Effect of WHO Guideline on Nurses' Knowledge Regarding Prevention and Management of Postpartum Hemorrhage

Azza Farouk Mohamed Hassen[1]; Hend Salah-Eldin Mohammed[2]; Mervat Gaber Zaghloul[3]; Shymaa Abd Elrahman Osman[4].

[1] *Master degree of Maternity, Gynecology and Obstetrics Nursing- Faculty of Nursing- Suez Canal University;* [2]*Professor of Obstetrics and Gynecology Nursing-Faculty of Nursing - Zagazig University;* [3,4] *Assistant Professor of Maternity, Gynecology and Obstetrics Nursing- Faculty of Nursing- Port Said University*

ABSTRACT

Background: In the majority of nations worldwide, postpartum hemorrhage (PPH) remains the primary cause of mother morbidity and death. **Aim:** The aim of the study was to evaluate effect of who guideline on nurses' knowledge regarding prevention and management of postpartum hemorrhage. **Subjects and method:** A quasi-experimental (one group pre- posttest) design was employed in this investigation. The study was conducted at Women's Health House Hospital (previously named Specialized Women and Obstetrics Hospital (affiliated to Egypt health care authority hospitals in Port Said). **Sample:** All 150 nurses employed at the time of the study at the Women's Health House Hospital were included in a convenience sample for the purpose of the study. Data collection tool: A structured interviewing form was used to collect relevant data. It includes personal characteristics about the study subjects such as: age, marital status, educational level, years of experience, residence and previous training courses about PPH, and nurse's knowledge regarding prevention and management of postpartum hemorrhage. **Results:** The majority of the studied nurses had satisfactory level of total knowledge regarding nursing interventions for prevention and management of PPH post applying WHO guidelines (78.0% & 94.0%, respectively) compared to the minority of them had unsatisfactory level of knowledge pre- applying WHO guidelines (4.0%6.0%, respectively). **Conclusion:** Following the implementation of the recommendations issued by the WHO for the prevention and management of postpartum hemorrhage, the investigated nurses' knowledge significantly improved. **Recommendations:** It is recommended that intern nurses be provided with periodic health education programs in order to improve their knowledge and abilities in order to provide advanced nursing care with respect to the prevention and treatment of primary postpartum hemorrhage.

Keywords: WHO guideline- Nurses' knowledge- Prevention and management- Postpartum hemorrhage.

INTRODUCTION

For most women and families worldwide, giving birth is a life-changing event, but there is also a significant chance of harm, disability, and even death for some mothers and their children. Approximately 600,000 women between the ages of 15 and 45 lose their lives each year due to complications related to being pregnant and giving birth worldwide. The four main reasons of mother's deaths are obstructed labor, infections, hypertensive disorders, and obstetric hemorrhage (Cunningham, Leveno, Bloom, Dashe, Hoffman, Casey & Spon, 2018).

The most common and serious side effect of childbirth is obstetric hemorrhage. It falls into two general categories: PPH (postpartum hemorrhage) and antepartum hemorrhage. PPH is a potentially fatal obstetric emergency that results from the third stage of labor and is linked to both vaginal births (2-4%) and caesarean births (6-7%) (Wormer, Jamil & Bryant, 2022).

A loss of blood that surpasses 500 milliliters (ML) following vaginal delivery and 1000 ML following caesarean delivery is referred to as "postpartum hemorrhage" (PPH). Still, there are disagreements over terminology, and inaccurate blood loss estimates are often used to diagnose PPH. Moreover, the blood loss at birth typically exceeds 500–1000 milliliters on average. The characterization and diagnosis of other metrics, such as hematocrit alterations, transfusion requirements, blood loss velocity, and changes in vital signs, are made more difficult by the emerging nature of PPH (Bihan, Nowak, Anouilh, Tremouilhac, Merviel, Tromeur & de Moreuil,, 2023).

Postpartum hemorrhage is a serious obstetric emergency and one of the top five causes of mother fatality globally. yearly, almost 14 million women worldwide have PPH, which causes 70,000 maternal deaths. International Health Organization, 2022). In developing countries, postpartum hemorrhage is thought to be the reason for 140,000 deaths of mothers a year, or one maternal fatality each four minutes (Menezes, Cardoso & Pednecar, 2021).

Timely identification and treatment can potentially save lives. Since measuring blood loss (MBL) is a more precise method than visual estimation, after every birth, blood loss should be quantified and documented. The midwife in charge, first line obstetric and anesthetic professionals, and other relevant parties should be contacted to

assist with Stage 1 PPH Management when MBL hits 500 ml (mild PPH). The consultant obstetrician should be invited, and the Massive Haemorrhage Protocol should be initiated (McKinney, James, Murray, Nelson & Ashwill, 2021).

Nurses as well as midwives are the main healthcare providers for birth care, particularly at healthcare facilities located in sub-Saharan Africa. nevertheless is generally accepted that one of the main causes of both maternal and infant fatalities in healthcare institutions worldwide is poor nursing and midwifery treatment for birth difficulties (Mohammed, Omran, Elsayed & Salama, 2023).

Despite their prior education, investigations have shown that nurses' and midwives' expertise is not always up to par in low-resource situations (El-hamid, Mahmoud, Ahmed, Abo-zaid & El-adham, 2021). Therefore, raising the competency of midwives and nurses could lead to better outcomes for mothers and newborns. Regular in-service training sessions are one way to increase the competency of midwives and nurses. Encouraging midwives to pursue ongoing professional development offers the continuing promise of safer and more effective delivery care in areas with limited resources (Nishimwe, Ibisomi, Nyssen & Conco, 2021).

Because they are constantly by the bedside, maternity nurses are the first to respond to primary postpartum hemorrhage. To lower maternal morbidity and death from postpartum hemorrhage, nurses must be equipped with the knowledge and procedures needed to recognize patients who have this illness. Maternity nurses ought to be knowledgeable with the life-saving fundal massage technique and how to measure blood losses in occasions of uterine atony when managing postpartum hemorrhage (Elbahlowan, El-Salam, Ali & Ashour, 2022).

Significance of the study

The most common and serious side effect of childbirth is obstetric hemorrhage. It falls into two general categories: PPH (postpartum hemorrhage) and antepartum hemorrhage. PPH is a potentially fatal obstetric emergency that results from the third stage of labor and is linked to both vaginal births (2-4%) and caesarean births (6-7%) (Wormer, Jamil & Bryant, 2022). In Egypt, the incidence of early PPH is 12.5%. Furthermore; early PPH is the nursing concern because she plays a multidisciplinary role as a care giver for early detection screening and referring patients with early postpartum

hemorrhage to minimize maternal and fetal morbidity and mortality (Committee on Practice Bulletins-Obstetrics, 2019). In September 2014, the Ministry of Health and Population reported that P.P.H. accounted for approximately 19.7% of the direct causes of maternal death. 88% of these fatalities happen within four hours of delivery, underscoring the importance of prompt care both during and immediately following delivery (El-Malek, Ahmed, Taha, El-Azeem, Alaa & Mahmoud, 2019).

Because they are so accessible at the bedside, nurses are frequently the first medical professionals to respond to postpartum haemorrhage. Improved clinical response could have avoided 93% of maternal deaths due by postpartum haemorrhage, according to the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN, 2013) & (Desoky & Salim, 2021). However, Port Said City has very few prior PPH investigations. Therefore, it is crucial to conduct this study in order to increase nurses' knowledge of postpartum haemorrhage management and prevention.

AIM OF THE STUDY

The aim of the study was to evaluate effect of who guideline on nurses' knowledge regarding prevention and management of postpartum hemorrhage.

Research hypothesis

Nurse's knowledge will be improved after applying WHO guideline regarding prevention and management of postpartum hemorrhage in Gynecological & Obstetric Specialized hospital.

SUBJECTS AND METHOD

For one group, a quasi-experimental approach was employed in this investigation (pretest and posttest).

Research setting

The study was conducted at the Women's Health House Hospital (previously named Specialized Women and Obstetrics Hospital (affiliated to Egypt health care authority hospitals in Port Said).

Sample

The 150 nurses working at the Women's Health House Hospital at the time of the study were included in the convenience sample.

Data collection tools:

One tool was used to collect data as the followings:

Tool I: structured interviewing form:

The researcher designed it after consulting relevant national and international literature, which was then evaluated by supervisors. It had two sections and was written in Arabic:

Section I: Provide personal details about the research subjects, such as age, marital status, educational attainment, years of experience, place of residence, and prior PPH training courses.

Section II: of the tool assessed the nurse's knowledge of postpartum hemorrhage prevention and management. It consisted of 38 multiple-choice questions covering terms, definitions, risk factors, kinds, signs and symptoms, complications, active management of the third stage of labor, and PPH care. Along with (Five) open-ended questions about lab tests, follow-up during pregnancy, its significance, and care in high-risk pregnancies (prior/after).

Scoring system

Following an illustrated basic response, the nurse's understanding was assessed and classified depending on whether "true response was assigned as single score" or "untrue response was assessed with zero score." A % score was generated by adding up these totals. The following categories were identified:

- Good understanding if score was greater than 75%.
- Median understanding for a score between 60 and 75%.
- Low understanding if less than 60%.

B-Operational design

A phase of scheduling, subject accuracy and reliability, a pilot research, and survey were all part of the latest study's operational design.

1-Preparatory phase

To build the data collection tools, a comprehensive assessment of pertinent national and international research, along with conceptual understanding of many topic elements, was carried out.

2-Content validity of the tool

The investigator created information gathering tools, which were then examined by an expert group of five specialists from the nursing and medical faculties at Port-Said and Suez Canal universities who specialise in obstetrics, gynaecology, and maternity. The purpose of the assessment was to assess the instruments' suitability, scope, significance, and clarity. They were questioned for their thoughts on the design, layout, and coherence of the instrument. The appropriate adjustments were made as a result.

3-Reliability of tool

The investigator created information gathering tools, which were then examined by an expert group of five specialists from the nursing and medical faculties at Port-Said and Suez Canal universities who specialize in obstetrics, gynecology, and maternity. The purpose of the assessment was to assess the instruments' suitability, scope, significance, and clarity. They were questioned for their thoughts on the design, layout, and coherence of the instrument. The appropriate adjustments were made as a result.

4-Pilot study

The effectiveness, accuracy, and clarity of these instruments were assessed in a pilot investigation using 10% of the total population comprising 15 nurses. No changes were made, and the nurses who participated in the pilot research were subsequently added to the entire sample.

5-Field work

This field research was completed using the processes of assessment, planning, implementation, and evaluation.

Preparatory phase

The investigation's relevant research was reviewed, the instruments were created, an educational program based on WHO guidelines and supporting materials (an Arabic booklet) were created, and then a pilot study was carried out to determine the study's practicality after an advisory group of obstetric medicine and maternity nursing experts confirmed the created tool's validity in content.

Assessment phase (Pre-test phase)

The examiners gave an introduction, conducted interviews with all of the maternity nurses, clarified the goal of the research, and obtained participants' verbal approval before gathering baseline information about nurses' understanding and demographic data utilizing instrument (I). It took the nurses 25 minutes to complete this sheet. Five specialists in the linked field wrote and amended the standards' materials based on the results of the pre-test survey for competence and awareness. Starting interviewing the nurses after introducing self and obtaining their permission to take part in the research. Then, completing the questionnaire and gave an explanation of the goals of the research. The study group received assurances regarding the confidentiality of all data gathered.

Planning phase

It was selected based on the program objectives & maternity nurses' assessment needs. Study group received both theoretical part and training about nursing management of PPH according to WHO guidelines. The researcher prepared the health educational program after back to review of literature of (Abd Elhakm & Elbana, 2018) which given for three sequent days. It designed in a simple Arabic language to improve the knowledge and practice of the nurses regarding prevention and management of PPH. In addition, the supportive material which was an Arabic booklet was prepared, the content of the

supportive booklet was prepared by the researchers in an Arabic simple understood language.

Implementation Phase

Ten subcategories were randomly selected from the total number of study subjects in the group. The subgroups consisted of four to six nurses who participated in instruction sessions on three separate occasions per week, from 9:00 a.m. to 3 p.m. and from 3 p.m. to 9:00 p.m. The program was run over ten weeks, with one week dedicated to each subgroup. Every subgroup's instruction consists of a two-hour theoretical portion and a four-hour practical portion. Every theoretical lesson was followed by a skills training session. The following is how the program sessions were carried out:

Theoretical and Training sessions

Basic information regarding PPH, including its meaning, kinds, reasons, signs, and symptoms, as well as information about groups at increased risk, prenatal, labour, postpartum, and complications preventative measures, were covered in Session 1. shown nursing assessment for prevention and prompt detection after that. In the second session, the third stage of labour was actively managed after which they received instruction based on a checklist for nurses' performance abilities. postpartum

Debriefing

Investigators immediately performed debriefing as a reflecting exercise after training competencies. After the debriefing, this lasted for roughly thirty minutes, during which each group was asked whether they had any more questions.

Evaluation Phase

Following the training course's application, the investigators assessed how well nurses understood postpartum haemorrhage management and prevention using the same evaluation instruments (I, III) (Following the test).

(III) Administrative Design

   Official approval from the relevant authorities was secured to conduct the research. Prior to beginning the study, an official letter requesting permission, to carry out the research was sent by the Port Said University nursing department to the Comprehensive Health Insurance-affiliated Obstetrics & Gynecology Specialized Hospital in Port Said city. At the time of data collection, each study participant was given a thorough explanation of the goal of the study before obtaining their verbal consent.

Ethical Consideration

   Prior beginning the investigation, the scientific inquiry ethical commission of the Port-Said University faculty of nursing granted research approval. Inform the manager of the Comprehensive Health Insurance-affiliated Obstetrics & Gynecology Specialized hospital in Port Said about the study's purpose in order to obtain approval to conduct it. The maternity nurses gave their verbal consent. Make sure each subject understands the purpose of the study and the significance of her involvement. To reassure the nurses that the data collected would be kept private and utilized exclusively for the goal of the research, a brief description of the investigation was provided. The unity of the work was not disrupted during the information gathering process. Every piece of information gathered from the research respondents was.

D-Statistical analysis

   The scientific study committee on ethics at the Port-Said college of nursing granted the research approval. The information was gathered, sorted, coded, computerized, and examined using relevant mathematical methods and tests (X2 for information that is qualitative, mean and standard deviation for quantitative data, and correlation tests). The information was subsequently displayed in suitable tables and graphs utilizing relevant mathematical methods and checks of significance.

RESULTS

   Table (1) Illustrates the study's distribution of nurses is depicted based on their general characteristics. Of the nurses analyzed, 44.0% belonged to the 25–30-year age group, with a mean ± SD of 27.50 ± 4.31. With regard to the nurses under study, the

majority (58.0%) had attended a nursing technical institute, while just 14.0% held a diploma. Sixty-two percent of them have fewer than five years of experience. Approximately 72.0 percent of the nurses in the study had not completed any postpartum hemorrhage prevention courses.

Table (2) Demonstrates that compared to before the WHO recommendations were applied, there was a highly statistically significant increase in the examined nurses' knowledge of the majority of postpartum hemorrhage-related topics. The data indicates that 90.0 percent of the nurses in the study gave the correct response to the question "meaning of postpartum hemorrhage" after adopting the WHO criteria, but 96.0 percent of the nurses in the study gave an incorrect reply.

Table (3) Shows that after adopting WHO guidelines, there was an extremely significant difference in the investigated nurses' understanding of nearly every point pertaining to methods to avoid postpartum hemorrhage during gestation as opposed to before applying WHO guidelines (P < 0.001). As example, when asked "The time of hemoglobin test done throughout gestation," more than one-third of the investigated nurses (46.0%) gave an incorrect response before adopting WHO criteria, but after doing so, all of them (100.0%) gave the correct response.

Table (4) Reveals that in comparison to before following WHO standards, there was definitely an extremely significant difference in the investigated nurses' understanding of every subject related to preventing postpartum hemorrhage at birth. In support of this, less than two thirds of the nurses in the study (60.0%) gave an incorrect response when asked if "giving adequate intravenous fluids helps to prevent postpartum haemorrhage shock through delivery" prior to implementing the recommendations provided by the WHO, whereas a majority of them (96.0%) gave a right answer after doing so.

Table (5) Demonstrates that after implementing WHO standards, the study nurses' knowledge of the majority of topics related to postpartum hemorrhage management and prevention was significantly higher than it was before. In support of this, over two thirds of the nurses who participated in the study (68.0%) gave an incorrect response when asked if "In the first two hours after birth, a uterine massage should be

performed" before implementing WHO guidelines, whereas the majority among them (94.0%) gave the correct response after doing so.

Figure (1) Shows that when it came to the prevention and management of postpartum hemorrhage, all of the nurses who were studied (100.0%) had low overall knowledge in contrast to the majority (88.7%) that possessed adequate knowledge after using WHO standards.

Table (1): Ddistribution of the nurses under study based on general attributes (n = 150)

General characteristics	No.	%
Age		
<25	42	28.0
25-<30	66	44.0
≥30	42	28.0
Min. – Max.	21.0 – 39.0	
Mean ± SD.	27.50 ± 4.31	
Median	26.50	
Education		
Diploma of nursing	21	14.0
Nursing technical institute	87	58.0
Bachelor of nursing	42	28.0
Postgraduate	0	0.0
Years of experience		
<5	93	62.0
5-<10	30	20.0
≥10	27	18.0
Min. – Max.	1.0 – 15.0	
Mean ± SD.	5.20 ± 4.11	
Median	4.0	
Have you taken any postpartum hemorrhage prevention courses right		
Yes	42	28.0
No	108	72.0
If yes : How many training courses	**(n = 42)**	
G	9	21.4
2	12	28.6
3	21	50.0

SD: Standard deviation

Table (2): Distribution of maternity nurses based on their degree of understanding of postpartum hemorrhage (PPH) before and after the WHO recommendations were implemented. (n = 150)

Nurses' knowledge regarding PPH (pre & post) applying WHO guidelines	Pre				Post				T-test	P-value
	Incorrect		Correct		Incorrect		Correct			
	No.	%	No.	%	No.	%	No.	%		
• Definition	144	96.0	6	4.0	15	10.0	135	90.0		
• Predisposing factors	98	65.3	52	34.7	27	18.0	123	82.0		
• Causes	104	69.3	46	30.7	29	19.3	121	80.7		
• Types	63	42.0	87	58.0	6	4.0	144	96.0	78.166*	<0.001**
• Complication	122	81.3	28	18.7	110	73.3	40	26.7		
• Clinical manifestation	101	76.3	49	32.7	99	66.0	51	34.0		

Table (3): Distribution of examined maternity nurses based on their degree of expertise in managing and preventing postpartum haemorrhage (PPH) during pregnancy, both before and after the adoption of WHO recommendations (n = 150)

Nurses' knowledge regarding PPH (pre & post) applying WHO guidelines	Pre				Post				T-test	P-value
Management of post-partum hemorrhage	Incorrect		Correct		Incorrect		Correct			
	No.	%	No.	%	No.	%	No.	%		
• Fluids need at the first 20 minutes to prevent hypovolemic shock	141	94.0	9	6.0	15	10.0	135	90.0		
• Types of drugs used to control PPH	101	67.3	49	32.7	100	66.7	50	33.3	35.043*	<0.001**
• Drugs effects	42	28.0	108	72.0	126	84.0	24	16.0		
• Complications of missed drugs' uses	147	98.0	3	2.0	150	100.0	0	0.0		
• Action for stopping intractable PPH	84	56.0	66	44.0	69	46.0	81	54.0		
Preventive measures during pregnancy										
Ideal diet to prevent PPH	104	69.3	46	30.7	93	62.0	57	38.0		
Importance of periodic examination	122	81.3	28	18.7	122	81.3	28	18.7		
Importance of Follow up hemoglobin level analysis	114	76.0	36	24.0	150	100.0	0	0.0	68.232*	<0.001**
Time performance of Hb analysis	69	46.0	81	54.0	0	0.0	150	100.0		
• Follow up for hypertensive women	114	76.0	36	24.0	115	76.7	35	23.3		
Therapeutic measures during pregnancy										
• The nursing care to correct anemia	66	44.0	84	56.0	9	6.0	141	94.0		
• Nursing care to prevent hypertension	97	64.7	53	35.3	39	26.0	111	74.0	87.7*	<0.001**

Table (4): Distribution of maternity nurses based on their degree of awarness in managing and preventing postpartum haemorrhage (PPH) during labor, both before and after the adoption of WHO recommendations (n = 150)

Variables	Pre				Post				T-test	P-value
	Incorrect		Correct		Incorrect		Correct			
	No.	%	No.	%	No.	%	No.	%		
Administration of fluids infusion to PPPH	90	60.0	60	40.0	6	4.0	144	96.0		
Applying the control methods during 3rd stage of labor	81	54.0	69	46.0	27	18.0	123	82.0		
The first 3 basic steps to control PPH during 3rd stage of labor	150	100.0	0	0.0	36	24.0	114	76.0		
The difficult steps for management during 3rd stage of labor	45	30.0	105	70.0	0	0.0	150	100.0	98.429[*]	< 0.001[**]
Complete management during 3rd stage of labor	150	100.0	0	0.0	21	14.0	129	86.0		
Signs of placenta separation	93	62.0	57	38.0	93	62.0	57	38.0		
Nursing action to a tear in the amniotic membrane during labor	144	96.0	6	4.0	24	16.0	126	84.0		
Use the control cord traction to delivered the placenta	48	32.0	102	68.0	6	4.0	144	96.0		

Table (5): Distribution of the maternity nurses based on their understanding of PPH management prior to and following the adoption of the World Health Organization's recommendations (n= 150) "continue"

| Variables	Pre				Post				T-test	P-value
	Incorrect		Correct		Incorrect		Correct			
	No.	%	No.	%	No.	%	No.	%		
-Primary nursing care for pain & hematoma in the perineum area	106	70.7	44	29.3	64	42.7	86	57.3	86.190*	<0.001**
-Signs and symptoms of blood loss	65	43.3	85	56.7	0	0.0	150	100.0		
-Nursing action for a large amount of blood on the perineum and the uterine fundus was boggy	105	70.0	45	30.0	23	15.3	127	84.7		
-Nurse management to prevent bleeding after delivery	85	56.7	65	43.3	11	7.3	139	92.7		
-A uterine massage performed after 2h of labor	102	68.0	48	32.0	9	6.0	141	94.0		
- mothers complain during the first hours after labor	91	60.7	59	39.3	43	28.7	107	71.3		
-The influence of uterine atony on women	123	82.0	27	18.0	3	2.0	147	98.0		
-Sign of hypovolemic shock	90	60.0	60	40.0	0	0.0	150	100.0		
- A utero-tonic drug that stimulates uterine contractions	117	78.0	33	22.0	0	0.0	150	100.0		
- Fluid needed for hypovolemic shock	45	30.0	105	70.0	0	0.0	150	100.0		
- Misoprostol drug to prevent PPH	42	28.0	108	72.0	3	2.0	147	98.0		
- Oral and sublingual dose of misoprostol to PPPH	150	100.0	0	0.0	33	22.0	117	78.0		
-Oxytocin infusion to PPPH	72	48.0	78	52.0	3	2.0	147	98.0		
- Administration of Methargin to mothers	144	96.0	6	4.0	0	0.0	150	100.0		
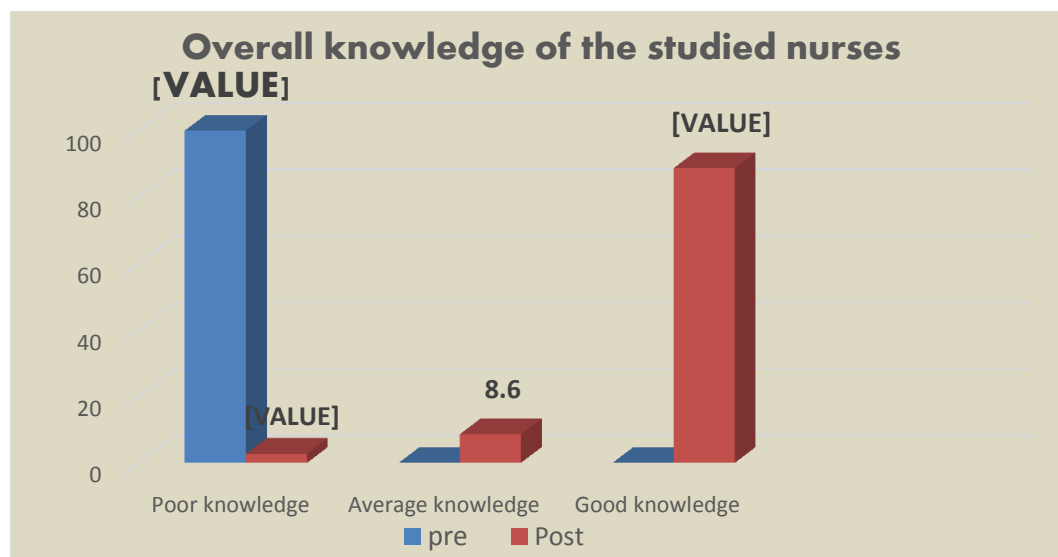
Figure (1):   A descriptive analysis of the investigated nurses to determine their general level of awareness concerning the prevention and management of post-partum hemorrhage, both before and after the application of WHO recommendations.

DISCUSSION

In the majority of nations worldwide, postpartum haemorrhage (PPH) remains the primary cause of maternal death and morbidity. The guidelines for managing PPH in this type of obstetric urgency are still not being implemented or followed, in spite of numerous joint efforts at all levels. A portion of the reason for this implementation latency is the absence of knowledge from recent research and the disarray of several standards for bleeding containment and detection. (Escobar, Nassar, Theron, Barnea, Nicholson, Ramasauskaite et al., 2022).

Every healthcare provider, especially those in low- and middle-income countries (LMICs), must have the ability to obtain the right drugs and get instruction regarding PPH therapy and prevention techniques. Better comprehension and skills boost a nurse's self-confidence, which enhances their capacity to offer postpartum patients safe, high-quality care. The improved knowledge, abilities, and self-assurance may lower the mortality and morbidity associated with PPH (Begum, Beyeza, Burke, Evans, Hanson, Lalonde & FIGO PPH Technical Working Group, 2022). So, this study was conducted to evaluate effect of who guideline on nurses' knowledge regarding prevention and management of postpartum hemorrhage.

The present study examined the understanding of the studied nurses regarding the prevention and management of postpartum hemorrhage items before and after applying the guidelines issued by the WHO. It found that the majority of the issues related to postnatal hemorrhage prevention and management were significantly better understood by the investigated nurses after implementing the guidelines issued by the WHO as opposed to before implementing WHO guideline.

These findings may be explained by the study nurses' ignorance of certain PPH-related topics prior to adopting guidelines issued by the WHO However, after using the WHO recommendations, their level of understanding increased.

These results are approved with a study performed by Christiansen, Sørensen, Boas, Bedesa, Fekede, Nielsen et al., (2023) who showed that nurses' understanding of the definition and causes of PPH had improved.. Also, these finding are in harmony with Lavoie, Lapierre, Maheu-Cadotte, Rodriguez, Lavallee & Mailhot (2022) who

demonstrated the effectiveness of educational intervention in enhancing nurses' understanding of PPH prevention and management..

The findings of the present study showed that there was a significant enhancement in the studied nurses' awareness with regard to the majority of items related to pregnancy-related measures for the prevention and management of postpartum hemorrhage after applying WHO guidelines as opposed to before applying WHO guidelines. In support of this, the majority of the nurses in the study gave false information on "The components of the ideal diet during pregnancy to prevent postpartum hemorrhage" prior to following the recommendations issued by the WHO, but after doing so, the majority of them gave accurate information.

These findings might be the consequence of the investigated nurses' increased level of understanding as a consequence of the application of WHO standards. These findings in the same direction with Bazirete, Nzayirambaho, Umubyeyi, Uwimana & Evans, (2020) who showed that, during the pre-intervention stage, over two-thirds of the participants had little information on appropriate self-practices and a healthy diet for PPH prevention, and that, following the intervention, they had significant knowledge.

The results of the present research made clear that there was an apparent enhancement in the studied nurses' understanding regarding all aspects of postnatal hemorrhage management during post-applying WHO guidelines compared to pre-applying WHO guidelines. This improvement pertained to the studied nurses' knowledge regarding prevention and management of postpartum hemorrhage while on birth. As evidence, the less than two thirds of the studied nurses reported incorrect answer regarding "Giving adequate intravenous fluids help to prevent postpartum hemorrhage shock during delivery" pre applying WHO guidelines, while changed to be the majority of them reported correct answer post applying WHO guidelines.

The results of this study may be explained by the fact that almost two thirds of the nurses who were examined had never taken a PPH-related training course, which resulted in a lack of information on many elements of PPH prevention. Following WHO recommendations resulted in a change in this degree of understanding.

These results are in congruent with Balde, Balde, Sylla, Diallo, Sow & Haidara (2020) who revealed an insufficient level of awareness of proactive methods to prevent

PPH at the third stage of labour during the pre-training of the examined nurses. Aside from following training, the majority of study nurses shown an increase in their understanding of what to do to avoid PPH during the third stage of labour. Additionally, the results showed that the study sample's pre- and post-test scores differed significantly when they completed a training program.

In comparison to pre-applying WHO standards, the current study showed a considerable improvement in the examined nurses' awareness of most post-partum care items for preventing postpartum hemorrhage. This enhancement has to do with the nurses' knowledge of these goods before they were used. In support of this, over two-thirds of the nurses in the study gave an inaccurate response when asked whether "In the first two hours after birth, a uterine massage should be performed" before adopting WHO guidelines, but most of them gave the right response after doing so.

These results may be the consequence of not implementing, as previously cleared, an educational training program for third stage care for postpartum hemorrhage prevention in the studied context. in previous Egyptian study carried out at the same setting by Abdelwahed & Farahat, (2022) and showed that nurses were not given any training programmes and were not knowledgeable about the third stage. Therefore, after implementing the third-stage care protocol, their level of understanding increased. These findings agree with Walker, Arbour & Wika (2019) They noted that there was a highly statistically significant difference in the investigated nurses' level of knowledge before and after the postpartum care guidelines were put into practice.

In terms of the overall levels of nurses' understanding of postpartum hemorrhage prevention and management prior to and following WHO guidelines, the present research made it clear that there had been a significant improvement in the studied nurses' overall understanding about all aspects of postpartum hemorrhage prevention and management following the provision of WHO guidelines, with a highly statistically significant difference in comparison to prior to implementing WHO guidelines. Evidence shows that before to implementing WHO guidelines, all of the examined nurses had inadequate general knowledge about the prevention and management of postpartum hemorrhage; however, following the implementation of these guidelines, the majority of them had good general knowledge. These outcomes could be attributed to the effectiveness of

guidelines issued by the WHO in raising maternity nurses' awareness of various postpartum haemorrhage prevention and management topics.

These findings are in a harmony with Elbahlowan, El-Salam, Ali, & Ashour (2022) who stated that The prior to the following test, and follow-up after the video simulation was implemented revealed statistically significant variations in the knowledge of the nurses, with maternity nurses demonstrating the highest levels of understanding. On the same line, Nishimwe, Ibisomi, Nyssen & Conco (2021) showed that there was a marked improvement of nurses' knowledge related to items of prevention and management of postpartum hemorrhage post implementation of training program with a highly statistically significant difference.

In the same line, Ali & Bahaaldeen (2019) showed that among the nurses' before and following the test PPH knowledge and practice, there was a statistically significant association. Additionally, this result is in congruent with Esan, Ayenioye, Ajayi & Sokan-Adeaga, (2023) who illustrated that comparing the examined nurses' before and post-video simulation training knowledge, attitudes, and practices regarding PPH management, there was a positive and substantial link.

CONCLUSION

According to the study's findings, the following can be concluded:

Following the implementation of the recommendations issued by the WHO for the prevention and management of postpartum hemorrhage, the investigated nurses' knowledge significantly improved. Thus, implementing WHO standards helped to achieve the goal of improving the studied nurses' understanding of postpartum hemorrhage prevention and management.

RECOMMENDATIONS

According on the study's findings, the following suggestions are made:

1. Developing intern nurses' health education program on a regular basis to improve their knowledge and abilities for providing advanced nursing care in the areas of primary postpartum hemorrhage prevention and management.

2. To assist professional nurses in gaining the necessary knowledge for early identification and an efficient nursing response for managing PPH, training program ought to be incorporated into nursing curricula.

3. To ensure that the results can be applied broadly, more research must be done to perform a comparable study with a bigger sample size in various contexts.

References

Abd Elhakm, E. M., & Elbana, H. M. (2018). Effect of simulation based training on maternity nurses' performance and self-confidence regarding primary postpartum hemorrhage management. *American Journal of Nursing*, *6*(6), 388-397.

Abdelwahed, A. A., & Farahat, F. Z. (2022). EFFECT OF NURSING CAREPROTOCOL ON NURSES'PERFORMANCE DURING THIRDSTAGE OF LABOR. *Port Said Scientific Journal of Nursing*, *9*(1), 1-22.

Ali, A. H., & Bahaaldeen, E. F. (2019). Effectiveness of an Education Program on Nurse-midwives' Practices Related to Postpartum Hemorrhage at Delivery Room of Maternity Hospitals in Baghdad City. *Indian Journal of Public Health Research & Development*, *10*(9).

Alsaqri, S. (2016). Patient satisfaction with quality of nursing care at governmental hospitals, Ha'il City, Saudi Arabia. *Journal of Biology, Agriculture and Healthcare*, 6(10), 128–142.

Association of Women's Health, Obstetric and Neonatal Nurses. (2013) . Guidelines for management of PPH.

Balde, O., Balde, I. S., Sylla, I., Diallo, F. B., Sow, A., & Haidara, S. M. (2020). Implementation of active management of the third period of childbirth for the prevention of immediate post-partum bleeding in four regional maternity hospitals of Conakry, Guinea. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *9*(9), 3563-3569.

Bazirete, O., Nzayirambaho, M., Umubyeyi, A., Uwimana, M. C., & Evans, M. (2020). Influencing factors for prevention of postpartum hemorrhage and early detection of childbearing women at risk in Northern Province of Rwanda: beneficiary and health worker perspectives. *BMC pregnancy and childbirth*, *20*(1), 1-14.

Begum, F., Beyeza, J., Burke, T., Evans, C., Hanson, C., Lalonde, A., ... & FIGO PPH Technical Working Group. (2022). FIGO and the International Confederation of Midwives endorse WHO guidelines on prevention and treatment of postpartum

hemorrhage. *International Journal of Gynaecology and Obstetrics*, *158*(Suppl 1), 6.

Bihan, L., Nowak, E., Anouilh, F., Tremouilhac, C., Merviel, P., Tromeur, C., ... & de Moreuil, C. (2022). Development and Validation of a Predictive Tool for Postpartum Hemorrhage after Vaginal Delivery: A Prospective Cohort Study. *Biology*, *12*(1), 54.

Christiansen, A. M. H., Sørensen, B. L., Boas, I. M., Bedesa, T., Fekede, W., Nielsen, H. S., & Lund, S. (2023). The impact of the Safe Delivery Application on knowledge and skills managing postpartum haemorrhage in a low resource setting: a cluster randomized controlled trial in West Wollega region, Ethiopia. *Reproductive Health*, *20*(1), 1-11.

Committee on Practice Bulletins- Obstetrics. (2019): Practice Bulletin No. 183: Postpartum Hemorrhage. Obstet Gynecol; 130:e168.

Cunningham G, Leveno J, Bloom L**,** Dashe S, Hoffman L, Casey M**,** Spong Y.(2018). Williams Obstetrics. 25th ed., United States of America**:**McGraw-Hill Education com.; 2018**.** 100-30.

Desoky, M., & Salim, H. (2021). Developing Competences for Maternity Nurses during Labor and Immediate Postpartum Period Regarding Prevention of Postpartum Hemorrhage. *Egyptian Journal of Health Care*, *12*(4), 618-634.

Egenberg, S., Reta, A., Sørensen, J. L., Ugglas, A. A., Nilsen, S., & Evans, C. (2023). Skills Training and Multi-Professional Simulation Training on Postpartum Haemorrhage. In *Practical Guide to Simulation in Delivery Room Emergencies* (pp. 515-521). Cham: Springer International Publishing.

Elbahlowan, G. A., El-Salam, A., Ali, A., & Ashour, E. S. S. (2022). Effectivness of video simulation on increasing maternity nurses knowledge, practice and self efficacy in managing primary post-partum hemorrhage. *Port Said Scientific Journal of Nursing*, *9*(2), 44-72.

El-hamid, A., Mahmoud, S., Ahmed, M. H., Abo-zaid, E. H., & El-adham, A. F. (2021). Effect of High Fidelity Simulation Based Training Program on Nursing Students'

Performance, Self-efficacy and Confidence regarding Prevention of Postpartum Hemorrhage. *Tanta Scientific Nursing Journal*, *23*(4), 233-267.

El-Malek, A., Ahmed, S., Taha, R. R., El-Azeem, A., Alaa, G., & Mahmoud, S. M. (2019). Factors associated with postpartum hemorrhage maternal morbidity and mortality in Minia city hospitals a cross-sectional epidemiological survey. *Minia Journal of Medical Research*, *30*(1), 114-118.

Esan, D. T., Ayenioye, O. H., Ajayi, P. O., & Sokan-Adeaga, A. A. (2023). Traditional birth attendants' knowledge, preventive and management practices for postpartum hemorrhage in Osun State, Southwestern Nigeria. *Scientific Reports*, *13*(1), 12314.

Escobar, M. F., Nassar, A. H., Theron, G., Barnea, E. R., Nicholson, W., Ramasauskaite, D., ... & Wright, A. (2022). FIGO recommendations on the management of postpartum hemorrhage 2022. *International Journal of Gynecology & Obstetrics*, *157*, 3-50.

Kassebaum N., Amelia B., Megan S., Katya A., Caitlyn S., Kyle R., (2014): Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the Global Burden of Disease study , 384: 980-1004 .

Khadim, I., Yaqoob, A., Parveen, K., & Khan, S. (2022). EFFECTS OF CLINICAL INTERVENTIONS ON NURSING CARE PRACTICES REGARDING INCIDENCE OF PRIMARY POST-PARTUM HAEMORRHAGE. *Pakistan Journal of Physiology*, *18*(2), 51-53.

Lavoie, P., Lapierre, A., Maheu-Cadotte, M. A., Rodriguez, D., Lavallee, A., & Mailhot, T. (2022). Improving the recognition and management of hemorrhage: A scoping review of nursing and midwifery education. *Nurse education today*, *113*, 105361.

McKinney, E. S., James, S. R., Murray S. S., Nelson, K., and Ashwill, J., (2021). The Woman with Postpartum Complication, In Maternal-Child Nursing - E-Book, Elsevier. Riverport lane. 6th edition. Chapter 28. 604- 623.

Menezes, R. M., Cardoso, P. M., and Pednecar, G., (2021). Study of Primary Postpartum Hemorrhage at Term in a Tertiary Care Hospital. IOSR Journal of Dental and Medical Sciences. 9 (5).35-41

Mohammed, S., Omran, A., Elsayed, H., & Salama, A. (2023). Effect of Simulation Training on Intern Nurses' Competence and Self-Confidence regarding Primary Postpartum Hemorrhage. *Journal of Nursing Science Benha University*, *4*(2), 602-616.

Nishimwe, A., Ibisomi, L., Nyssen, M., & Conco, D. N. (2021). The effect of an mLearning application on nurses' and midwives' knowledge and skills for the management of postpartum hemorrhage and neonatal resuscitation: pre–post intervention study. *Human Resources for Health*, *19*(1), 1-10.

Nishimwe, A., Ibisomi, L., Nyssen, M., & Conco, D. N. (2021). The effect of an mLearning application on nurses' and midwives' knowledge and skills for the management of postpartum hemorrhage and neonatal resuscitation: pre–post intervention study. *Human Resources for Health*, *19*(1), 1-10.

Prata N., Sreenivas A., Vahidnia F.,& Potts M., (2014): Saving maternal lives in resource-poor settings: Facing reality ;89 (2) :131–148.

Shahin, H., Desoky, A., & Salim, M. (2021). Developing Competences for Maternity Nurses during Labor and Immediate Postpartum Period Regarding Prevention of Postpartum Hemorrhage. *Egyptian Journal of Health Care*, *12*(4), 618-634.

Walker, K. C., Arbour, M. W., & Wika, J. C. (2019). Consolidation of guidelines of postpartum care recommendations to address maternal morbidity and mortality. *Nursing for women's health*, *23*(6), 508-517.

WHO (2014): Guidelines for management of PPH and retained placenta.

Wormer, K. C., Jamil, R. T., & Bryant, S. B. (2022). Acute postpartum hemorrhage. In *StatPearls [Internet]*. StatPearls Publishing.

أثر تطبيق دليل منظمة الصحة العالمية علي معلومات الممرضات تجاه الوقاية وعلاج نزيف ما بعد الولادة

عزة فاروق محمد حسن¹ ؛ هند صلاح الدين محمد ²،مرفت جابر زغلول³ ، شيماء عبد الرحمن عثمان⁴

¹ماجستير تمريض الأمومة والنساء والتوليد كلية التمريض جامعة قناة السويس؛ ²أستاذ تمريض النساء والتوليد كلية التمريض جامعة الزقازيق ؛ ³أستاذ مساعد تمريض الأمومة والنساء والتوليد كلية التمريض جامعة بورسعيد؛ ⁴أستاذ مساعد تمريض الأمومة والنساء والتوليد كلية التمريض جامعة بورسعيد

الخلاصــة

لا يزال نزيف ما بعد الولادة (PPH) هو السبب الرئيسي لوفيات الأمهات في معظم البلدان حول العالم. **هدف الدراسة:** هو تقييم تقييم اثر تطبيق دليل منظمة الصحة العالمية فعلي معلومات الممرضات تجاه الوقاية و علاج نزيف ما بعد الولادة . **التصميم:** تم استخدام بحث شبه تجريبي لمجموعة واحدة(قبل –بعد). **مكان الدراسة:** تم تنفيذ الدراسة في مستشفي دار صحة المرأة (مستشفى النسا و التوليد التخصصى) فى مدينة بورسعيد. **عينة البحث** :تضمنت الدراسة عينة من جميع الممرضات (150 ممرضة) فى مستشفى دار صحة المرأة بمدينة بورسعيد. **أدوات جمع البيانات** :تم استخدام نموذج استبيان المقابلة الشخصيه لمعرفة الخصائص الاجتماعية ومعرفة معلومات الممرضات فيما يتعلق بالوقايه و علاج النزيف ما بعد الولادة .**النتائج:** أشارت نتائج الدراسة إلى: كان لدى جميع الممرضات المدروسات معلومات عامة ضعيفة فيما يتعلق بالوقاية من نزيف ما بعد الولادة وعلاجه قبل تطبيق إرشادات منظمة الصحة العالمية. ولكن، كان هناك تحسن ملحوظ في معرفة الممرضات بعد تطبيق دليل منظمة الصحة العالمية للوقاية وعلاج نزيف ما بعد الولادة. **الخلاصة:** كان تطبيق دليل منظمة الصحة العالمية فعالاً في تحقيق هدف تعزيز معلومات الممرضات فيما يتعلق بالوقاية وإدارة نزيف ما بعد الولادة بين الممرضات المدروسات.. **التوصيات:** تنفيذ برامج التثقيف الصحي الدورية للممرضات المتدربات لتعزيز المهارات المختصة لتحقيق رعاية تمريضية متقدمة فيما يتعلق بالوقاية من نزيف ما بعد الولادة الأولي وإدارته.

الكلمات المرشدة : إرشادات منظمة الصحة العالمية- معلومات الممرضات- الوقاية و العلاج ـ نزيف ما بعد الولادة .