Depression and Domestic Violence Experiences Among Postpartum Women in Nepal

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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health in Public Health
Common Course
College of Public Health Sciences
Chulalongkorn University
Academic Year 2019

ภาวะซึมเศร้าและประสบการณ์ความรุนแรงในครอบครัวของหญิงหลังคลอดในประเทศเนปาล

นางพาวลาวี โกยราลา

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
สาขาวิชาสาธารณสุขศาสตร์ ไม่สังกัดภาควิชา/เทียบเท่า
วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2562

Thesis Title	Depression and Domestic Violence Experiences Among Postpartum Women in Nepal
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Field of Study	Public Health
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พาวลาวี โกยราลา :
ภาวะซึมเศร้าและประสบการณ์ความรุนแรงในครอบครัวของหญิงหลังคลอดในประเทศเนปาล. (Depression and Domestic Violence Experiences Among Postpartum Women in Nepal) อ.ที่ปรึกษาหลัก : อ. ดร.มนทกานติ์ เชื่อมชิต

บทนำ:ภาวะซึมเศร้าหลังคลอดเป็นสาเหตุสำคัญประการหนึ่งของการเจ็บป่วยและการเสียชีวิตของมารดาและทารก มีงานวิจัยหลายงานชี้นพบว่าความรุนแรงในครอบครัวสามารถเพิ่มความเสี่ยงของภาวะซึมเศร้าหลังคลอดได้ การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความชุกของภาวะซึมเศร้าหลังคลอดและประสบการณ์ความรุนแรงในครอบครัว รวมทั้งเพื่อหาความสัมพันธ์ของภาวะซึมเศร้าหลังคลอดกับประสบการณ์ความรุนแรงในครอบครัวของสตรีเนปาล นอกจากนี้การศึกษาครั้งนี้ยังมีวัตถุประสงค์เพื่อค้นหาปัจจัยอื่น ๆ ที่เกี่ยวข้องกับภาวะซึมเศร้าในสตรีหลังคลอดในประเทศเนปาล

วิธีการศึกษา: การวิจัยครั้งนี้เป็นการศึกษาภาคตัดขวางโดยศึกษาในโรงพยาบาลในกาฐมาณฑุ ประเทศเนปาล กลุ่มเป้าหมายคือสตรีหลังคลอด (6 สัปดาห์-6 เดือน) โดยการสุ่มตัวอย่างอย่างง่ายและใช้การตอบแบบสอบถามด้วยตนเอง การวิจัยครั้งนี้ไม่มีการเปิดเผยชื่อผู้เข้าร่วม และข้อมูลทั้งหมดถูกเก็บเป็นความลับและนำเสนอในภาพรวม ในส่วนของการวิเคราะห์ข้อมูลนั้น ได้ใช้สถิติเชิงพรรณาและสถิติอ้างอิงโดยใช้การทดสอบไคสแควร์และการวิเคราะห์ถดถอยโลจิสติกห์เพื่อหาความสัมพันธ์ระหว่างตัวแปร

ผลลัพธ์: การวิจัยครั้งนี้พบว่า กลุ่มตัวอย่างร้อยละ 20.7 มีภาวะซึมเศร้าหลังคลอดในขณะที่ร้อยละ 10 ถึงร้อยละ 44.5 มีประสบการณ์ความรุนแรงในครอบครัว นอกจากนี้ยังพบว่า ประวัติความเจ็บป่วยทางจิต, ประวัติครอบครัวของความเจ็บป่วยทางจิต, รูปแบบการคลอด, ความตั้งใจตั้งครรภ์, น้ำหนักแรกเกิดของทารก, ความรุนแรงทางจิตใจในปีที่ผ่านมา, ความรุนแรงทางกายในปีที่ผ่านมา, ความรุนแรงทางเพศในปีที่ผ่านมา และการล่วงละเมิดทางเพศในวัยเด็กพบว่ามีความสัมพันธ์อย่างมีนัยสำคัญกับภาวะซึมเศร้าหลังคลอด นอกจากนี้ยังพบว่าปัจจัยดังต่อไปนี้ส่งผลต่อการเพิ่มโอกาสของการเกิดภาวะซึมเศร้าหลังคลอ

สาขาวิชา	สาธารณสุขศาสตร์	ลายมือชื่อนิสิต .....
ปีการศึกษา	2562	ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

6178868153 : MAJOR PUBLIC HEALTH
KEYWORD: Postpartum Depression Domestic Violence Intimate Partner Violence Low Birth Weight Pregnancy Intention Mental Illness

Pallavi Koirala : Depression and Domestic Violence Experiences Among Postpartum Women in Nepal . Advisor: MONTAKARN CHUEMCHIT, Ph.D.

Background: Postpartum Depression is an important cause of maternal and infant morbidity as well as mortality. This study aimed to determine the prevalence of postpartum depression and domestic violence experience as well as to identify association of postpartum depression with domestic violence experiences and other factors among women in Nepal.

Methods: The study was a cross sectional hospital-based research conducted in Kathmandu, Nepal among women who were 6 weeks to 6 months postpartum; chosen by simple random sampling. Self-report questionnaire was used

Results: The prevalence of PPD was found to be 20.7% while that of the different forms of domestic violence ranged between 10% and 44.5%. History of mental illness (OR= 8.26), family history of mental illness (OR= 2.84), unplanned pregnancy (OR= 3.2), Low Birth Weight of infant (OR= 3.6), Psychological Violence in the past year (OR= 8.3), Physical violence in the past year (OR= 7.6) and Childhood Sexual Abuse (OR= 12.7) were found to increase the odds of PPD.

Discussion: The findings of the study unequivocally shows the association between different factors, most notable among which is domestic violence and PPD. Maternal mental health is a neglected area of healthcare in Nepal. Likewise, domestic violence is a readily recognized, but inadequately addressed social issue. We recommend that healthcare workers be trained to recognize and support the women who are vulnerable to violence and depression during pregnancy and postpartum. Policies need to be developed at national levels to tackle these issues with utmost urgency.

Field of Study:	Public Health	Student's Signature .....
Academic Year:	2019	Advisor's Signature .....

ACKNOWLEDGEMENTS

First and foremost, I want to thank my advisor Dr. Montakarn Chuemchit, Ph.D. for her guidance, advice and help throughout my MPH course and especially in the preparation of my thesis. She has been a constant support and mentor to me and has always been there beside me. I am forever grateful to her for guiding me, for helping me when I needed it, for giving me opportunities to improve my knowledge and for being my strength.

I would like thank Assoc. Prof. Ratana Sonrongthong, Ph. D., for her support and for providing me with valuable experiences, knowledge and advice throughout the course as my professor; and, as my examination committee chairperson for my thesis. I also want to thank Dr. Nipunporn Voramongkol, MD, MPH, for providing me with good insight, advices and suggestions to improve my research. I would also thank the Dean of our college, Prof. Dr. Sathirakorn Pongpanich for his valuable support.

I am thankful to all my Ajarns at College of Public Health Sciences, as well as the staff members of academic administrative department for the help and cooperation throughout my MPH course. I want to thank my colleagues and friends at CPHS, for their help and support.

Last but not the least, I want to thank my husband and colleague, Dr. Pranab Dahal, for helping me in all my endeavors and supporting me in every way possible.

Pallavi Koirala

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List of Abbreviations

ANC	-	Ante-natal Care
BPDS	-	Bromley Postnatal Depression Scale
CI	-	Confidence Interval
CSA	-	Childhood Sexual Abuse
DoHS	-	Department of Health Services
DSM	-	Diagnostic and Statistical Manual
DV	-	Domestic Violence
EPDS	-	Edinburgh Postnatal Depression Scale
EPI	-	Extended Program of Immunization
FHD	-	Family Health Division
HIV	-	Human Immuno-deficiency Virus
ICD	-	International Classification of Disease
IOC	-	Item Objective Congruence
IPV	-	Intimate Partner Violence
IRB	-	Institutional Review Board
LBW	-	Low Birth Weight
MMR	-	Maternal Mortality Ratio
NICU	-	Neonatal Intensive Care Unit
NRS	-	Nepalese Rupees
OR	-	Odds Ratio
PDSS	-	Postpartum Depression Screening Scale
PMDD	-	Pre-Menstrual Dysphoric Disorder
PMS	-	Pre-Menstrual Syndrome
PNC	-	Post-natal Care
PPD	-	Postpartum Depression
PTSD	-	Post-Traumatic Stress Disorder
SD	-	Standard Deviation
SDG	-	Sustainable Development Goals
VIF	-	Variation Inflation Factor
WHO	-	World Health Organization

Chapter 1

Introduction

1.1 Background and Rationale

Postpartum mental illness is one of the major health problems of the peri natal period (1). These illnesses have an adverse effect on the health of the mother as well as the child. If left untreated, they may lead to dysfunctional mother-child interaction which contributes to problems like difficulty in breast feeding and failure to thrive (2). It has also been shown to affect the cognitive development of the child (3), and leads to behavioral problems, disturbed sleep, and risk for anxiety and mental illnesss (4). These illnesses can also have lasting effects on the mother's mental health. Significant number of women who have PPD go on to develop recurrent long-term major depressive episodes in the future. In severe cases, the mother may commit suicide or cause harm to the child. There are social implications of these illness as well, such as social isolation of the mother, discord between partners, disruption of the family structure and lack of care for the newborn (3, 5-8).

Post-partum mental illness can be divided into 3 categories, i.e. Postpartum Blues, Postpartum Depression and Postpartum Psychosis. Postpartum Blues is a common and transient mood disturbance in the post-natal period, which is characterized by mood lability, sadness, dysphoria, subjective confusion, and tearfulness. It resolves by itself within days of onset. Postpartum Depression is a major depressive episode

occurring within 12 weeks of delivery. Postpartum Psychosis is characterized by delusion and thoughts of harming oneself or the baby (8, 9).

Postpartum Depression is the major contributor to the disability associated with Post-partum Mental Illness. Evidences suggest that many women suffer in silence as PPD is underreported, underdiagnosed and hence undertreated (8). This is because, while postpartum blues is self-limiting, postpartum psychosis is often very evident and the family seeks treatment for it. But postpartum depression can be inapparent and the patient lives with it for a long time, before it is diagnosed. A study showed that only 15% of women who had experienced a depressed mood in the first post-natal year had sought help or received treatment (10) (11).

In most studies conducted in the western part of the world, the prevalence of PPD is found to be 10-20% (9). However, various studies have noted that the prevalence of PPD is higher in the Lower and Middle Income Countries than in High or Higher Middle Income Countries (12, 13). A review article regarding the prevalence of PPD in Asian women found the overall weighted prevalence to be about 28% (14). In the context of South-Asia, studies from countries like India and Pakistan have showed the prevalence to be between 22 – 36% in various studies (15, 16). In Nepal, different studies have shown the prevalence of PPD to be between 19% and 29% (17) (18) (4) . Despite the high prevalence of PPD in Nepal, there are only few studies conducted regarding PPD and the research in this area of maternal health has been neglected (4). As a consequence, there is a paucity of information about postpartum depression and its related factors in the country background.

There are various factors that can contribute to the development of PPD among women in the postpartum period. These can be divided as clinical, psychological, demographic, cultural, obstetric and pediatric (10). Clinical factors refer to the factors related to the health of the mother, like history of mental or medical illness in the past. Psychological factors refer to the history of mood swings during, or history of mood swings during menstrual cycles in the past. Demographic factors refer to characteristics like age, education, marital status of the mother. Cultural factors are the factors related to the mother's relationship with her spouse, family as well as social support. Obstetric factors are the characteristics of the current pregnancy, like complications and type of delivery. Pediatric factors refer to features of the newborn, e.g. birth weight and presence of any health problem (19) It is also important to note that countries like Nepal have unique risk factors for maternal mental health, due to traditional values and cultural beliefs. For instance, women face issues such as problems with mother-in-law, gender preference of child, childbirth out of wedlock etc. which further contribute to the stressors of pregnancy and childbirth (14). Some literature reviews have shown that these cultural practices influence the development of PPD (20).

In addition, Domestic Violence (DV) including Intimate Partner Violence (IPV) and childhood violence are common and are associated with depressive symptoms. Domestic violence before or during pregnancy is associated with a prevalence of self-reported postpartum depression (PPD) symptoms in both epidemiological and clinical studies. In addition, a history of childhood violence both physical or sexual abuse has been associated with an increase in depression in women (21).

It is also worth mentioning that although different factors have been implicated in the development of PPD, the complete and definite pathophysiology has not yet been established. Several factors have been found to be responsible for it, and the cause of PPD is a topic of continuing research (22) (23). However, there are only limited number of studies that have been conducted in Nepal.

1.2 Research Questions

1.2.1 What is the prevalence of Postpartum Depression and Domestic Violence in Nepal?

1.2.2 What are the demographic characteristics, psychological factors, socio-cultural factors, obstetric and pediatric factors, domestic violence experiences, and depression among postpartum women in Nepal?

1.2.3 Is there any association between the demographic characteristics and depression among postpartum women in Nepal?

1.2.4 Is there any association between the psychological factors and depression among postpartum women in Nepal?

1.2.5 Is there any association between the socio-cultural factors and depression among postpartum women in Nepal?

1.2.6 Is there any association between the obstetric and pediatric factors and depression among postpartum women in Nepal?

1.2.7 Is there any association between the domestic violence experiences and depression among postpartum women in Nepal?

1.3 Research Objectives

1.3.1 General Objectives:

To examine depression and domestic violence experiences among postpartum women in Nepal

1.3.2 Specific Objective:

1.3.2.1 To determine the prevalence of depression of postpartum women in Nepal

1.3.2.2 To determine the prevalence of domestic violence of postpartum women in Nepal

1.3.2.3 To describe the demographic characteristics, psychological factors, , socio-cultural factors, obstetric and pediatric factors, domestic violence experiences, and depression among postpartum women in Nepal

1.3.2.4 To identify the association between the demographic characteristics, psychological factors, socio-cultural factors, obstetric and pediatric factors, domestic violence experiences, and depression among postpartum women in Nepal

1.4 Research Hypothesis

1.4.1 Null Hypothesis

There is no association between the demographic characteristics, psychological factors, socio-cultural factors, obstetric and pediatric factors, domestic violence experiences, and depression among postpartum women in Nepal

1.4.2 Alternative Hypothesis

There is association between the demographic characteristics, psychological factors, socio-cultural factors, obstetric and pediatric factors, domestic violence experiences, and depression among postpartum women in Nepal

1.5 Operational Definitions

Demographic Factors:

- Age: Age (in years) at last birthday.
- Marital status: Defined as the current status of marriage (refers to both culturally and/or legally married) and divided as single, married, divorced/separated or widowed.
- Education: Level of highest formal educational attainment (Divided as Primary, Secondary, Higher Secondary Education; Ever attended University; or no formal education).
- Occupation: This refers to the current (or most recent) form of employment. This is divided as housewife, government officer, private sector officer, agriculture worker or any other.
- Monthly Income: This is divided in two parts (family income and personal income) and may be defined as:

  a.) Family income: Total income from all people living in a particular household in rupees.

  b.) Personal income: Total income generated by the individual(in rupees) through her occupation.

- Family Type: The composition of the family members, who have a relationship with each other, living in the same household. This is divided as living alone, living with husband and/or children, living with husband's family and living with own family.

Sociocultural Factors:

According to the American Psychiatric Association, sociocultural factors are environmental conditions that have a role in both adaptive, normal behaviors as well as in maladaptive behaviors. They exert their influence within family structures (24).

- Social support during pregnancy: This refers to self-reported scale of having enough support (physical as well as emotional) during pregnancy. This is reported via Likert type question having 5 responses (i.e. Very unsatisfied, Unsatisfied, Neutral, Satisfied and Very satisfied), where very unsatisfied is the least level of satisfaction and very satisfied is the highest level of satisfaction.
- Social support during postpartum: This refers to self-reported scale of having enough support (physical as well as emotional) after giving birth and someone to help with child-rearing. This is reported via Likert type question having 5 responses (i.e. Very unsatisfied, Unsatisfied, Neutral, Satisfied and Very satisfied), where very unsatisfied is the least level of satisfaction and very satisfied is the highest level of satisfaction.
- Relationship with husband: This refers to the overall satisfaction of the individual's relationship with her husband. This is reported via Likert type question having 5 responses (i.e. Very unsatisfied, Unsatisfied, Neutral, Satisfied

and Very satisfied), where very unsatisfied is the least level of satisfaction and very satisfied is the highest level of satisfaction.

- Relationship with mother-in-law: This refers to the overall satisfaction of the individual's relationship with her parents-in-law. This is reported via Likert type question having 5 responses (i.e. Very unsatisfied, Unsatisfied, Neutral, Satisfied and Very satisfied), where very unsatisfied is the least level of satisfaction and very satisfied is the highest level of satisfaction.
- Disappointment with gender of newborn: This refers to the satisfaction with the gender of the newborn. This refers to the overall satisfaction of the individual's relationship with her husband. This is reported via Likert type question having 5 responses (i.e. Very unsatisfied, Unsatisfied, Neutral, Satisfied and Very satisfied), where very unsatisfied is the least level of satisfaction(indication disappointment) and very satisfied is the highest level of satisfaction.

Obstetric/ Pediatric Factors:

- Unintended pregnancy: Pregnancies that are reported to have been either unwanted (i.e., they occurred when no children, or no more children, were desired) or mistimed (i.e., they occurred earlier than desired). This is measured by whether the pregnancy was planned or unplanned/ accidental.
- Complications during pregnancy or childbirth: Any medical health problems that occur during pregnancy (mother's health, the baby's health, or both) as well as health problems to mother or baby before, during and after delivery.

- Infant born with health problem: Health conditions in the newborn that are of prenatal origin which are present at birth, potentially impacting an infant's health, development and/or survival.
- Birth weight of infant: Weight of newborn at birth, in kgs.

Psychological Factors:

- Mood swings: A noticeable change in mood that cannot be attributed to concurrent life events.
- Recent stressful life event: Stressful event (Death of a loved one/ loss of job/ financial difficulty/ accident, injury or disease in the family etc.) in the past year.
- History of mental illness: Any mental illness in the past that has been diagnosed by medical personnel.
- Family history of mental illness: Any mental illness in any family members that has been diagnosed by medical personnel.

Domestic Violence Experience

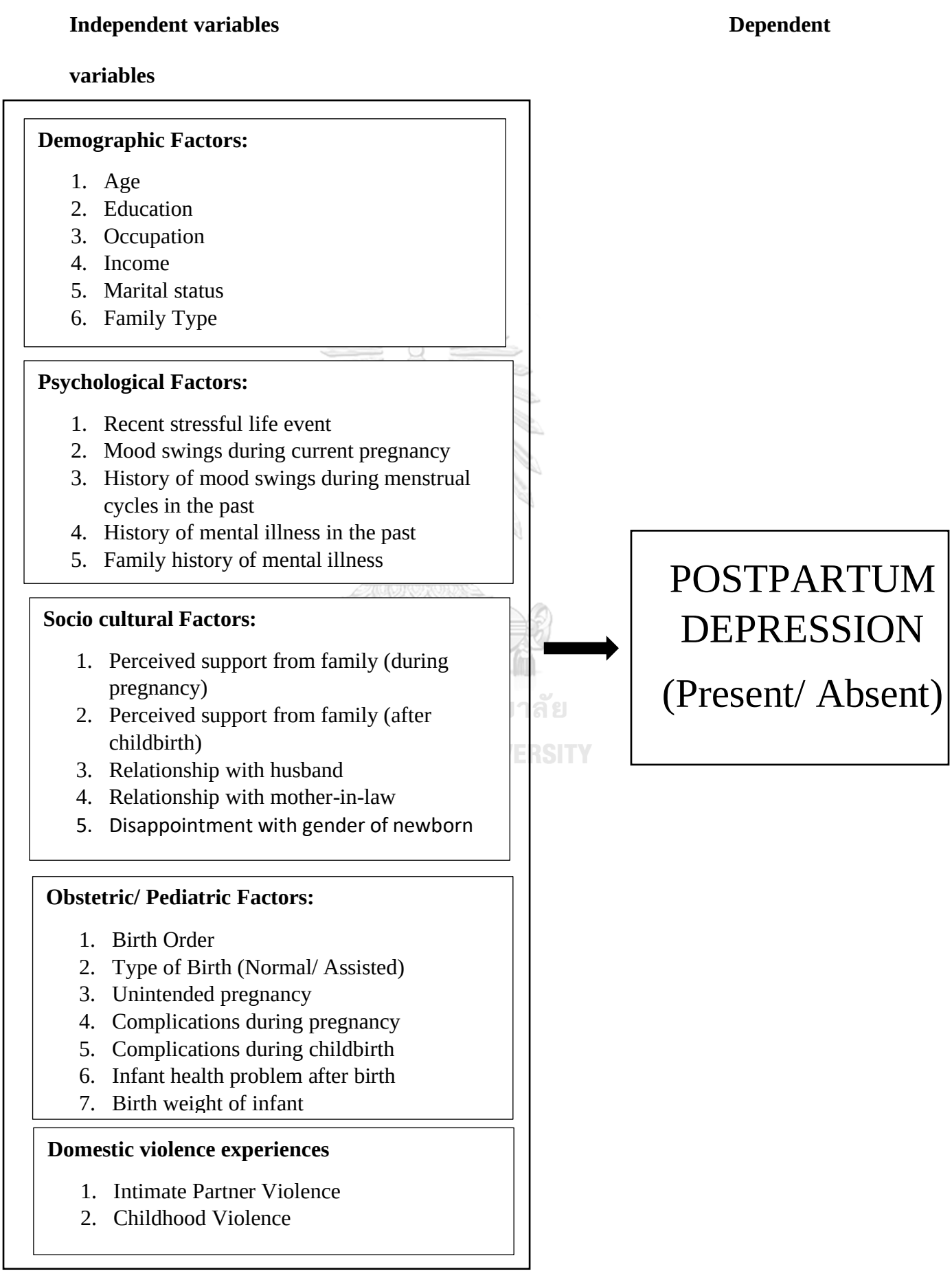
- History of domestic abuse: Domestic abuse refers to Intimate Partner Violence or experience of childhood abuse or maltreatment.
  a.) History of intimate partner violence: Domestic violence inflicted by an intimate partner (spouse or partner without marriage) in the form of psychological(insult, humiliate, intimidate, insult), physical (slap, throw things, push, hist, kick, drag, choke, burn, threaten) and/or sexual (forced sex or other acts of sex) actions.
  b.) History of childhood violence: This refers to any acts of abuse experienced

during childhood (hit, kick, punch, forced sexual acts and threaten) inflicted by parent, stepparent or other guardians. This is synonymous to childhood maltreatment.

Dependent Variable:

- Postpartum Depression: It refers to depressive episode in the postpartum period, between 6 weeks to 6 months after delivery. It is defined as self-reported Edinburgh Postnatal Depression Scale (EPDS) score ≥13. EPDS consists of 10 questions, each with 4 options. Questions 1, 2, & 4 are scored 0, 1, 2 or 3 with top option/box scored as 0 and the bottom box scored as 3. Questions 3, 5-10 are reverse scored, with the top option/box scored as a 3 and the bottom box scored as 0. The total scores (of all 10 questions) are added to receive a final score, which is as below.
    - Maximum score: 30
    - Postpartum Depression absent : 12 or lower
    - Postpartum Depression present : 13 or above

1.6 CONCEPTUAL FRAMEWORK



Chapter 2

Literature Review

Postpartum Period

The postpartum period is defined as the period of time following delivery and lasting up to 6 months after delivery. It can be divided into three phases. The first phase is the acute period. This phase which is also known as the initial period includes the first 6-12 hours after birth. The second phase which lasts 2-6 weeks is the subacute postpartum period. The third phase, known as the delayed postpartum period lasts up to 6 months (25). Among the various physiological changes that occur in the mother during the post-partum period include the involution of the uterus and other pelvic organs, where these organs return to their original size (before pregnancy). Among the metabolic and hormonal states also return to the non-pregnancy levels and these changes allow lactation to occur. Besides various bodily changes, in various cultures around the world, the post-partum period requires various rituals and customs to be fulfilled. All these changes in addition to the new responsibility towards the child and his/her welfare require a psychological adjustment on the part of the mother (26).

Complications in the Postpartum Period

The postpartum period is a crucial time, in which serious complications may arise. These may sometimes even prove to be fatal. The most severe complications are thromboembolism, infection and hemorrhage, as well as Mental illness and breast problems. Following is a list of the complications that may arise in the postpartum(26):

1. Thrombosis and Embolism

2. Puerperal Sepsis/ Infection

3. Urinary or Fecal Incontinence

4. Primary/Secondary Hemorrhage

5. Failure of Lactation

6. Postpartum Mental illness

The initial or acute phase is a time of rapid change with a potential for immediate crises such as postpartum hemorrhage, uterine inversion, amniotic fluid embolism, and eclampsia. In the second phase, the body is undergoing major changes in terms of hemodynamics, genitourinary recovery, metabolism, and emotional status. Nonetheless, the changes are less rapid than in the acute postpartum phase and the patient is generally capable of self-identifying problems. These may run the gamut from ordinary concerns about perineal discomfort to peripartum cardiomyopathy or severe postpartum depression. The third phase is the delayed postpartum period, in which the changes are extremely gradual (25, 27).

Postpartum Mental Illness

Postpartum mental illness is one of the four major illness in the perinatal period. These include cardiovascular diseases, infection, hemorrhage and mental illness. The Maternal Mortality and Morbidity Study undertaken by the Family Health Division (FHD) of the Department of Health Services (DoHS) in Nepal, found that suicide (16%) was the single leading cause of maternal deaths in Nepal (while maternity related causes accounted for only 12%), and the main cause of suicide is mental

illness (28). The association between post-partum period and mental illness has been noted since the time of Hippocrates. Women are at increased risk of developing severe psychiatric illness, during the puerperium. It can be divided into 3 types. They are: Postpartum Blues, Postpartum Depression and Postpartum Psychosis. They differ in prevalence, clinical features as well as management. Below is a brief summary of the mental illness seen in the postnatal period(29).

Classification

Postpartum mental illness are typically divided into three categories (8), described below.

Postpartum Blues

- Postpartum blues (also referred to as baby blue) is a transient mood disorder of the perinatal period, which has a prevalence of 30- 80% (30). The typical presentation is a mother complaining of with mood swings ranging from elation to sadness, insomnia, tearfulness, crying spells, irritability, anxiety, and decreased concentration. Symptoms start within 2 to 3 days postpartum, reaches the peak on the fifth day, and resolve within 2 weeks. It is a self-limiting condition and doesn't warrant any treatment. However, it raises the risk for more severe mental illness of pregnancy. Furthermore, if the condition doesn't resolve within 2 weeks, re-evaluation and treatment may be needed(8).

Postpartum depression

- PPD represent major depressive episodes in the postpartum period. In contrast to postpartum blues, episodes of postpartum depression can last for months or even years and can result in significant impairment

with severe long-term consequences. In addition, they are not self-resolving and require treatment (8).

Postpartum psychosis

- Postpartum (or Puerperal) Psychosis is the most severe form of postnatal mental illness. It is characterized by acute onset of episodes of manic, depressive or mixed psychosis in the postnatal period. The prevalence is lower than the other forms of postnatal mental illness and occurs in about 1 in 1000 deliveries (31). It is a psychiatric emergency (32).

Postpartum depression

According to a study conducted by Jones et al in 2014, post-partum depression is the most frequent complication during the post-partum period. It's effect on the mother, the child and the marital relationship makes it a serious public health problem (11) .

If left untreated, it can lead to adverse long-term complications in both the mother as well as the child. For the mother PPD can be a precursor to long-term recurrent depression. For the child maternal PPD has been shown to conditions such as failure to thrive, behavioral and cognitive problems and abnormal inter-personal relationships (6).

Definition of Postpartum Depression:

2.3.1 Postpartum depression means development of depression in the postpartum period, usually the disorder is unipolar but can sometimes it may present with bipolar features (32). Currently post-partum depression is not recognized as a separate entity

in dsm-5 but as a depressive episode which occurs in the period within 4 weeks from childbirth) (33). However, it has been shown that the specifier for DSM-5 is too slim and does not incorporate the disorder completely (34).

ICD-10 also does not classify post-partum depression as a separate diagnosis but consider it as depressive episode which occurs within 6 weeks of delivery. “Mental and behavioral disorders associated with the puerperium, not elsewhere classified” is the ICD-10 category most relevant for diagnosis of post-partum depression.

Prevalence(epidemiology):

A review (35) article that included 143 reports from 40 different countries reported a wide range of prevalence of PPD. This ranged from 0-60% in various reports.

Global: In the western part of the world, the prevalence of PPD in most studies has been shown to be between 10-20% (9).

However, various studies have noted that the prevalence of PPD is higher in the Lower- and Middle-Income Countries than in High or Higher Middle Income Countries (12, 13).

Regional: A review article regarding the prevalence of PPD in Asian women found the overall weighted prevalence to be about 28% (14). In the context of South-Asia, studies from countries like India and Pakistan have showed the prevalence to be between 22 – 36% in various studies (15, 36).

National: In Nepal, different studies have shown the prevalence of PPD to be between 19% and 30% (4, 17, 18).

Etiology:

The etiology of PPD is not clearly been understood. Various studies have shown that an involvement and interaction of different factors often result in the development of PPD. These factors include psychological, social, and biologic factors (32). Some studies in the past (37) theorized that the onset of non-psychotic depression during and after pregnancy has no relation to childbirth and are indistinguishable from major depressive depression episodes occurring in non-pregnant individuals. However, current literature suggests that PPD does have a relation to childbirth and pregnancy, and that it should be recognized as a separate entity (38).

The different factors contributing to the development of PPD have been discussed in detail in the subsequent sections.

Clinical presentation

Symptoms:

Post-partum depression, which has onset within 1-12 weeks postpartum, can arise in two ways, first as a gradual progression from post-partum blues, which is a milder condition and second, as sudden in onset after a period of relative wellness after childbirth. The symptoms in these women are similar to that which occurs in depression unrelated to childbirth, except for the fact that the content of focus of the individual is mostly related to childbirth. According to previous studies(39), the symptoms in post-partum depression is like depression which occur at other times. The symptoms can be tearfulness, loss of appetite, sleep disturbances, feelings of

guilt, poor concentration and memory, emotional labiality and feelings of having difficulty coping with the presence of an infant in one's life. There is also evidence of women expressing excessive fear of their newborn child and stating that they have been 'bad mothers' during this period (40).

Signs (Physical examination):

Physical exam is essential to evaluate the patient's overall medical state but it does not show any definite features of depression. Majority of the patients' affect will be depressed. Some medical conditions that present with similar symptoms of depression (e.g., hypothyroidism) should be identified and excluded. There can be serious and life-threatening consequences of miss or mis-diagnosing these conditiond (41). Stigmata of trauma, self-injury, or drug use may be seen during examination of the skin (42).

Investigations

No specific guidelines exist about which tests must be routinely performed. Investigations are not necessary to diagnose postpartum depression. It is important to have a clear rationale for ordering tests, and each patient should be considered individually. Tests that may be done are those that detect or rule out other medical condition (e.g. urine test for substance use disorders, brain scans to check for structural neurologic abnormality, Complete Blood Count to rule out anemia, and Thyroid Function Test) (32).

Diagnostic criteria:

2.7.1 DSM 5 recognizes PPD as major depressive episode, with onset specifier of "within delivery or 4 weeks after delivery"(33). The diagnostic criteria for major depressive episode according to DSM 5 is shown in the table below:

Table 1 Diagnostic Criteria for Major Depressive Episode

- At least five of the following symptoms that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning
- At least one of the symptoms is 1) depressed mood or 2) loss of interest or pleasure
- Symptoms must be present almost every day for at least 2 weeks
  1. Depressed mood most of the day
  2. Diminished interest or pleasure in all or most activities
  3. Significant unintentional weight loss or gain
  4. Insomnia or sleeping too much
  5. Agitation or psychomotor retardation noticed by others
  6. Fatigue or loss of energy
  7. Feelings of worthlessness or excessive guilt
  8. Diminished ability to think or concentrate, or indecisiveness
  9. Recurrent thoughts of death
- Diagnosis of recurrent MDD requires ≥2 MDEs separated by at least 2 months in which criteria are not met for an MDE

Abbreviations: DSM-5, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; MDD, major depressive disorder; MDE, major depressive episode.

Assessment of depression: Clinical and Self-report measures:

Clinical: The clinical diagnosis of depression is made based on the presenting features and in accordance with the DSM 5 diagnostic criteria.

Self- Report: In order to screen and diagnose PPD in the clinical as well as community setting, several self-reporting screening tools are used. The 'Bromley Postnatal Depression Scale (BPDS)' (43), the 'Edinburgh Postnatal Depression Scale (EPDS)' (39), and the 'Postpartum Depression Screening Scale (PDSS)' (44) are self-

reported questionnaires that are specifically designed to use in the postnatal period to screen for depression. The EPDS is the most widely used and psychometrically tested questionnaire, which has been employed extensively in postpartum women and is used throughout the world. This scale had been translated in the Nepali language and validated in Nepal (45).

Assessing risk of self-harm and/or harm to the baby

Various studies have shown that PPD interferes with maternal-infant bonding. In order to assess this aspect, some important questions to consider are (46) :

a) Whether she has impaired bonding with the baby.

b.) Whether she has a lack of feeling of attachment toward the infant.

c.) Whether she feels a sense of numbness, and lack of emotions.

While assessing postpartum women for depression, it is important to investigate about suicidal ideation and thoughts about harming the baby. This can be pivotal in preventing harm to the woman or her child (32). While assessing the risk of suicide, the following questions should be asked:

- Suicidal thoughts: “if suicidal thoughts are present, how frequent and persistent are they?”
- Plan: “if the woman has a plan, how detailed and realistic is it?”
- Lethality: “what method has the woman chosen; how lethal is it?”
- Means: “does the woman have the means to carry out the method?”

Consideration should also be given to:

- “Risk and protective factors.”
- Mental state: “hopelessness, despair, psychosis, agitation, shame, anger, guilt, impulsivity.”
- “History of suicidal behavior.”
- “Family history of suicidal behavior.”
- Substance use: “current misuse of alcohol or other drugs.”
- Strengths and supports: “availability, willingness, and capacity of supports.”

Review of relevant literature: Risk-factors for post-partum depression:

Demographic factors and post-partum depression:

Age: There have been many studies examining the association between demographic factors and postpartum depression. Some studies have found that teenage mothers are more likely to develop postpartum depression(47). Likewise, mothers who have given birth for the first time at an older age (>35 years) were also found to be more likely to develop PPD(48). However, other studies have not found any association between age of the mother and the risk of PPD (49, 50).

Education Level: Two separate systematic reviews have found that lower education level of the mother was associated with an increased risk of PPD(47, 51).

Occupation: Unemployment was found to be associated with an increased risk of developing PPD (47, 52).

Income: Many studies have established that PPD is more prevalent in low-income countries. However, personal or family income is also an important predictor of PPD. Women having low income are more prone to develop symptoms of PPD, as shown by study conducted by Yehia et al in 2013(53).

Marital Status: It was found to be associated with the risk of PPD. A study showed that the risk of PPD was higher in women who were single mothers. In Asia, there is more likely risk of PPD among unmarried mothers due to social stigma of childbirth out of wedlock(20). However, another study found that PPD was higher in women who were formally married(54).

Family type: One review of studies conducted in India showed that there was a higher risk of PPD among women who lived only with husband, and not with family (55).

Psychological factors and post-partum depression:

Recent stressful life event: Several studies have shown that recent stressful life event is an important risk factor for PPD. One study showed that the risk of PPD was 2.7 times higher among women who had experienced a stressful life event in the past 12 months(51, 56).

Mood swings during menstrual cycle. Mood swings during menstrual cycle, which is a symptom of Pre-Menstrual Dysphoric disorder (PMDD) or Pre-Menstrual Syndrome (PMS). These have been shown to be predictors of PPD in various studies. One study found that women with a history of PMS or PMDD had 2 times higher odds of developing PPD. (20, 57, 58).

History of mood swings during pregnancy: A study has shown that mood swings during pregnancy were a predictor for developing PPD, and may also be an indicator for antenatal depression(59).

History of mental illness: Studies have shown important link between clinical factors and the risk of PPD. History of mental illness in the past and history of mental illness in the family members (particularly depression) (16) have been shown to increase the risk of PPD. This association has been shown in many studies(59, 60).

Socio-cultural factors and postpartum depression:

Perceived social support: Lack of support from family has been shown to increase the risk of PPD among women. There is especially strong association between lack of support from husband and PPD(59, 61).

Relationship with husband: A bad relationship with husband or marital discord has been shown to increase the risk of PPD(61, 62).

Relationship with mother-in-law: Several studies conducted in Asia have found the relationship of the woman with her mother-in-law to be a risk factor for PPD(51, 55).

Disappointment with the gender of the newborn: Gender of the newborn as a risk factor for PPD was not found in several studies in the west. However, studies in South Asia as well as other parts of Asia have found this to be a risk factor(36).

Obstetric/ Pediatric factors and postpartum depression:

Mode/ Type of Delivery: PPD was found to be higher among women undergoing assisted delivery (caesarian/ instrumental delivery) when compared to women who underwent normal vaginal delivery(48, 53).

Unintended pregnancy: Studies have shown that there is higher risk of PPD among women who had unintended pregnancies(20).

Complications during pregnancy and childbirth: Complications during pregnancy and child birth significantly increased the risk of PPD(56).

Infant born with health problem, Birthweight and Birth Order: A review found that health problem in the infant made higher risk of PPD likely (4). Another study has also found association with PPD and infant health problem (63). On the other hand, one study found association of infant health problem with PTSD and not with PPD(64). Mother who gave birth to infants who had low birth weight were found to have a higher risk for PPD(4). Likewise, a study found that the women who had their first childbirth (Relative Risk = 8.65), or who had one child (Relative Risk = 2.01) at home were at a higher risk for PPD than women who had had 3 or more births (65)

Domestic Violence and Postpartum Depression

WHO defines violence as “The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation”. Domestic violence refers to “Any act carried out with the intention of physically or emotionally harming another person who is related

to you by blood; present or prior marriage or common law marriage. It includes hitting, shoving, kicking, biting, throwing body down, slapping, choking, using a weapon against; intimidation or threats; isolation, restricting or controlling activities; taking persons money, keeping them from getting or keeping a job, making them ask for money; forcing sexual activities without the will of the person". The term 'domestic violence' is used in many countries to refer to partner violence but the term can also encompass child or elder abuse, or abuse by any member of a household (66).

Intimate partner Violence:

Intimate partner violence denotes "behavior by an intimate partner or ex-partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse and controlling behaviors" (42). It is one of the most prevalent forms of violence against women and includes physical, sexual, and emotional abuse as well as controlling actions by an intimate partner. In an analysis conducted in 2013 by WHO in collaboration with the London School of Hygiene and Tropical Medicine and the South Africa Medical Research Council, existing data was used from over 80 countries. It found that globally, 1 in 3, or 35%, of women have experienced some form of violence (i.e. physical and/or sexual violence) by an intimate partner (67)). Intimate partner violence1 (IPV) happens in any situation and among all socioeconomic, religious and cultural clusters. The crushing worldwide problem of IPV is borne by women (42).

Types of Intimate Partner Violence:

IPV can be divided into different types based on the type of violence inflicted. They are listed below (42).

Acts of physical violence: e.g. slapping, jerking, hitting, kicking and beating.

Sexual violence, including forced sexual intercourse and further methods of sexual coercion.

Emotional (psychological) abuse: e.g. insults, belittling, humiliation, intimidation, threats of harm, threats to harm or take children away.

Controlling behaviors, like separating from family and friends, monitoring movements, and restricting access to financial resources, employment, education or medical care.

Researches have shown that several of this violence often co-exists, i.e. physical IPV is frequently accompanied by sexual IPV, and by emotional abuse. In the WHO multi-country study, 23–56% of women who reported ever experiencing physical or sexual IPV had experienced both (68).

Epidemiology (Prevalence):

The prevalence estimates of intimate partner violence range from 23.2% in high-income countries and 24.6% in the WHO Western Pacific region to 37% in the WHO Eastern Mediterranean region, and 37.7% in the WHO South-East Asia region (19).

a. Global: There have been various studies which have shown a wide range to IPV prevalence (42, 67, 69-71). The highest prevalence of IPV has been found in Africa and South-East Asia. Along with high prevalence, there is also higher social acceptability towards violence inflicted by a partner in these regions (42).

b. Regional: Various studies in Asia have shown the prevalence of IPV ranging from 6% in Japan (72) to 68% in Bangladesh (73). The prevalence was found to be high in studies conducted in Iran, Malaysia, Vietnam and China (74-78). Of particular importance in Asia, is the South Asian Region which has a strikingly high prevalence of IPV. Studies in Pakistan, Bangladesh, India and Nepal have shown the prevalence of IPV to be between 35% to 70% (79-81).

c. National: There have been many studies regarding IPV in Nepal. Most of these studies have shown that as many as 1 in every 3 women has experienced violence from an intimate partner. Young girls who have recently been married have been found to be the most vulnerable (82). Other vulnerable women are those with low socio-economic status and education. Furthermore, a study conducted in Nepal showed that men considered beating of wife by a husband to be a normal and accepted thing(83).

Risk factors

Factors related to intimate partner violence may be present at different levels; i.e. individual, family, community and wider society levels. While some of these factors are associated with the perpetrator of violence, others are related with the victim. Some factors are associated with both (78). Factors specifically associated with intimate partner violence include (19):

- history of experiencing violence in the past (both perpetrator and victim)
- marital discord and dissatisfaction
- problems in interaction and communication between the partners
- controlling behaviors inflicted upon partners

Health consequences

Intimate partner violence results in severe short term as well as long term complications. These include physical, mental, sexual and reproductive health problems for women. Children are also affected, both physically as well as mentally and lead to high social and economic costs for women, their families and societies (84). Some of the consequences of IPV are listed below(67):

- Homicide or suicide.
- Injuries (It has been shown that 42% of women who experience intimate partner violence report an injury because of this violence).
- Reproductive health problems like unintended pregnancies, induced abortions, gynecological problems, and sexually transmitted infections, including HIV.
- Intimate partner violence during pregnancy also increases the likelihood of miscarriage, stillbirth, pre-term delivery and low birth weight babies. Studies have shown that it is also a predictor of antepartum as well as postpartum depression among women.
- Mental health problems like PTSD and anxiety disorders, sleep problems, eating disorders, and suicidal ideation as well as attempts.
- Other somatic symptoms like headaches, backache, pain abdomen, gastrointestinal problems, partial agility and deprived general health

Childhood Violence

Abuse and neglect occurring in children less than 18 years old is known as childhood violence or childhood maltreatment. It includes sexual abuse, neglect, physical and emotional ill-treatment and commercial and other forms of exploitation, leading to

either actual or potential harm to the child's well-being (85). According to international studies a quarter of all have sustained physical abuse. According to studies 1 in 5 women and 1 in 13 men have also been victims of sexual abuse while many others have sustained emotional abuse. There is also likelihood that of the 41,000 homicide deaths of children under 15 that occur every year, a significant number of cases due to childhood maltreatment are incorrectly labeled as falls, burns, drowning and so on.

Consequences of maltreatment

Child maltreatment causes suffering to children and families and can have long-term consequences. Maltreatment causes stress that is associated with disruption in early brain development. Extreme stress can impair the development of the nervous and immune systems. Consequently, as adults, maltreated children are at increased risk for behavioral, physical and mental health problems such as: perpetrating or being a victim of violence, depression, smoking, obesity, high-risk sexual behaviors, unintended pregnancy, alcohol and drug misuse (86). Through these behavioral and mental health consequences, maltreatment can contribute to heart disease, cancer, suicide and sexually transmitted infections.

Domestic Violence and Postpartum Depression:

There is increasing evidence that one important predictor of postpartum depression is women's exposure to violence (51, 69, 78, 87-90), with many literature focused on PPD and partner victimization (69, 88). Experiences of abuse and violence is

particularly important during pregnancy and postpartum, a period when significant relations and personalities are being restructured (91).

The results of a meta-analysis study showed that women who had history of experiencing any form violence events were at a higher risk of developing PPD compared with the reference group. Moreover, diverse kinds of violence such as sexual, emotional, and physical violence, as well as other forms of domestic or childhood violence also increased the risk of developing PPD (74). Less well understood, however, is the relationship between postpartum depression and earlier experiences such as childhood maltreatment or abuse (92) (93).

Intimate partner violence and Postpartum Depression

Studies have found substantial levels of physical IPV during pregnancy in settings around the world. The WHO multi-country study found prevalence of physical IPV in pregnancy ranging from 1% in urban Japan to 28% in provincial Peru, with prevalence in most sites of 4–12% (68). Similarly, a review which included research from 19 countries found prevalence ranging from 2% in settings such as Australia, Denmark and Cambodia, to 13.5% in Uganda, with the majority ranging between 4% and 9% (94). A few facility-based studies in some settings have found even higher prevalence, including one from Egypt with an estimated prevalence of 32% (95) and a review of studies from Africa that found a prevalence as high as 40% in some settings (71). Violence during pregnancy has been associated with (78): n miscarriage; n late entry into prenatal care; n stillbirth; n premature labour and birth; n fetal injury; and n low-birth-weight or small-for-gestational-age infants. IPV may also account for a proportion of maternal mortality, although this association is often unrecognized by policy-makers (42).

Traumatic stress is thought to be the main mechanism that explains why intimate partner violence may cause subsequent depression and suicide attempts. Exposures to traumatic events can lead to stress, fear and isolation, which, in turn, may lead to depression and suicidal behavior (67).The findings of a study revealed that significant depressive symptomatology at 8 weeks postpartum is associated with childhood physical and sexual abuse (96).

Childhood Violence and Postpartum Depression

Several studies have reported significant positive associations between childhood maltreatment and depression at some point in the postpartum period (93, 97-99). However, there is mixed reports as to the timing of PPD onset, depending on a history of childhood abuse. Lesser and Koniak in 2000 found childhood maltreatment to be predictive of early (4–6 weeks) but not later (6 or 12 months) depression(100), while Minnes et. all in 2008 found that childhood maltreatment predicted later depression (6 or 12 months postpartum) but not in the immediate postpartum. On the contrary, some studies have found no associations at all (101). Another epidemiological review found that the association of CSA (childhood sexual abuse) with postpartum depression or depressive symptoms were inconsistent .

Violence and Postpartum Depression in Nepal

The result of studies conducted in Nepal have opposing results. While two studies found an association of IPV with postpartum depression(102, 103), another study found no such association (104). Studies regarding childhood violence and postpartum depression are very scarce and the results are inconsistent.

CHAPTER 3

Methodology

3.1 Study Design

The study was a cross- sectional quantitative research to examine depression and domestic violence experiences and identify association between depression and the factors associated with it among postpartum women in Nepal.

3.2 Study Area

The study was conducted in a vaccination-clinic being run in a tertiary hospital in Kathmandu, Nepal. Kathmandu, which is the capital city of the country, is located in the central part of the country (State 3) and has a population of 4 million. People from all over the country reside here. Furthermore, many people come to Kathmandu to seek medical care. Hence, the study can be representative of mothers who have

Figure 1 Map showing the study area, Kathmandu District.

undergone institutional delivery from all over the country. Kathmandu

3.3 Study Population and Sample Group

The population under study were postpartum women between 6 weeks to 6 months after delivery. Sample for the study were selected from women visiting vaccination clinics in tertiary hospital in Kathmandu.

3.4 Sampling technique

Sample selection was done as follows:

One district (Kathmandu) was selected from 75 districts by purposive sampling, as it is the capital of the country with a population of 4 million. People from all over the country live here and the population is representative of most of the parts of the country. Furthermore, many people who live in other parts of the country visit Kathmandu to seek medical care. So, taking sample from visitor of a hospital would be representative of the people of the whole country to a great extent.

There are 12 tertiary hospitals in Kathmandu. Out of these the biggest maternity hospital is the ‘Paropakar Maternity and Women’s’ Hospital”. This is a referral center for obstetric management and care in the country. While many women in the city deliver at this center, women from other parts of the country are also referred here for obstetric management. Hence, the patient flow to this hospital is significant. Further, due to such diverse and inclusive patients a sample collected from this hospital would be representative of the postpartum women of the country.

The sampling unit, i.e. postpartum women, were selected by simple random sampling. The data from the past 6 months at the vaccination clinic was evaluated. Since the

Extended Program of Immunization (EPI) schedule of Nepal has regular vaccination scheduled at 6, 10 and 14 weeks of life; the register of the clinic was checked carefully and the data was derived. Based on this data, the average number of women (within 6 weeks to 6 months post-partum) visiting the vaccination clinic per day was determined. After determining the average visits per day, 50% of this number was randomly selected for data collection each day. At the beginning of the day, a list of random numbers were obtained from 'MS Excel' and each participant registering at the particular random number was approached for data collection. If the participant did not fulfil the inclusion criteria, the next number in the list was approached.

Sampling process

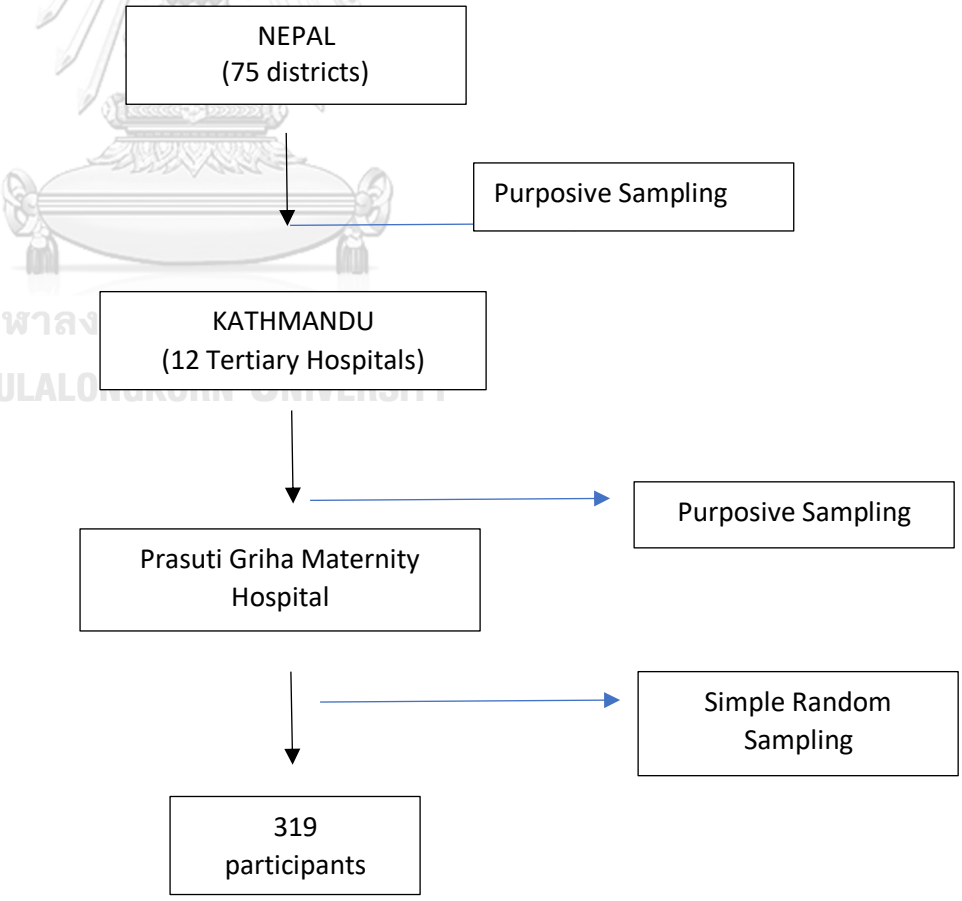


Figure 2 Sample selection flowchart

3.5 Sampling and Sample size

Cochran formula (1977) was used to calculate the sample size for this study (105).

n = desired number of sample size

z = the reliability coefficient at the 95% CI = (1.96)

p = the population proportion of postpartum depression in Kathmandu = 25%

d = expected error at 5% = 0.05

$$\mathbf{n = Z^2\ P\ (1\text{-}P)/\ (d)^{\ 2}}$$

$$\mathbf{n = \frac{(1.96)^2 \times 0.25\ (1\text{-}0.25)}{(0.05)^2}}$$

$$\mathbf{n = \frac{3.8416 \times 0.1875}{0.0025}}$$

$$\mathbf{n = 288.12}$$

Sample size = n + 10% of expected refusals data = 316.935 ≈ 317

The calculated sample size was **317.**

3.5.1 Inclusion criteria

- Females in the postpartum period (between 6 weeks to 6 months postpartum)
- Participants who agree to provide a written consent for participating in the study.

3.5.2 Exclusion criteria

- Any acute or chronic condition that would limit the ability of the patient to participate in the study.

3.6 Measurement Tools

The measurement tools to be used was a self-report Questionnaire. Questionnaire consists of 6 parts. Part I – IV was developed based on literature review and by modifying the questions based on several references (43, 106-109)For Part V and VI (that is, domestic violence and postpartum depression) pre-existing validated questionnaire was used.

The questionnaire was prepared in English, which was translated into Nepali language by an expert who is fluent in both English and Nepali language. Then back translation was done by another expert, from Nepali to English language.

Part I Demographic characteristics: This part of questionnaire comprised of demographic factors including age, education, occupation, income, marital status and family type. It also includes the demographic characteristics of the husband.

Part II Psychological Factors: This part consists of questions to assess the psychological factors like recent stressful life event, history of mood-swings during pregnancy and history of mood-swings during menstrual cycles in the past. It also contained questions regarding history of mental illness and family history of mental illness.

Part III Socio cultural Factors: This part consists of questions relating to the sociocultural factors like perceived support from family (during pregnancy and after

childbirth), relationship with husband, relationship with mother-in-law and disappointment with gender of newborn.

Part IV Obstetric/ Pediatric Factors: This part comprises of questions related to the obstetric and pediatric factors like birth order, type of Birth (Normal/ Assisted), whether the pregnancy was intended or unintended, complications during pregnancy or childbirth, if the infant was born with health problem and birth weight of infant.

Part V Domestic violence experiences: This part consists of questions related to history of Intimate Partner Violence and experiences of Childhood Violence (68).

Part VI Postpartum Depression Questionnaire: This part of the questionnaire consists of screening questionnaire for postpartum depression. The Edinburgh Postnatal Depression Scale (EPDS) was used. This questionnaire has been validated in the Nepali language, and it has a Cronbach's alpha of 0.79 (39)

Scoring the EPDS:

QUESTIONS **1, 2, & 4** (without an *) are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

QUESTIONS **3, 5-10** (marked with an *) are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Question Number	Score for each option			
	Option 1	Option 2	Option 3	Option 4
1.	0	1	2	3
2.	0	1	2	3
3.	3	2	1	0
4.	0	1	2	3
5.	3	2	1	0
6.	3	2	1	0
7.	3	2	1	0

8.	3	2	1	0
9.	3	2	1	0
10.	3	2	1	0

The total scores (of all 10 questions) are added to receive a final score, which is as below.

Maximum score: 30

Postpartum Depression absent : 12 or lower

Postpartum Depression present : 13 or above

3.7 Reliability and Validity Test of the questionnaire

1. Validity

Construct Validity: The questionnaire was developed based on conceptual framework, operational definitions, pre-existing theories and literature review. Standard questionnaires that had already been validated in Nepal (Part V and VI), were not validated for this study. However, the remaining questions were validated by three experts (examination committee) Assoc. Prof. Dr. Ratana Somrongthong (Assoc Professor and Reproductive Health expert, College of public health sciences), Dr. Nipunporn Voramongkol (Maternal and Child Health Expert, College of Public Health Sciences) and Dr. Montakarn Chuemchit (Gender based violence expert; College of Publich Health Sciences). The questionnaire was revised and corrected based on the expert advice of the examination committee.

Content Validity: The revised questionnaire was validated by IOC scoring by three experts, Dr. Pratikshya Chalise (Psychiatrist and mental health expert; Kathmandu

Medical College), Dr. Ranjana Shrestha (Consultant, Dept. of Obstetrics and Gynecology; Medicare Hospital) and Dr. A. L. Sharma (Professor, Dept. of Community Medicine; Manipal College) Cut off score of 0.8 was used to determine the validity of the question. For each part of the question, a score of +1, 0 or -1 was given by each expert. If IOC score was equal or more than 0.8, the questionnaire part was accepted. If it was less, it was revised and re-assessed.

Linguistic Validity: The questionnaire was translated into Nepali language. The back-translation and linguistic validation was done by Prof. Dr. Jai Raj Awasthi (Professor, Applied Linguistics, Kathmandu University).

Face Validity: Face validity was assessed during pilot testing among postpartum women at another tertiary hospital in Kathmandu.

3.7.1 Pilot Testing

Pilot testing of the questionnaire was done in another tertiary hospital of Kathmandu, Nepal where women of similar characteristics visited. Thirty women were included in the pre-testing. The aim of the pre-testing was to understand the process of research specific to this population. Furthermore, it was also conducted to see the level of participants' comprehension of each question (face validity), flow of the questions and to check internal consistency/ reliability of the questionnaire.

Reliability:

Cronbach's alpha was used to check the reliability of the questionnaire. Part III (socio-cultural factors) and Part VI (EPDS) were tested for Cronbach's alpha, since these questions were formatted as a scale. For the 2 parts, the Cronbach's alpha was

found to be 0.72 and 0.84 respectively. This fulfilled the pre-determined cut-off of ≥ 0.7 and was considered reliable.

3.8 Data Collection

After receiving the ethical approval from the ethical review board, the Medical Superintendent and Head of Department (of the respective department) of the selected hospital were contacted, and her approval was taken for data collection. Two research assistants were selected to help the researcher, one of whom was a staff from the selected hospital. Training was provided to both assistants regarding the research, its objectives, questionnaire and method of data collection. Before data collection, the researcher and research assistants explained the participants about consent form, anonymity, freedom to participation, right to withdraw at any time, confidentiality, access to final report and no use the data for other purposes. The questionnaire was a self-report form. However, if a participant could not read and/or write; the research team relayed the questions in the questionnaire to the participants and marked down answers provided by the participants.

Duration of Data collection: 1 month

3.9 Data Analysis

For the data analysis, IBM SPSS 22 statistical analysis software was used along with MS excel version ‘Office 365- Microsoft Office 2013’ and hand calculations, wherever applicable.

3.9.1 Statistical analysis

1) Descriptive statistics: Frequency, percent, maximum, minimum, mean and standard deviation has been used to describe the variables.

2) Inferential statistics:

Bivariate analysis: Pearson's Chi Square test was used to find the associations between independent and dependent variables.

Multivariate analysis: Binary logistic regression was used for the variables which had $p<0.2$ from the Chi-square test to construct the multivariate analysis model. Multivariate analysis will be done to find out the factors associated with postpartum depression.

Table 2 Data Analysis Matrix (Research questions)

Research Questions	Methodology	Statistical Analysis
What are the demographic characteristics, psychological factors, socio-cultural factors, obstetric and pediatric factors, domestic violence experiences, and depression among postpartum women in Nepal?	Questionnaire	Mean Standard Deviation Frequency Percentage
Is there any association between the demographic characteristics and depression among postpartum women in Nepal?	Questionnaire	Pearson chi-square test Binary logistic regression
Is there any association between the psychological factors and depression among postpartum women in Nepal?	Questionnaire	Pearson chi-square test Binary logistic regression
Is there any association between the socio-	Questionnaire	Pearson chi-square test

cultural factors and depression among postpartum women in Nepal?		Binary logistic regression
Is there any association between the obstetric and pediatric factors and depression among postpartum women in Nepal?	Questionnaire	Pearson chi-square test Binary logistic regression

The data analysis for each variable, based on the type of variable scale that was carried out in the study is shown below:

Table 3 Data Analysis Matrix (Variables)

Variable	Scale	Descriptive Statistics	Bivariate Statistics	Multivariate Statistics
Demographic Factors				
Age	Continuous	Mean, SD		
(Re-group)	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Education	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Occupation	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Income	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Marital Status	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Family Type	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
			Chi-square	
Psychological Factors				
Stressful Life event	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Mood Swings during Pregnancy	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
History of mental illness	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Family history of mental illness	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Socio-Cultural Factors				
Social support	Ordinal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Relationship with husband	Ordinal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Relationship with mother-in-law	Ordinal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Satisfaction with gender of child	Ordinal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Obstetric/ Pediatric Factors				
Birth Order	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression

Variable	Scale	Descriptive Statistics	Bivariate Statistics	Multivariate Statistics
Birth weight	Continuous	Mean, SD	Chi-square	
(Re-group)	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Mode of delivery	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Planned/Unplanned Pregnancy	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Complications during delivery	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Complications during Childbirth	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Infant Health problem at birth	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Domestic violence experiences				
Intimate Partner Violence	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression
Childhood Violence	Nominal	Frequency, Percentage	Chi-square	Binary Logistic Regression

3.10 Ethical Consideration:

The proposal was submitted to the ethical review board of National Health Research Council of Nepal, as well as the Institutional Review Board of the hospital. Data collection was done after receiving approval from the IRB. Informed written consent was taken from all participants. Anonymity of the participant was maintained throughout the study. No identifying information was collected from the participants. The participants had voluntary participation and they could withdraw from the study at any time, if they so wanted, without any repercussions. The data collected from the study will not be used for any other purposes that for the formulation of reports related to the study.

Chapter 4

Results

The data obtained from the questionnaire were cleaned, coded and categorized prior to analysis. The data have been analyzed by descriptive and inferential statistical analyses. Although the calculated sample size was 317, data from 319 participants has been included in calculations since these data were valid for inclusion in the calculations with all completed questionnaire. In the first part of the chapter, the descriptive analysis of the data has been reported. It has been used to describe the basic features and distribution of the study population. The descriptive analysis also helps to answer and fulfil the first and second research objectives of finding the prevalence of Domestic violence and Postpartum Depression in the study population.

In the second part of the chapter, the inferential statistical analyses have been reported. Bivariate and multivariate analyses have been used to find association between the dependent and independent variables. The inferential analyses have been used to test hypotheses, answer research questions and fulfil the remaining research objectives as well as to draw inferences from the research findings that reach beyond the immediate distribution of collected data alone. For bivariate analysis Pearson chi-square test has been used; whereas for multivariate analysis, Binary Logistic Regression has been used since the dependent variable is dichotomous.

Bivariate analysis has been done to identify association of each independent variable with the dependent variable. Variables with a significance of ≤ 0.2 in the bivariate analysis were included in the multivariate analysis by Binary Logistic Regression model.

4.1. Description of Demographic, Psychological, Socio-cultural, Obstetric, Pediatric factors and Domestic Violence Experiences

4.1.1 Demographic characteristics:

The mean age of the study participants was 25.4 years with a standard deviation of 4.5 years, as shown in Table 4. Majority of the participants (83.7%) were in the age group of 21 to 34 years. The age of the participants ranged between 16 to 36 years. This shows that the entire reproductive age group (15 – 49 years) has not been represented. Regarding education, almost one third (30.4%) of the participants had a secondary level education while about 16% participants each were in the groups of no formal education and University level education. Three fourths of the women (74.6%) were housewives and 80% had a personal monthly income of less than NRS 10, 000 (USD 87). The family income of 74% of the women was below NRS 30, 000 (USD 260); with a mean income of NRS 24, 317 and a standard deviation of NRS 7,916. About 98% of the participants in the study were married with only 5 single and 3 widowed participants. Almost two thirds (63.6%) of the women lived with their husband and/or children only while about 30% lived with husband's or their own family.

Table 4 Descriptive Analysis of the Demographic Characteristics of the study population (n = 319)

Variables	Frequency	(Percent)
	n	(%)
Age (in Years)		
20 or less	45	(14.1)
21 to 34	267	(83.7)
35 or more	7	(2.2)
Mean ± SD	25.4 ± 4.5	
Range	16 - 36	
Education		
No formal Education	54	(16.9)
Primary Education	30	(9.4)
Secondary Education	97	(30.4)
Higher Secondary	87	(27.3)
University Level Education	51	(16.0)
Occupation		
Housewife	238	(74.6)
Government Sector	16	(5.0)
Private Sector	59	(18.5)
Agriculture	5	(1.6)
Others	1	(0.3)
Family Income (in NRS)*		
<30,000	236	(74.0)
30,000 and above	83	(26.0)
Mean	24,316.7 ± 11,999.9	
Range	8,000 - 85,000	
Personal Income (in NRS)*		
10, 000 or less	257	(80.6)
More than 10,000	62	(19.4)

Variables	Frequency n	(Percent) (%)
Mean (SD)	3943.6 ± 7916.4	
Range	0 - 36,000	
Marital Status		
Single	5	(1.6)
Married	311	(97.5)
Widowed	3	(.9)
Family Type		
Living alone with children	21	(6.6)
Living with husband and children	203	(63.6)
Living with husband's family	67	(21.0)
Living with own family	28	(8.8)

*** 1 USD = 115 NPR**

The following table shows the postpartum week of the participants:

Table 5 Postpartum week of the participants

Postpartum Week of the participants	Frequency n	(Percentage) (%)
6	87	(27.3)
7	18	(5.6)
8	15	(4.7)
9	5	(1.6)
10	74	(23.2)
11	22	(6.9)
12	14	(4.4)
13	10	(3.1)
14	56	(17.6)
15	8	(2.5)
16	3	(0.9)
18	3	(0.9)
20	3	(0.9)
24	1	(0.3)

4.1.2 Psychological Factors

Table 6 demonstrates the psychological factors of the study participants. Recent occurrence of stressful life events (death of a loved one; loss of job of self or family members; economic difficulties in the family; recent diagnosis of serious illness in the family or any family member meeting with accident recently) that occurred within the past year was recorded as present or absent (irrespective of the number of separate events). Almost have the participants (47.6%) have had these experiences in the past year. One fifth of the participants (19.7%) reported to having mood swings during the current pregnancy and 13.8% reported to having mood swings during menstrual cycles in the past. History of psychiatric disorders was present in 31% of the participants while a family history of psychiatric disorders was present in 24.8% of the participants.

Table 6 Descriptive Analysis of the Psychological Factors of the study population (n = 319)

Variables	Frequency n	(Percent) (%)
Recent Stressful Life Event		
No	167	(52.4)
Yes	152	(47.6)
Mood Swings During Current Pregnancy		
No	256	(80.3)
Yes	63	(19.7)
History of Mood Swings during menstrual cycles in the past		

Variables	Frequency n	(Percent) (%)
No	275	(86.2)
Yes	44	(13.8)
History of Mental Illness in the Past		
Absent	220	(69.0)
Present	99	(31.0)
Family history of mental illness		
Absent	240	(75.2)
Present	79	(24.8)

4.1.3 Socio- Cultural Factors

About 72% of the participants were either very satisfied or satisfied with the support they received during pregnancy while 4.4% were very unsatisfied. Likewise, almost the same proportion (74.6%) of participants were either satisfied or very satisfied with the support they received after childbirth. A little lower than half of the participants were satisfied with their relationship with their husband while 12.2% and 2.2% were dissatisfied and very dissatisfied respectively. Regarding relationship with their mother-in-law, almost 80% were either satisfied or very satisfied. Likewise, more than 85% of the women were satisfied or very satisfied with the gender of their babies.

Table 7 Descriptive Analysis of Socio-Cultural Factors of the study population (n = 319)

Variables	Frequency n	(Percent) (%)
Perceived Support during Pregnancy		
Very Dissatisfied	14	(4.4)
Dissatisfied	20	(6.3)
Neutral	56	(17.6)
Satisfied	108	(33.9)
Very Satisfied	121	(37.9)
Perceived Support after Childbirth		
Very Dissatisfied	11	(3.4)
Dissatisfied	16	(5.0)
Neutral	54	(16.9)
Satisfied	116	(36.4)
Very Satisfied	122	(38.2)
Relationship with Husband		
Very Dissatisfied	7	(2.2)
Dissatisfied	39	(12.2)
Neutral	38	(11.9)
Satisfied	150	(47.0)
Very Satisfied	85	(26.6)
Relationship with Mother-in-Law		
Very Dissatisfied	16	(5.0)
Dissatisfied	21	(6.6)
Neutral	28	(8.8)
Satisfied	178	(55.8)
Very Satisfied	76	(23.8)
Satisfaction with Gender of the Newborn		
Very Dissatisfied	7	(2.2)

Dissatisfied	14	(4.4)
Neutral	24	(7.5)
Satisfied	176	(55.2)
Very Satisfied	98	(30.7)

4.1.4 Obstetric and Pediatric Factors

As shown in table 8, around half of the participants (48.9%) did not have nay living children at home prior to this childbirth while another 42.3% had one living child at home. Majority of the participants (71.5) had undergone normal vaginal delivery. The pregnancy had been planned by about three fourth of the participants (74.3%). Almost 70% of the participants did not have complication during pregnancy as well as during childbirth. About 20% of the infants had had health problems after birth (This included any health problem within 2 weeks of birth; that had warranted hospital admission, or increased hospital stay after delivery). The mean birth weight of the infants was 3 kgs with a standard deviation of 0.6 kgs. About twenty two percent of the babies had low birth weight (<2.5 kgs).

Table 8 Descriptive Analysis of Obstetric and Pediatric Factors of the study population (n = 319)

Variables	**Frequency**	**(Percent)**
	n	(%)
Birth Order		
First	156	(48.9)
Second	135	(42.3)
Third	27	(8.5)

Variables	Frequency	(Percent)
	n	(%)
Fourth	1	(0.3)
Mode of Delivery (Type of Birth)		
Normal Delivery	228	(71.5)
Cesarean	89	(27.9)
Vacuum / Forceps	2	(0.6)
Planned or Unplanned Pregnancy		
Planned	237	(74.3)
Unplanned	82	(25.7)
Complications during Pregnancy		
No	226	(70.8)
Yes	93	(29.2)
Complications during Childbirth		
No	232	(72.7)
Yes	87	(27.3)
Infant Health Problems after birth		
No	259	(81.2)
Yes	60	(18.8)
Birth weight of Infant (Kgs)		
Low Birth Weight (<2.5 kg)	70	(21.9)
Normal Birth Weight (2.5 kg or more)	249	(78.1)
Mean ± SD	3.0 ± 0.6	
Range	1.8 - 4.5	
Infant's Gender		
Male	199	(62.4)
Female	120	(37.6)

4.1.5. Domestic Violence Experience

As can be seen in Table 9, 37% of the women had experience psychological partner violence in the past year while the percent of women who have ever experienced psychological violence was 44.5%. Regarding physical partner violence the prevalence was 16% and 26.3% in the past year and ever, respectively. Contrary to the trend of the other two forms, sexual partner violence was experienced by more women in the past year than ever (14.7% and 11.9% respectively). Childhood physical abuse was experience by 16.9% and Childhood Sexual Abuse by 10% of the participants.

Table 9 Descriptive Analysis of Domestic Violence Experiences of the study population (n = 319)

Variables	Frequency n	(Percent) (%)
Experience of Psychological IPV in the Past Year		
No	201	(63.0)
Yes	118	(37.0)
Experience of Psychological IPV – Ever		
No	177	(55.5)
Yes	142	(44.5)
Experience of Physical IPV in the Past Year		
No	268	(84.0)
Yes	51	(16.0)
Experience of Physical IPV – Ever		
No	235	(73.7)
Yes	84	(26.3)
Experience of Sexual IPV in the Past Year		
No	272	(85.3)
Yes	47	(14.7)
Experience of Sexual IPV – Ever		

No	281	(88.1)
Yes	38	(11.9)
Experience of childhood physical violence		
No	265	(83.1)
Yes	54	(16.9)
Experience of Childhood Sexual abuse		
No	287	(90.0)
Yes	32	(10.0)

4.1.6 Postpartum Depression

Postpartum depression was classified as being present or absent based on the cut-off score of EPDS 13. A score of 13 or above was considered as presence of PPD and that below 13 were considered ad absence of PPD. I our study participants the prevalence of PPD was found to be 20.7%. The scores ranged from 0 to 18, with a mean of 8.7 and a standard deviation of 4.1.

Table 10 Postpartum Depression among study population (n= 319)

	Frequency	(Percent)
	n	(%)
Postpartum Depression (EPDS score)		
Absent	253	(79.3)
Present	66	(20.7)
Mean ± SD	8.7 ± 4.1	
Range	0 - 18	

4.2. Inferential Statistics

4.2.1 Association between Demographic, Psychological, Socio-cultural, Obstetric, Pediatric Factors, Domestic violence experiences and Postpartum Depression in the study population

Bivariate analysis was conducted using Pearson's chi- square test. The independent variables were re-grouped based on literature review and prior researches. Association between the variables was considered significant at p- value <0.05. However, in order to include the independent variable in the multi-variate model, the cut-off p-value has been taken as 0.2.

4.2.1.1 Association between Demographic Factors and Postpartum Depression

Among the demographic characteristics of the mother, none of the factors were found to be significantly associated with postpartum depression both at p- value <0.05 as well as p- value <0.2. Thus, the demographic characteristics will not be included in the regression analysis model.

Table 11 Association between Demographic factors and Postpartum Depression (n= 319)

Variables	PPD				p-value
	Absent		Present		
	n	(%)	n	(%)	
Age					0.309
≤ 25	124	(77)	37	(23)	
>25	129	(81.6)	29	(18.4)	

Variables	PPD				p-value
	Absent		Present		
	n	(%)	n	(%)	
Education					0.878
Lower Education	143	(79)	38	(21)	
Higher Education	110	(79.7)	28	(20.3)	
Occupation					0.939
Unemployed	189	(79.4)	49	(20.6)	
Employed	64	(79)	17	(21)	
Monthly Family Income					0.957
<30,000	187	(79.2)	49	(20.8)	
≥ 30,000	66	(79.5)	17	(20.5)	
Monthly Personal Income					0.952
≤ 10, 000	204	(79.4)	53	(20.6)	
> 10,000	49	(79)	13	(21)	
Marital Status					0.761
Divorced or Widowed	6	(75)	2	(25)	
Married	247	(79.4)	64	(20.6)	
Family Type					0.369
Living Alone	16	(76.2)	5	(23.8)	
Living with husband/ children	157	(77.3)	46	(22.7)	
Living with family	80	(84.2)	15	(15.8)	

4.2.1.2 Association between Psychological factors and Postpartum Depression

As shown in Table 12, among the psychological factors, significant association was found between postpartum depression and history of mental illness (p-value= <0.001) as well as family history of mental illness (p-value= 0.033). Mood swings during

current pregnancy was found to be associated at significance level of p- value= 0.169. From the perspective of bi-variate analysis, this is not considered significant. However, this value fulfils our pre-determined cut-off of p-value= 0.2 and hence was included in the multi-variate model.

Table 12 Association between Psychological factors and Postpartum Depression (n= 319)

Variables	PPD				p-value
	Absent		Present		
	n	(%)	n	(%)	
Recent Stressful Life Event					0.480
No	135	80.8	32	19.2	
Yes	118	77.6	34	22.4	
Mood Swings during Current Pregnancy					0.169
No	207	80.9	49	19.1	
Yes	46	73	17	27	
History of Mood Swings during Menstrual cycle in the past					0.719
No	219	79.6	56	20.4	
Yes	34	77.3	10	22.7	
History of Mental Illness in the past					<0.001
Absent	201	91.4	19	8.6	
Present	52	52.5	47	47.5	
Family History of Mental Illness					0.033
Absent	197	82.1	43	17.9	
Present	56	70.9	23	29.1	

4.2.1.3 Association between Socio- Cultural factors and Postpartum Depression

The data regarding socio-cultural factors were collected through means of Likert-type questions (where 1 was very dissatisfied and 5 was very satisfied). The responses can be considered as ordinal variables and, hence, have been analyzed as such alongside postpartum depression in the bi-variate analysis(110). Among the socio-cultural factors, only relationship with husband was found to have p-value of 0.081 and hence was included in the logistic regression model. However, there is no significant association between relationship with husband and PPD on chi- square analysis.

Table 13 Association between Socio-Cultural factors and Postpartum Depression (n= 319)

Variables	PPD				p- value
	Absent		Present		
	n	(%)	n	(%)	
Perceived Support during Pregnancy					0.847
Very Dissatisfied	12	85.7	2	14.3	
Dissatisfied	17	85	3	15	
Neutral	42	75	14	25	
Satisfied	86	79.6	22	20.4	
Very Satisfied	96	79.3	25	20.7	
Perceived Support after Childbirth					0.952
Very Dissatisfied	9	81.8	2	18.2	
Dissatisfied	13	81.3	3	18.8	

Variables	PPD				p- value
	Absent		Present		
	n	(%)	n	(%)	
Neutral	41	75.9	13	24.1	
Satisfied	94	81	22	19	
Very Satisfied	96	78.7	26	21.3	
Relationship with husband					0.081
Very Dissatisfied	2	28.6	5	71.4	
Dissatisfied	22	56.4	17	43.6	
Neutral	24	63.2	14	36.8	
Satisfied	126	84	24	16	
Very Satisfied	79	92.9	6	7.1	
Perceived Relationship with Mother-in-Law					0.98
Very Dissatisfied	13	81.3	3	18.7	
Dissatisfied	17	81	4	19	
Neutral	21	75	7	25	
Satisfied	141	79.2	37	20.8	
Very Satisfied	61	80.3	15	19.7	
Satisfaction with the gender of newborn					0.703
Very Dissatisfied	5	71.4	2	28.6	
Dissatisfied	11	78.6	3	21.4	
Neutral	17	70.8	7	29.2	
Satisfied	144	81.8	32	18.2	
Very Satisfied	76	77.6	22	22.4	

4.2.1.4 Association between Obstetric/ Pediatric factors and Postpartum Depression

Table 14 shows that the mode of delivery or the type of birth; plan or unplanned pregnancy and birth weight of the infant are significantly associated with postpartum depression (p-value= 0.037; <0.001 and 0.03 respectively). Birth Order is associated with PPD at p- value of 0.172. While this is not significant for the bi-variate analysis, it will be included in the multi-variate analysis.

Table 14 Association between Obstetric/ Pediatric factors and Postpartum Depression (n= 319)

Variables	PPD				p- value
	Absent		Present		
	n	(%)	n	(%)	
Birth Order					0.172
First or Second	228	(78.4)	63	(21.6)	
Higher than Second	25	(89.3)	3	(10.7)	
Mode of Delivery (Type of Birth)					0.037
Normal Vaginal Delivery	174	(76.3)	54	(23.7)	
Assisted Delivery	79	(86.8)	12	(13.2)	
Planned or Unplanned Pregnancy					<0.001
Planned	205	(86.5)	32	(13.5)	
Unplanned	48	(58.5)	34	(41.5)	
Complications during Pregnancy					0.818
No	180	(79.6)	46	(20.4)	
Yes	73	(78.5)	20	(21.5)	
Complications during Childbirth					0.352

Variables	PPD				p- value
	Absent		Present		
	n	(%)	n	(%)	
No	181	(78	51	(22)	
Yes	72	(82.8)	15	(17.2)	
Infant Health Problems after Birth					0.617
No	204	(78.8)	55	(21.2)	
Yes	49	(81.7)	11	(18.3)	
Birth Weight of Infant					0.03
Low Birth Weight (<2.5 kg)	49	(70)	21	(30)	
Normal Birth Weight (≥ 2.5 kg)	204	(81.9)	45	(18.1)	

4.2.1.4 Association between Domestic Violence Experiences and Postpartum Depression

Women's experience of IPV in the form of psychological, physical and sexual violence in the past year was found to be significantly associated at p- value= <0.001. Only physical violence experienced ever in life was found significantly associated with PPD (p- value= <0.001), whereas ever experience of psychological and sexual violence were not significantly associated with PPD. Among childhood abuse, experience of Childhood Sexual Abuse was found significantly associated with PPD (at p- value= <0.001) while Childhood physical value was not associated. However, childhood physical violence had a p-value of 0.075, which fulfils the cut- off for inclusion in the multi-variate model.

Table 15 Association between Domestic Violence Experiences and Postpartum Depression (n= 319)

Variables	PPD				p-value
	Absent		Present		
	n	(%)	n	(%)	
Experience of Psychological IPV in the Past Year					<0.001
No	188	(93.5)	13	(6.5)	
Yes	65	(55.1)	53	(44.9)	
Experience of Psychological IPV ever					0.701
No	139	(78.5)	38	(21.5)	
Yes	114	(80.3)	28	(19.7)	
Experience of Physical IPV in the past year					<0.001
No	237	(88.4)	31	(11.6)	
Yes	16	(31.4)	35	(68.6)	
Experience of Physical IPV ever					<0.001
No	185	(78.7)	50	(21.3)	
Yes	68	(81)	16	(19)	
Experience of Sexual IPV in the past year					<0.001
No	227	(83.5)	45	(16.5)	
Yes	26	(55.3)	21	(44.7)	
Experience of Sexual IPV ever					0.627
No	224	(79.7)	57	(20.3)	
Yes	29	(76.3)	9	(23.7)	
Experience of Childhood Physical Violence					0.075
No	215	(81.8)	50	(18.9)	
Yes	38	(70.4)	16	(29.6)	
Experience of Childhood Sexual Abuse					<0.001
No	238	(82.9)	49	(17.1)	
Yes	15	(46.9)	17	(53.1)	

4.2.2 Factors associated with Postpartum Depression

From the chi- square test, variables that had a p-value ≥ 0.2 were selected as predictor variables to be used in the binary regression model. These variables were: Relationship with husband, Mood Swings during pregnancy, Birth Order, Mode of Delivery, Planned/ Unplanned Pregnancy, Birth weight of infant, Psychological Violence in the past year, Physical Violence in the Past year, Physical Violence Ever, Sexual Violence in the Past Year, Childhood Physical Violence, Childhood Sexual Abuse, History of Psychiatric Disorder and Family History of Psychiatric Disorder. All the independent predictor variables were in binomial, except for 'Relationship with husband' which was ordinal. Hence, it was recoded into dummy variables prior to analysis.

The assumptions of binary logistic regression were tested before running the analysis, as described below:

- Assumption of appropriate outcome structure

  To begin, one of the main assumptions of logistic regression is the appropriate structure of the outcome variable. Binary logistic regression requires the dependent variable to be binary as was in the case of our study, i.e. presence or absence of Postpartum depression based on EPDS score of ≥ 13 or < 13 respectively.

- Assumption of Observation Independence

  Logistic regression requires the observations to be independent of each other. In other words, the observations should not come from repeated measurements

or matched data. This was ensured during the study design, in which samples were selected randomly and no matching was done.

- Assumption of absence of multicollinearity

  Logistic regression requires there to be little or no multicollinearity among the independent variables. Multi-linearity was checked through measurement of variance inflation factor (VIF)for each predictor variable, all of which lied between 1 and 2; and hence, there was no multicollinearity among independent variables.

- Assumption of Large Sample Size:

  Finally, logistic regression requires a large sample size. The commonly employed guideline states that 10-20 cases for each independent variable in the study design. In our study, there are 14 independent variables to be included in the logistic regression model and hence, our calculated sample size fulfils the criteria of large sample size.

The enter method was used to run the binary logistic regression analysis after selecting the predictor variables based on the results from the chi- square test. From the binary logistic regression the variables that were found to have a significant association with PPD at 95% Confidence Level are as follow: Planned/ Unplanned pregnancy, Birth weight of infant, Psychological Violence in the past year, Physical Violence in the past year, Childhood Sexual Abuse, History of mental illness and Family history of mental illness.

People who had a history of mental illness were 8.3 times more likely to have PPD when compared to people with no history of mental illness (OR = 8.3; 955 CI 3.153 to 21.654). The Odds Ratio for family history of mental illness was 2.8 with 95% CI

of 1.065 to 7.607); with women having a family history having higher odds of developing PPD. Significant difference was found in the likelihood for development of PPD based on relationship with husband. Pregnancies that were not planned resulted in 3.2 times higher odds of developing PPD when compared to planned pregnancies. Likewise, if the child had Low Birth Weight, the mother had 3.6 times higher odds of developing PPD. In regard to Psychological and Physical Violence in the past year, the odds of developing PPD was 8.3 and 7.6 times higher respectively in women who had experienced the violence when compared with women who had not. Women who had faced childhood sexual violence had 12.7 times higher odds of developing PPD than women who had not.

Table 16 Binary Logistic Regression of Predictor variables with Postpartum Depression

Characteristics	Unadjusted OR (95% CI)			p- value
Mood Swings during current pregnancy				
No		Ref.		
Yes	1.173	(0.411 -	3.348)	0.766
History of Mental Illness				
No		Ref.		
Yes	8.263	(3.153 -	21.654)	<0.001
Family history of Mental Illness				
No		Ref.		
Yes	2.846	(1.065 -	7.607)	0.037

Characteristics	Unadjusted OR (95% CI)			p- value
Relationship with husband				
Very Satisfied		Ref.		
Very Dissatisfied	2.918	(0.187 -	8.281)	0.236
Dissatisfied	1.060	(0.721 -	5.815)	0.104
Neutral	1.276	(0.988 -	5.130)	0.085
Satisfied	2.996	(0.736 -	12.192)	0.125
Birth Order				
First or Second		Ref.		
Higher than Second	2.270	(0.319 -	16.157)	0.413
Planned/ Unplanned Pregnancy				
Planned		Ref.		
Unplanned	3.205	(1.156 -	8.887)	0.025
Mode of Delivery				
Normal Vaginal Delivery		Ref.		
Assisted Delivery	1.133	(0.404 -	3.180)	0.812
Birth Weight of Infant				
Low Birth Weight		Ref.		
Normal Birth Weight	3.643	(1.278 -	10.383)	0.016
Psychological Violence in the past year				
No		Ref.		
Yes	8.324	(3.214 -	21.557)	<0.001
Physical Violence in the past year				
No		Ref.		
Yes	7.640	(2.510 -	23.256)	<0.001
Physical Violence Ever				
No		Ref.		
Yes	2.503	(0.755 -	8.304)	0.134
Sexual Violence in the past year				

Characteristics	Unadjusted OR (95% CI)			p- value
No		Ref.		
Yes	1.917	(0.625 -	5.877)	0.255
Childhood Physical Violence				
No		Ref.		
Yes	2.389	(0.716 -	7.976)	0.157
Childhood Sexual Abuse				
No		Ref.		
Yes	12.794	(3.049 -	53.683)	<0.001

Chapter 5

Discussion

Postpartum Depression is an important public health problem, especially in Nepal where suicide is the main cause of maternal mortality (28). Likewise, Domestic violence is a social problem that is pervasive in the traditional gender roles of the Nepalese society, making it significantly prevalent as well as socially acceptable(82). Our research, which was a hospital based cross sectional study, aimed to determine the prevalence of Postpartum Depression and of Domestic Violence in the study population. Likewise, our study also aimed to identify the factors associated with Postpartum Depression, including demographic, psychological, socio-cultural, obstetric and pediatric factors and domestic violence experiences. The study was conducted among postpartum women (between 6weeks to 6 months postpartum), visiting vaccination clinics in a maternity hospital in Nepal.

Postpartum Depression is caused due to the interactions between a wide variety of factors, most of which differ based on the cultural, geographic, behavioral and genetic differences of people. Hence, it is important to study these factors on the contextual background of each country. Since our study has employed self- report questionnaire, the findings may under-report or over-report the studied phenomenon. The findings from this study. Following is a detailed discussion of these factors, based on the findings of our study:

Association of Demographic Factors and Postpartum depression:

Demographic factors (including age, education, occupation, income, marital status and family type) were not found to be associated with an increased likelihood of

developing PPD in our study. The demographic factors have been extensively studied in the different parts of the world, and the results vary in different studies. A study by Matsumoto et al, showed that the odds of PPD was 1.7 times higher in women whose age (at the time of birth) was 35 years or more(48, 111). Whereas, another study by Petrosyan et al, showed that PPD was higher in women who are 25years or less, at the time of birth(112). Another study showed that teenage mothers had a higher risk of PPD (47). On the other, several other studies have found no association between the age of the mother and the postpartum depression, which is in line with the findings of our study(40, 50). This variation in findings may be due to cultural and societal differences in the way a person experiences or perceives age. Similarly, it can also be due to other co-existing factors that have a risk modification effect on age. Regarding education, a studies conducted by Lancaster et al in 2010 and Schatz et al in 2012 showed that lower education was associated with PPD(47, 51). However, this finding contrasts with our study where despite grouping the education variable as low and high, we did not find any association. Likewise, studies have found that unemployed women were more likely to develop PPD when compared to women who were employed(47, 113). However, this association could not be found in our study. One probable reason for this could be that majority of the women in our study (almost 75%) were not employed and hence there might have been an underrepresentation of employment status. Marital status has been shown to be an important predictor for PPD in different studies. Studies conducted in both the western part of the world and well as in Asia have shown that not being married increases the risk of postpartum depression. While in the western part of the world, this has been attributed to decreased perception of support; in Asian studies, it is largely attributed to the social

stigma associated with child-birth out of wedlock (20, 114). However, our study did not find significant association between marital status and PPD. This is probably due to the unbalanced representation of women with different marital status, i.e. women who were married (97.5%) and women are single or widowed (2.5%). Regarding the family type, one study had shown that women who live only with their husband or children have a higher likelihood of having PPD when compared with women who live with their families (55). However, this association could not be found in our study.

Association of Psychological Factors and Postpartum depression:

Among the psychological factors, history of psychiatric disorders and family history of psychiatric disorders were found to be significantly associated with PPD on chi-square analysis; while the other factors (i.e. mood swings during pregnancy, mood swings during menstrual cycles in the past and recent stressful life event) were not found to be associated.

Recent stressful life events have been found to be associated with PPD in several studies (51, 61). The stressful events that were specifically asked for during our study were (death of a loved one, loss of job of self or family, financial problem in the household, accident of disease in the family), which are similar to the events specified in the other studies. However, our study did not find any association between recent stressful life event and PPD. One of the reasons for this could be that majority of the participants were in low income group, hence the stressful event relating to ‘financial problems’ would be experienced by most of them on a regular basis. Hence, the

participants may have been misrepresented a chronic issue instead of a recent acute issue of financial hardship. Mood swings during menstrual period (Pre Menstrual Dysphoric Disorder) in the past has been shown to be associated with increased risk of PPD in a study conducted by Sylvén et al in 2012 (58). A study on the hormonal causes of PPD found that women having symptoms of PMDD or PMS had 1.7 times higher odds of developing PPD (57). While on the other hand, some studies have shown no association between the two. Regarding mood swings during pregnancy, a study has shown that it is a predictor for developing PPD, and may also be an indicator for antenatal depression(59). However, our study did not find any association between mood swings and PPD. Several studies have shown important link between clinical factors and the risk of PPD.

History of mental illness in the past and history of mental illness in the family members (particularly depression) have been shown to increase the risk of PPD (59, 60). A study conducted by Jarvis et al, showed that a history of depression can be an important predictor for PPD. Another study by Mercier et al identified a history of anxiety as a predictor for PPD(115). Our study found a significant association of history of mental illness with PPD. On chi- square analysis, as well as binary logistic regression model; history of mental illness was significant at p- value of <0.001. Women who had a history of mental illness were found to have 8.2 higher odds of developing PPD when compared to women with no history of mental illness. Although several studies have shown this in the past, there has been limited research in this in Nepal. In the cultural context of Nepal, this finding has important public health implications. Likewise, family history of mental illness was also found to be significantly associated with PPD, with the odds being 2.84 higher in people with

history of mental illness in the past. Several studies have shown this association (60) (64) Both these findings are in accordance with past studies.

Association of Socio-cultural factors with Postpartum Depression:

Social support during and after pregnancy have been shown to be important predictors of postpartum depression by several studies. Lack of support from family has been shown to increase the risk of PPD among women. There is especially strong association between lack of support from husband and PPD (59, 61). However, our study did not find a significant association between perceived social support and PPD. **A** bad relationship with husband or marital discord/ dissatisfaction has been shown to increase the risk of PPD(61, 62). However, this association was not found in our study. This finding is in contrast to a previous study conducted in Nepal, in which poor relationship with husband and marital dissatisfaction were found to increase the odds of PPD by 1.67 and 4.05 respectively (103). Studies conducted in Asia have found the relationship of the woman with her mother-in-law to be a risk factor for PPD(51, 55). However, our study did not find a significant association between relationship with mother-in-law and PPD. This may be attributed to the fact that it is not an extensively studied factor and may only be applicable to certain social and traditional context. Disappointment with gender of the newborn as a risk factor for PPD has not been found several studies in the west. However, studies in South Asia as well as other parts of Asia have found this to be a risk factor(36). Our study did not find a significant association between the satisfaction regarding gender of the newborn and PPD. In fact, majority of the participants were either satisfied or very

satisfied with the gender of their newborn (whether it was a boy or a girl). One reason for this could be the fact that almost half the participants had given birth for the first time, and hence they inclined to having less expectations regarding gender of the child. As one study by Tungchama et al. has shown that while the gender of the child is not associated with PPD; expectation of gender of the child is significantly associated with an increased risk of PPD (116).

Association of Obstetric/ Pediatric factors and postpartum depression:

Among the obstetric factors, number or children (birth order) at home was not found to be significantly associated with PPD on bi-variate analysis. This finding is in contrast with a study that found that the women who had their first childbirth (Relative Risk = 8.65), or who had one child (Relative Risk = 2.01) at home were at a higher risk for PPD than women who had had 3 or more births (65). The variable was included in the logistic regression model, but even after controlling with other factors on logistic regression analysis, the higher odds were not significant. This could be implicative of the fact that the birth order influences other factors such as: support from husband and family; husband's reaction to the pregnancy, which can independently affect the risk of PPD as was shown in a study by Nagata et al (117).

The Mode/ Type of Delivery has been shown in many studies to be a predictor of PPD. Studies have found PPD to be higher among women undergoing assisted delivery (caesarian/ instrumental delivery) when compared to women who underwent normal vaginal delivery(48, 53). Another study conducted in Nepal, however, has shown the risk of PPD to be higher in women undergoing vaginal delivery (4). In our

study, the type/ mode of delivery was significantly associated with PPD on bivariate analysis; with higher proportion of women undergoing assisted delivery having a higher frequency of PPD. This finding is in accordance with past studies. However, on binary logistic regression, the association was not present. This is in accordance with a study by Eisenach et al, that showed that risk of PPD was associated with acute pain after birth and not with the mode of delivery (118).

The Intention of the pregnancy (planned or unplanned) has been shown to be a risk factor for PPD in studies in the past. Studies have shown that there is higher risk of PPD among women who had unintended pregnancies(20, 53, 62). Our study found a significant association between intention of pregnancy and PPD, both on bivariate analysis as well as logistic regression analysis. Women who had had unplanned pregnancies were found to have 3.2 times higher odds of developing PPD when compared to women whose pregnancies were planned. This is in accordance with findings from studies conducted in the past, both in Asia and in the western part of the world. One study conducted in the United states, including over a hundred thousand postpartum women, showed that women who had unplanned pregnancies were at 20-50% higher risk of developing PPD.

Studies have shown that complications during pregnancy and child birth significantly increased the risk of PPD(56, 63). However, it was not significantly associated with PPD in our study, both on bivariate as well as multivariate analysis. This result is in contrast to a study conducted by Kunwar et al. at a university hospital in Nepal, in which pregnancy complications was found to be significant at p-value < 0.001. Similarly, infant health problems after birth has also been shown to increase the risk

of PPD in studies conducted previously (63). However, our study did not find any significant association between infant heath problem and PPD. One study has suggested that infant health problems, including NICU admissions, increases the risk of PTSD among mothers and not PPD (64).

Regarding birth weight of newborn, studies have shown that mothers who gave birth to infants with low birth weight were found to have a higher risk for PPD(4, 117). A systematic review article showed that low birth weight was not only associated with PPD, it was also associated with long term depression in mothers (119). Our study found significant association of infant's birth weight with PPD. Women whose infants had LBW were at 3.6 times higher odds of developing PPD. This finding is in accordance with studies mentioned above. The association of LBW with PPD has been attributed to the increased stress and increased child-care burden on the mothers (119).

Association of Domestic Violence Experiences with Postpartum Depression:

Several studies have been conducted to identify association between experience of domestic violence and Postpartum depression. The questionnaire employed in our study (WHO multi-country study questionnaire) divides domestic violence as psychological, physical and sexual (in the past year and ever). It also identifies childhood physical violence and childhood sexual violence experiences. On bivariate analysis, our study found significant association between Psychological, Physical and Sexual violence in the past year; while experience of physical violence ever was also significantly associated. Likewise, for childhood experience of violence sexual abuse

was significantly associated with PPD. After controlling with other variables, the types of domestic violence that were found to increase the odds of PPD were: Psychological violence in the past year, which increased the odds of PPD by 8.3 times; Physical violence in the past year, that increased the odds of PPD by 7.6 times and most notably, experience of childhood sexual abuse that increased the odds of PPD by 12.7 times. These findings are consistent with studies that have shown association between the individual types of violence experienced by women and the development of PPD. TurkCapar et al, found that physical violence in the preceding years increased the odds of PPD by 6.2 times(107). Another study by Islam et al, has shown that all three forms of IPV increase the risk of PPD; however psychological violence is the most notable which increases the odds by 6.92 times. Regarding studies conducted in Nepal, a research by Bhusal et al, found that the odds of PPD was increased by Physical and Psychological violence bby 3.6 and 2.8 times respectively. On the contrary, a study by Budhathoki et al, did not find any association between Domestic Violence and PPD in Nepal. One reason for this could be the difference in measurements of the violence experience among women, as it has been shown that research containing socially sensitive items can face a socially desirable response bias. A study conducted by Lev-Wiesel et al showed that Childhood Sexual Abuse was significantly associated with PPD, which is in accordance with our findings (120).

Conclusion:

This research aimed to estimate the prevalence of Postpartum depression and Domestic violence experiences among postpartum women in Nepal, and to identify the factors associated with Postpartum depression. The prevalence of Postpartum Depression was found to be 20.7% in our study population. The prevalence of Psychological violence was 37% in the past year and 45.5% ever. For physical violence, the prevalence was 16% in the past year and 26.3% ever. Regarding Sexual violence the prevalence in the past year and ever was 14.7%and 11.9% respectively. Ten percent of the women had experience of childhood sexual abuse while 16.9% had experience of childhood physical violence.

Sociodemographic factors were not found to be significantly associated with PPD. Among psychological factors, history of mental illness and family history of mental illness were both associated with PPD; whereas the other psychological factors did not have any significant association. Socio-cultural factors (including support during pregnancy and childbirth, relationship with husband and mother-in-law as well as satisfaction with gender of the newborn) were not found to have a significant association with PPD. Among the obstetric and pediatric factors, the mode of delivery (type of birth), intention of pregnancy (planned or unplanned) and birth weight of infant were associated with PPD on bivariate analysis. Similarly, for domestic violence experience, psychological violence (past year), physical violence (past year and ever), sexual violence (past year) and childhood sexual abuse were significantly associated on bi-variate analysis.

After controlling for different variables, the binary logistic regression analysis revealed that history of mental illness, family history of mental illness, unplanned

pregnancy, Low Birth Weight of infant, psychological as well as physical violence in the past year and childhood sexual abuse are the factors that increase the odds of developing Postpartum Depression.

The most important risk factor was found to be childhood sexual abuse, followed by psychological violence in the past, history of mental illness, physical violence in the past year, Low Birth Weight infant, unplanned pregnancy and finally, family history of mental illness.

While some of these factors are unmodifiable (e.g. family history of mental illness), others are either preventable, modifiable or treatable. Proper diagnosis and treatment of mental illness among women of reproductive age can help to prevent the onset of depressive disorder in the postpartum period. Likewise, provision of proper counselling for pregnant women, especially those who have become pregnant without planning, can help them make informed choices as well as prepare them well for the postpartum period. While there are some unmodifiable causes of Low Birth Weight, the main cause of LBW in an under-developed country like Nepal is maternal malnutrition during pregnancy. This can be prevented by providing proper nutritious food as well as nutritional supplements to pregnant mothers.

Our findings suggest that Domestic Violence experiences are the most important and notable factors that momentously increase a woman's risk of developing PPD. It is overwhelming to see the high prevalence of partner violence experienced by women in the past year; indicating that the women face violence from their intimate partners even during pregnancy. Preventing domestic violence is a fundamental right of every human being, and every person should be ensured against it. This issue should

especially be addressed in regard to women of the reproductive age, who become prone to other mental illnesses like Postpartum Depression, in addition to PTSD as a result of experiencing violence. When violence is perpetrated against a woman, it leaves not only herself but even her newborn vulnerable to health problems. Likewise, our findings suggest that experience of childhood sexual abuse significantly increases the risk of PPD among women. All forms of violence against children and women should be prevented by means of strict laws, policy changes and increasing social awareness as well as decreasing social stigma.

The current Maternal Mortality Ratio (MMR) of Nepal is 229 per 100,000. The main cause of maternal death is suicide (resulting from postpartum mental illness). The only way in which the country can attain the Sustainable Development Goals (SDG) goal of MMR below 70 per 100,000 is if it implements policies to address the issue of Postpartum Depression among women and control the factors that contribute towards it. What is more alarming is the fact that there are no national policies regarding perinatal mental illness in Nepal; and dedicated maternal mental health services are unavailable in most parts of the country. Identifying factors that contribute to PPD will not only help in preventing them, but also in developing policies that are most relevant to the prevention and promotion strategies of Postpartum depression.

Recommendations

Recommendations for policy makers

Since there is a lack of policies related to maternal mental health, there should be an authoritative committee to discuss and implement these policies as early as possible. Some of these policy recommendations are listed below:

(To address the lack of dedicated Maternal Mental Health service facilities)

1. Establishment of Maternal Mental Health Clinics in the Ante-natal and Post-natal (ANC/ PNC) clinics of health posts and government hospitals.
2. Establishment of “Mental Health Promoting Centers” as a separate health facility.

(To address the lack of adequately trained medical and health personnel)

1. All medical and health personnel undergo at least 6-month theory course, and 3-month practical experience in dealing with maternal mental health problems.
2. Revise the curricula of Nursing, Mid-wife as well as medical students to include maternal mental health problems in greater details.
3. Medical/ Nursing/ Health Professional licensing exam must include at least 15% questions regarding practical aspects of maternal mental health problems.
4. Regular maternal mental health training provided by Ministry of Health to all health professionals in the country.

(To address the lack of national guidelines regarding assessment, screening and treatment of perinatal mental disorders.)

1. Formation of a national maternal mental health society as a think-tank for mental health issues. Inclusion of consultants from various field, who create and regularly update medical guidelines.

(To address the lack of policies and protective services for women who are abused)

1. National protective services and helplines should be established where women experiencing domestic violence can call and seek help.
2. Non-profit homes should be established by both government and private sector, where women who are abused can seek to find shelter and protection.

(To address the issue of Childhood Violence)

As childhood violence, especially childhood sexual abuse) has been found to be the most significant risk factor for PPD, the following steps must be taken to urgently tackle this issue:

1. To teach children about the difference forms of sexual abuse; how to identify it, report it to authorities and keep oneself safe; through sex education included in the school curriculum as well as at home.
2. Childhood protective services should be established where children can report any sexual abuse they have witnessed, or report if they feel threatened.
3. Regular screening of at- risk families (e.g. parents who have a history of violence or who are sex offenders) by social services.

Recommendations for future research

1. Future research (including both qualitative and quantitative studies) should be conducted to identify the causes as well as ways in which we can empower women against partner violence.

2. A community-based study (preferably cohort or case-control design) should conducted in a larger population will help understand the issues to a greater extent.
3. Studies should be conducted examining the effectiveness of different screening, diagnostic and interventions measures against postpartum depression and domestic violence.

Recommendations for clinical practice

1. Detailed counselling for patients at risk for postpartum depression and Domestic violence.
2. Collaboration between Department of Obstetrics and Department of Psychiatry in government as well as teaching hospitals to integrate Maternal Mental Health checkup in their regular Out-Patient Services.
3. Women who are identified to be vulnerable towards domestic violence, should be counselled and referred to protective services.

Limitations

The study has used purposive sampling in the first and second step. This might lead to researcher bias. However, this has been done to ensure maximum representation, based on knowledge of local factors. Furthermore, since the design of this study is cross-sectional design, it will give rise to the antecedent consequent bias. Since the questionnaire consists of questions related to sensitive issues (domestic violence and depression), bias of socially acceptable answer may be present.

Benefits & Application:

There is a lack of understanding and social stigma associated with mental health, especially in the perinatal period in Nepal. Additionally, the health workers in Nepal are usually not trained in assessing ante-natal and post-natal Mental Illness, there are no national policies regarding perinatal mental illness, and dedicated maternal mental health services are unavailable in most parts of the country (121). Studies regarding PPD and other mental illnesses during pregnancy will not only improve the understanding of these disorders and their associated factors in the country context, it will also help to reduce stigma to develop policies for better management of maternal Mental Illness (4). Identifying the factors that increase the risk of PPD are also helpful in the clinical setting, where increased clinical suspicion of PPD (based on risk factors) can help in diagnosing the condition.

APPENDICES

APPENDIX A

Participant's Information Sheet and Informed Consent Form (English)

Information Sheet

INTRODUCTION

I am Dr. Pallavi Koirala, currently studying MPH at College of Public Health Sciences, Chulalongkorn University in Thailand. I am conducting a research, as part of my curriculum (thesis). You are being asked to take part in this research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask me (the researcher) if there is anything that is not clear or if you need more information.

TITLE OF STUDY

Depression and Domestic Violence Experiences Among Postpartum Women in Nepal.

PRINCIPAL INVESTIGATOR

Name of the principal researcher: Dr. Pallavi Koirala

Contact address: Ghattekulo, Kathmandu, Nepal

Telephone number: 9818643589

Email address: pallavik23@gmail.com

PURPOSE OF STUDY

The purpose of this study is to determine the prevalence of postpartum depression and domestic violence experiences among women in Nepal. The study also aims to describe the factors contributing to the development of postpartum depression and to

find any association between them.

STUDY PROCEDURES

The following procedures will be employed in the study:

- Data Collection: You will be involved in this part of the study. You will have to fill a questionnaire; which will take about 15 minutes.
- Data Analysis
- Report Writing
- Report Publication

RISKS

The study does not pose any risk to you or to your health. You may decline to answer any or all questions and you may terminate your involvement in the research at any time if you choose.

BENEFITS

There will be no direct benefit to you for your participation in this study. However, we hope that the information obtained from this study may provide valuable insight into the subjects f/of postpartum depression and its associated factors as well as domestic violence experiences among Nepali women and its association with postpartum depression. It will help in the prevention, early identification as well as treatment of this disorder and contribute to improving women's mental health in Nepal.

CONFIDENTIALITY

Your responses to this questionnaire will be anonymous. Please do not write any identifying information on your questionnaire. For the purposes of this research study, your comments will not be anonymous. Every effort will be made by the researcher to preserve your confidentiality including the following:

Several measures have been taken to ensure confidentiality, such as those listed below:

- Assigning code names/numbers for participants that will be used on all research notes and documents
- Keeping notes, questionnaire, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher.
- Presenting the file only as a complete report without personal identifying characteristics.

Participant data will be kept confidential except in cases where the researcher is legally obligated to report specific incidents. These incidents include, but may not be limited to, incidents of serious abuse and suicide risk.

COMPENSATION

No compensation will be provided for participating in the study. However, souvenirs may be provided in good faith.

CONTACT INFORMATION

If you have questions at any time about this study, or you experience adverse effects as the result of participating in this study, you may contact the researcher whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the Primary Investigator, please contact the Ethical Review Board of the Hospital.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the

relationship you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

Letter of Consent to Take Part in Research

Research participant ID/Number... ... ...
Date...../Month...../Year.....

I, the signatory of this letter, wish to consent to take part in this research project.
Title of the research project: Association of Depression with Domestic Violence Experiences Among Postpartum Women in a tertiary hospital in Nepal
Name of the principal researcher: Dr. Pallavi Koirala
Contact address: Ghattekulo, Kathmandu, Nepal
Telephone number: 9818643589

I **have been notified** of the details of the research rationale and the research objectives, details of how I will be participating in the study, as well as the benefits to be obtained from this research. I have thoroughly read the details in the document providing information for the research participants and **have received explanations from the researcher so that I** am **able clearly to understand the information**.

I therefore apply to take part in this research project, as specified in the document providing information for research participants. Concerning this, I consent to participate in the study and answer the questions present in the questionnaire of the research study.

It has been explained to me that I have **the rig**ht to withdraw from the research at any time during the research **without having to state the reason**. This withdrawal will in no way negatively affect me I have been assured and confirm that the researcher will treat me in accordance with what is specified in the document providing information for the research participants and any information about me **will be treated by the researcher as confidential**. The research will be presented as a whole picture only. No information in the report will lead to identifying me as an individual, except when I consent to it so doing. **If I am not treated according to what is specified in the document providing information for the research participants**, I have the right to file a complaint to the Research Ethics Review Committee.

I have signed my name hereto in the presence of a witness. I have also received a copy of the document providing information for the research participants and a copy of the letter of consent.

(Signature).....
(Signature).....

(.....)
(.....)

Principal researcher Research participant

(Signature).....
.....

(.....)

Witness

Participant's Information Sheet and Informed Consent Form (Nepali)

अनुसन्धानका उद्देश्यहरू:

तपाईंलाई एउटा अनुसन्धानमा भाग लिन आग्रह गरिएको छ। तपाईंले यस अध्ययनमा भाग लिने निर्णय गर्नु अघि, यो बुझ्नु महत्त्वपूर्ण छ कि किन अनुसन्धान भइरहेको छ र यसले के समावेश गर्दछ। कृपया तलका जानकारी ध्यानपूर्वक पढ्नुहोस्। यदि त्यहाँ केहि छ जुन स्पष्ट छैन वा यदि तपाईंलाई थप जानकारी आवश्यक छ भने कृपया अनुसन्धानकर्तालाई सोध्नुहोस् ।

अनुसन्धान परियोजनाको शीर्षक:

काठमाडौं, नेपालको एक अस्पतालमा प्रसवोत्तर महिलाहरूमा डिप्रेसन र घरेलु हिंसाको सम्बन्ध (Association of Depression with Domestic Violence Experiences Among Postpartum Women in a Tertiary Hospital in Kathmandu, Nepal)

प्रमुख अनुसन्धानकर्ताको नाम:

प्रमुख अनुसन्धानकर्ताको नाम: डा. पल्लवी कोईराला

अनुसन्धानकर्ताको ठेगाना: घट्टेकुलो, काठमाडौँ, नेपाल

टेलिफोन नम्बर: ९८१८६४३५८९

ईमेल: pallavik23@gmail.com

अनुसन्धानका उद्देश्यहरू:

अनुसन्धानका उद्देश्यहरू यस प्रकार छन् : प्रसवोत्तर (पोस्टपर्टम) डिप्रेसन र यससँग सम्बन्धित कारकहरूको बारेमा अनुसन्धान गर्न। साथै, घरेलु हिंसा र प्रसवोत्तर (पोस्टपर्टम) डिप्रेसनको साथ यसको सम्बन्धको बारेमा पहिचान गर्न।

अनुसन्धान प्रक्रिया:

यस अनुसन्धानमा निम्न लिखित प्रक्रियाहरु अपनाइनेछ:

- तथ्यांक संकलन (तपाई अध्ययनको यस चरणमा संलग्न हुनुहुनेछ। प्रत्येक सहभागीले एउटा प्रश्नावली भर्नु पर्ने छ र यसको लागि करिब १५ मिनेट लाग्नेछ।)
- तथ्याङ्क विश्लेषण
- रिपोर्ट लेखन
- रिपोर्ट प्रसारण

अनुसन्धानका जोखिम:

तपाईलाई यस अनुसन्धानबाट कुनै जोखिम हुने छैन। अनुसन्धान का क्रममा तपाईलाई कुनै पनि समयमा, कारण बताए बिना अनुसन्धानबाट बाहिर निस्किने अधिकार छ र यसो गर्नाले तपाइलाइ कुनै पनि हिसाबमा मलाई नकारात्मक असर पर्ने छैन।

अनुसन्धानका फाइदा:

यस अध्ययनमा तपाईको सहभागिताको लागि तपाईलाई कुनै सीधा लाभ हुने छैन। यद्यपि हामी आशावादी छौं कि यस अनुसन्धानबाट प्राप्त जानकारीले यस विषयको बारेमा ज्ञान थप्नेछ र देशका महिलाहरूलाई सहयोग पुऱ्याउनेछ।

गोप्यता:

यस अनुसंधान को लागी तपाईको प्रतिक्रियाहरु अज्ञात हुनेछन्। कृपया तपाइँको प्रश्नावलीमा कुनै पहिचान जानकारी नलेख्नुहोस्। यस अनुसन्धानको लागि, तपाईंको टिप्पणीहरू गोप्य हुनेछन्। अन्वेषकद्वारा निम्न सहित तपाईंको गोपनीयता सुरक्षित गर्न को लागी सबै प्रयासहरू गरीनेछ:

- सहभागीहरूका लागि कोड नम्बर / संख्या तोक्दै जुन सबै अनुसन्धान नोटहरू र कागजातहरूमा प्रयोग हुनेछ
- नोटहरू, प्रश्नावली र कुनै अन्य पहिचान गर्ने कागजातहरू लक गरिएको फाईल क्याबिनेटमा अन्वेषकको व्यक्तिगत स्वामित्वमा

बिशेष परिस्थिति बाहेक, सहभागीहरूको डाटा गोप्य राखिनेछ। यस्ता परिस्थिति अन्तर्गत आत्महत्या जोखिम, अरुलाई हानि पुर्याउने सम्भावना आदि जस्ता रिपोर्ट गर्नैपर्ने परिस्थिति हरु पर्दछन।

सम्पर्क जानकारी:

यदि तपाईं यस अनुसन्धानको बारेमा कुनै पनि समयमा प्रश्नहरू चाहनुहुन्छ भने, तपाईं अनुसन्धानकर्तालाई सम्पर्क गर्न सक्नुहुनेछ जसको सम्पर्क जानकारी पहिलो पृष्ठमा प्रदान गरिएको छ।

स्वैच्छिक सहभागिता:

यस अध्ययनमा तपाईंको सहभागिता स्वैच्छिक हो। यस अध्ययनमा भाग लिने कि नगर्ने भनेर निर्णय लिने काम तपाईंको हो। यदि तपाईं यस अध्ययनमा भाग लिने निर्णय गर्नुहुन्छ भने, तपाईंलाई एक सहमति फाराममा हस्ताक्षर गर्न सोधिनेछ। तपाईंले स्वीकृति फारममा हस्ताक्षर गरेपछि, तपाईं अझै कुनै पनि समयमा र कारण बिना नै फिर्ता लिन स्वतन्त्र हुनुहुन्छ। यस अध्ययनबाट फिर्ता लिनुले तपाइँको सम्बन्धलाई असर गर्दैन, यदि कुनै छ भने, अन्वेषकको साथ। यदि तपाईं डाटा संग्रह गर्नु अघि अध्ययनबाट फिर्ता लिनुभयो भने, तपाईंको डाटा तपाईंलाई फिर्ता वा नष्ट गरिन्छ।

अनुसन्धानमा भाग लिने सहमति पत्र

सहभागी कोड नम्बर..... मिति.....

म, यो पत्रको हस्ताक्षरकर्ता, यस अनुसन्धानमा भाग लिन सहमत गर्न चाहन्छु.

अनुसन्धान परियोजनाको शीर्षक: Association of Depression with Domestic Violence Experiences Among Postpartum Women in a Tertiary Hospital in Kathmandu, Nepal (काठमाडौं, नेपालको एक अस्पतालमा प्रसवोत्तर महिलाहरूमा डिप्रेसन र घरेलु हिंसाको सम्बन्ध).

प्रमुख अनुसन्धानकर्ताको नाम: डा. पल्लवी कोईराला

अनुसन्धानकर्ताको ठेगाना: घट्टेकुलो, काठमाडौँ, नेपाल

टेलिफोन नम्बर: ९८१८६४३५८९

मलाई अनुसन्धानका उद्देश्यहरू अनुसन्धानको कारण, म अध्ययनमा कसरी भाग लिने छु भन्ने विवरणहरूका साथै यस अनुसन्धानबाट प्राप्त हुने फाइदाहरूबारे पनि सूचित गरिएको छ। मैले कागजातमा भएका विवरणहरू राम्ररी पढेको छु। मैले अनुसन्धानकर्ताबाट जानकारी र स्पष्टीकरण पनि प्राप्त गरेको छु। *म अध्ययनमा भाग लिन र अनुसन्धान अध्ययनको प्रश्नावलीमा उपस्थित प्रश्नहरूको उत्तर दिन सहमत गर्छु।* मलाई व्याख्या गरिएको छ कि कुनै पनि समयमा, कारण बताए बिना अनुसन्धानबाट बाहिर निस्किने अधिकार मलाई छ। यसले कुनै पनि हिसाबमा मलाई नकारात्मक असर पर्ने छैन।

मलाई यो आश्वासन दिइएको छ कि अन्वेषकले मसंग सूचना कागजातमा उल्लेखित अनुसार व्यवहार गर्नेछन र मेरो बारेमा सबै जानकारी अन्वेषकले गोप्य राखने छन्. साथै, अनुसन्धानको रिपोर्ट मात्र सम्पूर्ण तस्वीरको रूपमा प्रस्तुत गरिनेछ र रिपोर्टमा उल्लेख हुने कुनै पनि जानकारीले मलाई व्यक्तिगत रूपमा पहिचान गर्न सकिने छैन. यदि मसंग कागजातमा तोकिए बमोजिम व्यवहार गरिएन भने मलाई अनुसन्धान नैतिक समीक्षा समितिमा (Research Ethics Review Committee) गुनासो गर्ने अधिकार छ मैले मेरो नाममा साक्षीको उपस्थितिमा हस्ताक्षर गरेको छु। मैले अनुसन्धानमा सहभागीलाई जानकारी प्रदान गर्ने कागजातको प्रतिलिपि र सहमति पत्रको एक प्रतिलिपि पनि प्राप्त गरेको छु।

हस्ताक्षर)..... (हस्ताक्षर)..... (.....)

प्रमुख अनुसन्धानकर्ता (.....) सहभागी

(हस्ताक्षर).....

(.....) साक्षी

APPENDIX B

Questionnaire (English)

Participant's ID……. Date……

Part I: Demographic Characteristics

Please mark (✓) into the gap or add the actual text into the gap.

A. Demographic characteristics of respondent:

1. Age: ……..years

2. What is your current Marital Status?

(1) ☐ Single (2) ☐ Married

(3) ☐ Divorced/ Separated (4) ☐ Widowed

3. What is the highest level of education you attended?

(1) ☐ Primary education
(2) ☐ Secondary education
(3) ☐ Higher Secondary education
(4) ☐ University
(5) ☐ No formal education

4. What is your occupation?

1. ☐ Housewife
2. ☐ Government officer
3. ☐ Private sector officer
4. ☐ Agriculture Related
5. ☐ Other (Specify)……..

5. What is your monthly income (in NPR)?

(1) Family Income …… (2) Personal Income……

6. What is your current family type?

(1) ☐ Living alone
(2) ☐ Living with husband and/or children
(3) ☐ Living with husband's family
(4) ☐ Living with your own family

B. Demographic characteristics of husband/ partner (current):

7. Age of husband : …….. years

8. Highest Educational attainment of husband :

☐ Primary Education
☐ Secondary Education
☐ Higher Secondary Education
☐ University
☐ No formal education

9. Husband's Occupation:

☐ Government officer
☐ Private sector officer
☐ Agriculture Related
☐ Other (Specify)……..

Part III Psychological Factors

Please mark (***✓***) into the gap or add the actual text into the gap.

S.No.		Yes	No
1.	Have you had any stressful life event in the past 6 months?		
	Death of a loved one?		
	Loss of job (yourself for family member)?		
	Financial problems/ difficulties in the household?		
	Accident in any family member?		
	Severe disease in family member?		

2.	Did you experience mood swings during your current pregnancy?		
3.	Have you ever experienced mood swings during your menstrual cycles in the past?		

4. Have you been diagnosed with any of the following mental illness in the past:

☐ Depression

☐ Anxiety Disorder

☐ Bipolar Disorder

☐ Schizophrenia

☐ Personality Disorder

5. Has anyone in your family been diagnosed with any of the following mental illness in the past:

☐ Depression

☐ Anxiety Disorder

☐ Bipolar Disorder

☐ Schizophrenia

☐ Personality Disorder

Part IV Socio cultural Factors

Please mark (***✓***) into the gap or add the actual text into the gap.

S. No.		**Very Unsatisfied**	**Unsatisfied**	**Neutral**	**Satisfied**	**Very Satisfied**
1.	Are you satisfied with the support you received from your family during pregnancy?					

2.	Are you satisfied with the support (support in childcare) you are receiving from your family after delivery of the baby?					
3.	How is your relationship with your husband?					
4.	How is your relationship with your mother-in-law?					
5.	Are you satisfied with the gender of your child?					

Part V Obstetric/ Pediatric Factors

Please mark (***✓***) into the gap or add the actual text into the gap.

1. How many children did you have prior to having this child (birth order/ parity)?

……

2. What was the birth weight of your child (last delivery)? …….

3. What is the gender of your child (last delivery)?

☐ Male ☐ Female

4. What is the age of your child (last delivery)? …….. (weeks)

5. Did your baby have any health or medical problems at birth?

☐ No

☐ Yes

If yes, what were they? ……..

6. What type of delivery did you have?

(1) ☐ Normal

(2) ☐ Assisted (Instrumental/ Cesarean)

7. Was the pregnancy planned or unplanned (accidental)?

(1) ☐ Planned

(2) ☐ Not planned/ accidental

8. Did you have any of the following complications during pregnancy?

☐ Bleeding

☐ Excessive Vomiting (Hyperemesis Gravidarum)

☐ Pregnancy Induced Hypertension

☐ Gestational Diabetes

☐ Hospitalization during pregnancy

☐ Antepartum Depression

9. Did you have any of the following complications during delivery?

☐ Prolonged Labor

☐ Emergency caesarean delivery

☐ Bleeding

☐ Fetal distress during labor/ suspected fetal distress during labor

Part VI Domestic violence experience

Childhood Violence Related questionnaire	**Yes**	**No**
1. When you were a child, did any parent, stepparent, or guardian ever hit, kick, punch, or otherwise hurt you?		

2. When you were a child, did any parent, stepparent, or guardian or any other person make you have sex (any sex act, not just intercourse) by using force or threatening to harm you or someone close to you?		

Has an intimate partner ever done the following things to you	**In the past 12 months**		**Before the past 12 months**	
	Yes	**No**	**Yes**	**No**
Psychological				
• Insulted or made to feel bad about yourself?				
• Belittled or humiliated in front of other people?				
• Done things to scare or intimidate you?				
• Threatened to hurt someone you cared about?				
Physical				
• Slapped or had something thrown at you that could hurt you?				
• Pushed or shoved?				
• Hit with fist or something else that could hurt?				
• Kicked, dragged or beaten up?				
• Choked or burnt on purpose?				
• Threatened to use or actually used a gun, knife or other weapon against you?				
Sexual				
• Physically forced you to have sex?				
• Had sexual intercourse when you did not want to because you were afraid of what partner might do?				
• Forced to do sexual activity that degrading or humiliating?				

Part VII Postpartum Depression Questionnaire

We would like to know how you are feeling. Please UNDERLINE the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   - □ As much as I always could
   - □ Not quite so much now
   - □ Definitely not so much now
   - □ Not at all

2. I have looked forward with enjoyment to things
   - □ As much as I ever did
   - □ Rather less than I used to
   - □ Definitely less than I used to
   - □ Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   - □ Yes, most of the time
   - □ Yes, some of the time
   - □ Not very often
   - □ No, never

4. I have been anxious or worried for no good reason
   - □ No, not at all
   - □ Hardly ever
   - □ Yes, sometimes
   - □ Yes, very often

*5. I have felt scared or panicky for no very good reason
   - □ Yes, quite a lot
   - □ Yes, sometimes
   - □ No, not much
   - □ No, not at all

*6. Things have been getting on top of me
   - □ Yes, most of the time I haven't been able to cope at all
   - □ Yes, sometimes I haven't been coping as well as usual
   - □ No, most of the time I have coped quite well
   - □ No, have been coping as well as ever

*7. I have been so unhappy that I have had difficulty sleeping
   - □ Yes, most of the time
   - □ Yes, sometimes
   - □ Not very often
   - □ No, not at all

*8. I have felt sad or miserable
   - □ Yes, most of the time
   - □ Yes, quite often
   - □ Not very often
   - □ No, not at all

*9 I have been so unhappy that I have been crying
   - □ Yes, most of the time
   - □ Yes, quite often
   - □ Only occasionally
   - □ No, never

*10. The thought of harming myself has occurred to me
   - □ Yes, quite often
   - □ Sometimes
   - □ Hardly Ever
   - □ Never

Questionnaire (Nepali) प्रश्नावली

सहभागी कोड नम्बर..... मिति .....

भाग I: जनसांख्यिकीय विशेषताहरु

कृपया खालिमा (v) चिन्ह लगाउनुहोस् वा खाली स्थानमा वास्तविक पाठ थप्नुहोस्

A. उत्तरदाताको जनसांख्यिकीय विशेषताहरु:

१ . **तपाईँको उमेर**: ..... बर्ष

२ . **तपाईंको हालको वैवाहिक स्थिति के हो??**

☐ एकल ☐

विवाहित

☐ सम्बन्धविच्छेद ☐

विधवा

३. **तपाईको उच्च शैक्षिक योग्यता के हो ?**

☐ प्राथमिक शिक्षा (कक्षा १- ५)
☐ माध्यमिक शिक्षा (कक्षा ६ - १०)
☐ उच्च माध्यमिक शिक्षा (कक्षा११-१२)
☐ विश्वविद्यालय शिक्षा
☐ कुनै औपचारिक शिक्षा नलिएको
☐

४ . **तपाइँको हालको पेशा के हो??**

☐ गृहिणी
☐ सरकारी सेवा
☐ निजि छेत्रमा कार्यरत
☐ कृषि
☐ अन्य (उल्लेख गर्नुहोस)

.....

५ . **तपाइको औसत मासिक आय कति छ?**

(2) पारिवारिक आय .....

(3) व्यक्तिगत आय .....

६ . **तपाइको बर्तमान पारिवारिक अवस्था कस्तो छ?**

☐ एक्लै बस्ने
☐ पति र / अथवा बच्चाहरुसंग बस्ने
☐ पतिको परिवारसंग बस्ने
☐ आफ्नो परिवारसंग बस्ने
☐

B. पतिको जनसांख्यिकीय विशेषताहरु (पति नभएको खण्डमा प्रश्न ६, ७ र ८ खालि छोडिदिनु होला.) :

१ . **पतिको उमेर:** ..... बर्ष

२ . **पतिको उच्च शैक्षिक योग्यता के हो ?**

- ☐ प्राथमिक शिक्षा (कक्षा १- ५)
- ☐ माध्यमिक शिक्षा (कक्षा ६ – १०)
- ☐ उच्च माध्यमिक शिक्षा (कक्षा ११ – १२)
- ☐ विश्वविद्यालय शिक्षा
- ☐ कुनै औपचारिक शिक्षा नलिएको

३ . **पतिको हालको पेशा के हो??**

- ☐ घरेलु उद्योग
- ☐ सरकारी सेवा
- ☐ निजि छेत्रमा कार्यरत
- ☐ कृषि
- ☐ अन्य (उल्लेख गर्नुहोस)

.....

भाग॥ मनोवैज्ञानिक कारकहरू:

कृपया खालिमा (v) चिन्ह लगाउनुहोस् वा खाली स्थानमा वास्तविक पाठ थप्नुहोस्

क्र. सं.		छ	छैन
१.	पछिल्लो ६ महिना भित्र, के तपाईँ को जीवनमा निम्न मद्धे कुनै तनाबपुर्न घटना घटेका छन्?		
	• आफ्नो निकटतम व्यक्ति वा प्रियजनको मृत्यु		
क्र. सं.		छ	छैन
	• आफ्नो वा परिवारका कुनै सदस्य को जागिर गुमेको		
	• परिवार मा आर्थिक संकट आइपरेको		
	• आफु वा परिवारमा कसैलाई ठुलो रोग लागेको		
	• आफु वा परिवारको सदस्य दुर्घटनामा परेको		
२.	तपाइको पछिल्लो गर्भावास्थामा के तपाइले भावात्मक अस्थिरता एवं कुनै कारण बिना दुख वा खुशीको अनुभूति भएको महसूस गर्नुभएको थियो? ?		
३.	महिनावारी को समयमा के तपाइले भावात्मक अस्थिरता एवं कुनै कारण बिना दुख वा खुशीको अनुभूति भएको महसूस गर्नुभएको छ?		

४. निम्न उल्लेखित रोगहरु मद्धे के तपाइलाई चिकित्सक द्वारा कुनै रोग लागेको भनि पहिचान भएको छ?

- ☐ अवसाद (डिप्रेशन)
- ☐
- ☐
- ☐

चिन्ता बिकार (एङ्गयटि डिसोर्डेर)
उन्मत्त अवसाद्पुर्न ब्यथा (बाइपोलर डिसोर्डेर)
मनोभाजन (स्किजोफ्रेनिया)
☐ पर्सोनालिटी डिसोर्डेर

५. निम्न उल्लेखित रोगहरु मद्धे के तपाइको परिवारमा कसैलाई चिकित्सक द्वारा कुनै रोग लागेको भनि पहिचान भएको छ?

☐ अवसाद (डिप्रेशन)
☐ चिन्ता बिकार (एङ्गयटि डिसोर्डेर)
☐ उन्मत्त अवसाद्पुर्न ब्यथा (बाइपोलर डिसोर्डेर)
☐ मनोभाजन (स्किजोफ्रेनिया)
☐ पर्सोनालिटी डिसोर्डेर

भाग III. सामाजिक सांस्कृतिक कारकहरू

कृपया खालिमा (v) चिन्ह लगाउनुहोस् वा खाली स्थानमा वास्तविक पाठ थप्नुहोस्

क्र. सं.		**धेरै असन्तुष्ट**	**असन्तुष्ट**	**तटस्थ**	**सन्तुष्ट**	**धेरै सन्तुष्ट**
१.	के तपाई गर्भावस्थामा तपाईको परिवारबाट प्राप्त सहयोग, माया एवं स्नेह बाट सन्तुष्ट हुनुहुन्छ?					
२.	शिशुको जन्म पश्चात के तपाईको परिवारबाट प्राप्त सहयोग, माया एवं स्नेह बाट सन्तुष्ट हुनुहुन्छ?					
३.	के तपाईं आफ्नो पतिसँगको सम्बन्धमा सन्तुष्ट हुनुहुन्छ?					
४.	के तपाईं आफ्नो सासूसँगको सम्बन्धसँग सन्तुष्ट हुनुहुन्छ?					
५.	के तपाइँ आफ्नो पछिल्लो शिशु छोरा/छोरी भएकोमा सन्तुष्ट हुनुहुन्छ?					

भाग IV प्रसूति एवं बाल स्वास्थ्य कारकहरू

कृपया खालिमा (v) चिन्ह लगाउनुहोस् वा खाली स्थानमा वास्तविक पाठ थप्नुहोस्

१. **यस शिशुको जन्म हुनु अघि तपाइँका कतिजाना बच्चा हरु थिए?** .....

२. **जन्म पश्चात शिशुको वजन कति थियो?** ..... किलो

३. **शिशु को लिङ्ग:**

☐ पुरुष ☐ महिला

४.. **शिशुको हालको उमेर:** ..... हप्ता

५. **जन्म पश्चात शिशुको स्वास्थमा केहि समस्या आएको थियो वा थिएन**?

☐ थिएन

☐ थियो (समस्या उल्लेख गर्नुहोस) .....

६. **शिशुको जन्म (डेलिवरि) कुन प्रक्रियाले भएको हो??**

☐ नर्मल डेलिवरि

☐ अपरेशन डेलिवरि

☐ भ्याक्युम / फोर्सेप डेलिवरि

७. **के तपाइको पछिल्लो गर्भावस्था योजनाबद्ध थियो वा अनियोजित थियो**

☐ योजना गरिएको

☐ अनियोजित

८. **के तपाईंले गर्भावस्थामा निम्न कुनै पनि जटिलताको अनुभव गर्नुभएको थियो?**

☐ रक्तस्राव

☐ अत्यधिक बान्ता (हाइपर एमेसिस ग्रविडेराम)

☐ गर्भावस्थाको बेला उच्च रक्तचाप पहिचान भएको

☐ गर्भावस्थाको बेला मधुमेह पहिचान भएको

☐ अन्य कारणले अस्पताल भर्ना भएको

☐ गर्भावस्थाको बेला डिप्रेशन पहिचान भएको

९. **के तपाईंले ब्यथा र प्रसवको समयमा निम्न कुनै पनि जटिलताको अनुभव गर्नुभएको थियो?**

☐ धेरै लामो समय सम्म ब्यथा लागेको

☐

☐

☐

आपतकालीन अपरेशन गर्नुपरेको
अत्याधिक रक्तस्राव
ब्यथा लागेको बेलामा भ्रुण कष्ट भएको
☐ ब्यथा सुरु हुनु भन्दा लामो समय अघि नै पानी बग्न थालेको

भाग V घरेलु हिंसा सम्बन्धित प्रश्नावली

के तपाईंको पति (वा प्रेमी) ले तपाईंलाई निम्न उल्लेखित व्यवहार अथवा कार्य गरेको छ?	**गत १२ महिनामा**		**पछिल्ला १२ महिना अघि**	
	छ	**छैन**	**छ**	**छैन**
<u>मनोवैज्ञानिक</u>				
• अपमानित गरेको वा तपाईलाई आफ्नो बारेमा नराम्रो महसुस गराएको?				
• तपाईंलाई अन्य व्यक्तिहरूको अगाडि बेइज्जत गरिएको वा अपमान गरिएको छ ?				
• तपाईंलाई डर देखाउने वा तर्साउने काम गरेको ?				
• तपाईंले ख्याल गर्ने अथवा माया गर्ने व्यक्तिलाई चोट पुऱ्याउने धम्की दिएको ?				

कृपया खालिमा (V) चिन्ह लगाउनुहोस् वा खाली स्थानमा वास्तविक पाठ थप्नुहोस्

बाल्यकाल हिंसा सम्बन्धित प्रश्नावली	थियो	थिएन
1. जब तपाईं बच्चा हुनुहुन्थ्यो, के कुनै अभिभावक, माता -पिता, सौतिनी आमा - बुवा अथवा हजुरबुवा - हजुरआमा कसैले कहिले पिटेको, लात हानेको, मुक्का हानेको वा अन्यथा प्रकार ले तपाईंलाई ठुलो चोट पुर्याएको थियो?		
2. जब तपाईं बच्चा हुनुहुन्थ्यो, के कुनै अभिभावक, माता -पिता, सौतिनी आमा - बुवा, हजुरबुवा - हजुरआमा अथवा अन्य कोहि व्यक्ति ले तपाईंलाई बल प्रयोग गरेर जबर्जस्ति वा तपाईंको नजिकको कसैलाई हानी पुऱ्याउने धम्की दिएर यौन सम्बन्ध राखेको वा राख्न खोजेको थियो? (कुनै पनि किसिमका यौन गतिविधि, केवल संभोग मात्र हैन)		

शारीरिक				
• तपाईंलाई थप्पड हिर्काएको वा चोट पुर्याउन सक्ने कुनै वस्तु तपाई तिर फ्यालेको? ?				
• तपाईंलाई धक्का दिएको अथवा धकेलेको ?				
• मुट्ठीले वा चोट पुर्याउन सक्ने अनय कुनै वस्तुले हिकाएको ?				
• तपाईंलाई लात हानेको, जबर्जस्ति तानेको वा पिटेको ? ?				
• तपाईंको घाँटी निमोठएको, निसास्सिने प्रयास गरेको वा जलाउने प्रयास गरेको? ?				
• तपाईंको विरुद्धमा बन्दूक, चक्कु वा अन्य हतियार प्रयोग गर्ने धम्की दिएको अथवा वास्तवमा प्रयोग गरेको ?				
यौन सम्बन्धित				
• शारीरिक रूपले तपाईंलाई यौन सम्बन्ध (सेक्स) गर्न बाध्य पारेको ?				
• पति वा प्रेमीले रिसाएर केहि गर्लान भन्ने डरले आफुले नचाहेको बखतमा पनि यौन सम्बन्ध राख्नु भएको थियो ?				
• के तपाईंलाई कहिले पनि कुनै यौन गतिविधि गर्न बाध्य पारिएको थियो जसले तपाईलाई अपमानजनक वा अपमानित महसूस गराएको थियो?				

भाग VI प्रसुति अवसाद (पोस्ट्पार्टम डिप्रेशन) सम्बन्धित प्रश्नावली

कृपया खालिमा (v) चिन्ह लगाउनुहोस् वा खाली स्थानमा वास्तविक पाठ थप्नुहोस्

तपाँईको हालसालै बच्चा भएकोले तपाईलाई अहिले कस्तो छ ,त्यो हामी जान्न चाहन्छौँ । तपाई आज मात्र

नभएर बिगत एक हप्ता भित्रमा कस्तो अनुभव गर्दै हुनुहुन्छ ,त्यसको जाँचको लागी तल दिइएका प्रश्नहरु राम्रो सँग् पढ्नुहोस र तपाईको भावनासँग् मेल खाने उत्तर छान्नुहोस् अथवा गोलो चिन्ह लगाउनुहोस ।

गत हप्तामा:

3. **म जिवनका हरेक रमाईला क्षणहरुलाई बुझ्न र हाँस्न सकिरहेको छु ।**

☐ पहिला जति सक्थेँ,अहिले पनि त्यति नै सक्छु।
☐ पहिलेको जस्तो अहिले सक्दिन ।
☐ पक्कै पनि पहिलाभन्दा निकै कम मात्र सक्छु।
☐ बिल्कुल सक्दिन

*6. **आजकल कुनै पनि कामलाई बोझको रुपमा लिन्छु।**

☐ हो,म धेरैजसो समय म बोझबाट मुक्त हुन सकिरहेको हुदैन।
☐ हो, कहिलेकाँही म बोझबाट मुक्त हुन सकिरहेको हुदैन ।
☐ होईन ,प्रायजसो म बोझबाट मुक्त नै हुन्छु ।
☐ होईन ,म सधै नै बोझबाट मुक्त छु ।

4. **म जे कुरामा पनि आशावादी भएर आनन्द लिन सकेको छु ।**

☐ पहिले जति नै सक्छु ।
☐ पहिले भन्दा केहि कम मात्र सकेको छु ।
☐ पहिले भन्दा निकै कम मात्र सकेको छु ।
☐ पहिले भन्दा असाध्यै कम मात्र सकेको छु ।

*7. **म धेरै नै दुखी छु जसले ग्रदा मलाई निद्रा लाग्दैन ।**

☐ हो,धेरैजसो
☐ हो,कहिलेकाँही
☐ होईन ,खासै त्यस्तो हुदैन ।
☐ अँह, कहिल्यै त्यस्तो हुदैन ।

***3. बिगत एक हप्तामा केहि कामहरु बिग्रिधा मैले आफुलाई अनावश्यक रुपमा दोषि ठह्याएको हुन्छु**

☐ हो, प्रायजसो ।
☐ हो, तर कहिलेकाँही मात्र ।
☐ प्रायजसो हुदैन ।
☐ अहँ, कहिलेपनि हुदैन ।

*8. **मलाई पिर र चिन्ता लाग्रिह्न्छ ।**

☐ हो ,सधै नै
☐ हो ,कहिलेकाँही
☐ होईन,त्यति साह्रो लाग्दैन
☐ होईन,कहिले पनि लाग्दैन ।

4. **बिगत एक हप्तामा म विना कारण चिन्तित भैरहेको हुन्छु ।**

***9 म यति धेरै दुखी छु जसको कारण म रोईरहेको छु ।**

☐ अहँ, हुदिन। ☐ एकदम विरलै हुनेगर्छु । ☐ अँ, कहिलेकाही हुन्छु। ☐ अँ, प्रायजसो हुनेगर्छु ।	☐ हो,सधै नै ☐ हो, धेरैजसो ☐ होईन, कहिलेकाँही मात्र ☐ होईन, कहिल्यै पनि रुदिन
***5. म विना कारण डराईरहेको वा आत्तिईरहेको हुन्छु ।** ☐ अँ, प्रायजसो । ☐ अँ, कहिलेकाँही । ☐ अँह,खासै त्यस्तो हुदैन । ☐ अँह ,त्यस्तो कहिल्यै पनि हुदैन । ☐	***10 आफैले आफुलाई नोक्सान हुने कार्य (चिर्थोने,काटने र मर्न मन लाग्ने) गर्ने विचार मनमा आँउछ ।** ☐ हो,सधै नै ☐ हो,कहिलेकाँही ☐ होईन, कमै त्यस्तो हुन्छ ☐ अहँ,कहिले पनि त्यस्तो ☐ हुदैन ।

APPENDIX C

Research Timeline

Phase of Study	Jan 2019	Feb 2019	March 2019	April 2019	May 2019	June 2019	July 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019
Literature Review	→	→	→	→	→	→	→	→	→	→	→
Proposal preparation and Ethical Approval		→	→	→	→	→	→	→	→		
Data Collection								→	→		
Data Analysis and Report									→	→	→

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