommendations. After then a systematic search of the literature is then carried out. In developing recommendations, the anticipated benefits, dangers, inconvenience and costs should be considered in addition to addressing patients' underlying values and preferences. The quality of the data used to support the recommendations is assessed and represented in a grading system that describes the recommendation's strength as well as the quality of the supporting evidence. This process ultimately lead to the systematic development of recommendations that integrate evidence with women preferences and values.

**3.Implementation phase:**

After the development of nursing care protocol, the researcher started to give it for the intervention group of nurses. The number of nurses attended in each session ranged from one to two nurses. The protocol covered the theoretical and practical part regarding nursing care during third stage as follow: Definition of the third stage of labor, physiology of the third stage of labor,

methods for detachment of the placenta, nursing care in the third stage of labor, warning signs and complications during third stage of labor, practical steps for nursing care in third

stage of labor, uterine massage, definition of Placenta examination, function of placenta, description of the placenta, placental examination, apply a guide for nursing care during third stage of labor.

**Field work:**

The study was carried out from the beginning of February 2020 until the end of September 2020. Gather of all nurses at the previous mentioned labor units in three hospital. At the beginning of the interview, the researcher greeted the nurses, introduced herself to all nurses and explained the current study goal. The researcher took all nurses practically working in labor units with at least six months experience. The researcher distributed tool to nurses as a pretest. The average time required for completion for each questionnaire was 10-20 minutes.

The study group was divided into subgroups (6) groups each group contained (1-2) nurses.

The researcher implemented two sessions for each group 4 days/week. In the first session, the researcher distributed the educational program of nursing care protocol to the nurses, which was based on their needs and baseline data obtained from pre-test regarding third stage of labor, its physiology, methods for placenta separation, nursing care for third stage of labor, dangerous signs and complications for third stage of labor. In the second session, the researcher discussed definition of placenta, its function, description of normal characteristics of placenta and clinical steps of placenta examination. After the final session, the posttest was conducted by using the same tool used in the pre-test. The researcher applied the follow up immediately, after one month and after three months of conduction post-test.

**4. Evaluation phase:**

After program implementation, a post-test was done immediately. Then, a follow-up test was done after one month and then after three months of program implementation. The same study tools were used to evaluate the effect of training program on the nurses' performance by comparing the results before program with those after follow up phases.

**5. The last phase :**

Testing the results and writing the final report

**Content validity:**

It was ascertained by a jury consisting of seven expertise from nursing and medical staff (obstetrics and gynecology department). They were requested to express their opinions and there weren't comments from the experts' jury to do at the tool used.

**Content reliability:**

Tools were tested for reliability using Cronbach's alpha test which the observational checklist was = 0.920. The tools were proved to be valid and reliable with Cronbach's alpha test.

**Pilot study:**

The pilot study was carried out on 10% of the study subjects which represent 6 nurse who were excluded from the study sample. The purposes of the pilot study were to test the applicability and clarity and feasibility of the study tools and it served to estimate the time needed to complete the tools. It also helped to find out any obstacles and problems that might interfere with data collection process. Based on findings of the pilot study, certain modifications on the tools were done.

**Administrative design:**

Before starting any step in the study, an official letter was issued from the Dean of the faculty of nursing to the director of each previously mentioned study setting requesting her cooperation and permission to conduct the study in delivery rooms, after explaining the aim of the study.

**Ethical considerations:**

Study protocol was submitted for approval by Scientific Research Ethics Committee at faculty of nursing Port Said university. An official permission was taken from directors of the previously mentioned study settings to carry out the study. An oral consent was obtained from the nurses after explaining the aim of the study. The nurses who participated in the study were informed that the information they provided would be kept private and utilized only for the purposes of the study. Anonymity was also guaranteed and finally the studied subjects were told that their participation is voluntary and they had the right to withdraw from the study at any time.

**Statistical design:**

Data entry and statistical analysis was done using SPSS 20.00 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, in addition to means and standard deviations for quantitative variables.

Qualitative variables were compared using chi-square test. Statistical significance was considered at p-value <0.05 and highly statistical significance was considered at p-value <0.01.

**Limitations of the Study:**

There are no limitation facing the researcher at this study just took a long time and hard effort to convince nurse to speak freely or participate in the research.

**RESULTS:**

**Table (1):** illustrates distribution of the studied nurses according to their personal data. Their mean age was  $30.10 \pm 5.01$ , near to half of nurses in the study(48%) were in the age group 20 to 30 years and 74% of them were married. Regarding educational level more than fifth of the studied nurses (40%) had bachelor education, while 36% of them nursing technical institute. In relation to their nursing experiences, 38% of the studied nurses had experience more than ten years and the mean was  $9.28 \pm 6.08$  while 30% of them had 6-10 years nursing experience in labor and delivery unit.

Also, this table shows that 70% of the studied nurses didn't attended courses on third stage of labor compared to 30% of them attended courses on third stage of labor. More than three quarter of them (73.3%) attended only one course.

**Table (2):** demonstrates statistically significant improvements in the post-intervention knowledge of nurses about third stage of labor in all tested variables ( $p < 0.001$ ). In total, 34% of nurses only acquired satisfactory knowledge at pre the intervention phase, and this increased to 88.0% at the posttest immediately, 80.0% at the posttest after one month & 70.0% at the posttest after three months ( $p < 0.001$ ). Improvement was more marked in the effectiveness of third stage protocol for nurses with statistically significant differences ( $p < 0.001$ ).

**Figure (1)** : illustrates statistically significant improvement in total knowledge of nurses about third stage of labor after nursing protocol revealed at the three post phases.

**Table (3)**: shows statistically significant improvements among nurses after implementation of the nursing protocol regarding performance towards third stage of labor (  $p = <0.0001^*$ ). The improvement was more obvious in the items of preparation of women, administration of a uterotonic drug, woman comfortable and care after delivering of placenta (92.0%, 92.0%, 92.0% & 90.0% respectively) immediately , (80.0%, 80.0%, 80.0% & 80.0% respectively) after one month and (70.0%, 72.0%, 76.0%, 70.0%, 68.0% & respectively) after three months of follow up.

**Table (4)**: demonstrates statistically significant improvements in the post-intervention performance of nurses about third stage of labor in all tested variables ( $p < 0.001$ ). In total, 32% of nurses only acquired satisfactory performance at pre intervention phase, and this increased to 84.0% at the posttest immediately, 76.0% at the posttest after one month & 70.0% at the posttest after three months ( $p < 0.001$ ). Improvement was more marked in the effectiveness of third stage protocol for nurses with statistically significant differences ( $p < 0.001$ ).

**Figure (2)**: revealed that there was statistically significant improvement in satisfactory level in total performance of nurses about third stage of labor after nursing protocol revealed at the three post phases of follow up.

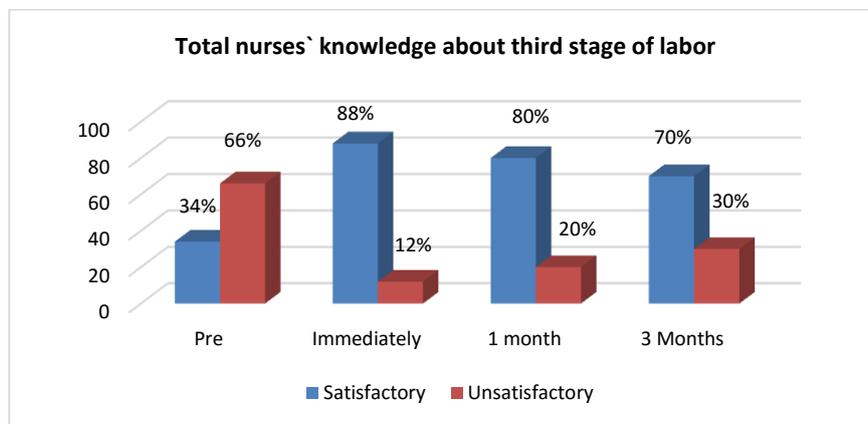
**Table (5)**: illustrates that there is a highly statistically significant positive correlation between nurses' knowledge and their performance towards third stage of labor at pre-post and follow up nursing protocol ( $r = -.718$ ).

**Table(1):**Distribution of the studied nurses according to their personal data (n=50).

Items	No	%
<b>Age (year)</b>		
20-<25	6	12
25-30	24	48
>30	20	40
<b>Mean ± SD</b>	<b>30.10 ± 5.01</b>	
<b>Marital status</b>		
Single	9	18
Married	37	74
Widow	4	8
<b>Educational level</b>		
Diploma	12	24
Nursing Technical Institute	18	36
Bachelor	20	40
<b>Years of nursing experience</b>		
1-5	19	38
6-10	12	24
>10	19	38
<b>Mean ± SD</b>	<b>9.28 ± 6.08</b>	
<b>Years of experience labor and delivery unit</b>		
1-5	27	54
6-10	15	30
>10	8	16
<b>Mean ± SD</b>	<b>6.40 ± 4.81</b>	
<b>Attendee of courses on the third stage of labor.</b>		
Yes	15	30
No	35	70
<b>If yes, how many? (n=15)</b>		
One course	11	73.3
Two courses	4	26.7

**Table (2):**Comparison between the studied nurses regarding their total knowledge about third stage of labor at pre-post and follow up nursing protocol (n=50).

Knowledge	Pre		Immediately		1 month		3 Months		Test of Sig. (p <sub>1</sub> )	Test of Sig. (p <sub>2</sub> )	Test of Sig. (p <sub>3</sub> )	Test of Sig. (p <sub>4</sub> )
	N	%	N	%	N	%	N	%				
Satisfactory	17	34	44	88	40	80	35	70	$\chi^2=15.30$ P=0.000**	$\chi^2=14.87$ P=0.000**	$\chi^2=14.10$ P=0.001**	Fr=32.07 P=0.000*
Unsatisfactory	33	66	6	12	10	20	15	30				
<b>Total score</b>	<b>8.52 ± 3.88</b>		<b>14.11 ± 4.27</b>		<b>13.05 ± 3.42</b>		<b>12.01 ± 3.08</b>		t=12.34 P=0.000*	t=11.03 P=0.001*	t=10.93 P=0.001*	F=32.07 P=0.000*



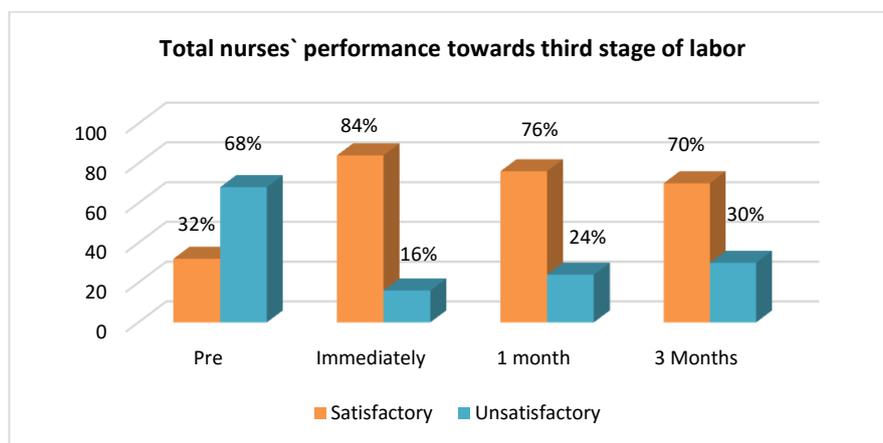
**Figure (1):** Distribution of the studied nurses regarding their total knowledge about third stage of labor at pre-post and follow up nursing protocol (n=50).

**Table (3):**Comparison between the studied nurses regarding their performance towards third stage of labor at pre-post and follow up nursing protocol (n=50).

Items	Pre				Immediately				1 month				3 Months				Test of Sig. (p <sub>1</sub> )	Test of Sig. (p <sub>2</sub> )	Test of Sig. (p <sub>3</sub> )	Test of Sig. (p <sub>4</sub> )		
	Satisfactory		Un satisfactory		Satisfactory		Un satisfactory		Satisfactory		Un satisfactory		Satisfactory		Un satisfactory							
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%						
Emotional support	24	48	26	52	43	86	7	14	38	76	12	24	35	70	1	5	3	0	$\chi^2=12.30$ P=0.000**	$\chi^2=11.97$ P=0.000**	$\chi^2=11.81$ P=0.000**	Fr =22.67 P=0.000**
Preparation of women	30	60	20	40	46	92	4	8	40	80	10	20	35	70	1	5	3	0	$\chi^2=12.79$ P=0.000**	$\chi^2=12.24$ P=0.000**	$\chi^2=12.01$ P=0.000**	Fr =28.34 P=0.000**
Administration of a uterotonic drug	30	60	20	40	46	92	4	8	40	80	10	20	36	72	1	4	2	8	28.64 $\chi^2=12.64$ P=0.000**	$\chi^2=12.33$ P=0.000**	$\chi^2=11.09$ P=0.000**	Fr =30.77 P=0.000**
Controlled cord traction	18	36	32	64	44	88	6	12	38	76	12	24	34	68	1	6	3	2	$\chi^2=14.95$ P=0.000**	$\chi^2=14.08$ P=0.000**	$\chi^2=13.74$ P=0.000**	Fr =31.51 P=0.000**
Delivery of the placenta	16	32	34	68	44	88	6	12	38	76	12	24	34	68	1	6	3	2	$\chi^2=15.23$ P=0.000**	$\chi^2=14.87$ P=0.000**	$\chi^2=14.00$ P=0.000**	Fr =22.28 P=0.000**
Uterine massage	12	24	38	76	42	84	8	16	36	72	14	28	32	64	1	8	3	6	$\chi^2=16.74$ P=0.000**	$\chi^2=16.01$ P=0.000**	$\chi^2=15.74$ P=0.000**	Fr =25.25 P=0.000**
Birth canal examination	15	30	35	70	40	80	1	2	36	72	14	28	32	64	1	8	3	6	$\chi^2=14.37$ P=0.000**	$\chi^2=14.00$ P=0.000**	$\chi^2=13.74$ P=0.000**	Fr =23.14 P=0.000**
Placenta examination	17	34	33	66	42	84	8	16	38	76	12	24	35	70	1	5	3	0	$\chi^2=14.95$ P=0.000**	$\chi^2=14.13$ P=0.000**	$\chi^2=13.98$ P=0.000**	Fr =19.58 P=0.000**
Woman comfortable	25	50	25	50	46	92	4	8	40	80	10	20	38	76	1	2	2	4	$\chi^2=12.50$ P=0.000**	$\chi^2=12.30$ P=0.000**	$\chi^2=12.01$ P=0.000**	Fr =22.07 P=0.000**
Infection prevention	18	36	32	64	42	84	8	16	38	76	12	24	34	68	1	6	3	2	$\chi^2=13.34$ P=0.000**	$\chi^2=12.97$ P=0.000**	$\chi^2=12.37$ P=0.000**	Fr =24.55 P=0.000**
Documentation	18	36	32	64	44	88	6	12	40	80	10	20	35	70	1	5	3	0	$\chi^2=13.87$ P=0.000**	$\chi^2=13.13$ P=0.000**	$\chi^2=12.88$ P=0.000**	Fr =29.10 P=0.000**
Care after delivering of placenta	20	40	30	60	45	90	5	10	40	80	10	20	35	70	1	5	3	0	$\chi^2=12.27$ P=0.000**	$\chi^2=12.08$ P=0.000**	$\chi^2=11.99$ P=0.000**	Fr =25.00 P=0.000**

**Table(4) :**Comparison between the studied nurses regarding their total performance towards third stage of labor at pre-post and follow up nursing protocol (n=50).

Levels of total performance	Pre		Immediately		1 month		3 Months		Test of Sig. (p1)	Test of Sig. (p2)	Test of Sig. (p3)	Test of Sig. (p4)
	N	%	N	%	N	%	N	%				
Satisfactory	16	32	42	84	38	76	35	70	$\chi^2=9.721$ <b>P=0.000**</b>	$\chi^2=9.805$ <b>P=0.000**</b>	$\chi^2=9.770$ <b>P=0.001**</b>	<b>F=24.32</b>  <b>P=0.000*</b>
Unsatisfactory	34	68	8	16	12	24	15	30				
<b>Total score</b>	<b>44.25 ± 17.31</b>		<b>115.24 ± 19.57</b>		<b>104.53 ± 11.93</b>		<b>97.82 ± 19.25</b>		<b>t= 14.54</b> <b>P= 0.000*</b>	<b>t= 14.03</b> <b>P= 0.001*</b>	<b>t= 13.27</b> <b>P=0.001*</b>	<b>F=38.47</b>  <b>P=0.000*</b>



**Figure (2):** Distribution of the studied nurses regarding their total performance towards third stage of labor at pre-post and follow up nursing protocol (n=50).

**Table(5) :**Correlation between nurses' knowledge and their performance towards third stage of labor at pre-post and follow up nursing protocol.

Variables		Total knowledge			
		Pre	Immediatel y	1 month	3 Months
Total performa nce	<b>R</b>	.397	.412	.399	.498
	<b>p</b>	.000**	.000**	.000**	.000**

## DISCUSSION:

The NCEP 2013 report has already recognized the four key statin benefit groups. In addition to performing placenta examinations, WHO guidelines advocate a nursing protocol for third stage of labor as a critical intervention for PPH prevention, which has become a prominent component of governments' PPH reduction programs around the world (Bhutia, Shadap & Pangambam, 2018). So, this study was conducted to evaluate the effect of nursing care protocol on nurses' performance during third stage of labor.

Regarding the nurses' knowledge related to management of third stage of labor, the finding of the present study revealed that there was a highly statistically significant differences between nurses' knowledge about third stage of labor pre and post nursing intervention protocol. That may be due to educating the nurses on third stage of labor management create awareness and help them practice efficiently. This finding is similar with an Egypt study by Wasef, Abdraboo, Ahmed & Mohamed, (2018) titled " Nursing Care of The Third and Fourth Stages of Labor: Protocol Of Care" who indicated that the nurses' knowledge level in pretest regarding active and physiological management of third stage of labor was low in more than half of them while the majority of nurses post intervention test reported good knowledge about management of third stage of labor.

Contrarily, (Bhutia et al, 2018) at his study carried out in Gangtok, Sikki and titled " Knowledge and Practice of Active Management of Third Stage of labor (AMTSL) among Nursing Students in Selected Hospitals" which stated that the level of knowledge on management of third stage of labor among forty nursing students was assessed and found

that the majority of them had good level of knowledge about active management of third stage of labor.

The present study illustrated that statistically significant improvement in total knowledge of nurses about third stage of labor after nursing protocol which the majority of them reported unsatisfactory knowledge pre intervention compared to high satisfactory level of knowledge post intervention. That may be explained that providing intervention to nurses leading to improvement in their information and knowledge. This consistent with Daef, Naidoo&Moodley (2017)who showed that the knowledge level among nurses was unsatisfactory pretest compared with high satisfactory level of knowledge found posttest.

Concerning performance and practices among nurses regarding management of third stage of labor, the findings of the current study revealed that there was a highly statistically significant difference after intervention compared to pre intervention. The total performance of nurses was unsatisfactory before intervention compared to high level of satisfaction post intervention. From the researcher point of view that's may be due to low experiences of nurses about management of third stage can be a challenge for implementation of the correct protocol of care of third stage of labor. In addition to the nurses may don't follow the guidelines to apply this protocol of care.

Similarly, Bhutiaetal, (2018) listed that the level of practice of active management of third stage of labor among forty nurses was assessed using an observational checklist and found that near to half of the sample had poor practice. Additionally, Saha, (2019) at the study titled" A Systemic Approach to Evaluate Nursing Practice of MTSL Protocol"implemented in India country discussed that that ongoing practice of management of third stage of labor protocol by nursing personnel are low. Notable gap is found in practicing Steps, as recommended by WHO. Therefore, specific nursing intervention strategies, in-service trainings and refresher courses are required to improve the nursing performance.

On the contrast, Bimbashi, Ndoni, Dokle&Duley (2010)in their study titled "care during the third stage of labor: nurses views and practice in an Albanian maternity hospital" , found that most of study sample reported always or usually using active management for the third stage of labor. The timing and selection of the uterotonic drug, were similar in reported and actual practice.Although some of them reported that they

waited more than one minute before clamping the umbilical cord, this was not observed in practice. Controlled cord traction was used for half the births.

Regarding to nurses' performance domains toward third stage of labor, the findings of the present study shows that the majority of the nurses in the study reported high satisfactory level of performance post intervention in the areas of controlled cord traction, delivery of the placenta, delivering of placenta and placenta examination compared to low satisfactory level of performance among the studied nurses at this domain's pre-intervention.

Similarly, Waghmare, Upendra, Kaur, Barde & Joshi, (2019) represented that most of the nurses in the study had a low level of performance toward placenta and placental examination before participation in the protocol. But, a significant improvement was observed in nurses' performance regarding placental examination after implementing the program. These findings are in agreement with Hassan, Mohamady & Abd El-Gawad, (2017) in their study which illustrated that there was significant improvement in nurses' knowledge and performance in labor unit after implementing a programme of systematic placental examination in both Ain Shames and Beni-Suef hospitals.

Unlikely with a study titled "Assessment of knowledge, attitude, and practice of midwives on active management of third stage of labor at selected health centers" in Ethiopia and conducted by Yaekob, Shimelis, Henok & Lamaro, (2015) which demonstrated that most midwives achieve satisfactory scores of practices regarding active management and all basic component about placenta and its examination.

In regarding to correlation between the knowledge of nurses and their performance towards third stage of labor at pre-post and follow up nursing protocol our study revealed that, illustrates that there was a highly statistically significant positive correlation between nurses' knowledge and their performance towards third stage of labor at pre-post and follow up nursing protocol. That's can be explained by that educational level, job training and level of knowledge were significantly affect with on nurses level of practice regarding management of third stage of labor.

This result coincides with Bhutia et al., (2018) who mentioned that there is a positive correlation between knowledge and practice of active management of third stage of labor among the studied nurses students ( $p < 0.05$ ). It means increased knowledge

improves MTSL practices . Likely, a study conducted in Addis Ababa with a title "Factors associated with knowledge, attitude and practice of midwives on active management of third stage of labor" and carried out by Henok&Yaekob, (2015) discussed that educational level and level of knowledge were significantly associated with the nurses practice on MTSL. Therefore concerned organizations should place priority for education and training of midwives to increase knowledge, attitude and practice of AMTSL.

## **CONCLUSION:**

*Based on the findings of our current study, it can be concluded that :*

The majority of the nurses in the study had unsatisfactory level of knowledge regarding third stage of labor in pre intervention and majority of the studied nurses had satisfactory level of knowledge in post and follow up intervention. Majority of the studied nurses' practices related to third stage of labor was unsatisfactory in pre intervention and majority of the studied nurses had satisfactory practices in post and follow up intervention .There was a statistically significant relation between knowledge and practice among the staff nurses as the percentage of nurses with unsatisfactory knowledge, is higher among unsatisfactory practical level, and the percentage of nurses with satisfactory knowledge is higher among satisfactory practical level. Therefore, it can be concluded that The protocol of care had positive effect on nurses' knowledge regarding third stage of labor .In addition to that a remarkable improvement in nurses practices after implementation of protocol of care in comparison to pre intervention.

## **RECOMMENDATIONS:**

*Based on the findings of the current study, the following recommendations were suggested:*

- Developing periodical inservice educational programs for nurses working in obstetrics and gynecology departments in different hospitals to upgrade their knowledge and practice during third stage of labor .
- All nurses in obstetric department should be trained to provide adequate and effective nursing care in third stage of labor .

- Establishing standard guideline for the different services to maintain and provide good quality of health services regarding third stage of labor.
- The study should be replicated in various maternity settings, particularly private hospitals and clinics..
- Simple booklets and handouts with updated knowledge and practices about third stage of labor should be available in the unit.

***For further studies :***

- Apply the same study on large sample size in another setting .
- Investigate the complication of the third stage of labor and its effect on maternal and neonatal health.

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## تأثير بروتوكول الرعاية التمريضية علي أداء الممرضات أثناء المرحلة الثالثة من

### الولادة

انتصار فتوح عبد المنعم<sup>1</sup>; فاطمة ذكي فرحات<sup>2</sup>; أسماء عبدالواحد عبد الواحد<sup>3</sup>

أستاذ تمريض الأمومة وحديثي الولادة , كلية التمريض - جامعة حلوان<sup>1</sup>; مدرس تمريض الأمومة والنساء والتوليد, كلية التمريض - جامعة بور سعيد<sup>2</sup>

### الخلاصة

تعتبر الرعاية التمريضية أثناء المرحلة الثالثة من الولادة من أهم أجزاء الرعاية التمريضية التي تساعد في الوقاية من نزيف ما بعد الولادة وتقليل معدل الوفيات بين النساء.. لذلك تهدف هذه الدراسة الي تقييم أثر بروتوكول الرعاية التمريضية في المرحلة الثالثة من الولادة على معرفة وأداء الممرضات ، نفذت هذه الدراسة في أقسام الولادة بثلاث مستشفيات في مدينة بورسعيد وقد تم استخدام دراسة شبه تجريبية لهذه الدراسة وكونت من خمسون ممرضة ممن يعملن في أقسام الولادة. وقد جمعت المعلومات الخاصة بالرسالة عن طريق استبيان ذاتي الإدارة واستمارة ملاحظة لأداء الممرضات (قبل / بعد الاختبار). وقد أوضحت النتائج أن غالبية الممرضات اللائي خضعن للدراسة كان لديهن مستوى غير مرضٍ من المعرفة والممارسات فيما يتعلق بالمرحلة الثالثة من الولادة في مرحلة ما قبل اعطاء البروتوكول وأن غالبية الممرضات الخاضعات للدراسة كان لديهن مستوى مرضٍ تجاه المعرفة والممارسات عن المرحلة الثالثة من الولادة بعد تطبيق البروتوكول. وقد تخلصت الدراسة أنه كان لبروتوكول الرعاية أثر إيجابي على معرفة وممارسات الممرضات فيما يتعلق بالمرحلة الثالثة من الولادة ، حيث كان هناك تحسن ملحوظ في معرفة وممارسات الممرضات بعد تطبيق بروتوكول الرعاية مقارنة بقبل تطبيق بروتوكول الرعاية. وأوصت الدراسة بأنه لابد من تطوير برامج تثقيفية دورية للممرضات العاملات في أقسام التوليد وأمراض النساء في المستشفيات المختلفة لرفع مستوى معارفهن وممارساتهن فيما يتعلق بالمرحلة الثالثة من الولادة .

**الكلمات المرشدة:** بروتوكول الرعاية التمريضية ، أداء الممرضات ، المرحلة الثالثة من الولادة.