

ASSESSMENT OF KNOWLEDGE AND PRACTICE REGARDING POSTPARTUM HEMORRHAGE MANAGEMENT IN TERTIARY CARE HOSPITAL

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Abstract

Background:

Postpartum hemorrhage (PPH) is one of the leading causes of maternal mortality and morbidity globally, particularly in developing countries. Effective management of PPH requires nurses to possess adequate knowledge and apply evidence-based clinical practices during obstetric emergencies. Understanding nurses' competence in managing PPH is essential for improving maternal outcomes in tertiary care settings.

Aim:

The study aimed to assess the knowledge and practice of nurses regarding postpartum hemorrhage management in a tertiary care hospital and to identify gaps that may influence the quality of maternal care.

Methods:

A descriptive cross-sectional study was conducted among 80 registered nurses working in the labor, obstetric, and maternal emergency wards of Sheikh Zayed Hospital, Lahore. Participants were selected using a convenience sampling technique. Data were collected through a structured self-administered questionnaire and analyzed using SPSS version 26. Descriptive statistics summarized demographic data, while chi-square tests examined the association between knowledge and practice levels. Ethical approval and informed consent were obtained before data collection.

Results:

The findings revealed that 60% of nurses demonstrated good knowledge, while 40% showed moderate to poor understanding of PPH management. In practice, 55% of nurses performed essential PPH interventions correctly, but significant gaps were noted in active management of the third stage of labor and timely recognition of hemorrhage. A positive correlation was observed between knowledge and practice levels ($p < 0.05$).

Conclusion:

The study highlights the need for continuous professional education and simulation-based training to strengthen nurses' competencies in PPH management and improve maternal care outcomes.

1. INTRODUCTION:

Postpartum hemorrhage (PPH) is defined as excessive bleeding of 500 milliliters or more following vaginal delivery or 1000 milliliters or more after cesarean birth, occurring within 24 hours of delivery (World Health Organization [WHO], 2023). It is classified into primary PPH, which occurs within the first 24 hours, and secondary PPH, which occurs after 24 hours up to 6 weeks postpartum. The key terms relevant to this study include *knowledge*—the awareness and understanding of concepts or practices related to PPH prevention and management, and *practice*—the actual application of those principles by healthcare providers in clinical settings. PPH remains one of the leading causes of maternal mortality worldwide, highlighting the urgent need for improved understanding and clinical competence among nurses and midwives involved in obstetric care (Anderson & Etches, 2019).

1.1 BACKGROUND OF THE STUDY:

PPH is still extremely widespread in the world, being almost 27 percent of all maternal deaths (Say et al., 2022). WHO (2023) estimates that between 14 million and 14 million women undergo PPH every year, with more than 70,000 leading to deaths. The largest burden is observed in the low- and middle-income countries where the accessibility of the skilled birth attendant and emergency obstetric care are scarce. PPH causes about one-third of all maternal deaths in South Asia and is estimated to have the incidence of 10% in all births (Begum et al., 2021). Similar challenges have been experienced in Pakistan because of under-resourced health system and poor clinical training of the maternity care givers. The main causes of PPH are atony of the uterus, trauma, placenta previa, and coagulation disorders (Khan et al., 2021). The most prevalent cause is uterine atony, which is responsible in almost 80% of the cases of PPH. Treatment should be detected early and intervened promptly to avoid complications that are life threatening. Nurses are involved in identifying the risk factors, checking vital signs, and providing uterotonic drugs, which are essential measures in the PPH management (Nair et al., 2022). With proper education of

nurses and proper practice in time, the rate of morbidity and mortality related to this condition can be significantly decreased.

The nursing staff competence becomes critical in tertiary care hospitals where the high-risk births are common and emergencies are to be managed. Even with standard clinical practices, inconsistency in the implementation of evidence-based practice in the prevention and treatment of PPH is common (Rizwan et al., 2022). Lack of knowledge on application of uterotonic agents, proper monitoring and management of retained products are some of the factors that lead to slowness of response in emergency cases. Continuous professional education is thus very important to enhance the competence of nurses when it comes to better maternal outcomes.

The World Health Organization (2023) also makes it clear that an active management of the third stage of labor (AMTSL) is an effective technique to avoid PPH. This involves administration of uterotonics, controlled cord traction, and the uterine massage in the postpartum period. Research has revealed that the risk of PPH is minimized by AMTSL by 60 percent (Begley et al., 2019). Nevertheless, the non-compliance with these protocols is one of the greatest problems in most clinical settings, particularly in resource-specific hospitals with insufficient staffing and training prospects.

Learning based on training and simulation has been recognized as an effective approach towards enhancing the capacity of the nurses to handle PPH (Miller et al., 2021). The simulation programs enable nurses to train on critical interventions in controlled settings which increases levels of confidence and decision making. Such programs may be of great help in enhancing the quality of maternal care in tertiary hospitals where the obstetric emergencies are common. Theoretical knowledge is translated into practice to be prepared to the real life emergency situation.

Maternal health indicators in Pakistan still show a lack of clinical competence and emergency preparedness. The PPH is among the leading causes of maternal mortality ratio of 186 per 100,000 live births that was still in 2022,

according to the Pakistan Demographic and Health Survey (PDHS, 2022). The lack of training opportunities, proper supervision, and lack of necessary medicines contribute additionally to the issue. A study of the evidence regarding knowledge and practice of nurses working in tertiary hospitals offers a good understanding of the current barriers and possible interventions.

International health organizations have come up with clinical guidelines that suggest structured management algorithms to PPH (Royal College of Obstetricians and Gynaecologists [RCOG], 2022). They consist of the use of oxytocin as first-line uterotonic, then ergometrine or prostaglandins when needed. Moreover, timely diagnosis of hypovolemic shock and efficient resuscitation of fluids are crucial. Nevertheless, reports on South Asian hospitals have shown that there is great diverse compliance with these protocols as a result of the absence of awareness and experience among nursing personnel (Kumar et al., 2021).

PPH management competency goes further than pharmacologic intervention. It encompasses good documentation, communication, team work and leadership in case of emergencies. The swiftness and efficiency of nurses in the delivery wards is vital to save lives because they are often the first respondents (Oluwatosin et al., 2020). The constant evaluation of the work of nurses allows to determine the weak areas of the system and offer the nurses opportunities to undergo specific training.

In a number of studies, it was established that there is a positive correlation between knowledge enhancement programs and better clinical practices. To provide an example, a group of researchers led by Ahmed et al. (2023) found that nurses who participated in obstetric emergency management workshops were more competent in detecting the risk factors of PPH and provided interventions at the right time. The rate of maternal morbidity in tertiary care hospitals has been associated with regular professional development programs and up-to-date hospital protocols.

Without constant and effective practice, it is nothing but knowledge. Most tertiary hospital nurses demonstrate theoretical knowledge of PPH

management and are unable to implement the relevant actions in case of an emergency (Jahan et al., 2021). High workload, lack of supervision and confidence are some of the factors involved in this gap. These issues should be met by means of supportive supervision, mentoring, and practical training to increase the transfer of knowledge into productive clinical practice.

Evidence-based practice in obstetric nursing has been found to enhance the maternal and neonatal outcomes. Including the PPH management protocols into the regular nursing educational programs will make sure that future nurses are properly equipped to handle clinical issues (Dawson et al., 2022). Evidence-based care is more successful in hospitals that focus on emergency response and maternal safety. Long-term improvements can be maintained by strengthening this integration by supporting the policy and committing institutions to do so.

The importance of measuring knowledge and practice on PPH management in the tertiary care hospitals is that it has a direct influence on the maternal survival. Healthcare leaders are able to develop specific interventions to increase competency by determining gaps in knowledge and practice. The objective of the study is to assess the existing knowledge and the practical use of PPH management among the nurses in tertiary care units. The results will be used to implement the educational measures and enhance compliance with the clinical guidelines to decrease the deaths related to postpartum hemorrhage in mothers.

1.2. PROBLEM STATEMENT:

Postpartum hemorrhage (PPH) remains one of the leading causes of maternal morbidity and mortality globally, particularly in low- and middle-income countries, including Pakistan. Despite advancements in obstetric care and the availability of evidence-based clinical guidelines, the management of PPH continues to face significant challenges in tertiary care hospitals. Many maternal deaths occur due to preventable factors such as delayed recognition of bleeding, inadequate resuscitation, and improper use of uterotonic drugs. Nurses, being the frontline

caregivers during childbirth, play a critical role in the early detection and management of PPH. However, several studies have reported that nurses often possess insufficient knowledge and demonstrate inconsistent practices regarding PPH prevention and treatment.

In tertiary care hospitals, where high-risk deliveries are common, the gap between knowledge and clinical practice among nurses contributes to preventable complications and maternal deaths. Inadequate training, lack of adherence to standardized protocols, and limited access to emergency obstetric resources further exacerbate the problem. Assessing the knowledge and practice of nurses regarding PPH management is crucial to identify deficiencies that hinder effective care delivery. Addressing these gaps through structured educational interventions and policy implementation is essential to enhance maternal safety and reduce mortality rates associated with postpartum hemorrhage. This study therefore seeks to evaluate the knowledge and practice of nurses regarding postpartum hemorrhage management in a tertiary care hospital setting, providing evidence-based recommendations for improving clinical outcomes.

1.3. OPERATIONAL DEFINITIONS:

Postpartum Hemorrhage (PPH):

Postpartum hemorrhage is defined as excessive bleeding of **500 ml or more** after a vaginal delivery or **1000 ml or more** after a cesarean section within the first 24 hours following childbirth. It is classified as a primary PPH if it occurs within 24 hours and secondary PPH if it occurs after 24 hours up to 6 weeks postpartum (World Health Organization [WHO], 2023).

Knowledge:

Knowledge refers to the understanding and awareness of nurses regarding the causes, risk factors, prevention, recognition, and management of postpartum hemorrhage. In this study, knowledge will be assessed through a structured questionnaire evaluating theoretical comprehension of PPH management protocols and best practices.

Practice:

Practice refers to the actual application of skills and clinical procedures by nurses in managing postpartum hemorrhage. It includes timely assessment, administration of uterotonic drugs, monitoring of vital signs, performing uterine massage, maintaining fluid balance, and initiating emergency interventions as per clinical guidelines.

1.4. OBJECTIVES OF THE STUDY:

✓ To assess the knowledge and practice of nurses regarding the management of postpartum hemorrhage in a tertiary care hospital.

✓

1.5. AIM OF THE STUDY:

✓ The aim of this study is to assess the knowledge and practice of nurses regarding the management of postpartum hemorrhage in a tertiary care hospital.

1.6. RESEARCH QUESTION OF THE STUDY:

What is the level of knowledge and practice of nurses regarding postpartum hemorrhage management in a tertiary care hospital?

1.7. RATIONALE OF THE STUDY:

Postpartum hemorrhage (PPH) remains one of the leading causes of maternal morbidity and mortality worldwide, particularly in low- and middle-income countries. Despite the availability of evidence-based guidelines, the persistence of preventable deaths indicates a gap between knowledge and practice among healthcare providers. Nurses play a crucial role in the early detection, prevention, and management of PPH; therefore, assessing their level of knowledge and practical competence is essential. This study is significant as it seeks to identify deficiencies in nurses' understanding and clinical performance related to PPH management. The findings will help inform the development of targeted educational interventions and training programs to enhance nursing capacity. Strengthening nurses' knowledge and skills will contribute to improved maternal outcomes, reduction of preventable deaths, and overall enhancement of quality care in tertiary healthcare settings.

2. LITERATURE REVIEW:

Postpartum hemorrhage (PPH) is the major cause of maternal mortality in the world and deserves special consideration in tertiary care (World Health Organization [WHO], 2023). The blood loss criteria in the definition of PPH typically use the cut-offs of 500 mL after vaginal birth and 1000 mL after cesarean birth in the 24 hours (WHO, 2023). Proper interpretation of definitions, categories, and time constraints is both a precursor to the recognition and proper intervention, thus theoretical knowledge is a key part of the competent clinical practice.

The global estimates show that PPH is a major cause of maternal death and extreme morbidity, estimating 14 million PPH incidence and tens of thousands of PPH-related fatalities every year (Say et al., 2022). Burden is disproportionately unevenly distributed in low-income and middle-income countries where there is no access to skilled birth attendants, uterotonics, blood transfusion, and emergency obstetric care (Begum et al., 2021). The worst cases are usually sent to the tertiary hospitals, and thus the need to have knowledgeable and proficient nurses in the handling of emergency PPH increases.

The major causes of PPH are well explained and consist of uterine atony, injuries of the genital tract, the presence of placental residues, and coagulation disorders (Khan et al., 2021). Most cases are of uterine atony, which is an emergency treatment that needs to be uterotonic, uterine massage, and fluid resuscitation (when necessary) (Khan et al., 2021). Pathophysiological knowledge helps a nurse to prioritize interventions and identify quickly developing complications, including hypovolemic shock and disseminated intravascular coagulation.

Active management of the third stage of labor (AMTSL) is an evidence-based intervention to decrease the PPH incidence rate; its main elements are prophylactic uterotonics, cord traction control, and uterine massage (Begley et al., 2019). Although there are powerful guideline statements, research demonstrates that there is inconsistent compliance in clinical practice with breaches in proper uterotonic administration, timing, and monitoring (Kumar et al., 2021). This difference

between the best practices and what is done in bed shows the necessity to evaluate the knowledge and practical practice of the nursing staff.

The use of simulations in training and practical workshops have proven to enhance competence of nurses to overcome obstetric emergencies including PPH (Miller et al., 2021). Simulation allows practice of the emergency algorithms, enhances team cooperation, and trains technical skills like massaging of the uterus and accessing of IVs during stress. It has been shown that simulation results in quantifiable changes in response time and compliance to guidelines in actual clinical incidences.

Multiple local and regional reports indicate inconsistency in knowledge and poor practices among nurses in the management of PPH (Jahan et al., 2021; Rizwan et al., 2022). The most frequent shortcomings are inadequate and wrongful identification of estimated blood loss, late the use of uterotonics, and inadequate documentation of interventions. Workload, staffing deficits, and high-acuity cases often make up the primary shortcomings in tertiary care hospitals and restrict the possibility of supervised practice and reflective learning (Rizwan et al., 2022).

Educational interventions involving a combination of didactical teaching and practical skills training yield more and lasting improvements compared to lectures (Ahmed et al., 2023). The use of workshops that included protocol algorithms, skill stations, and post-training audits enhanced knowledge scores and observed clinical behaviors in a number of program evaluations. Other methods that could be needed to enhance sustainability are institutional support of refresher training and the inclusion of PPH protocols as a part of the routine practices in the ward.

Nurses have a strong potential to apply the knowledge into practice, which is highly dependent on organizational and contextual factors. The presence of uterotonics, operational infusion sets, blood products, and clear progression channels are what dictate whether nurses can take action on their knowledge (Kumar et al., 2021). Tertiary care settings have resource

limitations that hinder guideline-concordant care despite the demonstration of sufficient theoretical knowledge by the staff.

The key to managing PPH is teamwork, communication, and leadership in response to obstetric emergencies (Oluwatosin et al., 2020). Early warning led by nurses, successful transfer of care, and timely mobilization of obstetric emergency units will minimize delays in definitive care. The interprofessional simulations incorporated in training programs enhance these nontechnical competencies and enhance the responses in PPH incidents.

This is vital because monitoring and evaluation can be used to evaluate the effectiveness of interventions to enhance PPH care (Dawson et al., 2022). PPH cases, morbidity and mortality reviews, and objective structured clinical examination (OSCE) of nurses contribute to identifying the enduring gaps and informing the continual quality improvement. Evidence-based feedback bridges the gap between training and clinical outcomes.

Sustained improvements are the products of the policy-level initiatives to implement PPH protocols and require competency tests (Pakistan Demographic and Health Survey [PDHS], 2022). Integration of PPH management in nursing curricula, in-services training plans, and hospital accreditation programs facilitates the improvement in maternal safety in tertiary care centers in the long term.

Knowledge and practice of nurses working in tertiary care environment should be assessed to facilitate specific interventions that will result in the decrease of morbidity and mortality due to PPH. Integration of guideline-based education, simulation, resources access, and ongoing monitoring is a multifaceted approach in enhancing emergency obstetric care and increasing maternal outcome in tertiary hospitals with high volumes.

3. METHODOLOGY

3.1. STUDY SETTING:

The study was carried out at **Sheikh Zayed Hospital, Lahore**, which is a tertiary care teaching hospital providing specialized healthcare services

to a large population. The hospital was selected because it handles a high number of deliveries and maternal emergencies, providing an appropriate environment for assessing nurses' competency in PPH management.

3.2. STUDY DESIGN:

A descriptive cross-sectional research design was used to assess the knowledge and practice of nurses regarding postpartum hemorrhage (PPH) management in a tertiary care hospital. This design was chosen because it allows for the collection of data at a single point in time to describe and analyze the current levels of knowledge and clinical practices among nurses.

3.3 STUDY POPULATION

The target population included all registered nurses working in the labor room, obstetric ward, and maternal emergency unit of the selected tertiary care hospital. These nurses were directly involved in the management of postpartum patients, including the prevention and treatment of PPH.

3.4. SAMPLE SIZE:

A total of **80 nurses** participated in the study. The sample size was determined using a **confidence interval of 95%, margin of error of 5%**, and an estimated population of 100 emergency nurses, as per hospital records. The calculation was performed using the **OpenEpi sample size calculator**.

3.5. SAMPLING TECHNIQUE:

A **convenience sampling technique** was used to select participants who met the inclusion criteria and were available during the data collection period.

3.6. SAMPLE SELECTION:

3.6.1. Inclusion Criteria:

- ✓ Registered nurses working in the labor, obstetric, or maternal emergency wards.
- ✓ Nurses with at least six months of experience in obstetric care.
- ✓ Nurses who consented to participate in the study.

3.6.2. Exclusion Criteria:

- ✚ Nurses not directly involved in patient care (administrative staff).
- ✚ Student nurses and trainees.
- ✚ Nurses who were on leave or refused to participate during the data collection period.

3.7. DATA COLLECTION PROCEDURE:

Data were collected through direct distribution of questionnaires to eligible nurses during their shifts. Participants were briefed about the purpose and confidentiality of the study before providing written informed consent. Each participant was given 20–25 minutes to complete the questionnaire in a quiet setting. Completed forms were collected immediately to ensure maximum response rate.

3.8. DATA ANALYSIS PROCEDURE:

Data were analyzed using SPSS version 26. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed to summarize demographic variables, knowledge, and practice scores. Inferential statistics, including chi-square tests, were applied to determine associations between knowledge and practice levels. A p-value of less than 0.05 was considered statistically significant.

3.9. ETHICAL CONSIDRATIONS

Approval for the study was obtained from the **Ethical Review Committee** of the tertiary care hospital. Written informed consent was obtained from each participant. Confidentiality and anonymity were maintained by assigning codes instead of names. Participation was voluntary, and respondents were informed of their right to withdraw at any stage without penalty.

4 RESULT AND ANALYSIS:

Table 1

Demographic Characteristics of Participants (n = 80)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	20–25	24	30.0
	26–30	32	40.0
	31–35	18	22.5
	Above 35	6	7.5
Gender	Female	80	100
	Male	00	00
Qualification	Diploma in Nursing	44	55.0
	BS Nursing	30	37.5
	MSN / Post RN	6	7.5
Years of Experience	<1 year	10	12.5
	1–3 years	28	35.0
	4–6 years	26	32.5
	>6 years	16	20.0
Work Unit	Labor Room	26	32.5
	Obstetric Ward	34	42.5
	Emergency Department	20	25.0

The majority of participants (40%) were aged between 26–30 years, followed by 30% aged 20–25 years. All participants were female nurses. Most respondents held a Diploma in Nursing (55%), and a considerable proportion had 1–3 years of

experience (35%). The largest group of nurses worked in the obstetric ward (42.5%), followed by those in the labor room (32.5%) and emergency department (25%).

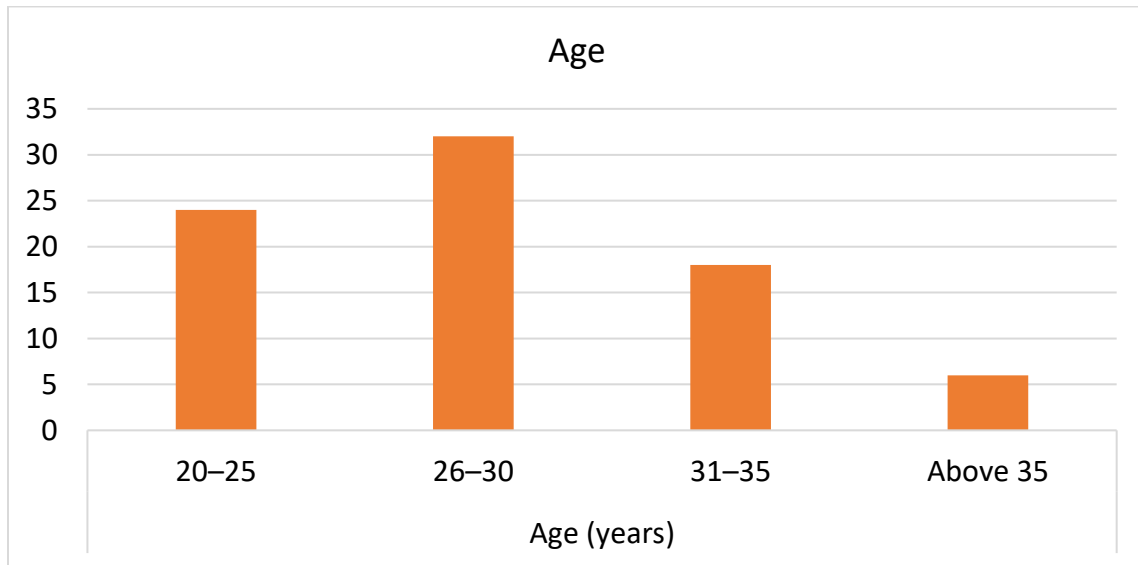


Figure 1: Age of Participants

The majority of nurses (40%) were aged between 26-30 years, followed by 30% aged 20-25 years. A

smaller proportion (22.5%) were 31-35 years old, while only 7.5% were above 35 years.

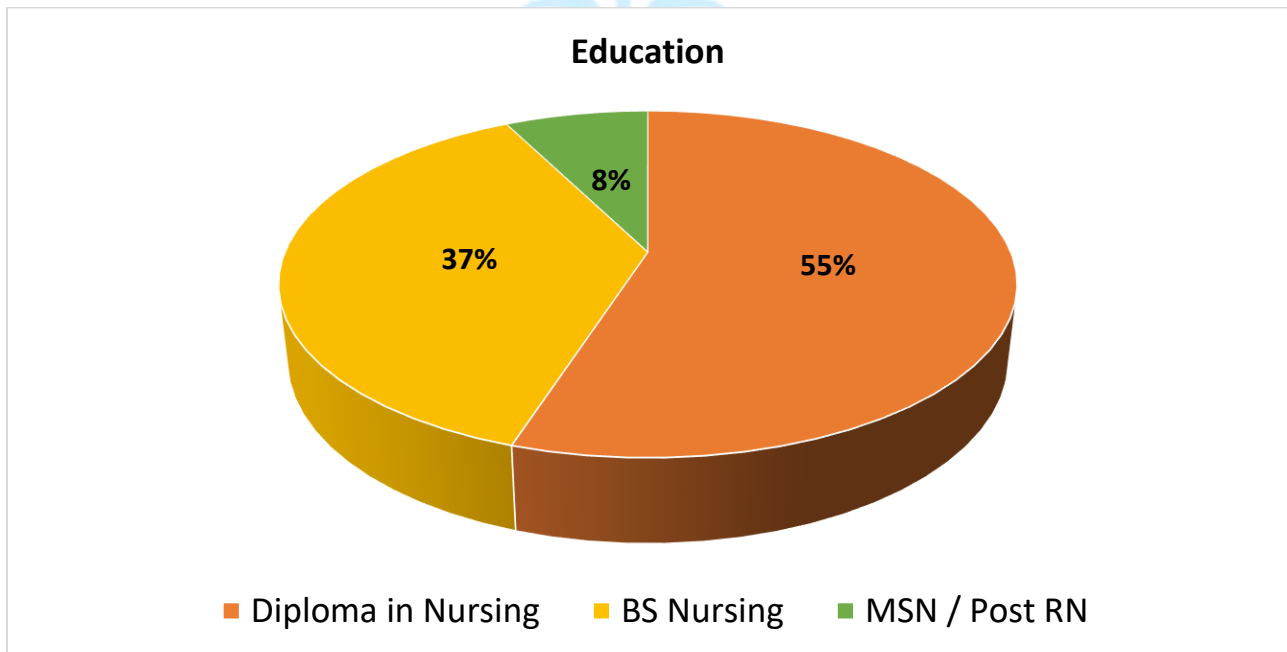


Figure 2: Educational Level

More than half of the participants (55%) held a Diploma in Nursing, 37.5% had a BS Nursing

degree, while only 7.5% possessed an MSN or Post RN qualification.

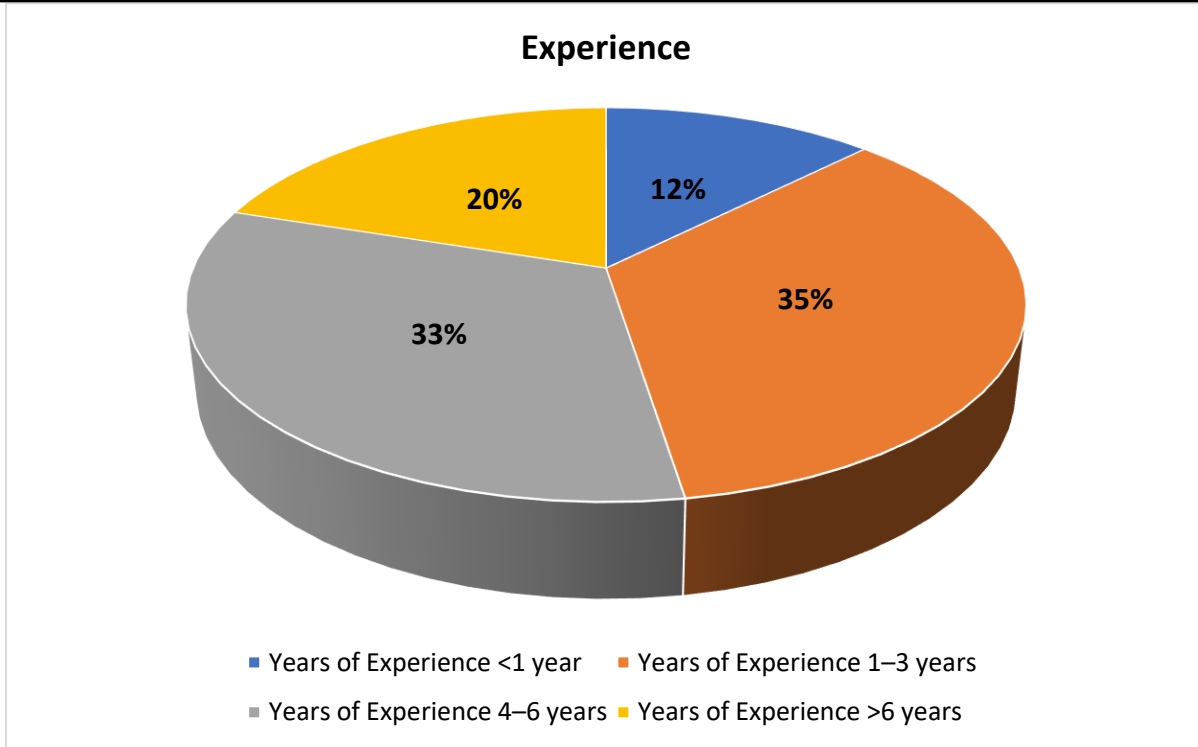


Figure 3: Experience Level

The majority of participants (35%) had 1–3 years of experience, followed by 32.5% with 4–6 years, 20% with more than 6 years, and 12.5% with less than one year of experience.

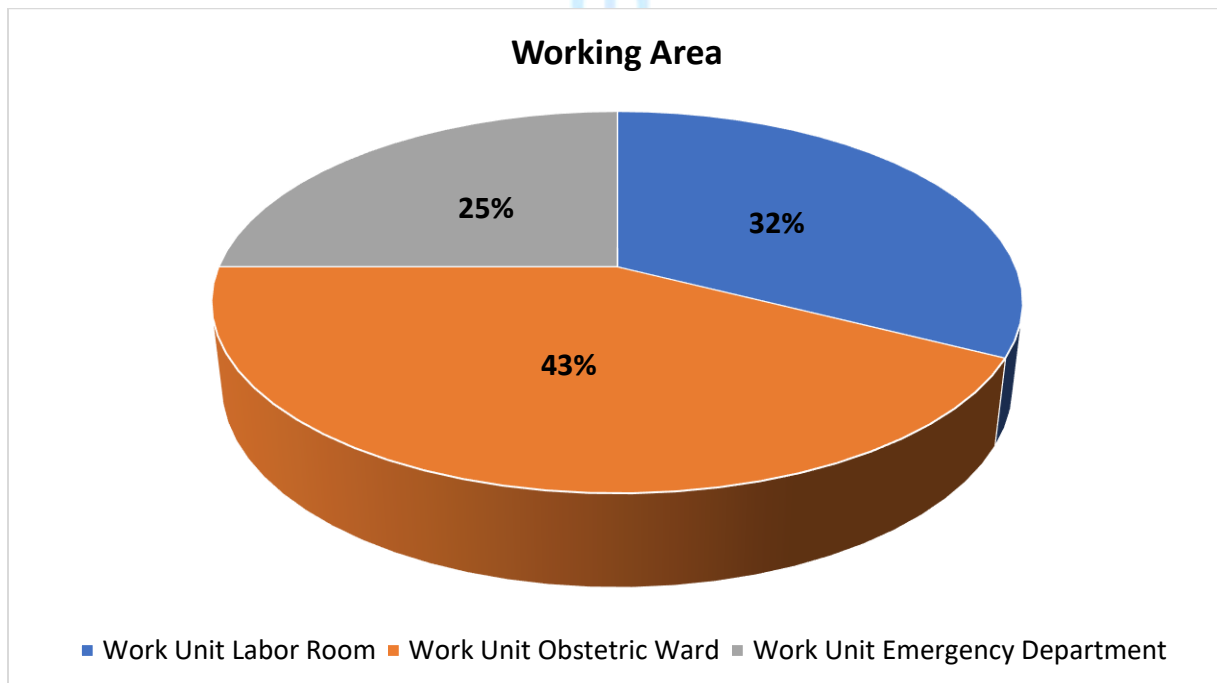


Figure 4: Work Unit of Study Participants

Most of the nurses (42.5%) were working in the obstetric ward, followed by 32.5% in the labor room and 25% in the emergency department.

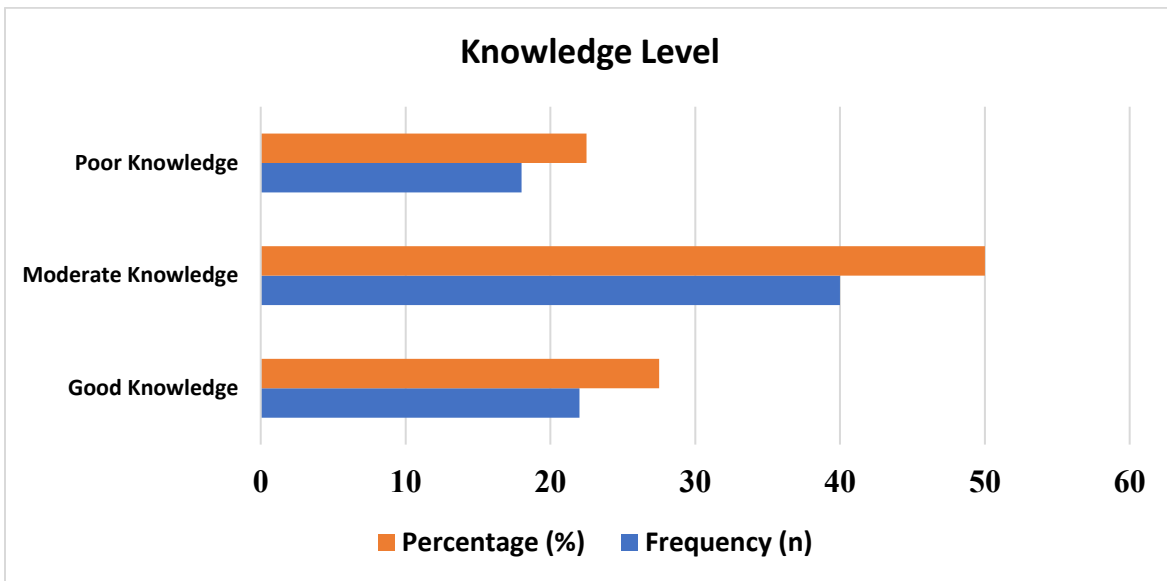


Figure 5: Knowledge Level of Nurses Regarding Postpartum Hemorrhage Management (n = 80)

Interpretation:

Half of the participants (50%) demonstrated moderate knowledge regarding postpartum hemorrhage management, while 27.5% showed

good knowledge. However, nearly one-fourth (22.5%) of the nurses had poor knowledge, indicating a need for educational reinforcement.

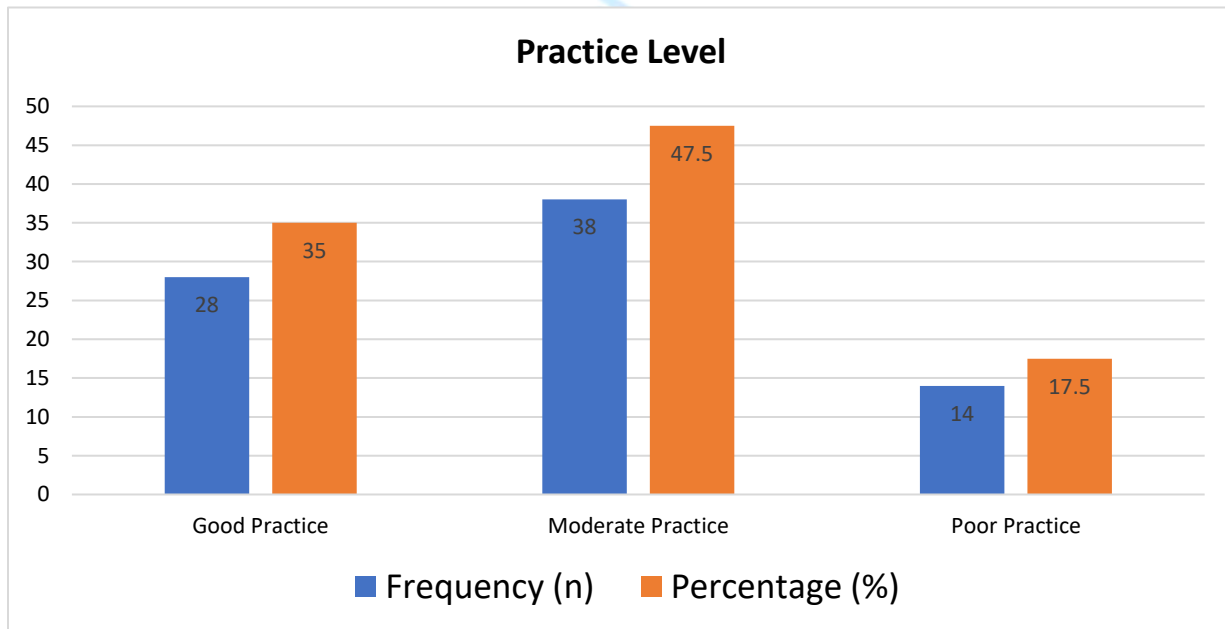


Figure 6: Practice Level of Nurses Regarding Postpartum Hemorrhage Management

Interpretation:

Most nurses (47.5%) had a moderate level of practice in managing postpartum hemorrhage, while only 35% demonstrated good practice. A

notable portion (17.5%) had poor practical performance, reflecting inconsistencies in protocol adherence and clinical readiness.

Table 2

Association Between Knowledge and Practice of Nurses Regarding PPH Management

Knowledge Level	Good Practice	Moderate Practice	Poor Practice	Total (n)
Good Knowledge	16 (72.7%)	6 (27.3%)	0 (0.0%)	22
Moderate Knowledge	10 (25.0%)	24 (60.0%)	6 (15.0%)	40
Poor Knowledge	2 (11.1%)	8 (44.4%)	8 (44.4%)	18
Total	28	38	14	80

Chi-square (χ^2) = 18.74 p-value = 0.001 (Significant)

Interpretation:

A statistically significant association ($p < 0.05$) was found between nurses' knowledge and their practice levels regarding postpartum hemorrhage

management. Participants with good knowledge were more likely to demonstrate good clinical practice compared to those with moderate or poor knowledge.

Table 3

Summary of Mean Knowledge and Practice Scores (n = 80)

Variable	Mean \pm SD	Minimum	Maximum
Knowledge Score (%)	72.4 \pm 11.6	48	94
Practice Score (%)	70.8 \pm 13.2	45	92

Interpretation:

The mean knowledge score was 72.4%, and the mean practice score was 70.8%, indicating moderate competency levels among nurses in managing postpartum hemorrhage.

necessary and regular refresher courses will be required to enhance the clinical competence of nurses in dealing with obstetric emergencies. In this research 27.5% of nurses were good in their knowledge and 22.5% were poor in the knowledge level. The findings are also similar to those of Mekonen et al. (2021), who identified that only a third of nurses demonstrated sufficient knowledge of active management of the third stage of labor, which is one of the elements of PPH prevention. The existence of knowledge gaps in similar studies is an indicator of the little the emergency obstetric protocol has been integrated into nursing curriculum and lifelong education programs. Conversely, Tesfaye et al. (2022) proposed a study in Ethiopia where the level of knowledge among midwives was higher, which the researchers explained by the introduction of specific maternal health training programs. This comparison highlights the importance of institutional support and access to evidence-based education as the key

5 DISCUSSIONS OF THE STUDY:

The current paper evaluated the knowledge and practice of nurses on the management of postpartum hemorrhage (PPH) in a tertiary care hospital. The results indicated that most of the respondents possessed an average level of knowledge (50%), and practice (47.5%) in relation to the PPH management. These findings indicate that nurses have a reasonable level of knowledge on the concepts of PPH, but they need to increase their practical knowledge application. Abed et al. (2020) reported similar findings and reported that the majority of nurses in maternity units possessed moderate knowledge of PPH management in the unit, which was mostly attributed to a lack of continuing education and sufficient clinical exposure. It implies that training interventions are

factors to facilitate knowledge retention and clinical competence.

It also found that 35 percent of the nurses practiced good in PPH management and a significant percentage (47.5 percent) practiced moderately. This is consistent with the findings of a study conducted by Okaisu et al. (2019) suggesting that nurses also tend to show moderate compliance to clinical procedures because of time limitations, workloads, and the absence of institutional oversight. A different study by Adane et al. (2020) performed in Ghana demonstrated that continuous professional development activities resulted in the enhancement of practical performance in maternity nurses, indicating that new educational interventions that are ordered over time may close the knowledge-practice gap. Thus, the current research illustrates the relevance of experiential learning and competency-based learning workshops to enhance the practical skills of nurses regarding the PPH management.

The statistically significant correlation between the knowledge and practice ($p = 0.001$) implies that the better the level of knowledge, the better the outcomes of practice. The correlation is aligned with the results of studies by Yadeta et al. (2021), who highlighted that the knowledge is one of the most critical factors influencing the delivery of emergency obstetric care. When equipped with sufficient and proper theoretical knowledge, nurses are likely to behave faster and more correctly in obstetric emergencies, reducing maternal complications. On the other hand, Alemu et al. (2022) concluded that the majority of nurses were unable to follow evidence-based guidelines because of inadequate confidence and no supervision, even with satisfactory levels of knowledge. This contrast brings out the fact that even though knowledge is essential, good working environments and lifelong mentorship are equally important to the translation of knowledge to safety clinical practice.

The outcomes obtained in the study also correlate with the evidence provided worldwide on the importance of the constant education in maternal health. World Health Organization (WHO, 2023) suggests that active management of the third stage of labor and emergency PPH response protocols

should be a regular training of all the obstetric care providers, such as nurses. The same recommendation was echoed by Mersha et al. (2020), who discovered that a significant decrease in the morbidity caused by PPH was observed in health institutions that conducted regular training sessions. The current result that presented nearly half of the nurses as having moderate knowledge and practice supports the need to adopt the use of competency-based maternal health training modules by WHO in tertiary hospitals to improve the performance of the nurses.

There can also be the cultural and systemic factors which could explain the moderate level of performance in this study. In another qualitative study by Opiah et al. (2021), authors found that effective PPH management, even with well-trained nurses, is hampered by being limited in staffing, having no standardized protocols, and insufficient equipment. Similar problems are present in the healthcare system of Pakistan, where resource scarcity at the institutional level and large numbers of patients to nurse, ratios are leading to inefficient emergency care provisions. By contrast, the research in high-income nations, including the research by Beckmann and Widmer (2022), has shown that the use of simulation training and frequent clinical audits leads to high and consistent adherence to PPH protocols. These comparisons are indicative of resource availability and institutional commitment having a great impact on knowledge acquisition as well as practical adherence.

To conclude, the research indicates that nurses in tertiary care hospitals have moderate knowledge and practice in the PPH management, which reflects results of other similar environments in the low- and middle-income countries. On the one hand, there is a theoretical knowledge, but on the other hand, there is a shortage of clinical work because of inadequate training and systematic problems. The correlation between knowledge and practice is positive and thus elaborates the importance of institutional support and targeted educational interventions on enhancing the nursing competencies. The emphasis in future strategies must be on structured, recurrent, and simulation-based training programs done in line

with the recommendations of the WHO aiming at improving the knowledge retention and overall clinical practice which will in effect reduce the burden of postpartum morbidity and mortality relating to maternal hemorrhage.

6 CONCLUSION AND RECOMMENDATIONS OF THE STUDY:

6.1. CONCLUSION:

The present study assessed the knowledge and practice of nurses regarding postpartum hemorrhage (PPH) management in a tertiary care hospital. The findings revealed that while a majority of nurses demonstrated moderate knowledge and satisfactory practice, gaps remained in recognizing early signs of PPH and implementing evidence-based interventions promptly. This indicates a need for continuous professional education and clinical training to strengthen competence in managing obstetric emergencies. The results emphasized that effective management of PPH requires both theoretical understanding and practical proficiency, as inadequate response can lead to severe maternal complications or death.

The study also highlighted the positive correlation between nurses' knowledge and their actual practice, suggesting that well-informed nurses are more likely to deliver timely and appropriate care. However, factors such as workload, limited access to updated clinical guidelines, and lack of regular simulation-based training contribute to inconsistencies in clinical performance. These findings align with global evidence advocating the integration of standardized obstetric emergency care protocols in nursing education and hospital policy.

Overall, the study concludes that enhancing nurses' knowledge and practice through continuous education, evidence-based guidelines, and supportive supervision is vital for improving maternal outcomes. Strengthening institutional capacity and ensuring access to resources for effective PPH management can significantly reduce maternal morbidity and mortality rates in tertiary healthcare settings.

6.2. RECOMMENDATIONS OF THE STUDY:

- I. Regular in-service training and refresher workshops on postpartum hemorrhage (PPH) management should be conducted to strengthen nurses' theoretical knowledge and clinical skills.
- II. Simulation-based learning programs should be incorporated into routine training to enhance nurses' ability to respond effectively to real-life obstetric emergencies.
- III. The hospital administration should ensure the availability and accessibility of updated clinical guidelines and emergency protocols related to PPH management in all obstetric units.
- IV. Continuous professional development programs should be made mandatory for nurses working in labor, obstetric, and emergency wards to promote evidence-based practice.
- V. Supervisory audits and periodic evaluations of nursing performance in PPH management should be implemented to identify areas needing improvement and ensure adherence to best practices.
- VI. Collaborative teamwork between nurses, midwives, and physicians should be encouraged to ensure timely intervention and multidisciplinary management of PPH cases.
- VII. Nursing curricula should integrate comprehensive modules on PPH prevention and management to better prepare nurses for clinical practice in maternity care settings.
- VIII. Further research should be conducted on a larger sample across multiple tertiary care hospitals to generalize the findings and evaluate the long-term impact of educational interventions on clinical outcomes.

6.3. STRENGTH OF THE STUDY

The strength of this study lies in its focus on a critical and life-threatening maternal condition—postpartum hemorrhage (PPH)—which remains a major contributor to maternal morbidity and mortality globally. The study provides valuable insight into the current level of knowledge and practice among nurses working in a tertiary care setting, identifying key gaps in clinical competence. The use of a structured questionnaire ensured the reliability and consistency of data collection. Conducting the study in a tertiary care

hospital where high-risk deliveries are managed added practical relevance to the findings. Furthermore, the inclusion of nurses directly involved in obstetric care enhanced the study's validity, as it reflected real-world experiences and clinical challenges. The findings contribute to evidence-based nursing education and can serve as a foundation for future training interventions aimed at improving PPH management outcomes.

6.4. LIMITATIONS OF THE STUDY:

The study was limited to a single tertiary care hospital, which restricts the generalizability of the findings to other healthcare settings with different resources or patient populations. The use of a convenience sampling technique may have introduced selection bias, as only nurses available during the data collection period were included. Self-reported data through questionnaires could have been influenced by social desirability bias, leading participants to overestimate their knowledge or practice levels. Additionally, the cross-sectional design provides only a snapshot of the current situation and does not establish causal relationships between knowledge, practice, and patient outcomes. The study also did not include observation-based assessments, which could have provided a more accurate measure of actual clinical practices related to postpartum hemorrhage management.

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