

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

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### Keywords

Postpartum hemorrhage, nursing knowledge, clinical practice, obstetric emergency, maternal health, 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 SGTH Swat. 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

## 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).

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.

### Method

A descriptive cross-sectional study design was employed to assess the knowledge and practice of nurses regarding postpartum hemorrhage (PPH) management at Saidu Teaching Hospital, Swat. Saidu Teaching Hospital is a tertiary care teaching hospital that provides specialized maternal and obstetric services to a large population and

manages a high volume of deliveries and maternal emergencies. This setting was considered appropriate for evaluating nurses' competency in PPH management. The study population comprised registered nurses working in the labor room, obstetric ward, and maternal emergency unit, as these nurses are directly involved in the prevention and management of postpartum hemorrhage. Nurses with at least six months of experience in obstetric care were included to ensure adequate clinical exposure. A total of 80 nurses participated in the study. The sample size was calculated using the OpenEpi sample size calculator, based on a 95% confidence level, a 5% margin of error, and an estimated population of 100 nurses working in relevant units. A convenience sampling technique was used to recruit eligible participants who were available during the data collection period.

#### Data Collection Procedure

Data were collected using a structured, self-administered questionnaire distributed directly to eligible nurses during their duty shifts. Prior to data collection, participants were informed about the purpose of the study, assured of

confidentiality, and requested to provide written informed consent. The questionnaire consisted of sections addressing demographic characteristics, knowledge related to PPH management, and self-reported clinical practices. Participants were given approximately 20–25 minutes to complete the questionnaire in a quiet and comfortable environment to minimize distractions. Completed questionnaires were collected immediately to ensure a high response rate and completeness of data.

#### Data Analysis Procedure

Collected data were coded, entered, and analyzed using SPSS version 26. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic variables as well as knowledge and practice scores related to PPH management. Inferential statistics, specifically the chi-square test, were applied to examine associations between nurses' knowledge and practice levels. A p-value of less than 0.05 was considered statistically significant. The findings were presented in the form of tables to facilitate clear interpretation and comparison of results.

### RESULT AND ANALYSIS:

Table 1

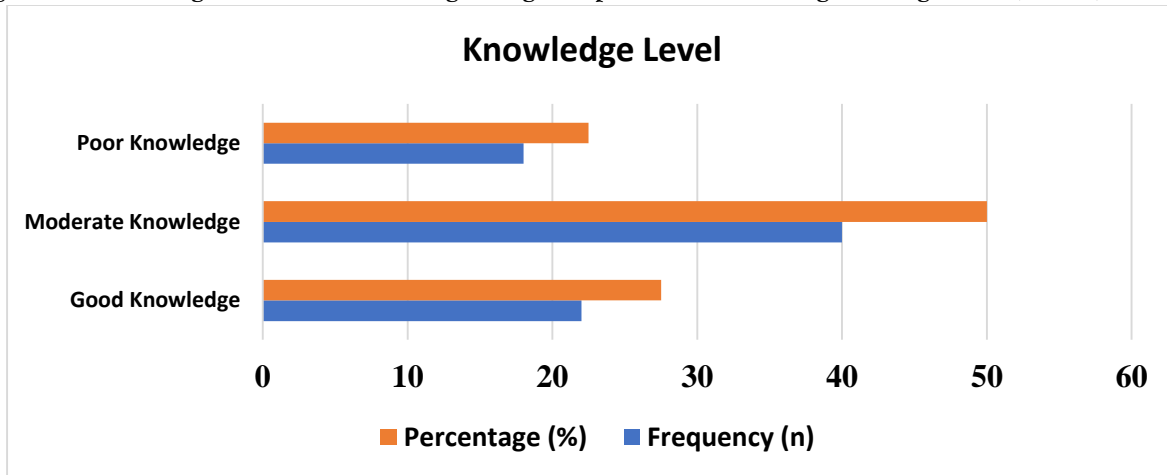
Demographic Characteristics of Participants (n = 80)

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

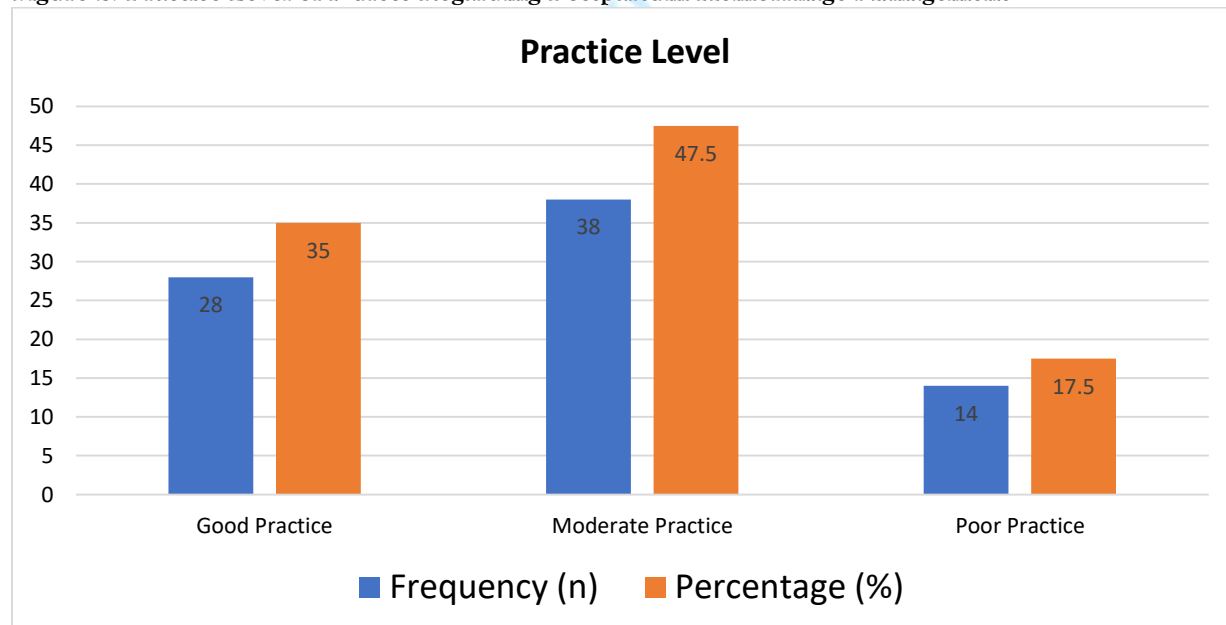


**Interpretation:**

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 2: 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
<b>Total</b>	<b>28</b>	<b>38</b>	<b>14</b>	<b>80</b>

Chi-square ( $\chi^2$ ) = 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.

**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 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 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.

### 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.

### 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.

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