



## Summary of thesis - Risk Factors of PPH in Tertiary care centre

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### I. INTRODUCTION:

Post Partum Haemorrhage (PPH)

Post Partum haemorrhage (PPH) is a leading cause of death and morbidity relating to pregnancy worldwide. Women with PPH in a pregnancy are at increased risk of PPH in a subsequent pregnancy. The following are the gravity and impact of Post Partum haemorrhage (PPH):

#### 1.Global and Regional Burden:

Statistics on the prevalence of PPH globally: Approximately, 14 million women suffer PPH annually. Worldwide, 529,000 pregnancy-related deaths occur every year. PPH contributes to 25–30% of these deaths in the developing world.

PPH as a leading cause of maternal mortality and morbidity:

PPH is a significant contributor to maternal deaths and complications worldwide due to the mortality rates associated with PPH and the lasting health issues women can face after experiencing it.

#### 2.Physical and Psychological Impact:

Physical consequences of PPH:

The immediate physical effects of PPH, such as severe blood loss, anaemia, and potential need for blood transfusions cannot be underestimated. The potential long-term physical consequences of PPH are, likely organ dysfunction or complications in future pregnancies.

Psychological impact of PPH:

The psychological trauma associated with PPH are anxiety, fear, and potential post-traumatic stress disorder (PTSD) some women experience after a severe haemorrhage.

#### 3.Economic Burden:

Costs associated with PPH treatment:

The financial strain PPH places on healthcare systems are also enormous. This involves the resources required for blood transfusions, extended hospital stays due to complications, and potential surgical interventions.

Indirect economic impact:

There is also an indirect economic burden of PPH. This involves considering lost income due to extended hospitalizations, inability to return to

work, or long-term health issues stemming from PPH.

The above all factors reveals the multifaceted threat PPH poses to maternal health and well-being which establishes the importance of further research required in this area, paving the way for a deeper understanding of risk factors and ultimately improved preventative and management strategies.

#### Objectives of the Thesis

The following are the objectives of the thesis:

##### Primary Objective:

1. To study the risk factors during antepartum period which are associated with postpartum haemorrhage.
2. To identify the factors in labour that are associated with postpartum haemorrhage.

##### Secondary Objective:

1. To find out the prevalence of maternal near-miss cases of PPH.
2. To determine the use of blood and blood products in PPH.

#### Review of Literature on PPH

In this section a review of existing body of research on postpartum hemorrhage (PPH) is carried out. The analysis of literature reveals the following:

##### 1.Study on incidence of PPH:

In this section various studies regarding incidence and classification of PPH based on the volume of blood loss (e.g., mild, moderate, severe) are reviewed. This highlights the importance of using standardized definitions for accurate comparisons across studies. Eg. Carole and colleagues, Combs and co- workers, Sosa and co investigators, Geller and co- workers.

##### 2. Temporal Trends in rates of PPH:

This section discusses increasing trend in rates of PPH based on studies from both Australia and Canada. Eg. Cameron and colleagues, Joseph and colleagues.

##### 3. Recurrence of PPH:

This section discusses the recurrence of PPH. Eg, Ford and colleagues.



**Clinical Presentation:** The section details the clinical signs and symptoms that healthcare professionals use to diagnose PPH. This involves discussing symptoms like rapid heart rate, dizziness, and pale skin, alongside the importance of accurate blood loss measurement for definitive diagnosis.

#### Causes of PPH:

##### Uterine Atony:

This is found to be the most common cause of PPH, where the uterus fails to contract firmly after delivery, leading to continued bleeding.

##### Other Causes:

The other causes of PPH are:

**Retained placenta:** When a portion of the placenta remains attached to the uterine wall after delivery.

**Uterine rupture:** A tear in the uterine muscle that can cause severe bleeding.

**Trauma:** Injuries sustained during childbirth, such as lacerations in the cervix or vagina, can contribute to PPH.

**Review and Categorization of Risk Factors:** The review of literature categorizes known risk factors for PPH:

\* **Maternal factors:** Age, parity, pre-existing medical conditions (anemia, fibroids, hypertension)

\* **Pregnancy factors:** Multiple gestation, macrosomia, placenta previa, abruption placenta (premature detachment of the placenta)

\* **Labor factors:** Prolonged labor, instrumental delivery, operative delivery, use of medications to induce or augment labor

\* **Temporal Trends:** The section explores existing research on changes in PPH incidence over time. This involves discussing potential explanations for these trends, such as advancements in obstetric practices or changes in demographics of women giving birth.

By reviewing existing literature, this section establishes and highlights what is already known about PPH, its causes, and established risk factors and thus contributes to new knowledge and potentially refine our understanding of PPH risk factors.

#### Research Design and Methodology

This section of the thesis discusses the methodological details of the study. The following is the breakdown of design and methodology of research:

#### Study Design:

\* **Case-Control Details:** The study is designed as a case-control study and it explains the rationale behind this choice, such as its effectiveness in identifying risk factors associated with a specific outcome (PPH in this case). The study is set at Labour Room of Department of Obstetrics and Gynaecology, SAT Hospital, Thiruvananthapuram.

\* **Study Population:** All cases of primary PPH who delivered in SAT Hospital either vaginally or by caesarean section as well as those women who delivered outside but were referred to SAT Hospital with history of PPH with 24 hours of delivery.

#### \* STUDY SUBJECTS:

**Inclusion Criteria:** All cases of primary PPH, i.e., developing PPH within 24 hours of delivery.

**Exclusion Criteria:** All cases of secondary PPH, i.e., developing bleeding after 24 hours of delivery.

**Sample Size:** Sample size was estimated to be 84 after taking the incidence of PPH in our hospital as 2%.

#### CONTROLS:

The next subsequent case in the OR Register who did not develop PPH after delivery was selected as control.

#### STUDY PERIOD:

One year period.

\* **Cases:** The section outlines the criteria used to define women who experienced PPH. This could involve specifying a minimum blood loss volume or other diagnostic parameters used to confirm PPH cases. (Mild, Moderate and Severe)

\* **Controls:** The section details how the control group was selected. Control group are the women who delivered at the same healthcare facility during a similar timeframe but did not experience PPH. The section explains how the researcher ensured the control group was comparable to the case group on factors not directly related to PPH (e.g., age, parity).

#### Conduct of Study

All women developing PPH following either vaginal delivery or following caesarean section in SATH as well as those who delivered outside but were referred to SATH as PPH were included in the study. Blood loss during delivery was measured to find out whether the woman had postpartum haemorrhage or not. A plastic basin



was used to collect the blood after the delivery of the baby. The blood was allowed to collect into the basin as long as woman remained on the delivery coat. At the end of the blood collection period, this blood was poured into a calibrated measuring cylinder and the blood loss was measured. The blood collecting in the suction apparatus was measured to find out blood loss in caesarean section.

In women who were referred from outside, the diagnosis for PPH was obvious as most of them required either blood transfusion or were hemodynamically compromised. After selection of the cases and the controls, the antenatal risk factors in these women were studied with the help of antenatal records available. Also the intrapartum factors in labour contributing to PPH were studied. The additional measures that were taken in these women to control bleeding were studied. The complications in women with severe PPH were also studied.

All the data was collected by means of a proforma. All the data was entered in excel sheet and analysed using SPSS software. Chi square test was used to measure the association between the various risk factors and postpartum haemorrhage. Odd's ratio was used to measure the risk. And finally logistic regression analysis was used to find out the contribution of various risk factors in postpartum haemorrhage.

#### Data Collection Methods:

\* Data Sources: This section details the methods used to collect data from participants which involved,

\* Medical records review: Extracting relevant information on demographics, medical history, pregnancy details, labor course, and delivery outcomes from participants' medical charts.

\* Standardized questionnaires: Administering questionnaires to participants to gather information that might not be readily available in medical records (e.g., sociodemographic factors, lifestyle habits).

#### Data Analysis Techniques:

\* Statistical Analysis: The section describes the statistical methods used to analyze the collected data which are:

\* Descriptive statistics: Summarizing data on participant characteristics and PPH prevalence using measures like frequencies, means, and medians.

\* Inferential statistics: Identifying associations between potential risk factors and PPH occurrence. This involves techniques like chi-square tests for

categorical data or logistic regression for identifying independent risk factors.

#### Unveiling the Findings and Results:

The results section of the dissertation unveils the key discoveries gleaned from the research on postpartum hemorrhage (PPH). Following is summary of this section:

##### PPH Prevalence:

\* Overall Rate: This section presents the percentage of women in the study population who experienced PPH. This statistic establishes a baseline understanding of PPH prevalence within the specific study context.

##### Identified Risk Factors:

\* Categorization and Analysis: The results presents the identified risk factors for PPH, potentially categorized as maternal, pregnancy, or labor factors, similar to how the objectives and methodology sections have outlined.

\* Statistical Significance: For each identified risk factor, the results section reports the statistical significance of the association with PPH. This involves presenting p-values or confidence intervals to indicate the strength of the evidence linking the factor to PPH.

##### Maternal Near-Miss Cases:

\* Prevalence: The results reports the number or percentage of women within the study who experienced a maternal near-miss PPH event. This reveals the occurrence of severe PPH cases that did not result in death.

##### Blood Product Use:

\* Analysis of Types: The results details the specific blood products used in PPH cases (e.g., packed red blood cells, fresh frozen plasma, platelets). This provides insights into the severity of PPH events and the types of blood component replacements needed.

\* Quantities Used: The results reports the volume or units of blood products transfused in PPH cases. This can further illustrate the severity of blood loss and the extent of blood replacement therapy required.

By presenting these findings, the results section provides a clear picture of the risk factors associated with PPH within the study population. It reveals the prevalence of PPH, identifies specific factors contributing to its occurrence, and sheds light on the severity of PPH cases encountered.



#### Discussion Section

The discussion section details the interpretation and significance of the research findings on postpartum hemorrhage (PPH). The following is the summary of this section:

#### Interpreting the Findings:

\* **Explanation of Risk Factors:** The section explains how the identified risk factors contribute to PPH. For example, it discusses how pre-existing anemia in mothers can limit their ability to tolerate blood loss, or how instrumental deliveries can increase the risk of uterine trauma leading to PPH.

\* **Comparison with Existing Literature:** The discussion compares the study's findings to existing research on PPH risk factors. This comparison highlights similarities or discrepancies, potentially leading to explanations for the observed results.

#### Strengths and Limitations:

\* **Strengths of the Study Design:** The section acknowledges the strengths of the chosen case-control design, such as its effectiveness in identifying associations between risk factors and PPH.

\* **Limitations Addressed:** The section addresses the limitations of the study. This involves discussing limitations inherent to case-control studies (e.g., potential recall bias) or limitations specific to the study setting or sample population. Additionally, the section acknowledges any limitations in data collection or analysis methods.

#### Clinical Implications:

\* **Improved Risk Identification:** The discussion explores how the findings can be used to improve the identification of women at risk for PPH and suggesting incorporation of identified risk factors into existing PPH risk assessment tools.

\* **Enhanced Prevention and Management:** The section discusses how the study's findings can inform strategies for preventing and managing PPH and exploring the need for interventions targeted towards specific risk factors or emphasizing the importance of close monitoring for women identified as high-risk.

#### Future Research Directions:

\* **Unanswered Questions:** The discussion acknowledges unanswered questions or areas where further research is needed and exploring the biological mechanisms underlying identified risk factors or investigating the effectiveness of specific preventative interventions for PPH.

This section highlights the significance of the research findings for clinical practice and future research endeavors and plays a crucial role in

translating the study's contribution to improving our understanding and management of PPH.

## II. CONCLUSION

The following is a conclusion of the thesis:

#### Restatement of Key Findings:

\* **Summary of Risk Factors:** The conclusion reiterates the main risk factors for PPH identified in the study.

#### Clinical Significance:

\* **Impact on PPH Management:** The conclusion emphasizes the clinical significance of the research. It discusses how the identified risk factors can contribute to improved preventative measures and management strategies for PPH. This highlights the practical implications of the research for healthcare professionals.

#### Future Directions:

\* **Areas for Further Research:** The conclusion acknowledges the limitations of a single study and propose areas for future research and exploring the need for larger studies, investigating the biological underpinnings of identified risk factors, or testing the efficacy of specific preventative interventions. This paves the way for continued advancements in PPH prevention and management.

Overall, the conclusion section summarizes the main takeaways from the research and underscores the study's contribution to the field of obstetrics by highlighting the clinical significance of the findings and laying the groundwork for future research endeavors.