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Original Article

Effect of Nursing Care Practices Based on Clinical Interventions on the Incidence of Primary Post-Partum Hemorrhage in Females Undergoing Spontaneous Vaginal Delivery

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ABSTRACT

Post-Partum Hemorrhage (PPH) has many reported causes such as retained placenta, genital tract lacerations and uterine atony. **Objective:** To see effect of Nursing Care Practices based on Clinical Interventions on the Incidence of Primary Post-Partum Hemorrhage in females undergoing spontaneous vaginal delivery (SVD). **Methods:** In this study Pre & Post Study design was used. Sample size 196 was used respectively for Incidence of Primary PPH. In this study Sampling Technique Purposive was used. September 2021 to May 2022 was study duration in which study was conducted. Mothers who were advised to undergo Spontaneous Vaginal Delivery by an obstetrician. Females were including in this study whose maternal age was in years 20-50years. Females admitted to gynecology ward for lower segment caesarian section (LSCS) and Females diagnosed with Preeclampsia were excluded from the study. The Incidence Checklist for PPH was adopted with (Cronbach alpha = 0.89). **Results:** There was a significant improvement in the incidence of Primary PPH was 27.55% in females undergoing SVD before any change in nursing practices. However, the incidence decreased to 14.48% after clinical interventions in nursing care practices. **Conclusions:** Nursing Care Practices based on Clinical Interventions was effective. Clinical interventions in nursing care practices showed significant improvement. Furthermore, it also reduces the incidence of Primary PPH and ultimately decreases hospital stay.

INTRODUCTION

When a blood loss exceeds 500 mL is known as Primary Post-Partum Hemorrhage (PPH) which was takes place within 24 hours of delivery. Primary PPH is responsible for 40% of maternal deaths in emergent countries [1]. Primary PPH normally happens throughout; 3rd & 4th stages of labor, birth of an infant with a placenta & two hours after delivery. In low-income developing countries Primary PPH is responsible for 40% of maternal deaths. There have been observations about miscalculation of blooding by healthcare providers after delivery. Nurses as healthcare providers can perform many tasks that can considerably minimize the incidence of primary PPH but due to limited scope and over workload in government hospitals, therefore tasks not being carried out by nurses properly [2]. Around 13 to 30% of females suffer Primary PPH soon after delivery with more than 500 ml of blood loss, however, 4-7% bleed up to 1000 ml. More than half (>60%) of the pregnant females in Africa suffer anemia during pregnancy. Unfortunately, if they end up with primary PPH, they don't have much reserve in the body. Therefore, primary PPH must be prevented and treated timely for a safe maternal outcome. To ensure a safe maternal outcome, it is of all importance that healthcare providers should have the sound skill to deal with pregnant females. Conversely,

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several births are still not attended by qualified health experts [3]. Similarly, primary PPH has caused approximately 40% of maternal deaths globally. Despite the massive funding that has been done in maternal and child health by different international organizations such as the World Health Organization (WHO), the United Nations (UN), the United Nations International Children's, the United Nations Population, and the World Bank Group. Yet it is estimated that around 300,000 mothers died in 2019, out of which 90% of deaths were reported in developing countries [4]. It has been frequently seen that even when the amount of hemorrhage is very low and gradual, it can still progress to remarkable blood loss which can lead to shock. It might happen due to the remaining tissues inside the reproductive organs, if not removed completely [5]. Around 13 to 30% of females suffer Primary PPH soon after delivery with more than 500 ml of blood loss, however, 4-7% bleed up to 1000 ml. More than half (>60%) of the pregnant females in Africa suffer anemia during pregnancy. Unfortunately, if they end up with primary PPH, they don't have much reserve in the body. Therefore, primary PPH must be prevented and treated timely for a safe maternal outcome. To ensure a safe maternal outcome, it is of all importance that healthcare providers should have the sound skill to deal with pregnant females. Conversely, several births are still not attended by qualified health experts [3]. Maternal morbidity and mortality in low & high-income countries is high due to PPH. This is known as a leading cause. Although, it has become less fatal in high-income or developed countries due to advancements in treatment modalities. However, it is still known as an obstetric emergency that occurs after a vaginal delivery within 24 hours [6]. Primary prophylaxis helps reduce average postpartum blood loss and reduce the incidence of postpartum bleeding [7]. According to one study, only one-third of nurses reported having awareness about uterine massage which is part of aggressive management [8]. On the other hand, despite having these Contributing issues, mostly females never develop Primary PPH. The only intervention known to prevent PPH is AMTSL. At that time risk factors for Primary PPH include increasing maternal age, fetal macrocosmia, primiparity, multiple gestations, and history of cesarean section, extended labor, fibroids and episiotomy [9]. A study was conducted in Tanzania to assess knowledge and practices among nurses regarding the prevention and management of primary PPH. A total of 152 nurses were enrolled out of which only 44.8% had sufficient knowledge and only 38.4% of them had appropriate skills in the prevention and management of primary PPH [10]. Primary PPH can be prevented through identifying signs and symptoms, proper assessment of blood loss, and better practices by healthcare providers such as sound knowledge and skills [11]. During spontaneous vaginal delivery, nurses are responsible for administering intravenous (IV) fluids; volume expanders; blood products as instructed; and obtaining blood samples for essential baseline lab investigations. To improve nursing care practices, a nurse should be assigned to a limited number of patients with training to regularly examine and record the mother's vital signs, calculate vaginal blood loss, and assess uterine tone and size [12]. Empirical studies on PPH prevention show that approximately 75% of maternal deaths had been attributed to insufficient teamwork and communication in clinical settings. On the other hand, good teamwork and communication have a positive effect on the care provided in delivery rooms by nurses [13]. In the United States (US), the incidence of Post-Partum Hemorrhage has been increasing at a shocking rate. Between 1999 to 2012 The incidence of Primary PPH increased by 30% which was attributed to uterine atony. This increase was thought to be some unknown cause. Few other studies reported the prevalence of Post-Partum Hemorrhage as 15%, indicating an urgent need for intervention to address this phenomenon [14]. The rationale of this study is that in the labor room and gynecology wards there is often a miscalculation of blood loss after delivery. Furthermore, many essential practices should be performed during labor such as fundus massage, control cord traction (CCT), and administration of oxytocin soon after delivery, which are not seen in routine practices in public sector hospitals. According to records of the study setting, it is estimated that about 10-15% of females end up with primary PPH which could be minimized by improving nursing care practices regarding the third and fourth stages of labor in females undergoing spontaneous vaginal delivery (SVD) [15].

METHODS

Pre and post-test Quasi-experimental study design was used. Sampling technique Purposive was used in this study to meet study objectives. The study was conducted on admitted Patients of the Gynecology department of Allied Hospital Faisalabad, Pakistan (Faisalabad Medical University). After approval was taken from the University. Which was situated in Lahore Pakistan (IRB-UOL-FAHS/932//2021). Study duration was 9 months from September 2021 to May 2022.Females undergoing SVD, a sample size of 196 was calculated with a 95% confidence interval, a 5% margin of error, and an expected percentage of a decreased incidence of Primary PPH of 15 % [15]. Before Participation informed Consent was signed by all participants. All information was kept Confidential after taken from them. In this study females age 20-50 years

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were included. Mothers who were advised to undergo Spontaneous Vaginal Delivery by an obstetrician also included in this study. Those Females were already diagnosed with pre-eclampsia and admitted for LSCS also excluded from the study. This checklist consists of demographic and incidence of primary PPH information. The demographic information included age, occupation, gravida, education, and medical History. Whereas, the following section measured the incidence of Primary Post-Partum Hemorrhage. The presence of Primary PPH which was categorized as: Mild bleeding if the amount was <400ml. Moderate bleeding if the score was 400ml-500ml. Severe if the score was >500ml. The incidence of Primary Post-Partum Hemorrhage was marked "1" if the bleeding was >500 ml and "0" if ≤500.At working place Participants were assessed by Clinical assessor through maintaining their privacy. Clinical interventions were given in 16 weeks. Each group was involved in intervention 6 days a week (Monday to Saturday). The intervention was delivered by a researcher and 2 gynecologists. The intervention consists of 1-1.5 hours of educational sessions followed by practices in clinical areas in the following days. For instance, a group of participants who received educational sessions on Monday will be observed to ensure its implementation on the following days for 16 weeks. On average, each group received a total of 20 hours of educational sessions followed by 16 weeks of clinical care exposure in the presence of experts (gynecologists) Furthermore, out of 7 groups, 5 groups received educational sessions on Mondays to Fridays. Whereas; groups 6 and 7 received educational sessions on Saturdays of each week. To ensure that the participants were implementing the practices in clinical areas after receiving educational sessions, three nurses from non-gynecology departments were trained to observe them. The participants were provided with handouts to guide them in need. All the educational sessions were given in the classroom of Gynecology unit 1 for all groups. Moreover, during the session PowerPoint presentations, skits, videos, and scenarios were presented to the participants to boost their critical thinking and problem-solving skills. The intervention was developed using literature and books on nursing care practices and primary post-partum Hemorrhage. In the post-assessment phase, the data were collected after 15 days of intervention completion through the same adopted incidence of Primary PPH checklists from patients, respectively. The Incidence Checklist for PPH was adopted by the researcher for (Cronbach alpha = 0.89). Data were collected through a structured checklist. It was entered and analyzed in SPSS version 24.0. Quantitative variables were presented in Frequencies, Percentages. the Chi-Square test was applied to Compare Pre and Post Incidence of Primary Post-Partum hemorrhage in females.

RESULTS

Table 1 shows that 53(27.0%) patients were aged between 20-25 years, 59(30.1%) patients were between 26-30 years, 55 (28.1%) of them were between is 31-35years, and 29 (14.8%) were aged between 36-40years. Furthermore, 56 (28.6%) and 140(71.4%) patients presented had primary and multi-Gravida, respectively. In regards to occupation, 27 (13.8%) females were employed, whereas, a majority of 169 (86.2%) females were housewives. Similarly, about the education, 30(15.3%), females had primary education, 35(17.8%) had secondary (matriculation), 36(18.4%) had intermediate and above, whereas, 95(48.5%) participants were uneducated.

Table 1: Demographic Characteristics of Participants (Patients, n=196)

Demographic Characteristic	Frequency (%)
Age (Years)	
20-25	53(27)
26-30	59(30.1)
31-35	55(28.1)
36-40	29(14.8)
Education	
Primary	30(15)
Matric	35(18)
Intermediate & above	36(18)
Un-educated	95(49)
Gravida	
Primary Gravida	56(28.6)
Multi-Gravida	140(71.4)
Occupation	
Employed	27(13.8)
Housewife	169(86.2)
Total (each characteristic)	196(100)

Table 2 demonstrate that majority patients were having no illness 128(65.3%) although 11(5.6%) were hypertensive and 37(18.9%) were anemic as well as 7(3.6%) were diagnosed with diabetes, 2(1.0%) had a history of heart disease, 5(2.6%) had blood clotting disorder, whereas 6(3.1%) of them did not want to disclose their disease so researcher put them in others.

Table 2: Medical History of Research Participant (Patients n=196)

Conditions	Frequency (%)
No Illness	128(65.3)
Hypertension	11(5.6)
Anemia	37(18.9)
Diabetes	7(3.6)
Heart Disease	2(1.0)
Blood Clotting Disorder	5(2.6)
Others	6(3.1)
Total	196(100)

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As shown in Table 3, in pre-interventions period majority of patients had mild blood loss during delivery 118(60.2%) which decrease to 107 (54.6%) after the intervention. On contrary, 24(12.2%) patients had moderate blood loss during delivery in pre-intervention which, however, increased in 61(31.1%) patients after the intervention. Interestingly, 54(27.5%) patients had severe blood loss during delivery in pre-intervention which significantly decreased in almost half of 28(14.3) patients as compared to patients who fall in the severe category.

Table 3: Categories of Blood Loss before and After the Intervention

	Frequency (%)	Frequency (%)
Mild <400ml	118(60.3)	107(54.6)
Moderate 400-500ml	24(12.2)	61(31.1)
Severe >500	54(27.5)	28(14.3)
Total	196(100)	196(100)

As shown in Table 4, there were a total of 54 (27.5) patients who developed PPH (>500ml blood loss) before any intervention in nursing care practices, however, this number decreased significantly by 28 (14.3%) after the nursing care practices were improved following administration of intervention. Incidence of Primary Post-Partum Hemorrhage was significantly decreased after the intervention as compared to the pre-score. Therefore, it can be concluded that there is an effect of nursing care practices based on clinical intervention on the incidence of primary PPH as evident by the p-value <0.01.

Table 4: Comparison of Incidence of Primary Post-Partum Hemorrhage Pre & Post Intervention (n=196)

PPH Status	Pre-Intervention Frequency (%)	Post-Intervention Frequency (%)	p-value
Developed (bleeding >500ml)	54(27.5)	28(14.3)	<0.01
Not developed (bleeding <500ml)	142(72.5)	168(85.7)	
Incidence per hundred patients over 6 months	27.55	27.55	

DISCUSSION

Demographics of patients (participants) in current study majority of the participants age ranges 26-30 years 59(30.1%). Mostly participants were uneducated 95(49%). Mostly females were multigravida 140(71.4) and most of them were housewife's 169(86.2). The findings of the current study were similar to the study were conducted in Ethiopia in 2021. Incidence rate was 12.5% in this study [6]. The findings of current study were contradicted to another study which was conducted in Tanzania. The incidence rate was 7% due to educational interventions for 16 weeks regularly [16]. Supporting one interventional quasi-experimental single group study conducted in South Nigerian Hospital, Nigeria (2019). Its results also showed significant results as compare to current study. Current Study results compare to another study by Kebede *et al.*, where pre-intervention incidence rate of Primary Post-Partum Hemorrhage was 35% which was decreased to 15% after interventions [17]. One more Contradictory study was conducted in a government tertiary hospital in Japan (2019). The incidence rate for Primary Post-Partum Hemorrhage in this study was 8.7% Because in this study sample size was small as compare to current study so through interventions their patient's outcome was more improved [18]. To improve students' knowledge skills and practices for better patient outcomes and enhance their confidence must arrange student-centered approaches on regular basis through evidence base practice [19]. During the fourth stage of labor, many life-threatening problems develop, which can be avoided with diligent nursing attention. Furthermore, the majorities of Post-Partum Hemorrhage difficulties arise while untrained health worker performs delivery with minor or zero expertise in labor for prevention of Primary Post-Partum Hemorrhage [20].

CONCLUSIONS

Results showed significant improvement related to nursing care practices to reduce incidence of Primary PPH in statistical Analysis. Therefore, an improvement in the nursing care practices through clinical interventions during the third stage of labor for females during delivery and also ensuring proper follow-up of practical skills during delivery is very helpful to developing healthy maternal outcomes. This reduces the incidence rate of PPH in females and the duration of hospital stay is also reduced.

Authors Contribution

Conceptualization: IK
Methodology: NS
Formal analysis: NS
Writing-review and editing: NH, IK, RK

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFRENCES

[1] Wormer KC, Jamil RT, Bryant SB. Acute postpartum hemorrhage. InStatPearls. 2022 May. StatPearls Publishing.
[2] Borovac-Pinheiro A, Priyadarshani P, Burke TF. A

DOI: https://doi.org/10.54393/pjhs.v4i04.657

review of postpartum hemorrhage in low-income countries and implications for strengthening health systems. International Journal of Gynecology & Obstetrics. 2021 Sep; 154(3): 393-9. doi: 10.1002/ijgo.13618.

[3] Nigussie J, Girma B, Molla A, Tamir T, Tilahun R. Magnitude of postpartum hemorrhage and its associated factors in Ethiopia: a systematic review and meta-analysis. Reproductive Health. 2022 Dec; 19(1): 1-3. doi: 10.1186/s12978-022-01360-7.

[4] UNICEF. Advantage or paradox? The challenge for children and young people of growing up urban. United Nations; 2019 Jan. Last Cited: [2nd May 2023]. Available at: https://data.unicef.org/resources/urban-paradox-report/

[5] Bienstock JL, Eke AC, Hueppchen NA. Postpartum hemorrhage. New England Journal of Medicine. 2021 Apr; 384(17): 1635-45. doi: 10.1056/NEJMra1513247.

[6] Amanuel T, Dache A, Dona A. Postpartum hemorrhage and its associated factors among women who gave birth at Yirgalem General Hospital, Sidama Regional State, Ethiopia. Health Services Research and Managerial Epidemiology. 2021 Nov; 8: 23333928211062777. doi: 10.1177/23333928211062777.

[7] Saccone G, Caissutti C, Ciardulli A, Abdel-Aleem H, Hofmeyr GJ, Berghella V. Uterine massage as part of active management of the third stage of labour for preventing postpartum haemorrhage during vaginal delivery: a systematic review and meta-analysis of randomised trials. BJOG: An International Journal of Obstetrics & Gynaecology. 2018 Jun; 125(7): 778-81. doi: 10.1111/1471-0528.14923.

[8] Muyanga DL and Joho AA. Knowledge and skills on active management of third stage of labor for prevention of post-partum haemorrhage among health care providers in Lake Zone, Tanzania: a cross sectional study. BMC Women's Health. 2022 Feb; 22(1): 36. doi: 10.1186/s12905-022-01616-1.

[9] Davey MA, Flood M, Pollock W, Cullinane F, McDonald S. Risk factors for severe postpartum haemorrhage: A population-based retrospective cohort study. Australian and New Zealand Journal of Obstetrics and Gynaecology. 2020 Aug; 60(4): 522-32. doi: 10.1111/ajo.13099.

[10] Angelina JA, Kibusi SM, Mwampagatwa I. Factors influencing nurses' knowledge and skills in the prevention and management of postpartum haemorrhage. African Journal of Midwifery and Women's Health. 2019 Oct; 13(4). doi: 10.12968/ajmw.2018.0018.

[11] Muñoz M, Stensballe J, Ducloy-Bouthors AS, Bonnet MP, De Robertis E, Fornet I, *et al*. Patient blood management in obstetrics: prevention and treatment of postpartum haemorrhage. A NATA consensus statement. Blood Transfusion. 2019 Mar; 17(2): 112.

[12] Grippi C. Factors That Influence Women's Symptoms of Postpartum Depression After Discharge of Their Preterm Infants From the NICU. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2021 Sep; 50(5): 610-20. doi: 10.1016/j.jogn.2021.05.003.

[13] Ngwenya S. Postpartum hemorrhage: incidence, risk factors, and outcomes in a low-resource setting. International Journal of Women's Health. 2016 Nov: 647-50. doi: 10.2147/IJWH.S119232.

[14] Hawker L and Weeks A. Postpartum haemorrhage (PPH) rates in randomized trials of PPH prophylactic interventions and the effect of underlying participant PPH risk: a meta-analysis. BMC Pregnancy and Childbirth. 2020 Dec; 20(1): 1-2. doi: 10.1186/s12884-020-2719-3.

[15] Mavrides E, Allard S, Chandraharan E, Collins P, Green L, Hunt BJ, *et al.* Prevention and Management of Postpartum Hemorrhage. BJOG: An International Journal of Obstetrics & Gynaecology. 2016 Dec; 124(50): e106-e149. doi: 10.1111/1471-0528.14178

[16] Angelina JA, Stephen KM, Ipyana M. The impact of low fidelity simulation on nurse competence in active management of third stage of labor: An intervention study in primary health care settings in Tanzania. Clinical Simulation in Nursing. 2021 Jul; 56: 10-21. doi: 10.1016/j.ecns.2021.03.009.

[17] Kebede BA, Abdo RA, Anshebo AA, Gebremariam BM. Prevalence and predictors of primary postpartum hemorrhage: An implication for designing effective intervention at selected hospitals, Southern Ethiopia. PloS one. 2019 Oct; 14(10): e0224579. doi: 10.1371/journal.pone.0224579.

[18] Fukami T, Koga H, Goto M, Ando M, Matsuoka S, Tohyama A, *et al*. Incidence and risk factors for postpartum hemorrhage among transvaginal deliveries at a tertiary perinatal medical facility in Japan. PloS One. 2019 Jan; 14(1): e0208873. doi: 10.1371/journal.pone.0208873.

[19] Ramel Jr RC and Apsay KL. Efficacy of Student-Centered Conceptual Teaching Approach (SCCTA) on the Learning Skills of Nursing Students. Open Journal of Nursing. 2017 Nov; 7(11): 1324-34. doi: 10.4236/ojn.2017.711095.

[20] Ramavhoya TI, Maputle MS, Lebese RT, Makhado L. Midwives' challenges in the management of postpartum haemorrhage at rural PHC facilities of Limpopo province, South Africa: an explorative study. African Health Sciences. 2021 Apr; 21(1): 311-9. doi: 10.4314/ahs.v21i1.40.