

Evaluation of the Knowledge Level of Nurses About Postpartum Hemorrhage

Hemşirelerin Postpartum Kanama Hakkında Bilgi Düzeylerinin Değerlendirilmesi

ABSTRACT

Postpartum hemorrhage is considered one of the leading causes of treatable and preventable maternal deaths. The study aims to evaluate the knowledge and skill levels of nurses about postpartum hemorrhage and find out the relationship between nurse knowledge and demographic data. A descriptive study was conducted in Misan, Iraq, for 300 nurses working in Misan Children's and Maternity Hospital between March 2021 to July 2022. Introductory information forms, Assessment of Nurse's Practical Skills Regarding Avoidance of Postpartum Hemorrhage, were used to collect the data. The data was collected by the researcher by face-to-face interview and in the statistical analysis of the data, standard deviation, frequency and percentage values, independent groups t-test, were used, and $p < 0.05$ was taken for the significance level of the tests. The study reveals that more than half of the nurses have the correct knowledge about postpartum hemorrhage with an 54% and with an 59%, nurses have correct nursing skills about postpartum hemorrhage. According to the study results, it is recommended to create periodic and scheduled training plans for nurses.

Keywords: Postpartum Hemorrhage, Knowledge, Nurse

ÖZET

Postpartum kanama, tedavi edilebilir ve önlenebilir anne ölümlerinin önde gelen nedenlerinden biri olarak kabul edilmektedir. Bu çalışma hemşirelerin postpartum kanamaya ilişkin bilgi ve becerilerini belirleyerek demografik verilerle arasındaki ilişkiyi değerlendirmek amacıyla tasarlanmıştır. Tanımlayıcı tipte tasarlanan çalışma, Mart 2021 ile Temmuz 2022 tarihleri arasında Irak'ın Misan kentinde, Çocuk ve Doğum Hastanesi'nde çalışan 300 hemşire ile yürütülmüştür. Verilerin toplanmasında doğum sonrası kanamadan kaçınmaya ilişkin hemşirelerin pratik becerilerinin değerlendirilmesine ilişkin tanıtıcı bilgi formu kullanılmıştır. Veriler yüz yüze görüşme yöntemiyle araştırmacı tarafından toplanmıştır ve istatistiksel analizde, ortalama±standart sapma, frekans ve yüzde değerleri, bağımsız gruplar t-testi kullanılmış olup testlerin anlamlılık düzeyi için $p < 0.05$ alınmıştır. Çalışma sonuçlarına göre hemşirelerin yarısından fazlasının (%54) doğum sonu kanama konusunda doğru bilgiye sahip olduğu, %59 oranla doğum sonu kanama konusunda doğru hemşirelik becerilerine sahip olduğu bulunmuştur. Çalışma sonuçlarına göre hemşirelere yönelik periyodik ve programlı olarak eğitim planlarının oluşturulması önerilmektedir.

Anahtar Kelimeler: Doğum Sonu Kanama, Bilgi, Hemşire

INTRODUCTION

The World Health Organization (WHO) most current statistics included in its annual report show that maternal mortality has fallen internationally by 56% since 2010 (El-Aty & Mostafa, 2023). Even though postpartum hemorrhage (PPH) is a primary contributor to maternal mortality and morbidity worldwide accounting for almost a third of deaths in postpartum women (Say et al. 2014). Studies have also found that about 20% of people die in developing countries (Bauserman et al., 2020). However, hemorrhage continues to be the major cause of maternal death globally, causing over 50% of fatalities in several countries with low and moderate incomes (WHO, 2021). Although this condition (PPH) can be prevented or treated early to reduce deaths (Bienstock et al., 2021). Because of this it's critical to adhere to maternity competency standards in order to ensure safe maternity care and enhance quality of treatment (Agbo & Chong, 2023).

According to the World Health Organization's definition about PPH as any blood loss of more than 500 ml after birth for a vaginal delivery or more than 1000 ml for caesarean section (WHO, 2012). Secondary PPH occurs when bleeding happen between 24 hours and 6 weeks following birth, whereas primary PPH which is linked to severe bleeding in the first 24 hours after delivery, accounts for over 80% of deaths in women (Angelina et al., 2019). Moreover women who survive postpartum hemorrhage are also more likely to experience long-term effects like renal failure, infertility, and emotional distress. Short-term health complications such as anemia, intravascular

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How to Cite This Article

Alaswad, D. N. S. & Acar Gül, G. B. (2024). "Evaluation of the Knowledge Level of Nurses About Postpartum Hemorrhage" International Social Sciences Studies Journal, (e-ISSN:2587-1587) Vol:10, Issue:119; pp:1-8. DOI: <https://doi.org/10.5281/zenodo.10579888>

Arrival: 10 October 2023
Published: 31 January 2024

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coagulation, sepsis, neurological, circulatory or respiratory systems dysfunction are also more likely in these women. Health issues as well as additional difficulties (Maswime & Buchmann, 2017).

Maternal morbidity and mortality in low & high income countries is high due to PPH. Although, it has become less fatal in high income or developed countries due to advancements in treatment modalities (Khadim et al., 2023). Maternal death from PPH is a important maternal health indicator and directly shows care provided during the postpartum periods (Angelina et al., 2016). Use of uterotonic agents, uterine massage, administration of isotonic crystals, bilateral uterine pressure, external aortic compression, wearing of non-pneumatic shockproof garments, uterine balloon (UBT), uterine artery embolization, surgical interventions are among the clinical interventions suggested by the scientist (Althabe et al. 2020). In order to prevent invasive remedy like embolization, uterine pressure sutures and hysterectomy, cessation of bleeding is currently recommended among women with PPH because of uterine atony resistant to uterotonic and early treatment (Leduc et al., 2018). Despite strong efforts to adopt and scale up the use of these recommendations, postpartum hemorrhage remains the leading cause of maternal complications and death worldwide (Gallos et al., 2023).

There are a few known risk agents associated with PPH. Risk factors for PPH have been widely investigated and can be divided into three groups: maternal, fetal and risk factors during labor. The major cause of primary bleeding is uterine atony. Uterine atony accounts for 70% of cases. Other reasons include a retained placenta, trauma (such as uterine, cervical, or vaginal damage), uterine rupture, uterine inversion, and an abnormal placenta, or maternal bleeding problems are often risk factors that trigger PPH. It is important to know the patient's risk factors in advance if hemorrhage does occur. PPH risk evaluation is completed on login by nursing staff using the assessment controllist. Women are typically classified into low, moderate, and high risk based on the number of risk factors present. Nurses are made aware of patients that are high risk and from there further preparations are made based on provider choice. Moreover, not all providers involved in patient care are aware of the existence of this assessment tool or reasons of PPH (Thams et al., 2023; Karlson, 2015; Agbo & Chong, 2023; Angelina et al., 2019; El-Aty & Mostafa, 2023).

A main condition for advances in decrease of maternal deaths is to understand the reason of deaths for effective prevention strategies and health programme politics. The first challenge is that in despite of the availability of clear advices regarding postpartum hemorrhage and their wide dissemination, uptake is poor at the point of nursing care. Gallos et al. (2023) determine a few barriers to implementation, including limited staffing, lack of relevant knowledge and skills, lack of engagement from health care providers, and professional behavior that discouraged mission sharing (Gallos et al., 2023). Nurses are critical in nursing intervention for women with PPH is an essential element that prevent complication to mother and fetus. They can considerably minimize the incidence of PPH but due to limited information and over workload in government hospitals, therefore tasks not being carried out by nurses properly. On the other hand, good teamwork and communication have a positive effect on the care provided, reduces the incidence rate of PPH in females and the duration of hospital stay is also reduced (Khadim et al., 2023). Therefore, an incompatible team and an heavy workload can put in jeopardy women's access to safe birth care (Elfors et al., 2023).

MATERIAL AND METHODS

Study Design

A descriptive study design was implemented from March 2021 to July 2022 to evaluate nurses' knowledge about PPH. The process began with the submission of a thesis proposal to the Institute of Health Sciences in February 2022. After the acceptance of the topic by the Institute, a request was submitted to the Ethics Committee in June 2022. Data collection began in July 2022, following approval by the Ethics Committee in September 2022. The study, whose statistics were completed in December, began writing in December and was submitted on March 10, 2022.

Administrative Arrangements

After obtaining the approval of the Ethical Committee in the Institute of Health Science at Çankırı Karatekin University to conduct the study, the researcher provided a detailed description of the objectives and project of the study to the Training and Human Development Center Research Unit/Directorate of Misan Health to obtain official permission to conduct the study. Subsequently, permission was sent to the Children and Maternity Hospital.

Ethical Considerations

The study was approved by the ethical committee for research in the Institute of Health Sciences at Çankırı Karatekin University. Before conducting the study on April 28, 2022, the researcher provided a detailed description

of the objectives and project of the study to the Training and Human Development Center Research Unit/Directorate of Misan Health to obtain official permission to conduct the study numbered 46/2022 on October 20, 2022. Subsequently, permission was sent to Children and Maternity Hospital 2402 on October 20, 2022. The sample was given a brief explanation of the study's goals by the researcher, and the Nurses requested their verbal and written consent to participate in the study before starting to collect data.

Selection of the Sample

A total of 350 nurses was working in the Child and Maternity Hospital during the study period, met the study criteria, and agreed to participate. 43 nurses refused to participate in the study; 3 nurses died; and 4 nurses were on maternity leave. The researcher took all the nurses in the Child and Maternity Hospital to the midwifery salon and delivery room; they agreed to participate to ensure a low error rate and a high confidence rate. The study was conducted at the Children and Maternity Hospital (260 beds) in Iraq's Misan City.

Study Sample

A descriptive study of 300 nurses working in the Child and Maternity Hospital, affiliated with the Missan Health Directorate/Iraq.

Inclusion criteria; All nurses (females) and nurses who voluntarily agreed to take part in the study.

Exclusion criteria; Nurses who refuse to participate in this study.

Instrument Construction

The instrument Assessment of Nurse's Practical Skills Regarding Avoidance of Postpartum Hemorrhage (Abd-Elgany et al. 2017) was used after permission in order to be appropriated to the cultures and traditions inside Iraq to achieve the study. The instrument was clear, relevant, valid, valid and reliable according to the previous study by Abd-Elgany et al. (2017) in Egypt. The instrument (English version) was translated into Arabic to achieve the study.

Part I: This part of the questionnaire is related to Nurses 'demographic information, such as age, level of education, workplace, and working experience.

Part II: This part of the questionnaire is related to the assessment of Nurses Knowledge about Postpartum hemorrhage.

Assessment of Nurses' Knowledge about Postpartum Hemorrhage was composed of 15 Items on the Dichotomuos Scale, a two-point scale (Yes) or (No) for knowledge. The test covers relevant points from the major content area of the postpartum hemorrhage, for the purpose of this study, the number of correct responses or the knowledge questionnaire is used as the measure of knowledge level.

Part III: This part of the questionnaire is related to assessing Nurses' skills to Prevent Postpartum Hemorrhage.

Assessment of Nurses' Skills about Postpartum Hemorrhage was composed of 10 Items on the Dichotomuos Scale, a two-point scale (True) or (Error). The test covers relevant points from the major content area of the postpartum hemorrhage; for the purpose of this study, the number of correct skills.

Methodology for Collecting Data

Data was collected face-to-face using the questionnaire and interview method, where the nurses filled out the questionnaire themselves. The researcher discussed the study goals with the participants before verbally obtaining the sample's permission.

Statistical Data Analysis

Data were analyzed by the SPSS (Statistical Package for Social Sciences) version 24.0 statistical analysis system and Excel application. The following statistical data analysis approaches were used in order to analyze and assess the results of the study: frequencies, percentage, arithmetic mean, and their assessment by scores (0) for False answer or False observation and (1) for True answer or True observation, respectively. For all statistical tests, a level of $p < 0.05$ was used for significance.

RESULTS

This chapter presents the findings of the data analysis systematically in tables. According to the results of the data analysis, Table 1 shows that the majority of participants in the age group in the study sample were within 30-34 and above years; it presented 59%, and the minimum age group was within 20-24 years; it presented 16%. Also, with

regard to the level of education, more than half of nurses (51%) were nursing institute graduates. Also, with regard to the workplace, the results showed that 63% worked in a midwifery room. Finally, regarding the years of experience, the study showed that between 2-5 years were the most common, with about 39% of participants.

Table 1: Distribution of the Demographic Information About Study Sample

Variables	Categories (n=300 nurses)	n	%
Age (year)	20 – 24	48	16.0
	25 – 29	75	25.0
	More than 30	177	59.0
Level of Education	School of Nursing	147	49.0
	Nursing Institute	153	51.0
Workplace	Midwifery Room	189	63.0
	Delivery Room	111	37.0
Years of Experience	2 -5 years	117	39.0
	6 -9 years	108	36.0
	10 -14 years	48	16.0
	≥ 15 years	27	9.0

n= Frequencies, % = Percentage, ≥ = Equal and more than.

Table 2 reveals that nurses' responses about nurses' knowledge level about postpartum hemorrhage show that 56.0% have a yes answer about Postpartum hemorrhage, which is considered one of the cases most responsible for the deaths of about 8% of women in developed countries. 63.0% of nurses have a yes answer, for the item "The uterine rupture causes postpartum hemorrhage, in relation to the surgical incision in the perineum that causes bleeding after delivery, and 52.0% have a yes answer. For the item of "Placenta accrete causes postpartum hemorrhage, 47.0% of nurses answered yes. 43.0% answered yes about Primary bleeding: A woman loses approximately 500 ml of blood after a vaginal delivery, while 51.0% of nurses answer yes in relation to Secondary bleeding: A woman loses more than 1500 ml of blood after a cesarean delivery. The items of concern complications that may occur as a result of postpartum hemorrhage include hypovolemic shock due to excessive blood loss; 58.3% of nurses answered yes, while in relation to complications that may occur as a result of postpartum hemorrhage, failure of the clotting process was answered by 55.0 percent of nurses. Complications that may occur as a result of postpartum hemorrhage, including acute renal failure and liver failure, were answered yes by 57.0% of nurses. The level of nurses' knowledge toward Symptoms of postpartum hemorrhage (irregular bleeding, increased heart rate, low blood pressure) was answered yes by 54.3% of nurses. Nurses' knowledge toward oxytocin helping regenerate the uterus was 52.7% yes, while nurses' knowledge in relation to Oxytocin helping stop bleeding was answered yes by 51.0%. Also, 69.0% answered yes for oxytocin given by intravenous drip. 48.0% of nurses were aware that massaging the nipple can naturally release oxytocin, and 55.0% were aware that hysterectomy is a treatment option for severe bleeding.

Table 2: Evaluation of Nurses' Knowledge Level Towards Postpartum Hemorrhage

Items	Yes		No	
	n	%	n	%
Postpartum hemorrhage is considered one of the causes most responsible for the deaths of about 8% of women in developed countries.	168	56.0	132	44.0
A uterine rupture causes postpartum hemorrhage	189	63.0	111	37.0
A surgical incision in the perineum that causes bleeding after delivery	156	52.0	144	48.0
Placenta accretion causes postpartum hemorrhage.	141	47.0	159	53.0
Primary bleeding: A woman loses approximately 500 ml of blood after a vaginal delivery.	129	43.0	171	57.0
Secondary bleeding: A woman loses more than 1500 ml of blood after a cesarean delivery.	153	51.0	147	49.0
Complications that may occur as a result of postpartum hemorrhage include hypovolemic shock due to excessive blood loss.	175	58.3	125	41.7
Complications that may occur as a result of postpartum hemorrhage include failure of the clotting process.	165	55.0	135	45.0
Complications that may occur as a result of postpartum hemorrhage include acute renal failure and liver failure.	171	57.0	129	43.0
Symptoms of postpartum hemorrhage (irregular bleeding, increased heart rate, low blood pressure)	163	54.3	137	45.7
Oxytocin helps regenerate the uterus.	158	52.7	142	47.3
Oxytocin helps stop bleeding.	153	51.0	147	49.0
Oxytocin is given by intravenous drip.	207	69.0	93	31.0
Oxytocin can be released naturally by massaging the nipple.	144	48.0	156	52.0
In cases of severe bleeding, a hysterectomy is performed.	165	55.0	135	45.0

n=Frequencies; % = Percentages

Table 3 shows that 52.3% of nurses have true skills for controlling a patient's heart rate, 67.3% have true skills for controlling blood pressure, 55.7% have true skills for a complete blood count, 49.0% of nurses have true skills for giving intravenous fluids, 70.7% of nurses have true skills for using an enema, and 53.0% of nurses have true skills for using a foley catheter.

Table 3: Evaluation of Nurses' Skills to Prevent Postpartum Hemorrhage

Items	True		False	
	n	%	n	%
Heart rate control	157	52.3	143	47.7
Control of blood pressure	202	67.3	98	32.7
Complete blood count	167	55.7	133	44.3
Administration of Intravenous Fluid	147	49.0	153	51.0
Enema	212	70.7	88	29.3
Foley Catheter	159	53.0	141	47.0
Episiotomy wound care	170	56.7	130	43.3
Uterus Fundus Evaluation	198	66.0	102	34.0
Evaluation and care of the cesarean section wound	176	58.7	124	41.3
Evaluate and calculate the vaginal lochia	181	60.3	119	39.7

n=Frequency; % = Percentage

Table 4 reveals that 54% of the study sample answered yes related to levels of nurses' knowledge about postpartum hemorrhage, while 46% answered no related to Nurses' knowledge about postpartum hemorrhage. 59% of the study sample have true skills related to levels of nurses' Skills about postpartum hemorrhage, and 41% have false skills related to nurses' skills about postpartum hemorrhage.

Table 4: Overall Evaluation of Nurses' Knowledge and Skills About Postpartum Hemorrhage

Total Nurses' Knowledge about PPH				Total Nurses' Skills about PPH			
Yes		No		Correct		Incorrect	
\bar{X}	n	\bar{X}	n	\bar{X}	n	\bar{X}	n
0.54	162	0.46	138	0.59	177	.41	123
n=300				n=300			

* \bar{X} = Arithmetic Mean n=Frequency

DISCUSSION

All women have the right and need to safe childbirth, but unfortunately, the conditions look different around the world (Elfors et al. 2023). PPH is a major reason of maternal morbidity and mortality in both developing and high-income countries that more than half of those deaths could have been prevented. Hence, prevention and preparedness are of utmost importance. Ninety percent of maternal deaths are attributed to postpartum hemorrhage, with 50% being preventable. Therefore according to WHO recommendations, preventive measures for postpartum haemorrhage (PPH) should be reach to all women, irrespective of their risk factors (Elfors et al., 2023). The aim of this study evaluate the knowledge and skill levels of nurses about postpartum hemorrhage. In order to improve care and reduce maternal mortality associated with PPH. Nurses play an major role in early identify of high risk factors of PPH, its management, ensure the safety of the mother during delivery and how to cope with them (Thams et al., 2023; Abd-Elgany et al., 2019; Angelina et al., 2019). According to Khadim et al. (2023) who reported that signicant improvement related to nursing care practices to reduce incidence of PPH (Khadim et al., 2023).

High-quality maternal care for all women around the world is a primary human right and nurses play a important role in diagnosing and cure PPH. The study reveals that more than half of the nurses have the correct knowledge about postpartum hemorrhage with an 54% and with an 59%, nurses have correct nursing skills about postpartum hemorrhage. The results of the present study agreed with the study (Musabwasoni et al., 2020), which shows that most of the nurses have a moderate level of knowledge about postpartum hemorrhage (68.9%). Also, the results of the present study agreed with a study (Mohammad, 2020), which stated that most of the nurses had a moderate level of knowledge about postpartum hemorrhage. There is restricted argument on the contribution of learning applications on healthcare workers' knowledge and skills particularly in low-income countries (Nishimwe et al., 2021).

Demographics of nurses in current study majority of the participants age ranges 30 and above years 177 (59%). The findings of the current study were similar to the study were conducted in Egypt in 2019. The distribution of the demographic characteristics are reveals that the more of participants of age group in the study sample were within 30-34 and above years it presented 59% and results of the current study agreed with a study of Abd-Elgany et al. (2019) which stated that most age of nurses is more than 30 years 48%. This finding agrees with RuchiPuri (2011) who reported that the average age of providers was 30 years. The researcher's opinion revealed that the

result according to the age group was that the majority of the study sample was between 30-34 and above, resulting in the nurses preference for the work in the maternity field rather than other health fields, and the health directorate takes important steps in the maternity health field, especially for those nurses who have years of experience in the maternity field.

Providing training opportunities for nurses are helping nurses gain knowledge and skills as a means of improving patient outcomes. Therefore education can influence a nurse's expertise by providing a theoretical and clinical knowledge base that can be evaluated and refined (Abd-Elgany et al., 2019). In regard to the level of education, it shows that more than half of nurses (51% were nursing institute graduates), while less than half of the study group regarding the level of education were School of Nursing within 49%. The findings of the present study agreed with a study by Ibrahim and Abdel-Menim (2016), which reported that most nurses were nursing diploma graduates. The researcher's opinion related to the level of education, resulting in morning and night studies in the same City (Misan City), played a role in increasing the number of nurses with nursing institute degrees. One of the approaches to improve competency of nurses and midwives is to conduct regular in-service training courses (Nishimwe et al., 2021).

In addition to years of experience, 39% of nurses have 2–5 years in the service, and the minimum group was within ≥ 15 years, with 9% of participants. The results of the present study agree with a study (Abd-Elgany et al., 2019), which reported that nearly one-third of the nurses had 2–5 years of experience. The researcher's opinion reveals the nurses working in the delivery room might see more cases of delivery complications and have more experience caring for postpartum hemorrhage. Professional qualification and experience are significant factors influencing nurses' knowledge and skills, respectively, in the prevention and control of PPH.

PPH is one of the dangerous emergencies which nurses may face first and may be only professional person present when hemorrhage happen. Knowledgeable nurses can play important role in the prevention and management of PPH and reduction the risk of maternal mortality (Abd-Elgany et al., 2019). As a result for nurses employed in the obstetrics and gynecology department, on-going education and training programs about preventing PPH hemorrhage should be advised as it will improve patients care outcomes.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the study, it was found that nurses who moderate level of knowledge (54%) and correct skills (59%) related to PPH. In the result of the current study findings, the following recommendations are suggested.

- ✓ Providing education programs to nurses to increase their knowledge and practice about PPH.
- ✓ More instructions about the prevention and treatment of postpartum hemorrhage are available through posters, pamphlets and conferences to improve their knowledge.
- ✓ On job training regarding avoidance of postpartum hemorrhage for all nurses to improve their practices.
- ✓ Encouraging nursing research in the fields of woman and obstetrics.
- ✓ Because of the lack of studies about postpartum hemorrhage in Iraq, the researcher recommended more studies. In that way, the recommendation of current study will help policy-makers and program designers to support the care area.

Declaration regarding Contribution Rate

All authors who contributed to this work contributed equally.

Declaration regarding Conflicts

In this work, the authors declare that there is no interest relationship between them.

Acknowledgments

We would like to thank the nurse who contributed to our study.

Ethical Declaration

The study was approved by the ethical committee for research in the Institute of Health Sciences at Çankırı Karatekin University. Before conducting the study on April 28, 2022, the researcher provided a detailed description of the objectives and project of the study to the Training and Human Development Center Research Unit/Directorate of Misan Health to obtain official permission to conduct the study numbered 46/2022 on October 20, 2022. Subsequently, permission was sent to Children and Maternity Hospital 2402 on October 20, 2022.

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