

A Study to Evaluate the Effectiveness of Simulation Based Teaching on Knowledge and Practice Regarding Postpartum Hemorrhage (PPH) and its Management Among Final Year Nursing Students at Selected Colleges of Hubballi

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Abstract

Original Research Article

Postpartum Hemorrhage (PPH) is a critical obstetric emergency and continues to be one of the leading causes of the maternal mortality and morbidity globally. It is estimated that PPH accounts approximately 25% of all maternal deaths. Professionals, play a vital role in managing obstetric emergencies such as postpartum hemorrhage (PPH). However, many lack adequate preparation and confidence in handling these situations due to limited exposure to emergency training during their education. To address this gap, integrating ongoing simulation-based training into nursing curricula is essential. Simulation allows students to apply theoretical knowledge in realistic clinical scenarios, improving their critical thinking, clinical decision-making, and hands-on skills. When guided by standardized protocols and evidence-based guidelines, such training equips student nurses with the competence needed for the early recognition and timely management of PPH, ultimately improving maternal outcomes. The result of one of the study conducted to assess effectiveness of high- fidelity simulation-based teaching learning on knowledge regarding postpartum hemorrhage among 88 undergraduate nursing students revealed that, the mean knowledge score in the pretest of undergraduate nursing students was $M=9.74\pm3.250$ whereas the posttest mean knowledge score of undergraduate nursing student was $M=16.27\pm2.22$. The study concluded that high fidelity simulation-based teaching learning increases the knowledge of undergraduate students.19. Many of student nurses who are the future first line professional figure in health care delivery don't possess adequate knowledge and skills regarding management of PPH as they are not adequately trained to handle emergencies. So, student nurses need to be engaged in many educational teachings, one among them is ongoing simulation training which will update their knowledge, vigilant clinical competencies skills and accurate clinical judgments based on universal guideline protocol for the early detection and critical nursing management in a timely manner.20.

Keywords: Simulation Based Teaching, Postpartum Hemorrhage (PPH), Knowledge and Practice.

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INTRODUCTION

Pregnancy is a beautiful and transformative journey, filled with excitement and anticipation where each month brings new changes, deepening the bond between mother and child. The first kick, heartbeat and ultrasound are magical moments that strengthens this connection. It's the best feeling for every woman in her life to feel the soul and its movement in her womb. A healthy mind, body and spirit are essential throughout this time.[1]

Childbirth is a deeply transformative experience that has a lasting impact on women, both physically and emotionally. It shapes not only the immediate moments after birth but also has long-term effects on a woman's mental and social well-being. The experience can be profoundly empowering, leaving women with a sense of strength and accomplishment or it can be traumatic, affecting their mental health and outlook on life.[2]

The transition from pregnancy to motherhood is marked by monumental changes, both physiologically

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and psychologically. This transition involves a shift from carrying a child within the womb to embracing the responsibility of nurturing and caring for a newborn. The experience of labour unfolds in distinct stages: the first stage, the second stage, the third stage, and the fourth stage. Each stage represents a crucial step in the process of childbirth, with varying degrees of intensity and significance.[3]

Of all the stages, the third stage of labour stands out as the most crucial. This phase, though often overlooked in discussions about childbirth, plays a pivotal role in ensuring the safety and well-being of both the mother and the baby. The third stage begins after the birth of the baby and involves the delivery of the placenta, a process that is vital for the mother's recovery. This stage, while seemingly straightforward, requires careful management by the healthcare team to prevent postpartum complications like retained placenta, subinvolution and postpartum hemorrhage.[4]

Postpartum hemorrhage (PPH) is one of the most urgent and serious complications a midwife can encounter during or after childbirth. It refers to excessive bleeding that occurs after the delivery of the baby, typically defined as losing more than 500 ml of blood following a vaginal birth or more than 1000 ml after a cesarean section. What makes PPH particularly alarming is that it can happen suddenly and unexpectedly, even after an otherwise smooth and straightforward birth. As per recent data of national health mission and ministry of health & family welfare, postpartum hemorrhage is the most common cause of maternal death during child birth in India, which is exacerbated by widespread anemia among pregnant women, accounts 38 percent of all maternal deaths. A woman with PPH can die within 2 hours after the onset of bleeding if she does not receive treatment.[5]

For a midwife, PPH presents a critical emergency, requiring immediate attention and intervention. Despite the mother appearing healthy and the birth going well, PPH can develop quickly and lead to life-threatening consequences. The cause of the bleeding can vary, but it is most commonly due to uterine atony, tears in the birth canal or the retention of placental tissue. In some cases, blood clotting disorders or other underlying conditions can also contribute to the problem. If not treated promptly, postpartum hemorrhage can lead to severe blood loss, shock and organ failure. This situation is terrifying not only because of the speed at which it can escalate, but also because it can result in a significant decline in the mother's health, even with timely medical care. The urgency of recognizing and managing PPH is why it is considered a critical emergency, requiring skilled, immediate action to control the bleeding, stabilize the mother and prevent further complications.[6]

In cases of PPH, a midwife must act quickly to assess the cause, apply treatments such as uterine massage, medications to promote uterine contractions, blood-transfusion and surgical interventions, if necessary, like a removal of retained placenta. With swift and effective care, the chances of recovery are high, but without prompt attention, the situation can become life-threatening for the mother. Therefore, recognizing the signs and symptoms of PPH early and responding without delay is crucial in preventing long term harm.[7]

The prevention and management of postpartum hemorrhage (PPH) requires systematic approach, with a focus on both proactive strategies and prompt interventions to ensure maternal safety. Preventive measures begin with identifying women at higher risk for PPH, such as those with a history of PPH, multiple pregnancies, large babies, uterine overdistention or placental issues. Active management during the third stage of labor (AMTSL) is a cornerstone of prevention, involving the administration of uterotonic drugs like oxytocin immediately after delivery to stimulate uterine contractions and reduce the risk of uterine atony. Controlled cord traction is used to aid in the delivery of the placenta. Additionally, educating patients on the early signs of excessive bleeding, such as increased vaginal bleeding and dizziness empowers them to seek timely care if needed. Nurses and healthcare providers must immediately assess vital signs, uterine tone and blood loss. If bleeding persists, intravenous fluids are provided to prevent hypovolemic shock. In more severe cases, advanced procedures such as balloon tamponade, uterine artery embolization and in extreme cases, a hysterectomy may be required to control the hemorrhage. Through these combined efforts such as early risk assessment, active management during labor, timely recognition of symptoms and quick interventions PPH can be effectively managed, significantly improving maternal health outcomes and reducing the risk of serious complications or death.[7]

Student nurses often enter clinical settings with limited practical experience, making educational interventions essential for bridging the gap between theoretical knowledge and real-world practice. One of the most effective ways to achieve this is through simulation training which is a cornerstone of modern nursing education and which allows students to engage in real life scenarios that mirror the challenges they might face in a clinical environment. Simulation offers students the opportunity to actively participate in managing complex situations, such as postpartum hemorrhage, in a controlled, risk-free setting. This hands-on experience allows them to practice essential skills, make critical decisions, and learn to work as a team without the pressure and stakes of real-life emergencies.[8]

The result of one of the study conducted to evaluate the effectiveness of simulation-based learning on early postpartum Haemorrhage among 30 nursing students revealed that, the mean knowledge score in the pre-test was $m=19.60$. whereas the post-test mean knowledge score was $m= 24.27$. The study concluded that high fidelity simulation-based learning increases the knowledge of nursing students.[9]

The key benefit of simulation is that it helps students not only understand the theoretical aspects of care but also gain practical experience that is vital for their professional development. By repeating scenarios and receiving immediate feedback, students can refine their techniques, improve their decision-making and build the confidence necessary to manage such emergencies when they arise in real clinical settings.

MATERIALS AND METHODS

Pre-experimental; Pre-test Post-test was research Conducted on among 40 final year nursing students. Non-Probability; Purposive sampling was used to select the sample. And data was collected by using Structured knowledge questionnaires and observational checklist. The research design used for the study pre-experimental design. Data analysis was done by using descriptive and inferential statistics.

Study Design: The research design used for the present study was Pre-experimental; Pre-test Post-test.

Setting and Sample: In the present study, Data was collected from 40 final year nursing students. The present study was conducted at KLE's Institute of Nursing Sciences, Hubli.

Measurements:

The subjects were given the tool selected for the study was consisting three sections: Instrument I: structured knowledge questionnaires. Section I: socio-demographic variables. This part consists of 11 items for obtaining information about socio-demographic variables such as Age, Gender, religion, income of family, habitat, type of family, education of mother, education of father, occupation of father, occupation of mother, source of information. Section ii: knowledge Questionnaire on knowledge and practice regarding management of postpartum hemorrhage (PPH). Instrument II: Observational checklist, this section consists of 22 items for assessing the level of practice of final year nursing students regarding postpartum hemorrhage (PPH) and its management. knowledge through Structured Knowledge Questionnaires on postpartum hemorrhage (PPH) and its management. A score value of zero (0) was allotted for wrong response and one (1) was allotted for correct response total maximum score limit was 30. PartA: 8 Items on Knowledge regarding Introduction, Definition and types of Postpartum hemorrhage (PPH) Part B: 10 Items on

Knowledge regarding causes and sign & symptoms of Postpartum hemorrhage and its management. And Part C: 12 Items on Knowledge regarding prevention and management of Postpartum hemorrhage (PPH) and its management.

Data Collection:

The research investigator had taken formal permission from the principals of 40 final year nursing students. The present study was conducted at KLE's Institute of Nursing Sciences, Hubli.

Data Analysis:

The data obtained were analyzed in terms of the objectives and hypothesis of the study using descriptive and inferential statistics. The plan of the data analysis was developed under the excellent direction of the experts in the field of nursing and statistics. The plan for the data analysis was as follows:

1. Organization of data on the master sheet.
2. Tabulation of data in terms of frequency, percentage, mean, median, mode, standard deviation and range to describe the data.
3. Classification of the knowledge scores as follows:
 - Good knowledge = $(\bar{X} +SD)$ and above
 - Average knowledge = $(\bar{X} +SD)$ to $(\bar{X} -SD)$
 - Poor knowledge = $(\bar{X} -SD)$ and below

[Note: \bar{X} =Mean, SD= Standard Deviation]

4. Classification of the practices scores as follows:
 - Excellent practice = $(\bar{X} +SD)$ and above
 - Satisfactory practice = $(\bar{X} +SD)$ to $(\bar{X} -SD)$
 - unsatisfactory practice = $(\bar{X} -SD)$ and below

[Note: \bar{X} =Mean, SD= Standard Deviation]

5. Inferential statistics used to draw the following conclusions:
 - a) Karl Pearson's Correlation Coefficient formula used to find correlation between knowledge, and practices scores among final year nursing students postpartum hemorrhage (PPH) and its management.
 - b) Chi-square test to find out an association between knowledge of final year nursing students with their selected socio - demographic variable.
 - c) Chi-square test to find out an association between practice of final year nursing students

RESULTS

SECTION I: Distribution of the sample characteristic according to socio-demographic variables

Table no.1 reveals that Socio-demographic variables of final year nursing students

- With concern to age, majority of the subjects 17(43%) were in the age group of 21-22 years, 15(37%) were in the age group of 20-21 years and 08(20%) were in the age group of 22-23 years.
- With respect to gender, majority of the subjects 34(85%) were females and 6(15%) were males.
- In terms of religion, majority of subjects 32(80%) were Hindu, 05(13%) were Christian and 03(07%) were of Muslim.
- With regards to family income per month in rupees, 12(30%) had income below Rs 20,000, 11(28%) had income between Rs 20,000 to 30,000, 9(22%) had income between Rs 30,000 to 40,000 and 8(20%) had income above Rs 40,000.
- With concern to type of family, majority of the subjects 32(80%) were from nuclear family, 7(18%) were from joint family and 1(2%) were from extended family.
- With regards to area of residency, majority of the subjects 27(67%) were from rural area and 13(33%) were from urban area.
- In aspects with education of fathers, 14(35%) had completed primary education and pre university education respectively, 11(28%) had completed graduation & above and 1(2%) had no formal education.
- In concerns with education of mothers, majority of the mothers 20(50%) had completed primary education, 15(38%) had completed pre-university education, 4(10%) had completed graduation and above and 1(2%) had no formal education.
- With regards to occupation of fathers, 16(40%) were private employees, 15(38%) were self-employees, 6(15%) were government employees and 3(7%) were daily wage worker.
- In regards with occupation of mothers, majority of mothers 28(70%) were house wives, 4(10%) were government employees, private employees and daily wage worker respectively.
- In terms of source of information maximum subjects 29(73%) were having information regarding postpartum hemorrhage (PPH) and its management from electronic media, 5(12%) received from print media, 4(10%) got information from health personnel and 2(5%) were with no information about postpartum hemorrhage (PPH) and its management.

SECTION II: Analysis and interpretation of structured knowledge questionnaires.

Table No 2: reveals that pretest mean knowledge scores was 08, median was 08, mode was 08, standard deviation was 2.80 and range was 10. Whereas in posttest mean knowledge score was 20.5, median was 20, mode was 20, standard deviation was 2.16 and range was 12. The overall difference in mean knowledge score was 12.5, median was 12, mode was 12, standard deviation was 0.64, and range was 02. Table No 3: reveals that in pretest majority subjects 23(58%) had an average knowledge, 9(22%) had poor knowledge and 8(20%) had good knowledge, whereas in post test 40(100%) of them had good knowledge.

SECTION III: Analysis and interpretation of Practice scores

Table No 4: reveals that pretest mean practice scores were 06, median was 06, mode was 06, standard deviation was 2.88 and range was 10. Whereas in Post test mean practice score were 16, median was 16, mode was 16, standard deviation were 1.77 and range was 8. The overall difference in mean practice score was 10, median 10, mode was 10, standard deviation was 1.11 and range was 02.

Table No 5: reveals that in pre test majority subjects 21(53%) had an satisfactory practice, 11(27%) had poor practice and 08(20%) had excellent practice, whereas in post-test 40(100%) of them had excellent practice scores.

SECTION III- TESTING HYPOTHESIS

H₁: The mean post-test knowledge scores of final year nursing students regarding Postpartum hemorrhage (PPH) and its management, who have undergone simulation-based teaching will be significantly higher than the mean pre- test knowledge scores at 0.05 level of significance.

Table No 5: reveals that calculated paired 't' value ($t_{cal} = 6.09$) is greater than tabulated 't' value ($t_{tab} = 1.685$). Hence H₁ was accepted. This indicates that gain in knowledge scores was statistically significant at 0.05 levels. Therefore, simulation-based teaching on knowledge and practice regarding postpartum hemorrhage (PPH) and its management among final year nursing students was effective to improve the knowledge of subjects.

H₂: The mean post-test practice scores of final year nursing students regarding postpartum hemorrhage (PPH) and its management, who have undergone simulation-based teaching will be significantly higher than the mean pre- test practice scores at 0.05 level of significance.

Table No 6: reveals that calculated paired 't' value ($t_{cal} = 5.926$) is greater than tabulated 't' value ($t_{tab} =$

1.685). Hence H_2 was accepted. This indicates that gain in practice scores was statistically significant at 0.05 levels. Therefore, simulation-based teaching on knowledge and practice regarding postpartum hemorrhage (PPH) and its management among final year nursing students was effective to improve the practice of subjects.

H₃: There will be significantly correlation between knowledge and practice scores regarding Postpartum Hemorrhage (PPH) and its management among final year nursing at 0.05 level of significance.

Table No 13: reveals that there was a negative correlation between level of knowledge and practice scores of final year nursing students, Hence H_3 was rejected.

H₄ : There will be statistical association between the mean pre-test knowledge scores of final year nursing students with their demographic variables at 0.05 level of significance.

Table No 14: Reveals that,

- The calculated chi-square value 1.5138, was less than tabulated chi- square value 9.48. Hence $H_{4,1}$ was not accepted.
- The calculated chi-square value 0.08052, was less than tabulated chi-square value 5.9. Hence $H_{4,2}$ was not accepted.
- The calculated chi-square value 9.40, was less than tabulated chi-square value 12.50. Hence $H_{4,3}$ was not accepted.
- The calculated chi-square value 4.784, was less than tabulated chi- square value 12.5. Hence $H_{4,4}$ is not accepted.
- The calculated chi-square value 6.690, was less than tabulated chi-square value 9.48. Hence $H_{4,5}$ was not accepted.
- The calculated chi-square value 0.13883, was less than tabulated chi-square value 5.991. Hence $H_{4,6}$ was not accepted.
- The calculated chi-square value 3.576, was less than tabulated chi-square value 12.50. Hence $H_{4,7}$ was not accepted.
- The calculated chi-square value 5.94, was less than tabulated chi- square value 12.5. Hence $H_{4,8}$ is not accepted.
- The calculated chi-square value 9.4592, was less than tabulated chi-square value 12.5. Hence $H_{4,9}$ was not accepted.
- The calculated chi-square value 6.809, was less than tabulated chi-square value 12.5. Hence $H_{4,10}$ was not accepted.
- The calculated chi-square value 3.974, was less than tabulated chi-square value 15.50. Hence $H_{4,11}$ was not accepted.
- There was no significant association between knowledge scores and demographic variables. Hence H_4 was not accepted.

H₅ : There will be statistical association between the mean pre test practice scores of final year nursing students with their demographic variables at 0.05 level of significance.

Table No 15: reveals that,

- The calculated chi-square value 7.82, was less than tabulated chi- square value 9.5. Hence $H_{5,1}$ was not accepted.
- The calculated chi-square value 3.49, was less than tabulated chi-square value 5.9. Hence $H_{5,2}$ was not accepted.
- The calculated chi-square value 0.545, was less than tabulated chi-square value 12.50. Hence $H_{5,3}$ was not accepted.
- The calculated chi-square value 4.08, was less than tabulated chi- square value 12.5. Hence $H_{5,4}$ was not accepted.
- The calculated chi-square value 5.518, was less than tabulated chi-square value 9.48. Hence $H_{5,5}$ was not accepted.
- The calculated chi-square value is 6.0377, was more than tabulated chi-square value 5.991*. hence $H_{5,6}$ was accepted.
- The calculated chi-square value 2.620, is less than tabulated chi-square value 12.50. hence $H_{5,7}$ was not accepted.
- The calculated chi-square value 5.467, is less than tabulated chi- square value 12.5. Hence $H_{5,8}$ was not accepted.
- The calculated chi-square value 6.7456, is less than tabulated chi-square value 12.5. Hence $H_{5,9}$ was not accepted.
- The calculated chi-square value 4.827, is less than tabulated chi-square value 12.5. Hence $H_{5,10}$ was not accepted.
- The calculated chi-square value 8.13, was less than tabulated chi-square value 15.50. Hence $H_{5,11}$ was not accepted.

There was no significant association between practice scores and demographic variables except area of residency hence $H_{5,6}$ was accepted. Whereas in regards with remaining variables there was no association found, hence H_5 was rejected

DISCUSSION

1. Findings related to the selected demographic variables of final year nursing students.

In the present study the sample size of final year nursing students chosen was 40. The demographic variables of the study were age, gender, religion, family income per month in rupees, type of family, area of residency, education of father, education of mother, occupation of father, occupation of mother and source of information regarding postpartum Hemorrhage (PPH) and its management.

With concern to age, majority of the subjects 17(43%) were in the age group 21-22 years, 15(37%) were in the age group of 20-21 years and 08(20%) were in the age group of 22-23 years. These findings were supported through a study conducted by Longkumer S, Lalhmingthang R Monika N, who observed that majority of the subjects 50 (83.33%) were in the age group of 21-23 years, 7(11.67%) were in the age group of 18-20 years and 3(5%) in the age group of 24-26 years.[23]

With respects to the gender, majority of the subjects 34(85%) were females and 6(15%) were males. These findings were supported through a study conducted by Kharshandi S, Haobijam J, shylla B, who observed that, majority of subjects, 61(93.8%) were females and 4(6.2%) were males.[30]

In terms of religion, majority of the subjects 32(80%) were Hindu, 05(13%) were Christian and 03(07%) were of Muslim. These findings were supported through a study conducted by Begum K, Bhatakhanda A, who observed that, 23 (57.5%) were Hindu, 10(25%) were Muslims, 06(15%) were Christians and 1(2.5%) were belonged to other religion.[48]

With regards to family income, 12 (30%) had income below Rs 20,000, 11(28%) had income between Rs 20,000 to 30,000, 9(22%) had income between Rs 30,000 to 40,000 and 8(20%) had income above Rs 40,000. These findings were supported through a study conducted by Nadaf S, who observed that, majority of subjects 13(32.5%) had income below Rs 20,000, 13(32.5%) had income Rs 20,000 to 30,000, 11(27%) had income 30,000 to 40,000 and 3(7.5%) had income above Rs 40,000. [49]

With concern to type of family, majority of the subjects 32(80%) were from nuclear family, 7(18%) were from joint family and 1(2%) were from extended family. These findings were supported through a study conducted by Niveditha, Manjunath G S, who observed that, majority of subjects 51(85%) were from nuclear family and 9(15%) were from joint family.[50]

With regards to area of residency, majority of the subjects 27(67%) were from rural area and 13(33%) were from urban area. These findings were supported through a study conducted by Mohammed H, Omran H, Elsyed A, who observed that, majority of the subjects 52(92.9%) were from rural area and 4(7.1%) from urban area.[42]

In aspects with education of fathers, 14(35%) had completed primary education and pre university education respectively, 11(28%) had completed graduation & above and 1(2%) had no formal education. These findings were supported through a study conducted by Begum K, Bhatakhanda A, who observed that, majority 12(30%) had primary education, 10(25%)

had completed with graduation, 8(20%) had completed pre university education and 05(12.5%) had no formal education and 5(12.5%) had completed secondary education.[48]

In concerns with education of mothers, majority of the mothers 20(50%) had completed primary education, 15(38%) had completed pre-university education, 4(10%) had completed graduation and above and 1(2%) had no formal education. These findings were supported through a study conducted by Yakkeri M, Kalmath S, who observed that, majority of subjects 15(33.33%) had completed primary education, 14(33%) had secondary education, 11(24.5%) had pre university education and 5(11.1%) had no formal education.[51]

With regards to occupation of fathers, 16(40%) were private employees, 15(38%) were self-employees, 6(15%) were government employees and 3(7%) were daily wage workers. These study findings were supported through a study conducted by Anthoniyammal A, Manjunath G S, who observed that, majority of fathers 20(40%) were private employees, 13(32.5%) were daily wage workers and 07(17.5%) were government employees.[52]

In regards with occupation of mothers, majority of mothers 28(70%) were house wives, 4(10%) were government employees, private employees, and daily wage worker respectively. These study findings were supported through a study conducted by Bulbule S, Bhatakhanda A, who observed that, majority of mothers 43(86%) were house wives, 4(8%) were government employees, 2(4%) were private employee and 1(2%) daily wage workers.[53]

In terms of source of information maximum subjects 29(73%) were having information regarding postpartum Hemorrhage (PPH) and its management from electronic media, 5(12%) received information from print media, 4(10%) got information from health personnel and 2(5%) were with no information about postpartum hemorrhage (PPH) and its management. These findings were contradicted through a study conducted by Longkumer S, Lalhmingthang R, Monika N, who observed that majority of the subjects 30(50%) were having information regarding Postpartum hemorrhage (PPH) and its management from health personnel, 23(38.33%) got information from peer group and social circle and 7(11%) from electronic media.[23]

2. Findings related to frequency and percentage distribution of knowledge scores of final year nursing students regarding Postpartum Hemorrhage (PPH) and its management

The overall knowledge scores of final year nursing students in pretest, majority of subjects 23(58%) had an average knowledge, 9(22%) had poor knowledge and 8(20%) had good knowledge, whereas in post test

after administration of simulation-based teaching 40(100%) of them had good knowledge. These findings were supported through a study conducted by Mohammed H, Omran H, Elsyed A, who observed that, in pretest, majority of subjects 48(85.7%) had an average knowledge and 8(14.3%) had good knowledge, whereas in posttest after administration of simulation-based teaching 51(91.1%) had good knowledge and 5 (8.9%) had an average knowledge.[42]

3. Findings related to frequency and percentage distribution of Practice scores of final year nursing students regarding Postpartum Hemorrhage (PPH) and its management.

The overall practice scores of final year nursing students in pre test, majority of subjects 21(53%) had an satisfactory practice, 11(27%) had excellent practice and 08(27%) had poor practice. After administration of simulation-based teaching, whereas in post test 40(100%) of them had excellent practice scores. These findings were supported through a study conducted by Mohammed H, Omran H, Elsyed A, who observed that, majority of the subjects in pretest 30(53.6%) had satisfactory practice, 19(33.9%) had excellent practice and 7(12.5%) had poor practice. Whereas in Posttest after administration of simulation-based teaching 50(89.3%) had excellent practice, 4(7.1%) had satisfactory practice and 2(3.6%) had poor practice.[42]

4. Findings related to effectiveness of simulation-based teaching on knowledge regarding Postpartum hemorrhage (PPH) and its management.

There was significant gain in knowledge of final year nursing students who were exposed to simulation-based teaching that was 41.73%. The paired 't' test value ($t_{cal} = 6.09$) was greater than tabulated value ($t_{tab} = 1.685$) at $p < 0.05$ level of significance. The stated hypothesis i.e. The mean post test knowledge scores of final year nursing students regarding Postpartum hemorrhage (PPH) and its management, who have undergone simulation-based teaching will be significantly higher than mean pretest knowledge scores at 0.05 level of significance. Hence H_1 was accepted. And therefore, the study concluded that simulation-based teaching was effective teaching strategy in improving the knowledge of final year nursing students regarding Postpartum Hemorrhage (PPH) and its management. These findings were supported through a study conducted by Kamboj N, Deaver U, Siddiqui A, Sarin J, who observed that, the calculated 't' value ($t_{cal} = 10.33$) was greater than tabulated value ($t_{tab} = 1.98$) at $p < 0.05$ level of significance.[39]

5. Findings related to effectiveness of simulation-based teaching on practice regarding Postpartum Hemorrhage (PPH) and its management.

There was significant gain in practice scores of final year nursing students who were exposed to simulation-based teaching that is 45.59%. The paired 't' test value ($t_{cal} = 5.926$) was greater than tabulated value ($t_{tab} = 1.685$) at $p < 0.05$ level of significance. The stated hypothesis i.e. The mean post test practice scores of final year nursing students regarding Postpartum hemorrhage (PPH) and its management, who have undergone simulation-based teaching will be significantly higher than mean pretest practice scores at 0.05 level of significance. Hence H_2 was accepted. And therefore, the study concluded that simulation-based teaching was effective teaching strategy in improving the practice of final year nursing students regarding Postpartum Hemorrhage (PPH) and its management. These findings were supported through a study conducted by Pansuwan K, Klankhajhon, who observed that, the calculated 't' value ($t_{cal} = 12.48$) was greater than tabulated value ($t_{tab} = 1.311$) at $p < 0.05$ level of significance.[43]

6. Findings related to correlation between the knowledge and practice scores of final year nursing students regarding Postpartum Hemorrhage (PPH) and its management

In the present study there was negative correlation ($r_{xy} = -0.41$) between knowledge and practice scores of final year nursing students regarding Postpartum hemorrhage (PPH) and its management. The stated hypothesis i.e. there will be significant correlation between knowledge and practice scores regarding Postpartum Hemorrhage (PPH) and its management. Hence H_3 was rejected. These findings were contradictory through a study conducted by Kamboj N, Deaver U, Siddiqui A, Sarin J, who observed that there was a significant positive correlation ($r_{xy} = 0.31$) between pretest knowledge and practice scores.[39]

7. Findings related to association between the pretest knowledge scores of final year nursing students with their socio- demographic variables.

The calculated chi-square test revealed that there was no statistical association found for any of the variables. H_4 was rejected. These findings were supported through a study conducted by Mlata S, Kaur R, Chaudry P, who observed that there was no statistical association found between pre test knowledge scores with their selected socio-demographic variables at 0.05 level of significance.[25]

8. Findings related to association between the pretest practice scores of final year nursing students with their socio- demographic variables.

The calculated chi-square test revealed that there was statistical association found between one variable that is area of residency hence $H_{5,6}$ was accepted. Whereas in regards with remaining variables there was no statistical association found, hence H_5 was rejected in regards to these variables. These findings were supported through a study conducted by Anthoniyammal A,

Manjunath G S, who observed that, there was statistical association found in one variable i.e. area of residency. In regards with other variables, there was no association found between pretest practice scores with their socio demographic variables at 0.05 level of significance. [52]

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REFERENCES

- Mane S. Pregnancy: a blissful journey of nine months. [online]. Pune. 2023 April 19. [cited on 2024 March 26]. Available from: URL: <https://nursing.dpu.edu.in/blogs/pregnancy-a-blissful-journey-of-nine-months>
- Nahee J, Rezaie M, Abdoli E, Mirghafouvand M, Homaie S, Jafaezadeh M. Association of childbirth experience with long-term psychological outcomes: a prospective cohort study. National Library of Medicine. [online] 2024 may 30. [Cited on 2025 Feb 22]; 30(21). Available from URL: <https://pubmed.ncbi.nlm.nih.gov/articles/PMC11137992/>
- Hwang W, Choi S, Jeong H. Concept analysis of transition to motherhood: a methodological study. National Library of medicine. [online]. 2022 Mar 23. [Cited on 2025 Jan 23]. Available from URL: <https://pubmed.ncbi.nlm.nih.gov/articles/PMC9334210/>
- Depke M. Brenan G, Dielentheis K. Management of Third Stage of Labor. [Online]. Canada. 2024 oct 30. [cited on : 12 Jan 2024]. Available from URL: <https://emedicine.medscape.com/article/275304-overview?form=fpf>
- National Health Mission. Guidance Notes On Prevention and Management of Postpartum Haemorrhage. [online]. New Delhi. 20 Dec 2015. Cited on: 20 Dec 2024. Available on: https://www.nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/Guidance_Note_on_Prevention_&_Management_of_Postpartum_Haemorrhage.pdf
- Tiruneh B, Fooladi E, McLelland G, Plummer V. Incidence, mortality, and factors associated with primary postpartum haemorrhage following in-hospital births in northwest Ethiopia. National Library of medicine. [online].2022 April. [cited on 2024 March 29];17(4). Available from: PubMed. URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC8986012/#:~:text=Sub%2DSaharan%20African%20nations%2C%20including%20South%20Sudan%20.>
- S. Kumari. Patel M, Verma A, Pandit B, Louis F, Bapat K, et al. PPH Prevention and Management: Updated guidelines: Federation of Obstetric and Gynaecological Societies of India. [Internet]. 2022 Sep [cited on 2024 March 28]; Available from: URL <https://www.fogsi.org/wp-content/uploads/tog/pph-prevention-and-management-updated-sept-2022.pdf>
- Anna C, Van G, Martha J, Williams M, Koen, Magdalena P. Professional nurse's understanding of clinical Judgement : A contextual inquiry [Internet]. 2016 Dec [cited on 2024 Mar 23]; 21(1). Available from URL: <https://www.sciencedirect.com/science/article/pii/S1025984816300047>
- Pansuwan K, Klankhajhon S. The effect of simulation Based Learning on Nursing performances of early Postpartum Hemorrhage in Nursing Students. Thailand. [online]. 2021 Aug 02. Cited on 2025 Jan 16. 9(3). Available from URL: <https://repository.unar.ac.id/jspui/bitstream/123456789/531/1/175-180.pdf>
- Warren PL, Benyamini YL, Kazmierczak M, Karlsdottir SI, Takacs L, Murphy M, 'et.al. Women's psychological child birth: a meta-synthesis. National Library of medicine. [online]. 2018 Oct 18. [Cited on 2024 March 26]; 8(10). Available from. PubMed. URL <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6196808/>
- Dutta DC. Textbook of Obstetrics. 9th ed. New Delhi. Jaypee Brothers' medical publishers(p) Ltd. 2018. p:108.
- Combs CA, Gynecol O. Prolonged third stage of labour: morbidity and risk factors. National Library of Medicine. [online] 1991 Jun. [cited on: 2024 March 26]; Available from: URL <https://pubmed.ncbi.nlm.nih.gov/2030858/>.
- Dutta DC. Textbook of Obstetrics. 9th ed. New Delhi. Jaypee Brothers' medical publishers(p) Ltd. 2018. p:385
- World health organizations. WHO Postpartum haemorrhage Summit: a global public

- health concern. Dubai, United Arab Emirates. [online] 2023 March 07. [cited on 2024 March 28]. Available from: URL <https://www.google.com/gasearch?q=postpartum%20hemorrhage%20incidence%20who&tbm=&source=sh/x/g/m2/5>.
15. Kumari S. Patel M, Verma A, Pandit B, Louis F, Bapat K, et al. PPH Prevention and Management: Updated guidelines: Federation of Obstetric and Gynaecological Societies of India. [Internet]. 2022 Sep [cited on 2024 March 28]; Available from: URL <https://www.fogsi.org/wp-content/uploads/tog/pph-prevention-and-management-updated-sept-2022.pdf>
 16. Shadap A, Bhutia S, Pangambam S. Knowledge and Practice of Management of Third Stage of Labor (AMTSL) among Nursing Students in Selected Hospitals, Gangtok, Sikkim. *International Journal of Nursing & Midwifery Research*[online]. 2018 March. [cited on 2024 March 24]; 5(04). Available from: URL https://www.researchgate.net/publication/331900996_Knowledge_and_Practice_of_Active_Management_of_Third_Stage_of_Labour_AMTSL_among_Nursing_Students_in_Selected_Hospitals_Gangtok_Sikkim
 17. Rebecca D, Minehart MD, Hilary MD. Postpartum haemorrhage: The role of simulation. *Best Practice and Research Clinical Anaesthesiology*. [online]. 2022 Dec. [cited on 2024 April 04]; 36(4). Available from: URL <https://www.sciencedirect.com/science/article/abs/pii/S1521689622000532>
 18. Abd EL-hamid SM, Mahmoud S, Ahmed SM, Hamdy S, Zaid A, EL-adham F. Effect of high-fidelity simulation-based training program on nursing students' performances, self-efficacy, and confidence regarding prevention of postpartum-haemorrhage (PPH). *Tanta Scientific Nursing Journal*. [online]. 2021. [cited on 2024 March 24]; 23(4). Available from: https://tsnj.journals.ekb.eg/article_210729.html
 19. Alsaraireh.A, Prabhakaran GM, Raghavan D, Arulappan J, Khalaf A. Effect of a high-fidelity simulation-based teaching-learning experience on maternal health nursing student's knowledge of postpartum haemorrhage, confidence, and satisfaction. [online] 2023 Nov 07. [cited on 24 march 2024]; 19(1). Available from: <https://www.sciencedirect.com/science/article/pii/S1557308723002093>
 20. Kamboj N, Deaver U, Sarin U, Siddiqui A. Effectiveness of simulation-based learning regarding management of postpartum haemorrhage in terms of competencies among nursing students in selected nursing colleges of Ambala, Haryana. *Journal of Advanced Scientific Research*. [online]. 2022 Dec. [cited on 2024 March 28]; 13(10). Available from: URL
 21. Sharma S. *Textbook of Nursing Research and statistics*, 3rd edition, Elsevier Publication, India; Thomson's press, India.
 22. Talawar A, Khande A, Patil S. Fusing the Conceptual Framework with Ludwig Von Bertalanffy's General System Theory in Evidenced Based Research. *International Journal of Research Publication and Reviews*. [Internet]. 2025 March 22. Belagavi
 23. [cited on 2024 Dec 22].6(3). Available from URL: <https://ijrpr.com/uploads/V6ISSUE3/IJRPR40316.pdf>
 24. Sateminla L, Ruth L, Nongmiekepam M. Effect of planned teaching program regarding knowledge on detection and prevention of postpartum haemorrhage among B.Sc. nursing students in selected colleges, Guwahati, Assam. *Indian Journal of Community Medicine*. [online]. 2021 Dec. [cited on 2024 March 28];46(4): p 689-91. Available from: URL <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8729288/>
 25. Priya V. To evaluate the effectiveness of video assisted teaching (VAT)on knowledge regarding postpartum haemorrhage management drill among 4th year B.Sc. nursing students of a selected college at Mangalore. *Paripex Indian Journal of Research*. [online]. 2020 July. [cited on 2024 March 24]; 9(7). Available from DOI: <https://www.doi.org/10.36106/paripex>
 26. Mlata S. A study to evaluate the effectiveness of structured teaching program on knowledge regarding postpartum haemorrhage and its management among staff nurses in selected hospital, Rohru. *Journal of Emerging Technologies and Innovative Research*. [online]. 2021 Dec. [cited on 2024 March 29]; 8(12) Available from: URL <https://www.jetir.org/papers/JETIR2112405.pdf>
 27. Sharma J, Sharma A. A study to evaluate the effectiveness of structured teaching program on Knowledge regarding Preventive Measures of postpartum hemorrhage during Intranatal period among staff nurses working in selected hospital Jaipur, Rajasthan. *Asian journal of nursing education and research*. [online].2024 Dec 28. [cited on 2025 Jan 26];14(3). Available from URL: <https://ajner.com/AbstractView.aspx?PID=2024-14-3-3>
 28. Valamathi N, Rajalaxmi S. A study to assess the knowledge and practice regarding Prevention and management of postpartum Hemorrhage Among staff Nurses at selected hospital, Puducherry. *African Journal of Biological Sciences*. [online]. 2024. [Cited on 2025 Jan 22]; 6(11). Available from URL. <https://afjbs.com/uploads/paper/07e0201b9dbfc5d5cf2a5fb3cf7895f7.pdf>

29. Muthamilselvi G, Abirami K, Valaramathi N. A study to assess the effectiveness of structured teaching Program on management of postpartum hemorrhage among the nursing officers at srimanakula Vinayanagar medical college and Hospital, Puducherry. *Journal of medical and dental science research*. [online]. 2024 March 22. [cited on 2025 Feb 18];11(6). Available from URL: <https://www.questjournals.org/jmdsr/papers/vol11-issue6/11067381.pdf>
30. Ray SP, Sujita Devi N. Effectiveness of structured training program on knowledge and practice regarding management of postpartum haemorrhage among student nurses. *Journal of emerging technologies and innovative research*. [online]. 2023 June. [cited on 2024 March 20]; 10(6). Available from: URL https://www.researchgate.net/publication/376643930_effectiveness_of_structured_training_programme_on_knowledgeand_practice_regarding_management_of_post_partumhemorrhage_pph_among_student_nurses
31. Kharshandi S, Haobijam J, Shylla B. To assess the knowledge and practice regarding postpartum haemorrhage and its management among nurses working in selected rural and urban health care facilities, Meghalaya. *International Journal of Obstetrics and Gynaecological Nursing*. [online]. 2024. [cited on 2024 March 20]; 6(1). Available from: URL <https://doi.org/10.33545/26642298.2024.v6.i1a.128>
32. Hassen A, Mohammad H, Zaghoul M, Osman A. Effect of WHO Guideline on Nurse's Knowledge regarding Prevention and Management of Postpartum hemorrhage. *Port said scientific journal of nursing*. [online]. 2024 Sep 3. [cited on 2025 Jan 22];11(3) available from URL: https://journals.ekb.eg/article_383071_5eed9354a9e7893b04f221579348aa13.pdf
33. Elkholy GA, Ramdan S, Ouda S. Assessment of nurse's practical skills regarding avoidance of postpartum haemorrhage. *Egyptian Journal of Health Care*. [online]. 2017. [cited on 2024 March 20]; 8(3). Available from: URL https://ejhc.journals.ekb.eg/article_47309_d41d8cd98f00b204e9800998ecf8427e.pdf
34. Singh A. The effectiveness of video assisted teaching programme on knowledge and skills regarding management of postpartum hemorrhage. *International journal of practical nursing*. [online]. 2024 April 03. [cited on 2025 Feb 09];12(1). Available from URL: https://rfppl.co.in/subscription/upload_pdf/ijpn-vol12-no.1-s-pdf-p--7-10-1716015839.pdf
35. Mohamed H, Hasanein N, Mohamad A, Nora M. Nurses performances regarding the guidelines for prevention of Postpartum Hemorrhage. *Trends in nursing health care journal*. [online] 2024 April. [cited on 2024 Dec 22]; 8(1). Available from URL: https://tnhcj.journals.ekb.eg/article_348341_01d9cb5837b597ab178a683f6672a146.pdf
36. Elbadrawy S, Elmoneium E, Mohamady S. Assessment of nurse's knowledge and skills towards postpartum hemorrhage prevention. *International journal of health sciences*. [online]. 2022 July 18. [cited on 2025 Jan 22];6(54). Available from URL: <https://sciencescholar.us/journal/index.php/ijhs/article/download/11288/8176/8294>
37. Masumah H, Masoomah K, Jamileh A, Razia H. The effects if competency based education on midwifery students knowledge, skills and self confidence for postpartum hemorrhage management. *Nursing and midwifery studies*. [online] 2021 July. [cited on 2025 Jan 23];10(3). Available on : https://journals.lww.com/nams/fulltext/2021/10030/the_effects_of_competency_based_education_on.1.aspx
38. Dawood A, Ragab K, Soliman S, Shakawy A. Effect of Guideline on improving nurses practices for patients with early postpartum hemorrhage. *Egyptian journal of health care*. [online]. 2021. [cited on 2024 Dec 22]; 12(13) available from URL: https://ejhc.journals.ekb.eg/article_192782.html
39. Kibusi S, Mwamoagwa I, Joho A. Factors influencing nurses knowledge and skills in the prevention and management of Postpartum Hemorrhage among nurses working in Dodoma, Tanzania. *African journal of midwifery and women's health*. [online]. 2019 Nov. [Cited on 22 Dec 2024];13(7). Available from URL: <https://www.magonlinelibrary.com/doi/full/10.12968/ajmw.2018.0018>
40. Kamboj N, Deaver U, Sarin U, Siddiqui A. Effectiveness of simulation- based learning regarding management of postpartum haemorrhage in terms of competencies among nursing students in selected nursing colleges of Ambala, Haryana. *Journal of Advanced Scientific Research*. [online]. 2022 Dec. [cited on 2024 March 28]; 13(10). Available from: URL <https://sciensage.info/index.php/JASR/article/view/1889>
41. AbdElhakm EM, Elbana HM. Effect of simulation-based training on maternity nurse's performance and self -confidence regarding primary postpartum haemorrhage. *Egyptian Journal of Health care*. [online]. 2018 Aug. [cited on 2024 March 24]; 6(6). P: 388-97. Available from: URL <https://pubs.sciepub.com/ajnr/6/6/6/>.
42. Zaky HN. Effect of medium fidelity -based training on nurse's knowledge, performance and clinical judgement of postpartum haemorrhage. *IOSR Journal of Nursing and Health Science*. [online]. 2017 April. [cited on 2024 March 28]; 6(2). Available from: URL <https://www.iosrjournals.org/iosr-jnhs/papers/vol6-issue2/Version-3/N06020389100.pdf>

43. Mohammad SH, Amel, Omran HA, Elsayed HA, Salama MA. Effect of simulation training on intern nurse's competence and self-confidence regarding primary postpartum haemorrhage. *Journal of Nursing Science Benha University*. [online] 2023. [Cited on 2024 March 24]; 4(2) Available from: https://jnsbu.journals.ekb.eg/article_308787.html
44. Pansuwan K, Klankhajhon S. The effectiveness of using simulation based learning on nursing performances of early postpartum hemorrhage among nursing students Thailand. *Journal Keperawatan Padjadjaran*. [online]. 2021 December 22. [cited on 2025 February 22];9(3). Available from URL: <https://repository.unar.ac.id/jspui/bitstream/123456789/531/1/175-180.pdf>
45. Kumar N, Pathak S, Singh N, Rudra S. Effectiveness of simulation technique in learning process for prevention of Postpartum hemorrhage in obstetrics and gynaecology. *International journal of reproduction, contraception, obstetrics and gynaecology*. [online] 2016 July 18. [cited on 2024 Dec 23];5(8). Available from URL: <https://www.ijrcog.org/index.php/ijrcog/article/download/1515/1378/0>
46. Alserairch A, Madhavanprabhakaran G, Raghavan D, Arulappan J. Effect of high fidelity simulation based teaching learning experience on maternal health nursing students knowledge, skill and confidence. *Teaching and learning in nursing*. [online]. 2023 Nov. [cited n 2025 Jan 22];19(3). Available from URL: <https://linkinghub.elsevier.com/retrieve/pii/S1557308723002093>.
47. Salam A, Elbahlowan G, Eman S. Effectiveness of video simulation on increasing maternity nurses knowledge, practice and self efficiency in managing primary postpartum hemorrhage. *Port said scientific journal of nursing*. [online]. 2022 Aug 02. [cited on 2024 Dec 21];9(2). Available from URL: https://pssjn.journals.ekb.eg/article_255880_e71d9526d3b6229b58ea5f9484a0f346.pdf
48. Polit DF, Beck C T. *Nursing research: principles and methods*. 6th edition. Philadelphia; Lippincott Williams and Wilkins company. 2017. Page no: 22-345.
49. Begum K, Bhatakhande A, A study to evaluate the effectiveness of self instructional module on knowledge regarding prevention of perinatal injuries during child birth among final year students at selected colleges of Hubballi. [cited on 2025 Mar 23].
50. Rachel D, Bhatakhande A, A comparative study to evaluate the effectiveness of video assisted teaching vs individualized learning module on knowledge regarding non pharmacological management during labour among nurses in Hubballi. [cited on 2025 Jan 22].
51. Niveditha, Manjunath G S, Effectiveness of illustrated teaching program on knowledge regarding inotropic drugs among final year nursing students at selected nursing institutes Hubballi. [cited on 2045 Apr 3].
52. Yakkeri M. Kalmath S, A study to evaluate the effectiveness of developmental supportive care program on knowledge regarding care and management of low birth weight baby among care givers at selected hospitals, Hubballi. [cited 2025 Mar 12].
53. Anthoniyammal A, Manjunath G S, A study to evaluate effectiveness of simulation based learning on knowledge and competency regarding CPR among third year students at selected colleges of Hubballi. [cited on 2024 Dec 23].
54. Bulbule S, Bhatakhande A, Effectiveness of information education communication approach on knowledge regarding Human papilloma virus vaccination among adolescent girls, Hubballi. [cited on 2024 Dec 21].