DEPRESSION, ANXIETY AND STRESS AMONG ANTENATAL MOTHERS IN A TERTIARY LEVEL HOSPITAL OF KATHMANDU

BY

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Thesis Submitted in Partial Fulfillment of the Requirements for Master of Nursing Program in Women Health and Development from

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July, 2019

ABSTRACT

Background: Maternal mental illness during antenatal is known as vulnerable period. Emotional aspect of pregnant women during antenatal care remains most of the time neglected, undetected and untreated. This study aimed to assess the depression, anxiety and stress among the antenatal mothers.

Methods: Researcher conducted Cross-Sectional Descriptive Research Design using Depression, Anxiety and Stress Scale 21 and a structured interview questionnaire. Ethical approval taken from T.U, IOM, Institutional Review Committee and NHRC funded. Data collected via interview with 244 antenatal mothers after written informed consent within four weeks, non-probability convenient method used for sampling. Anonymity, confidentiality and privacy was maintained. Data entered into EPI DATA 3.1 and exported to the statistical package for social science 22 version for further analysis. Strength of association was determined through bivariate and multivariate logistic regression.

Results: Result showed prevalence of depression, anxiety and stress were 7.8%, 13.9% and 11.1% respectively. Primigravida more prevalence of depression, anxiety and stress 8 %, 14.4% and 12%, than multigravida. Whereas, depression, anxiety and stress were more prevalent in first trimester than second trimester and third trimester which was 9.5%, 21.4% and 21.4%. The factors strongly associated with depression was facing domestic violence (AOR=23.338 95% CI: 5.034-108.199). The factors strongly associated with anxiety were facing domestic violence (AOR=21.975 95% CI: 5.826-82.882) and unable to take balance diet on daily basis were (AOR=3.420 95% CI: 1.362-8.588). The factors strongly associated with stress was facing domestic violence (AOR=67.106 95% CI: 14.439-311.883).

Conclusions: Even though high prevalence of stress and anxiety were seen among antenatal mothers than depression, Depression is an alarming sign during pregnancy. Hence early detection and treatment is most crucial. Therefore**,** at least one routine mental and psychological screening test should be recommended as a part of routine antenatal check- up to promote maternal and child health in Nepal.

Key Words: *Antenatal mothers, Anxiety, Depression, Stress.*

ACKNOWLEDGEMENT

There are so many helping hands behind it so the researcher wants to acknowledge all of them for their kind co-operation, suggestion, guidance and help to develop this thesis report.

First of all, researcher would like to express her heartfelt gratitude to the Pokhara Nursing Campus, Ramghat, for providing a chance to conduct this study as a part of partial fulfillment of MN (Women Health and Development) and Institutional Review Committee of Institute of Medicine, for approval of research proposal. The researcher is greatly indebted to her research advisor Assist. Campus Chief Prof. Chandrakala Sharma who gave her precious time valuable suggestion, advice, continuous guidance and co-operation through the whole period of research.

Researcher found her words inadequate to express her senses of indebt gratitude and reverence to the Campus Chief Prof. Ms. Neeta Tamrakar, Chairperson of Thesis Committee Lecturer Ms. Nirupa Thapa, Lecturer Isabel Lawot as subject expert and Lecturer Sharada Sharma for inspiring her to conduct this study. Her heartfelt thanks goes to Assistant Dean (Executive Hospital Director) Prof. Mandira Onta for providing permission to data collection in Tribhuwan University, Teaching Hospital, Maharajgunj, Kathmandu.

Also a huge credit goes to Mr. Naveen Shrestha, research subject teacher, Prof. Vikash Kumar K.C, and Associate Prof. Dr. Aamod Poudel statistic teachers and the entire faculty members for their valuable suggestions, continuous guidance, encouragement and sedulous leadership throughout the study.

The researcher would like to thank the Librarians of Pokhara Nursing Campus, and Maharajgunj Nursing Campus, Prof. Peter Lovibond and Dr. Krishna Kumar Aryal for granting permission to use the tool, Prof. Suraj Shakya, clinical Psychologist for valuable suggestion and National Health Research Council family for providing grant, necessary books and study materials and kind cooperation to develop the tool.

The researcher also grateful to Incharges and other staffs of Gynae/Obs OPD of TUTH for the cooperation and facilitation in data collection and wishes to express her most heartfelt gratitude to all the respondents for their valuable information, time and co-operation that resulted in successful study.

At last but not least researcher would like to express a sincere gratitude to her colleagues for providing a lot of moral support and help to develop this thesis report.

Radha Maharjan

Date

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CHAPTER I

INTRODUCTION

1.1 Background of the Study

Pregnancy is a crucial period in which women goes through physiological, psychological, hormonal and social changes. Pregnant stage is related with the extremely precious stage which bring joy, happiness, satisfaction and self-fulfillment in women's life. In some women this stage may bring distress movement in their life (Din, Amreen, Iqbal, Iqbal, & Ahmad, 2016; Simkhada et al., 2015).

One of the important aspects of the one's life is physical, mental and social health, and it is more important during pregnancy. Many studies had been shown that developed countries have prevalence of 10 to 15% of maternal mental health problem and higher prevalence ranges from 10 to 40% in developing countries. During pregnancy the prevalence of mental illness is range from 10% to 41.2% globally, primarily depression {World health Organization (WHO), 2008, 2018}. Mental health is neglected in developing countries, like Nepal due to stigma, low income, patriarchal society etc (Simkhada, et al., 2015).

Antenatal period were more vulnerable period in exposing mental illness as changes in hormonal and physiological changes as well as changes in family status, losing a job and poor spousal relationships. Depression, Anxiety and stress are most common mental illness during pregnancy. It may increase the risk of emotional suffering and psychiatric morbidity and mortality during pregnancy (Rallis, Skouteris, McCabe, & Milgrom, 2014).

The most common mental health condition to affect antenatal mothers worldwide is depression. Maternal Depression is a hidden burden in both developed and developing countries, i.e. one in ten antenatal mothers and one in three antenatal mothers suffered from depression respectively. Severe depression can lead to suicide and is responsible

for maternal mortality and disability every year (Aryal et al., 2018; Shidhaye & Giri, 2014; World health Organization (WHO), 2008).

Anxiety and stress commonly resolved after delivery or continued throughout the postnatal period. Prenatal depression, anxiety and stress is related with various factors that may continue to postpartum period of life were lack of partner or of social support; history of abuse or of domestic violence; personal history of mental illness; unplanned or unwanted pregnancy; adverse events in life and high perceived stress; present/past pregnancy complications; and pregnancy loss (Biaggi, Conroy, Pawlby, & Pariante, 2016).It directly or indirectly cause adverse consequences in maternal and child health (Staneva, Bogossian, Pritchard, & Wittkowski, 2015).

Being a human every person has the natural capacity to cope with emotional state. But there is an individual difference in ability to cope. It is adaptive response as well as behavior that maintain the integrity of the individual. Adaption is viewed as positive and is correlated to a healthy response. When behavior disrupts the integrity of the individual, it is perceived as anxiety. It assumes that one can learn to cope more effectively. Most mothers develop good adaptation to their anxiety providing the child with realistic care, integrating them into family (Shrestha & Awasthi, 2016).

Sometimes unwanted pregnancy may contribute to psychological maladaptation, being responsible for developing anxiety during pregnancy (Silva, Nogueira, Clapis, & Leite, 2017), continue after delivery causing postnatal depression (Martini, Knappe, Beesdo-Baum, Lieb, & Wittchen, 2010).

1.2 Need of the Study

In Nepal main leading cause of death among reproductive age group women was maternal mortality now becoming second most leading cause after huge improvement in maternal mortality ratio. Depression and anxiety are more prominent nowadays with increasing in suicidal rate as a leading cause of death for reproductive age group women in Nepal (Simkhada & Teijlingen, 2018).

Many research studies reveal the highest prevalence of depression, anxiety and stress during pregnancy globally especially developing and underdeveloped countries. Prevalence of depression during pregnancy varied widely, ranges from 7-15% in developed countries and 19-25% in developing countries (Grote et al., 2010; Mersha,

Abebe, Sori, & Abegaz, 2018). Depression is common during pregnancy, but important to take seriously and recognized for early possible treatment, social support and counselling (Parcells, 2010).

Prevalence of stress during Pregnancy has been found to range from 6% to as high as 52.9% in developing countries. Study done in Dhulikhel Hospital had 32.33% of pregnant women showed mild to moderate level of anxiety (Shrestha & Awasthi, 2016) and study done in Patan Hospital shows 34% of stress during pregnancy (Pantha et al., 2014).

Besides this depression, anxiety, and stress during pregnancy remains most of the time neglected, undetected and untreated in obstetric medicine. Many prospective studies have shown that, maternal mental illness directly and indirectly increases the risk of adverse consequences on maternal/fetal health outcomes. These adverse outcomes are transfer mental illness to offspring 10-15% (symptoms of attention deficit hyperactivity disorder, or impaired cognitive development) (Glover, 2014), preterm birth (PTB) and Low Birth Weight (LBW) (Staneva, et al., 2015)

In Nepal there are very few studies on maternal mental health. Therefore it is crucial to assess the level of depression, anxiety and stress at early stage of pregnancy along with physical assessment, which may help in prompt treatment of depression as well as help to reduce anxiety and stress that ultimately enhances maternal and child health (Loo et al., 2017; Milad, Klock, Moses, & Chatterton, 1998). Hence researcher is interested to find out the Depression, Anxiety and Stress of pregnancy among Antenatal Mothers.

1.3 Objectives of the Study

General Objective

The general objectives was to assess the depression, anxiety and stress among antenatal mothers in a Tertiary Level Hospital, Kathmandu.

Specific Objectives

The specific objectives of the study were:

To assess depression among antenatal mothers.

To assess anxiety among antenatal mothers.

To assess stress among antenatal mothers.

To determine association between depression and the selected variables.

To determine association between anxiety and the selected variables.

To determine association between stress and the selected variables.

1.4 Significance of the Study

The findings from this study may provide the information regarding the maternal mental health problems, (depression, anxiety and stress) during pregnancy. It may work as a foundation for large scale study in the area of maternal mental health. It may help to assess the prevalence and describe the level of depression, anxiety and stress.

It may provide the information regarding factors for the development of the mental health problems in prenatal period.

It may be useful for Antenatal Out-Patient Department (OPD) in TUTH to conduct awareness program among the pregnant mothers.

1.5 Theoretical Framework

The framework is based on Roy's adaptation Model. Sr. Callista Roy had developed this basic concept of the model in 1964 and was formally published in 1976 in "Introduction to Nursing: An Adaptation Model". In 2007 Roy published latest version of this model. Individual was described as the adaptive system which constantly interact and adjusts itself to internal and external stimuli based on the personal characteristics and the adaptation level that has been obtained by the individual since birth.

Model has three systems; input, throughput and output. Here Input are the stimuli and their adaptation level, which is unique to each individual and dynamically depends upon coping mechanism. Inputs are processed and analyzed by the processors through the coping mechanism consisting for the physiological responses of the body and Cognator for the physiological and mental health adjustment. The effectors further helps to identify the response as a result of regulator- cognator coping mechanism.

Effectors has four important functions: Physiological, Self-concept, Role function and Interdependence. Hence the output of the system may be adaptive or ineffective response that directly has impact on health of an individual.

Researcher mention the selected characteristics that leads to depression, anxiety and stress during pregnancy and adaptive level of individual as input system. Pregnancy goes through various changes over physiological, psychological, hormonal and social factors. Individually these changes started to adapt by coping mechanism that affects their physiological effect, self-concept**,** role function**, i**nterdependence. If individual adapt those process properly, output will be good adaptive response, if not then might lead to different level of depression, anxiety and stress lasting with poor maternal and child health.

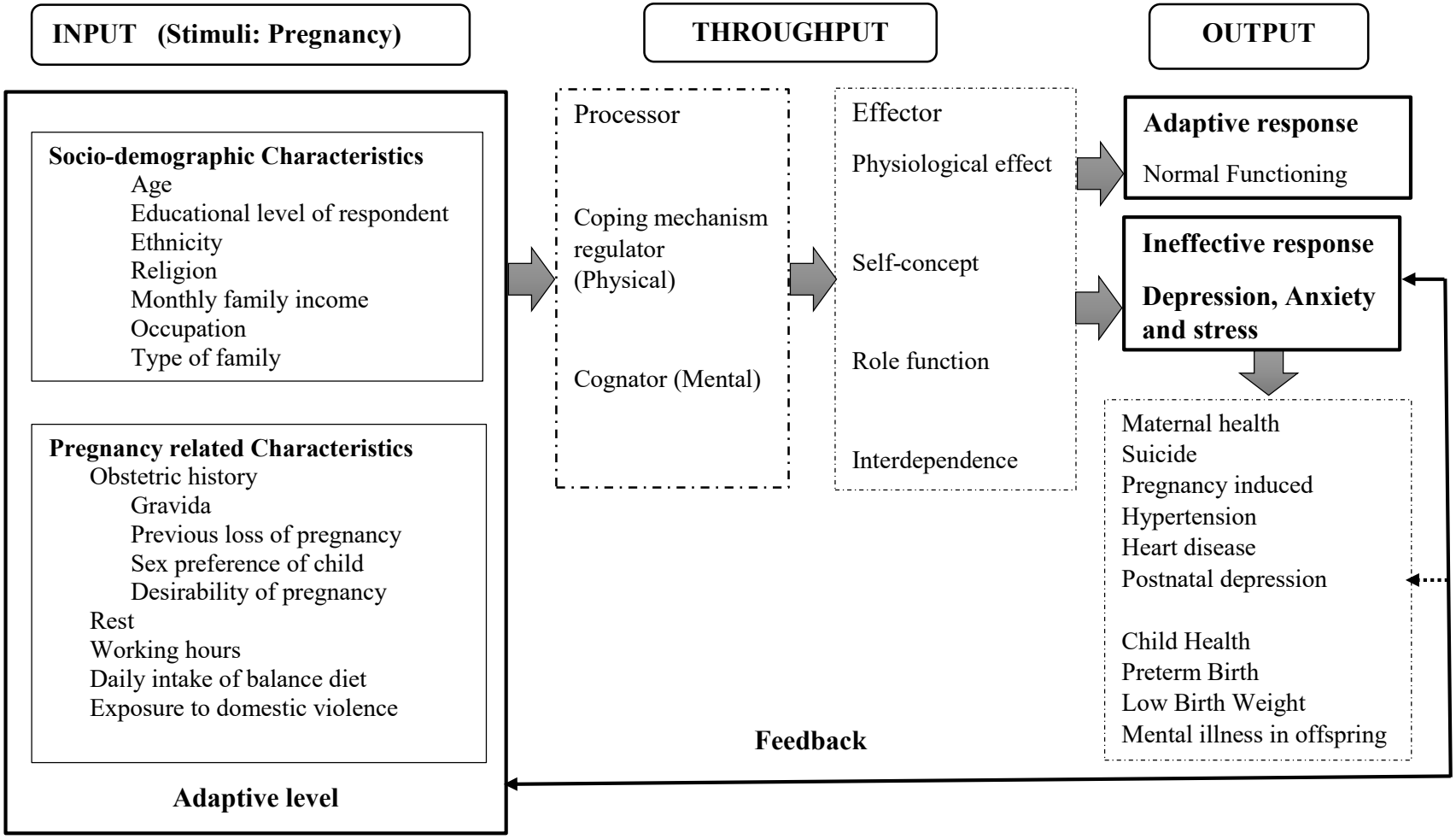

Fig I: Modified Theoretical Framework of Depression, Anxiety and Stress of Pregnancy based on Roy's Adaptation Model (George, 2011)

Note: Characters included inside the dot lines were not focused on the study.

1.6 Research Question

What is the prevalence of depression, anxiety and stress of the pregnancy among antenatal mothers?

What are the associated factors of depression, anxiety and stress of pregnancy among antenatal mothers?

1.7 Operational Definition

Pregnancy: Pregnancy also known as gestation which include all the three trimester, from conception to before delivery with normal singleton baby.

Depression: Depression is feeling of dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia. The score obtained from the depression scale statement more than 9 is having depression.

Anxiety: Anxiety is feeling of nervousness, fear, apprehension, and worrying among the antenatal mothers about the pregnancy. The score obtained from the anxiety scale statement more than 7 was considered as having anxiety.

Stress: Stress is feeling of strain and pressure. The score obtained from the stress scale statement more than 14 was considered as having stress.

Antenatal mothers: All normal pregnant mothers of reproductive age group (15-49), with singleton pregnancy, without any medical conditions and no multiple pregnancy were the antenatal mothers.

Obstetric history: previous pregnancies, history of abortion, previous birth outcomes, desirability of pregnancy were the obstetric history, excluding the medical conditions, multiple pregnancies and perceived labor pain.

Exposure to Domestic Violence: refers to the antenatal mothers those who faced mental torture, physical torture, verbal abuse and sexual abuse within one year by intimate partner, father in law, mother in law, sister in law, brother in law and other family members living together.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter includes review of literature which is retrieved from different sources like published journals, unpublished articles, books, and different websites. Related literatures were reviewed thoroughly according to the objectives of the study. The reviewed literature is organized in following way.

2.2 Review of Literature

Maternal Mental Health

Globally about 10% of pregnant mothers experience a mental disorder, primarily depression, whereas, in developing countries this is even higher, i.e. 15.6% during pregnancy. There is an evidence of suicidal cases during pregnancy just due to severity of illness even though maternal mental disorders are treatable. As a consequence, the children's growth and development may be negatively affected as well (World health Organization (WHO), 2018).

Mental health is not specifically mentioned in the Sustainable Development Goals, but under the Goal 3, target no iii support directly for maternal mental health. Also there are two more target that indirectly support the maternal mental health (or to the reduction of the impact of perinatal mental health problems), namely:

SDG 3 - Ensure healthy lives and promote well-being for all at all ages: SDG 3 includes the following targets:

(i) Reduce, by 2030, the global maternal mortality ratio to less than 70 per 100,000 live births.
(ii) End preventable deaths of newborns and children under 5 years of age.

(iii) Reduce by one-third premature mortality from Non Communicable Diseases (NCDs) through prevention and treatment and promote mental health and wellbeing.

(iv) Ensure, by 2030, universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs (Government of Nepal National Planning Commission, 2015).

Many studies shows that mental health status in women is on the shadow in Nepal. Furthermore, grassroots-level health workers have inadequate skill to deal with mental health issues. Thus it seems the requirement of training of health care workers serving pregnant women, or indeed women of child-bearing age (Teijlingen et al., 2015).

Depression, anxiety and stress are one of the emotional liability during pregnancy. Anxiety can appear at any time during pregnancy in which 1 in 7 mothers of every age, income level and ethnic background will be affected. Antenatal anxiety might include extreme worries and fears, often pertaining to the health and safety of the baby. Some women have panic attacks and might feel shortness of breath, chest pain, dizziness, feeling of a loss of control, numbness and tingling (Maternal Mental Health Coalition of Ventura County, 2018).

When anxiety is not recognized during pregnancy and left untreated, can have profound adverse effects on mother and their children, ranging from increased risk of poor adherence to medical care, exacerbation of medical conditions, loss of interpersonal and financial resources, smoking and substance use, progression to postpartum depression, suicide, and infanticide(Kendig et al., 2017).

Stress is common during pregnancy and it is also good for the mothers to take concern in health of herself and upcoming baby. But too much stress might hamper the maternal and fetal health. During stress pregnant mother may have trouble sleeping, have headaches, loss of appetite or overeat (Mercer & Ferketich, 1988; Parcells, 2010).

High levels of stress that continue for a long time may cause health problems, like high blood pressure and heart disease (Simkhada et al., 2006). Additionally there is a high chances of having a premature baby (born before 37 weeks of pregnancy) or

a low-birth weight baby (weighing less than 2.5 kg) (Brunton, Dryer, Saliba, & Kohlhoff, 2015; Sandesh. Pantha, et al., 2014). Many studies have shown that, if a mother is depressed, anxious, or stressed while pregnant, as adverse consequences, increased risk for health problems as well as emotional problems, symptoms of attention deficit hyperactivity disorder, or impaired cognitive development (Glover, 2014).

Prevalence of Depression

A cross-sectional study done in Netherland among the 2897 pregnant mothers revealed that the prevalence of depression was 5.4% in early pregnancy and 10% in late pregnancy (Loo, et al., 2017).

Depression, Anxiety and Stress Scale (DASS-21) was used by Effati-Daryani, Mohammad-Alizadeh-Charandabi, Zarei, Mohammadi, & Mirghafourvand, (2018) on his study Depression, anxiety and stress in the various trimesters of pregnancy in women referring to Tabriz health centers, Iran, shows 22.8% of the women were depressed in the first trimester, 30.3% in the second trimester and 36.6% in the third trimester. The corresponding percentages were 17.3%, 12.2% and 27.3% for the anxiety variable and 19.8%, 24.7% and 31.7% for the stress variable.

Study conducted in Sindhupalchowk district of Nepal shows 23.8% antenatal mothers seems to be depressed that is higher than prevalence of anxiety of same study (Aryal, et al., 2018)

Prevalence of Anxiety

A meta-analysis study conducted by (Dennis, Falah-Hassani, & Shir, 2017) included 102 studies from 34 countries, through online databases 24 counties classified as low to middle income countries, which comprised USA, Australia, Brazil , Canada, France, Netherlands, Norway, UK, Germany and Sweden. Ten countries from the Asian continent provided data (Bangladesh, China, Hong Kong, Israel, Japan, Jordan, Malaysia, Saudi Arabia, Singapore and Vietnam) as did four countries from Africa (Ghana, Nigeria, South Africa and Tanzania) reported anxiety 18.2% in the first trimester, 19.1% in the second trimester and 24.6% in the third trimester. The overall prevalence was 15.2%. Alike another meta-analysis of eight African countries, with a

total of 10,880 participants, reveals 14.8% mean prevalence rate (Sawyer, Ayers, & Smith, 2010).

Study conducted in Central America Nicaraguan shows 41 % of anxiety and 15% among Dutch women. It means antenatal anxiety symptoms were present substantially higher than in developed countries (Verbeek, Arjadi, Vendrik, Burger, & Berger, 2015). Likewise the prevalence of antenatal anxiety is high (58.5%) in Brazil. Both study was done by using Spielberger State Trait Anxiety Inventory (STAI) (Ferreira, 2014).

However prevalence of antenatal anxiety were high among developing countries, study from Hyderabad, Pakistan the study reveals 18% of pregnant mothers were anxious. Data were collected through Aga Khan University Anxiety Depression Scale (Karmaliani et al., 2009). Study conducted in Sindhupalchowk district of Nepal shows 21.3% anxiety (Aryal, et al., 2018) and used the Hopkins Symptom Checklist 25 for data collection.

Anxiety of pregnant in Kerala, India reveals that most (69%) of the pregnant women had moderate level of anxiety during the first trimester. Across the trimesters the highest prevalence of 38% was reported during third trimester. State Trait Anxiety Inventory (STAI) and Pregnancy-Specific Anxiety Inventory (PSAI) were used to collect the data (Madhavanprabhakaran, D'Souza, & Nairy, 2006).

Prevalence of Stress

According to study conducted in Guangxi, China, prenatal mental health problems were prevalent, in which all (100%) participants had experienced stress during their pregnancies, whereas nearly a tenth of participants (7.98%) had elevated anxiety (Hou et al., 2016).

A recent study from Malaysia by Using DASS-21, found that anxiety 18.8%, depression 6.9% and stress 4.2% (Nagandla et al., 2016).The study from Southern India (Vijayaselvi et al., 2015) shows 65.4% pregnant mothers expressed stressed during pregnancy. Whereas, Pantha et al., (2014) shows prevalence of stress during pregnancy was 35% in the first trimester and 34.2% in the third trimester which was the highest prevalent in Nepal.

A cross-sectional study on “Psychosocial Stress during Pregnancy” at University Obstetric Clinic, Washington reveals 78% low-moderate level of anxiety and 6% high level of anxiety (Woods, Melville, Guo, Fan, & Gavin, 2010).

Moreover, study on antenatal anxiety from Kerala, India prevalence of level of anxiety was high, indeed the study on stress among antenatal women in Udupi District, India has also in higher range of prevalence of level of antenatal stress. Stress scale used for the study was a modified version of standardized scale developed by the Kazi et.al. That presents mild stress level among antenatal women 66.9% and moderate to severe stress in 33.3% (Pais et al., 2014).

Factors related to Depression, Anxiety and Stress

Meta-analytical study done by Biaggi et al., including 109 worldwide studies concluded that most relevant factors associated with antenatal depression or anxiety were: lack of partner or of social support; history of abuse or of domestic violence; unplanned or unwanted pregnancy; present/past pregnancy complications; and pregnancy loss(Biaggi, et al., 2016).

The study conducted in a national US sample of 311 pregnant women indicated that socio-demographic factors (younger age, unmarried, lower education, lower household income, no previous children), unwanted pregnancy, and general anxiety predicted higher pregnancy-related anxiety (Joanna, 2012).

Study of China shows different findings than other studies as parts of maternal lifestyles also play a vital role on prenatal stress and anxiety levels, focusing the importance of balanced maternal lifestyles during pregnancy (Hou, et al., 2016), 7% of multiparous women had preference for boy whereas 93% of nulliparous women had a neutral choice (Loo et al., 2010).

Stress of pregnant women was assessed using Perceived stress scale - a 10 item version reveal the Higher educational level of pregnant women, unplanned pregnancy, husband’s formal employment status and in laws having expressed male gender preference were associated with higher level of stress in pregnant women from Southern India (Vijayaselvi, et al., 2015).

Study done in Pakistan reveals the factors associated with anxiety and stress of pregnancy are a young maternal age, low husband support, low income, large family

size, adverse life events, lack of confidence, pregnancy-related concerns, and domestic violence were stronger factors related to antenatal anxiety (Brunton, et al., 2015), husband unemployment, an unwanted pregnancy (Karmaliani, et al., 2009).

This study found in Sindhupalchowk, Nepal had shown an increased level of antenatal anxiety and the associated factors are ethnicity, but independent factors are low education, primary source of income being agriculture, animal husbandry or labor, a history of unplanned pregnancy and tobacco use (Aryal, et al., 2018), age, monthly family income and occupation of the respondents (Shrestha & Awasthi, 2016).

2.3 Summary of Reviewed Literature

In International and National context pregnancy is an important aspect in Maternal and child health. Nowadays a rising aspect regarding pregnancy is maternal mental health. Pregnancy is a joyful event and very crucial part of life of the women. However it is important life event, due to various aspects of physiological, psychological, hormonal and social changes mental health problems may arise during pregnancy. There are wide classification of mental illness, among them depression, anxiety and stress are more common in pregnancy.

Prevalence of depression, anxiety and stress were higher in developing or low to middle income countries than developed or high income countries. Associated factors related with depression, anxiety and stress of pregnancy are almost similar among developing countries. They are age, ethnicity, obstetric history, monthly family income, occupations of the respondents, husband's formal employment status, male gender preference, unplanned pregnancy and domestic violence.

Although, depression, anxiety and stress of pregnancy have a lot of adverse consequences on Maternal and child health, there are only few studies conducted in Nepal on maternal mental health. Hence there is need of identification of mental state of pregnant mothers to improve maternal and child health, so that study on maternal mental health exploring Depression, Anxiety and Stress and its associated factors is important to fulfill these gap.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

Research study was cross sectional descriptive design. The descriptive study was intended to describe, and document the variables under study as it naturally occurs. It was used for the study to assess the depression, anxiety and stress of pregnancy among antenatal mothers and its associated factors.

3.2 Research Setting and Population

Research Setting

The setting was antenatal OPD clinic of Tribhuwan University Teaching Hospital (TUTH). This is tertiary level hospital and situated in Maharajgunj, Kathmandu. This hospital is 656 bedded hospital and providing indoor, outdoor, emergency, as well as other therapeutic services to people. It has provided OPD services of medical, surgical and other services. More than 1000 antenatal mothers came for examination in a month for OPD checkup. It has the largest number of medical specialties in any hospital in Nepal with 22 departments {Institute of Medicine (IOM), 2018}.

Study Population

Study Population were normal pregnant women of reproductive age group 15-49 years with singleton fetus attending antenatal OPD in TUTH.

3.3 Sampling and Sample Size

Non probability convenient sampling was adopted for the selection of sample and convenient waiting interview was taken with the respondents those who came for the antenatal OPD.

Sample size was calculated by using following formula of sample size calculation:

Sample Size for infinite population (n) = $\frac{Z^2 * p * q}{e^2}$ Cochran, (1977)

$$= \frac{(1.96)^2 * 0.34 * 0.66}{(0.06)^2}$$

$$= \frac{0.86}{0.0036}$$

$$= 238.8$$

$$= \sim 239$$

Where,

Z = 1.96 for 95% confidence interval:

p = 23.8% prevalence of depression (Aryal, et al., 2018), 32.33% prevalence of anxiety (Shrestha & Awasthi, 2016) and 34% prevalence of stress (Pantha, et al., 2014)

The prevalence of Depression, Anxiety and Stress ranges from 21.3% to 34%. Thus, P value = 0.34 for the study.

q = 1-p = 0.66 and

e = 0.6 margin of error expressed as decimal (i.e., 0.06), with allowable error of 6% (absolute precision).

To adjust for possible non-response, the sample size included additional 2% of respondent in the calculated sample size was 4.78 (~ 5)

Hence, final total sample size was 244 (239+5) antenatal mothers for the study.

All the normal pregnant mother with singleton fetus were included in the study.

3.4 Instrumentation

A structured interview questionnaire was developed by researcher based on the objectives of the study. The reference was taken from Reproductive health Questionnaire, Depression, anxiety and stress scale version 21 (DASS-21) and extensive literature review and consultation with advisor, subject expert like clinical Psychologist was done. Research Instrument consists of three parts with forty questions:

Part I: It consists the structured interview questionnaire regarding the socio-demographic information of respondents (Question no 1-9)

Part II: It consists of DASS-21 (Statement 1-21)

Part III: It consists of structured interview questionnaire regarding the associated factors of depression, anxiety and stress (Question no 10-26)

Depression, Anxiety and Stress Scale, Version 21 (DASS-21)

DASS-21 is a 21-item questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. Each of the three scales contains 7 items, divided into subscales of 2-5 items with similar content. Respondents are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week (Lovibond and Lovibond, 1996). Researcher had been granted permission to use DASS-21 from Prof. Peter Lovibond, Author of tool through email.

DASS- 21 was adopted to use for assessing depression, anxiety and stress of pregnancy. DASS consists of 21statements. Seven statements for depression, seven statements for anxiety; and seven statements for stress.

The statements were scored from 0 to 3, in a four point scale (0= never, 1= sometimes, 2= Often and 3= almost always). Scores on the DASS-21 was needed to be multiplied by 2 to calculate the final score. The depression scale items are 3, 5, 10, 13, 16, 17 and 21. The depression score more than 9 was considered as having depression. The anxiety scale items are 2, 4, 7, 9, 15, 19 and 20. The anxiety score more than 7 was considered as having anxiety. The stress scale items are 1, 6, 8, 11, 12, 14 and 18. The stress score more than 14 was considered as having stress.

DASS-21 was already available in Nepali language and used in the previous study in different settings and population. It was also available in the Indian context and used in similar settings and population, that was more or similar to Nepalese Context.

Content validity of the instrument was ascertained by consultation with peers, research advisors and subject matter experts.

The Nepali version tool was pretested in 24 antenatal mothers in Antenatal OPD, TUTH, Maharajgunj, Kathmandu.

After pretest, necessary modification on questionnaire related to socio-demographic and selected variables was done with the help of expert and supervisor, based on the findings of pretesting. Correction of Nepali language, addition of 'Don't know' option in necessary questionnaires, and addition of 'Either boy or girl' option in sex preference of child related questionnaire.

The further reliability of the instrument part II (DASS-21) was tested though SPSS-22 version, the Cronbach's alpha score is 0.86.

3.5 Data Collection Procedure

Approval of research proposal was taken from Research Committee of Pokhara Nursing Campus and ethical approval was taken from Institutional Review Committee of Tribhuwan University, Institute of Medicines. Formal written permission was taken and submitted to TUTH, Maharajgunj, Kathmandu. Formal administrative approval was taken for data collection from TUTH, Maharajgunj, Kathmandu

Data collection was done though interview technique by using structured interview schedule to respondents by researcher herself. The duration of data collection period was 4 weeks from 17th Bhadra 2075 to 12th Ashwin 2075.

The participants was explained about the purpose of the study. Interview duration was about 20-25 minutes for each respondent. Written Informed consent was taken from the respondents. Prior to data collection researcher greet and provide introduction to the respondents. Anonymity was maintained by coding the respondents instead of mentioning name of the respondents. All information was collected with confidentiality and used only for the study purpose.

Immediately after data collection, information was provided in the area related to simple stress management techniques and place to seek help as needed to the antenatal mothers who had a high score in DASS-21scale in separate place.

3.6 Data Analysis Procedure

Coding was done to simplify the process of data entry, coding manual was developed and data cleansing was done through Statistical Package for Social Science (SPSS- 22 version). Field editing and checking was done to avoid missing information.

Data was entered into the software EPI-DATA 3.1 and export to SPSS- 22 version for data analysis. The collected data was entered on the same day by the researcher herself.

Data rechecking was done after entering data to minimize missing data.

Normality test was done to detect normal distribution. Data were not normally distributed as demonstrate by Kolmogorov Smirnov and Shapiro Wilk test (i.e. $p = 0.000$ for depression, Anxiety and Stress).

Descriptive analysis was done to assess the prevalence of depression, anxiety and stress whereas, significant of association was checked by using chi-square test, thereafter strength of association was checked via binary logistic regression.

Selected variables were fitted in model for each of the dependent variables (depression, anxiety and stress). All together three models were developed for multivariate analysis.

CHAPTER IV

FINDINGS OF THE STUDY

This chapter deals with findings of the study among the antenatal mothers who were attending antenatal OPD of TUTH, Maharajgunj, Kathmandu. Total participants of the study was 244. The obtained data was analyzed and interpreted according to the objectives of the study and displayed on the tables.

Descriptive analysis includes the description of selected variables and the prevalence of depression, anxiety and stress whereas, significant of association was checked by using chi-square test at 95% confidence interval, thereafter strength of association was checked via binary logistic regression.

The variables which were significant in bivariate analysis at 90% confidence interval and p-value <0.1 were taken to logistic regression for adjusting confounders.

Multicollinearity was checked. There was no collinearity problems indicated by VIF less than 2. Hosmer – Lemeshow test was done to test goodness of fit (p-value=0.783 for depression, 0.398 for anxiety and 0.669 for stress). Cox & Snell R Square value for depression, anxiety and stress were .139, .203and .244 respectively. Nagelkerke R Square was .329 for depression, .367 for anxiety and .486 for stress.

Selected variables were fitted in model for each of the dependent variables (depression, anxiety and stress). All together three models were developed for multivariate analysis.

TABLE 1

Respondents' Socio-Demographic Information.

n=244

Socio-demographic variables	Number	Percent
Age in years		
15- 25	138	56.5
26- 35	101	41.4
36- 45	5	2.1
Median age± Q1, Q3 (in years)	25 ± 23, 28	
Ethnicity		
Upper caste groups	150	48.4
Disadvantaged janajatis	79	13.1
Relatively advantaged janajatis	32	32.4
Others (religious minorities and dalit)	15	6.1
Religion		
Hinduism	203	83.2
Buddhism	27	11.1
Others	14	5.7
Family Type		
Nuclear	128	52.5
Joint	116	47.5
Educational Status		
Illiterate	5	2.0
Primary level	31	12.7
Secondary level	52	21.3
Higher secondary level	113	46.3
Bachelor degree and higher	43	17.7
Occupation		
Homemaker	157	64.3
Business	37	15.2
Service	35	14.2
Student	10	4.1
Agriculture	5	2.0
Income status		
Low-income (< 10,000)	40	16.5
Lower-middle income (10000-36000)	94	38.5
Upper-middle income(>36000-110500)	95	38.9
High-income(>110500)	15	6.1

Table 1 shows the median age of the antenatal mothers were 25 years and interquartile range Q1 was 23 years and Q3 was 28 years. Around half (48.4%) of the antenatal mothers were upper caste groups followed by disadvantaged janajatis (32.4%). Regarding the religion, 83.2% of the antenatal mothers were Hindus and more than

half (52.5%) of the antenatal mothers were from nuclear family. Nearly half (46.3%) of the antenatal mothers completed higher secondary level, whereas, more than half (64.3%) were homemaker. Regarding the income status of antenatal mothers, upper-middle income and lower- middle income were nearly equal 38.9% and 38.5% respectively.

TABLE 2

Obstetric Background of the Respondents

n=244

Characteristics	Number	Percent
Obstetric History		
Gravida		
Primigravida	125	51.2
Multigravida	119	48.8
Term of Pregnancy		
Frist Trimester	42	17.2
Second Trimester	99	40.6
Third Trimester	103	42.2
Previous Live Birth (n=119)		
Having at least one birth	99	83.1
Having no live birth	20	16.8
Previous Loss of Pregnancy (n=119)		
Miscarriage	31	26.1
Abortion	16	13.4
Unwanted Pregnancy	62	25.4
Sex preference of the child by respondents		
Girl	23	9.4
Boy	34	13.9
Either boy or girl	187	76.6
Sex preference of the child by family members		
Girl	24	9.8
Boy	26	10.7
Either boy or girl	194	79.5
Rest		
< 1hr	6	2.5
> 1hr	238	97.5
Working hour		
≤ 8 hours	219	89..8
> 8 hours	25	10.2
Daily Intake of Balance Diet		
Yes	191	78.3
No	53	21.7
Exposure to Domestic violence	40	16.4

Table 2 reveals that more than half (51.2%) were primigravida. Less than half (42.2%) of the respondents were of third trimester. Among the multigravida respondents, regarding previous live birth history, majority (83.19%) had at least one birth. Whereas, few respondents had miscarriage 26.1% and only 13.4% had abortion.

Majority (74.6%) of the respondents had wanted pregnancy. Majority (76.6%) of the respondents preferred equally to have both sex either boy or girl and majority (79.5%) preferred either boy or girl child by family members. Almost all (97.5%) of the respondents were take rest more than 8 hours a day. Regarding working hours most of the antenatal mothers (89.8%) were worked up to 8 hours per day. Majority of the respondents (78.3%) had daily intake of balance diet and majority (83.6%) were free from domestic violence.

TABLE 3

Prevalence of Depression, Anxiety and Stress among Respondents

n= 244

Variables	Number	Percent	95% CI
Depression	19	7.8	0.04 - 0.11
Anxiety	34	13.9	0.10 - 0.18
Stress	27	11.1	0.07 - 0.15

Table 3 reveals 7.8% respondents had depression; nearly 14 % had anxiety and 11.1 % had stress

TABLE 4

Bivariate Analysis of Socio-demographic Characteristics of Respondents with Depression

n=244

Characteristics	Depression		Total n (%)	$\chi 2$	p-value
	No n (%)	Yes n (%)			
Age					
≤ 25years	127 (92.7)	10 (7.3)	137	0.103	.748
> 25 years	98 (91.6)	9 (8.4)	107		
Ethnicity					
Privileged Group	138 (92.0)	12 (8.0)	150	.025	.875
Underprivileged Group	87 (92.6)	7 (7.4)	94		
Religion					
Hinduism	189 (93.1)	14 (6.9)	203	1.334	
Others	36 (87.8)	5 (12.2)	41		.248
Family Type					
Nuclear	118 (92.2)	10 (7.8)	128	0.000	
Joint	107 (92.2)	9 (7.8)	116		.987
Occupation					
Unemployed	152 (91.0)	15 (9.0)	167	0.591	.442$^{€}$
Employed	73 (94.8)	4 (5.2)	77		
Income status					
Low income status	121 (90.3)	13 (9.7)	134	1.517	.218
High Income status	104 (94.5)	6 (5.5)	110		

Note: Reference group OR: Odds Ratio CI: Confidence Interval *p-value significant at < 0.05 $^{€}$Yates' Continuity Correction.

Table 4 reveals the analysis of association between depression and Socio-demographic factors: there were insignificant association between antenatal depression and age, ethnicity, religion, family type, education, occupation and income status of the respondents.

TABLE 5

Bivariate Analysis of Obstetric Background Associated with Depression among Respondents

n=244

Characteristics	Depression		Total n(%)	$\chi 2$	p-value
	No n (%)	Yes n (%)			
Obstetric History					
Gravida					
Primigravida	115 (92.0)	10 (8)	125	0.16	.899
Multigravida	110 (92.4)	9 (7.6)	119		
Trimester					
First Trimester	38 (90.5)	4(9.5)	42	.706	.703
Second Trimester	92 (92.9)	7(7.1)	99		
Third Trimester	95(92.2)	8(7.8)	103		
Previous birth outcomes (n=199)					
Having at least one birth	91 (91.9)	8 (8.1)	99	0.000	.991$^{€}$
Having no live birth	19 (95.0)	1 (5.0)	20		
Previous pregnancy losses					
Miscarriage (n=199)					
No	81 (92)	7 (8)	88	0.000	1.000$^{€}$
Yes	29 (93.5)	2 (6.5)	31		
Abortion					
No	95 (92.2)	8 (7.8)	103	0.000	1.000$^{€}$
Yes	15 (93.8)	1 (6.3)	16		
Desirability of Pregnancy					
Wanted Pregnancy	175 (96.2)	7 (3.8)	182	15.491	.000*
Unwanted Pregnancy	50 (80.6)	12 (19.4)	62		

Note: Reference group OR: Odds Ratio CI: Confidence Interval * p-value significant at < 0.05 $^{€}$Yates' Continuity Correction

Table 5 reveals that respondents having unwanted pregnancy were significantly associated with depression of pregnancy. Other factors had insignificant association between depression i.e. obstetric history; gravida, trimester, previous birth history, and previous pregnancy losses.

TABLE 6

Bivariate Analysis of Factors Associated with Depression

n=244

Characteristics	Depression		Total	$\chi 2$	p- value
	No n (%)	Yes n (%)	n (%)		
Sex preference of the child by respondents	173 (92.5)	14 (7.5)	187	0.101	.751
Either boy or girl	52 (91.2)	5 (8.8)	57		
Only boy or girl					
Sex preference of the child by family members					
Either boy or girl	181(93.3)	13 (6.7)	194	1.555	.212
Only boy or girl	44 (88)	6 (12)	50		
Rest					
< 1hr	4 (66.7)	2 (33.3)	6	2.538	.111€
> 1hr	221 (92.9)	17 (7.1)	238		
Working hour					
≤ 8 hours	203 (92.7)	16 (7.3)	219	0.190	.663€
> 8 hours	22 (88)	3 (12)	25		
Daily Intake of Balance Diet					
No	45 (84.9)	8 (15.1)	53	5.035	.025*
Yes	180 (94.2)	11 (5.8)	191		
Exposure to Domestic violence					
No	199 (97.5)	5 (2.5)	204	49.342	.000*
Yes	26 (65)	14 (35)	40		

Note: Reference group OR: Odds Ratio CI: Confidence Interval *p-value significant at < 0.05 €Yates' Continuity Correction.

Table 6 shows that respondents didn't had daily intake of balance diet were significantly associated with depression. Similarly respondents facing domestic were significantly associated with depression.

TABLE 7

Bivariate Analysis of Socio-demographic Characteristics of Respondents with Anxiety.

n=244

Characteristics	Anxiety		Total n (%)	$\chi 2$	p-value
	No n (%)	Yes n (%)			
Age					
≤ 25years	117 (85.4)	20 (14.6)	137	115	.735
0> 25 years	93 (86.9)	14 (13.1)	107		
Ethnicity					
Privileged Group	128 (85.3)	22 (14.7)	150	0.174	.677
Underprivileged Group	82 (87.2)	12 (12.8)	94		
Religion					
Hinduism	176 (86.7)	27 (13.3)	203	0.405	.525
Others	34 (82.9)	7 (17.1)	41		
Family Type					
Nuclear	108 (84.4)	20 (15.6)	128	0.642	.423
Joint	102 (87.9)	14 (12.1)	116		
Occupation					
Unemployed	145 (86.8)	22 (13.2)	167	0.255	.613
Employed	65 (84.4)	12 (15.6)	77		
Income status					
Low income status	114 (85.1)	20 (14.9)	134	0.243	.622
High Income status	96 (87.3)	14 (12.7)	110		

Note: Reference group OR: Odds Ratio CI: Confidence Interval * p-value significant at < 0.05 $^{\epsilon}$ Yates' Continuity Correction.

Table 7 depicts the analysis of association between anxiety and socio-demographic factors: there were insignificant association between antenatal anxiety and age, ethnicity, religion, family type, education, occupation and income status of the respondents.

TABLE 8

Bivariate Analysis of Obstetric Background of Respondents with Anxiety.

n=244

Characteristics	Anxiety		Total n(%)	$\chi 2$	p-value
	No n (%)	Yes n (%)			
Obstetric History					
Gravida					
Primigravida	107 (85.6)	18 (14.4)	125	0.046	.830
Multigravida	103 (86.6)	16 (13.4)	119		
Trimester					
First Trimester	33(78.6)	9(21.4)	42	1.858	.395
Second Trimester	89(89.9)	10(10.1)	99		
Third Trimester	88(85.4)	15(14.6)	103		
Previous birth outcomes (n=199)					
Having no live birth	17 (85)	3 (15)	20	0.000	1.000$^{€}$
Having at least one birth	86 (86.9)	13 (13.1)	99		
Previous pregnancy losses (n=199)					
Miscarriage					
No	79 (89.8)	9 (10.2)	88	3.006	.083
Yes	24 (77.4)	7 (22.6)	31		
Abortion					
No	89 (86.4)	14 (13.6)	103	0.000	1.000$^{€}$
Yes	14 (87.5)	2 (12.5)	16		
Desirable of pregnancy					
Wanted	166 (91.2)	16 (8.8)	182	15.799	.000*
Unwanted	44 (71)	18 (29)	62		

Note: Reference group OR: Odds Ratio CI: Confidence Interval *p-value significant at < 0.05 $^{€}$Yates' Continuity Correction.

Table 8 reveals that respondents having unwanted pregnancy were significantly associated with anxiety than the respondents having wanted pregnancy. Other factors had insignificant association between anxiety and other associated factors: obstetric history; gravida, trimester, previous birth history, and previous pregnancy losses.

TABLE 9

Bivariate Analysis of Factors Associated with Anxiety among Respondents

n=244

Characteristics	Anxiety		Total n (%)	χ2	p- value
	No n (%)	Yes n (%)			
Sex preference of the child by respondents					
Either boy or girl	164 (87.7)	23 (12.3)	187	1.784	.182
Only boy or girl	46 (80.7)	11 (19.3)	57		
Sex preference of the child by family members					
Either boy or girl	167(86.1)	27 (13.9)	194	0.000	.988
Only boy or girl	43 (86)	7 (14)	50		
Rest					
< 1hr	2 (33.3)	4 (66.7)	6	10.111	.001€
> 1hr	208 (87.4)	30 (12.6)	238		
Working hour					
≤ 8 hours	190 (86.8)	29 (13.2)	219	0.854	.355
> 8 hours	20 (80)	5 (20)	25		
Daily Intake of Balance Diet					
No	37 (69.8)	16 (30.2)	53	14.916	.000*
Yes	173 (90.6)	18 (9.4)	191		
Exposure to Domestic violence					
No	191 (93.6)	13 (6.4)	204	59.334	.000*
Yes	19 (47.5)	21 (52.5)	40		

Note: Reference group OR: Odds Ratio CI: Confidence Interval * p-value significant at < 0.05. €Yates' Continuity Correction.

Table 9 shows that respondents who take rest less than one hour daily were significantly associated with anxiety than those who take rest more than one hour. Respondents who hadn't take daily balance diet were significantly associated with anxiety than those had daily intake of balance diet. Similarly respondents facing domestic violence were also significantly associated with anxiety in comparison with free from domestic violence.

TABLE 10

Bivariate Analysis of Socio-demographic of Respondents Characteristics with Stress.

n=244

Characteristics	Stress		Total n (%)	χ2	p-value
	No n (%)	Yes n (%)			
Age					
≤ 25years	125 (91.2)	12 (8.8)	137	1.689	.194
> 25 years	92 (86)	15 (14)	107		
Ethnicity					
Privileged Group	136 (90.7)	14 (9.3)	150	1.187	.276
Underprivileged Group	81 (86.2)	13 (13.8)	94		
Religion					
Hinduism	182 (89.7)	21 (10.3)	203	0.638	.425
Others	35 (85.4)	6 (14.6)	41		
Family Type					
Nuclear	117 (91.4)	11 (8.6)	128	1.672	.196
Joint	100 (86.2)	16 (13.8)	116		
Occupation					
Unemployed	149 (89.2)	18 (10.8)	167	0.044	.833
Employed	68 (88.3)	9 (11.7)	77		
Income status					
Low income status	117 (87.3)	17 (12.7)	134	0.794	.373
High Income status	100 (90.9)	10 (9.1)	110		

Note: Reference group OR: Odds Ratio CI: Confidence Interval *p-value significant at < 0.05 $^{\epsilon}$Yates' Continuity Correction.

Table 10 shows the analysis of association between stress and socio-demographic factors: there were insignificant association between antenatal stress and age, ethnicity, religion, family type, education, occupation and income status of the respondents.

TABLE 11

Bivariate Analysis of Obstetric Background of Respondents with Stress.

n=244

Characteristics	Stress		Total n (%)	$\chi 2$	p-value
	No n (%)	Yes n (%)			
Obstetric History					
Gravida					
Primigravida	110 (88)	15 (12)	125	0.227	.633
Multigravida	107 (89.9)	12 (10.1)	119		
Trimester					
First Trimester	33 (78.6)	9 (21.4)	42	2.919	.232
Second Trimester	93 (93.9)	6 (6.1)	99		
Third Trimester	91 (88.3)	12 (11.7)	103		
Previous live birth (n=199)					
Having no live birth					
Having at least one birth	16 (80)	4 (20)	20	1.458	.227$^{€}$
	91 (91.9)	8 (8.1)	99		
Previous pregnancy losses (n=199)					
Miscarriage					
No	81 (92)	7 (8)	88	1.689	.194
Yes	26 (83.9)	5 (16.1)	31		
Abortion					
No	92 (89.3)	11 (10.7)	103	0.010	.919$^{€}$
Yes	15 (93.8)	1 (6.3)	16		
Desirable of pregnancy					
Wanted					
Unwanted	173 (95.1)	9 (4.9)	182	27.265	.000*
	44 (71)	18 (29)	62		

Note: Reference group OR: Odds Ratio CI: Confidence Interval *p-value significant at < 0.05 $^{€}$Yates' Continuity Correction.

Table 11 reveals that respondents having unwanted pregnancy were significantly associated with stress than the respondents having wanted pregnancy. Other factors had insignificant association between stress and other associated factors: Obstetric history such as gravida, trimester, previous birth history, and previous pregnancy losses.

TABLE 12

Bivariate Analysis of Different factors with Stress among Respondents

n=244

Characteristics	Stress		Total n (%)	$\chi 2$	p- value
	No n (%)	Yes n (%)			
Sex preference of the child by respondents					
Either boy or girl	167 (89.3)	20 (10.7)	187	0.112	.738
Only boy or girl	50 (87.7)	7 (12.3)	57		
Sex preference of the child by family members					
Either boy or girl					
Only boy or girl	175 (90.2)	19 (9.8)	194	1.556	.212
	42 (84)	8 (16)	50		
Rest hour					
< 1hr	4 (66.7)	2 (33.3)	6	1.214	.271$^{€}$
> 1hr	213 (89.5)	25 (10.5)	238		
Working hour					
≤ 8 hours	197 (90)	22 (10)	219	2.259	.133
> 8 hours	20 (80)	5 (20)	25		
Daily Intake of Balance Diet					
No	44 (83)	9 (17)	53	2.408	.121
Yes	173 (90.6)	18 (9.4)	191		
Exposure to Domestic violence					
No	199 (97.5)	5 (2.5)	204	93.840	.000*
Yes	18 (45)	22 (55)	40		

Note: Reference group OR: Odds Ratio CI: Confidence Interval * p-value significant at < 0.05. $^{€}$Yates' Continuity Correction.

Table 12 shows that respondents facing domestic violence were significantly associated with stress in comparison with respondents free from domestic violence.

TABLE 13

Factors Associated with Depression among Respondents

n= 244

Characteristics	Depression		Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P-value
	No n (%)	Yes n (%)			
Desirable of pregnancy					
Wanted	175 (96.2)	7 (3.8)	5.988	1.307	1
Unwanted	50 (80.6)	12 (19.4)	(0.554-0.938)	(0.291-5.863)	.748
Daily Intake of Balance Diet					
No	45 (84.9)	8 (15.1)	2.936	2.076	.196
Yes	180 (94.2)	11 (5.8)	(0.095-0.869)	(0.686-6.282)	1
Exposure to Domestic Violence					
No	199 (97.5)	5 (2.5)	21.431	23.338	1
Yes	26 (65)	14 (35)	(7.135-64.374)	(5.034-108.199)	.000*

Note: Reference group AOR: Adjusted Odds Ratio CI: Confidence Interval *p-value significant at < 0.05.

Only 3 variables had p < 0.1 in bivariate analysis, which were taken to the model. Hosmer – Lemeshow test was done to test goodness of fit (p-value=0.719 for depression). Model overall percentage is 92.2 for depression.

Table 13 depicts domestic violence as major factor that significantly associated with depression of pregnancy. The respondents who had facing domestic violence (AOR=23.338 95% CI: 5.034-108.199) were 23 times more likely to have depression than those never face domestic violence.

TABLE 14

Factors Associated with Anxiety among Respondents

n= 244

Characteristics	Anxiety		Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P-value
	No n (%)	Yes n (%)			
Desirable of pregnancy					
Wanted	166 (91.2)	16 (8.8)	4.237	1.788	1
Unwanted	44 (71)	18 (29)	(0.501-0.889)	(0.468-6.833)	.396
Rest					
< 1hr	2 (33.3)	4 (66.7)	13.888	3.346	.246
> 1hr	208 (87.4)	30 (12.6)	(0.589-0.87)	(0.434-25.779)	1
Daily Intake of Balance Diet					
No	37 (69.8)	16 (30.2)	4.149	3.420	.009*
Yes	173 (90.6)	18 (9.4)	(0.485-0.888)	(1.362-8.588)	1
Exposure to Domestic Violence					
No	191 (93.6)	13 (6.4)	16.239	21.975	1
Yes	19 (47.5)	21 (52.5)	(7.031-37.506)	(5.826-82.882)	.000*

Note: Reference group AOR: Adjusted Odds Ratio CI: Confidence Interval * p-value significant at < 0.05.

Only 4 variables had p < 0.1 in bivariate analysis, which were taken to the model. Hosmer – Lemeshow test was done to test goodness of fit (p-value= 0.251 for anxiety). Model overall percentage is 87.3% for anxiety.

Table 14 illustrates domestic violence as major factor that significantly associated with anxiety of pregnancy. The respondents who had facing domestic violence (AOR=21.975 95% CI: 5.826-82.882) were nearly 22 times more likely to have anxiety. Whereas, respondents who didn't take balance diet on daily basis were also significantly associated with anxiety of pregnancy. The respondents who didn't take balance diet on daily basis (AOR=3.420 95% CI: 1.362-8.588) were 3.4 times more likely to have anxiety than those who intake balance diet on daily basis.

TABLE 15

Factors Associated with Stress among Respondents

n= 244

Characteristics	Stress		Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P-value
	No n (%)	Yes n (%)			
Desirable of pregnancy					
Wanted	173 (95.1)	9 (4.9)	7.874	1.572	1
Unwanted	44 (71)	18 (29)	(0.698-0.947)	(0.361- 6.844)	.494
Exposure to Domestic Violence					
No	199 (97.5)	5 (2.5)	48.644	67.106	1
Yes	18 (45)	22 (55)	(16.449- 143.854)	(14.439-311.883)	.000*

Note: Reference group AOR: Adjusted Odds Ratio CI: Confidence Interval *p-value significant at < 0.05.

Only 2 variables had p < 0.1 in bivariate analysis, which were taken to the model. Hosmer – Lemeshow test was done to test goodness of fit (p-value=.427 for stress). Model overall percentage is 90.6% for stress.

Table 13 depicts domestic violence as major factor that significantly associated with stress of pregnancy. The respondents who had facing domestic violence (AOR=67.106 95% CI: 14.439-311.883) were 67 times more likely to have Stress.

CHAPTER V

DISCUSSION, CONCLUSON AND RECOMMENDATIONS

This chapter deals with the discussion, conclusion, limitations, implications and recommendations based on the findings of the study. Discussion focuses on comparing and contrasting the present study findings with the other study findings as identified from the review of literature. Conclusions were drawn from the study findings in light of limitations of the study.

5.1 Discussion

The present study examined prevalence of depression, anxiety and stress of pregnancy and associated factors among 244 antenatal mothers who participated in this study.

Among the pregnant mothers age (15-45 years) depicted that average age was 25 years. Almost half of the respondents were upper caste groups followed by one third disadvantaged janajatis. Regarding the religion, a highest proportion (83.2%) of the respondents were Hindus. More than half of the respondents were from Nuclear family (52.5%) compared with joint family. In the context of educational status of respondents nearly half (46.3%) of the respondents completed higher secondary level, whereas, majority (64.3%) of the respondents were homemaker. Whereas, about the income status, upper- middle income and lower- middle income were nearly equal 38.9% and 38.5% respectively.

Prevalence

This study exhibited that around one in twelve respondents had increased level of depression, nearly one in seven had increased level of anxiety and about one in nine had increased level of stress. The prevalence of depression lies within ranged between (0.9% and 28.3%) when compared with Global prevalence of depression among antenatal mothers (Baxter, Scott, Vos, & Whiteford, 2012). Globally 10% of depression among the antenatal mothers WHO, (2018). Study from Netherland among

the 2897 pregnant mothers revealed that the prevalence of depression was 5.4% in early pregnancy and 10% in late pregnancy (Loo, et al., 2017). Tabriz health centers, Iran, study shows 22.8% of depression among pregnant mothers by using (DASS-21) (Effati-Daryani, Mohammad-Alizadeh-Charandabi, Zarei, Mohammadi, & Mirghafourvand, 2018). Aryal, et al., (2018) had 23.8% depression in Sindhupalchowk, Nepal among pregnant mothers. This may be due to methodological differences, setting differences and different in sample size.

This study reveals around 14% anxiety of pregnancy which is supported by a meta-analysis study conducted by Dennis (2017) including 102 studies from 34 countries shows 15.2% anxiety of pregnancy and study from Pakistan reveals 18% anxiety among antenatal mothers (Karmaliani, et al., 2009). Similar study conducted in Sindhupalchowk, Nepal shows anxiety among antenatal mothers were 21.3% (Aryal et al., 2018). The different result were showed by the Study from Central America Nicaragaun shows 41% (Verbeek, et al., 2015) and study done in Dhulikhel hospital had 32.33% (Shrestha & Awasthi, 2016) which is pretty much higher in proportion.

Similar study on prevalence of stress of pregnancy was conducted in Guangxi, China, a tenth of participants (7.98%) had elevated stress among antenatal mothers (Hou et al., 2016). The different result were shown by a recent study from Malaysia by Using DASS-21 revealed stress 4.2% (Nagandla et al., 2016). However the prevalence of stress seems to be lesser than other studies. The study from Southern India (Vijayaselvi, et al., 2015) shows 65.4% pregnant mothers expressed stress during pregnancy. Whereas, Pantha et al., (2014) shows prevalence of stress during pregnancy was 35% in the first trimester and 34.2% in the third trimester which was the highest prevalent in Nepal. This could be due to methodological differences between this study and other studies.

Association

This study displayed insignificant association between antenatal depression, anxiety and stress and socio-demographic factors i.e. age, ethnicity, religion, family type, education, occupation and income status of the respondents. Indeed uneducated respondents had 6 times higher risk of having depression, 3 times higher risk of having anxiety and 4.2 times higher risk of having stress than educated antenatal mothers. Unemployed and low income status antenatal mothers were nearly 2 times

higher odds of having depression than employed and high income status antenatal mothers. But employed and low income status antenatal mothers had 1.2 time higher odds of having anxiety than unemployed and high income status antenatal mothers. Similarly employed respondents had 1 time more likely to had stress than unemployed antenatal mothers and low income status antenatal mothers nearly 1.5 times more likely to had stress than high income status antenatal mothers. This findings was supported by a study conducted in Nepal, which also proved socioeconomic disadvantage and lack of education were the risk factors for depression and anxiety (Aryal, et al., 2018; Sandesh Pantha, 2014).

The prevalence reveals that respondents having pregnancies without planning or unwanted had nearly 6 times more likely to have depression, around 4 times more likely to have anxiety and nearly 8 times more likely to have stress than those who had wanted pregnancies. A study from Nepal supported this findings that unplanned or unwanted pregnant women were nearly three and half times higher odds of having depression and two and a half times higher odds of having anxiety than those who had planned pregnancies (Aryal, et al., 2018). One study from Southern India also had similar findings among antenatal mothers those had unwanted pregnancies were nearly eight and a half times more likely to be stressed than those had wanted pregnancies (Vijayaselvi, et al., 2015).

This study found that respondents those who hadn't take daily basis of balance diet were around 3 times more likely to have depression and more than 4 times more likely to have anxiety than having daily basis of balance diet.

Moreover the study found that antennal mothers facing domestic violence were around 23.3 times more likely to have depression, around 22 times more likely to have anxiety and were 67.1times more likely to have stress in comparison with free from domestic violence. This study was supported by the study from Ireland also revealed that antenatal mothers reporting domestic violence had highly significant and used the Edinburgh and STAI tool to measure depression of pregnancy (Austin, Hadzi-Pavlovic, Leader, Saint, & Parker, 2005)

Similar study from Southern India using DASS-21 Screening tool, regarding women with history of intimate partner violence had odds 21 times higher to have depression,

anxiety and stress than women free from intimate partner violence (Vijayaselvi, et al., 2015).

Obstetric history; Gravida, previous birth history, previous pregnancy losses, and sex preference of the child, rest, and working hours had insignificant association between depression and stress.

A leading factor was domestic violence that was strongly associated with depression, anxiety and stress of pregnancy. The antenatal mothers who had facing domestic violence were around 22 times more likely to have anxiety. Whereas, antenatal mothers not having balanced diet daily were also strongly associated and nearly 3.5 times more likely to have anxiety of pregnancy.

5.2 Conclusion

This study findings concluded that the prevalence of depression among the pregnancy seems to be alarming, which is around eight percentage. Anxiety and stress among pregnancy also seems in higher range which are around fourteen percentage and eleven percentage respectively. Exposure to domestic violence present to be a leading factor associated with depression, anxiety and stress of pregnancy, however anxiety of pregnancy also had significant association with the antenatal mothers who didn't take balance diet on daily basis in this study. Socio-demographic characteristics, obstetric history, sex preference of the child, rest, and working hours were insignificantly associated with depression, anxiety and stress of pregnancy.

5.3 Limitations

This was a small scale study, so the result cannot be generalized.

The study was conducted in only one setting i.e. TUTH, Maharajgunj, Kathmandu only. So it cannot be generalize to other setting.

Study population included normal pregnant women with singleton fetus who only visiting antenatal OPD in TUTH.

5.4 Implications

The findings of the study would be helpful for the hospital administration to arrangement for awareness programs about maternal mental health at ANC clinic to improve maternal and child health.

The findings would be helpful for the ANC staffs and Doctors to focus psychological aspects of antenatal mothers during physical assessment to prevent future adverse consequences regarding maternal and newborn health.

The study would be a reference for the further researchers in future to conduct similar study.

5.5 Recommendations

On the basis of the findings, this study recommended the need to plan large scale study.

Early identification of mental health problems during pregnancy through the means of routine mental and psychological screening program as a part of ANC check-up can be done.

Psychological counselling for pregnant mothers, those who faced domestic violence seems to be crucial health interventions to decrease maternal mental health problems.

A study can be done on Impact of Depression, Anxiety and Stress of pregnancy on Birth outcomes.

A study can be done on Effects of Psychological Counselling on Stress, Anxiety, and Depression during Pregnancy.

REFERENCES

Aryal, K. K., Alvik, A., Thapa, N., Mehata, S., Roka, T., Thapa, P., Pandey,P., & Stray-Pedersen, B. (2018). Anxiety and Depression among Pregnant Women and Mothers of Children Under one Year in Sindupalchowk District, Nepal *Journal of Nepal Health Research Council, 16*(39), 195-204. doi: http://dx.doi.org/10.3126/jnhrc.v16i2.20310

Austin, M. P., Hadzi-Pavlovic, D., Leader, L., Saint, K., & Parker, G. (2005). Maternal trait anxiety, depression and life event stress in pregnancy: relationships with infant temperament. *Early Human Development, 81*(2), 183-190. doi: 10.1016/j.earlhumdev.2004.07.001.

Baxter, A. J., Scott, K. M., Vos, T., & Whiteford, H. A. (2012). Global prevalence of anxiety disorders: a systematic review and meta-regression. *Psychological Medicine, 43*(5), 897-910. doi: https://doi.org/10.1017/S003329171200147X

Biaggi, A., Conroy, S., Pawlby, S., & Pariante, C. M. (2016). Identifying the women at risk of antenatal anxiety and depression: A systematic review. *Journal of Affective Disorders, 191*, 62-77. doi: https://doi.org/10.1016/j.jad.2015.11.014

Brunton, R. J., Dryer, R., Saliba, A., & Kohlhoff, J. (2015). Pregnancy anxiety: A systematic review of current scales. *Journal of Affective Disorders, 176*, 24-34.

Dennis, C.-L., Falah-Hassani, K., & Shir, R. (2017). Prevalence of antenatal and postnatal anxiety: systematic review and meta-analysis. *The British Journal of Psychiatry, 210*, 315-323. doi: 10.1192/bjp.bp.116.187179

Dhakal, S. (2016). Understanding Mental Heath, *The Himalayan Times*.

Din, Z. u., Amreen, S., Iqbal, Z., Iqbal, M., & Ahmad, S. (2016). Determinants of Antenatal Psychological Distress in Pakistani Women. *Archives of Neuropsychiatry, 53*, 152-157.doi: 10.5152/npa.2015.10235

Ferreira.C.R., O. M. C., Vieira.C.R, Paffaro.A.M.A.,and Silva.R.R. (2014). Prevalence of anxiety symptoms and depression in the third gestational trimester. *Archieves of Gynecological and Obstetetrics, 291* (999). doi: https://doi.org/10.1007/s00404-014-3508-x

George, J. B. (2011). Nursing Theories: The base for professional nursing practice, 6th edition, New Delhi, India: Dorling Kindersley.

Glover, V. (2014). Maternal depression, anxiety and stress during pregnancy and child outcome; what needs to be done. *Best Practice & Research Clinical Obstetrics & Gynaecology, 28*(1), 25-35. doi: 10.1016/j.bpobgyn.2013.08.017

Government of Nepal National Planning Commission (GNNPC). (2015). Sustainable Development Goals 2016-2030 National Report. Government of Nepal, National Planning Commission, Singha Durbar, Kathmandu, Nepal

Grote, N. K., Bridge, J. A., Gavin, A. R., Melville, J. L., Iyengar, S., & Katon, W. J. (2010). A Meta-analysis of Depression During Pregnancy and the Risk of Preterm Birth, Low Birth Weight, and Intrauterine Growth Restriction. *Archives of General Psychiatry, 67*(10), 1012–1024. doi: doi:10.1001/archgenpsychiatry.2010.111.

Hou, Q., Li, S., Jiang, C., Huang, Y., Huang, L., Ye, J., & Yang, X. (2016). The associations between maternal lifestyles and antenatal stress and anxiety in Chinese pregnant women: A cross-sectional study. *Scientific Reports, 8*(10771). doi: 10.1038/s41598-018-28974-x

Institute of Medicine (IOM). (2018). T.U. Teaching Hospital, from http://www.iom.edu.np/?page_id=182

Joanna, J. (2012). Pregnancy-specific anxiety: which women are highest and what are the alcohol-related risks? *Comprehensive Psychiatry*. doi: http://dx.doi.org/10.1016/j.comppsych.2012.07.010

Karmaliani, R., Asad, N., Bann, C. M., Moss, N., McClure, E. M., Pasha, O., & Goldenberg, R. L. (2009). Prevalence of Anxiety, Depression and Associated Factors among Pregnant Women of Hyderabad, Pakistan. *International Journal of Social Psychiatry, 55*(5). doi: 10.1177/0020764008094645

Kendig, S., Keats , J. P., Hoffman, M. C., Kay, L. B., Miller, E. S., Moore Simas, T. A., & Lemieux, L. A. (2017). Consensus Bundle on Maternal Mental Health: Perinatal Depression and Anxiety. *Journal of Midwifery and Women's Health, 129*(3). doi: https://doi.org/10.1111/jmwh.12603

Loo, K. F. v. d., Vlenterie, R., Nikkels, S. J., Merkus, P. J., Roukema, J., Verhaak, C. M., & Gelder, M. M. V. (2017). Depression and Anxiety during Pregnancy: The Influence of Maternal Characteristics. *Journal of Mood Disorders and Therapy, 1*(1). retrieved from http://scholarlypages.org/Articles/mooddisorders/the_scientific_journal_of_mood_disorders-tsjmd-1-001.php?jid=mood-disorders

Loo, K. K., Li, Y., Tan, Y., Luo, X., Presson, A., & Shih, W. (2010). Prenatal anxiety associated with male child preference among expectant mothers at 10–20 weeks of pregnancy in Xiangyun County, China. *International Journal of Gynecology and Obstetrics, 111*, 229-232. doi: doi:10.1016/j.ijgo.2010.07.010

Madhavanprabhakaran, G. K., D'Souza, M. S., & Nairy, K. S. (2006). Prevalence of pregnancy anxiety and associated factors. *International Journal of Africa Nursing Sciences*, 1-7. doi: http://dx.doi.org/10.1016/j.ijans.2015.06.002

Martini, J., Knappe, S., Beesdo-Baum, K., Lieb, R., & Wittchen, H. U. (2010). Anxiety disorders before birth and self-perceived distress during pregnancy: associations with maternal depression and obstetric, neonatal and early childhood outcomes. *Early Human Development, 86*(5), 305-310. doi: 10.1016/j.earlhumdev.2010.04.004.

Maternal Mental Health Coalition of Ventura County. (2018). Perinatal Mood and Anxiety Disorders, from https://www.maternalmentalhealthventura.org/

Mercer, R. T., & Ferketich, S. L. (1988). Stress and social support as predictors of anxiety and depression during pregnancy. *Advances in Nursing Science, 10*(2), 26-39. from http://www.ncbi.nlm.nih.gov/pubmed/3124719

Mersha, A. G., Abebe, S. A., Sori, L. M., & Abegaz, T. M. (2018). Prevalence and Associated of Perinatal Depresssion in Ethiopia: A Systematic Review and Meta-Analysis. *Depression Research and Treatment*, 8. doi: https://doi.org/10.1155/2018/1813834

Milad, M. P., Klock, S. C., Moses, S., & Chatterton, R. (1998). Stress and anxiety do not result in pregnancy wastage. *Human Reproduction, 13*(8), 2296-2300. from http://www.ncbi.nlm.nih.gov/pubmed/9756314

Nagandla, K., Nalliah, S., Yin, L. K., Majeed, Z. A., Ismail, M., Zubaidah, S., . . . Krishnan, S. G. (2016). Prevalence and associated risk factors of depression, anxiety and stress in pregnancy. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 5*(7), 2380-2388. doi: http://dx.doi.org/10.18203/2320-1770.ijrcog20162132

Pais, M., Pai, M. V., Kamath, A., George, A., Noronhna, J. A., Nayak, B. S., . . . Joisa, G. (2014). Stress among Antenatal Women in India. *International Journal of Nursing Care., 2*(2). doi: 10.5958/2320-8651.2014.01272.1

Pantha, S. (2014). Prevalence of Stress among Pregnant Women Attending Antenatal Care in a Tertiary Maternity Hospital in Kathmandu. *Journal of Women's Health Care, 03*(05). doi: 10.4172/2167-0420.1000183

Pantha, S., Hayes, B., Yadav, B. K., Sharma, P., Shrestha, A., & Gartoulla, P. (2014). Prevalence of Stress among Pregnant Women Attending Antenatal Care in a Tertiary Maternity Hospital in Kathmandu. *Journal of Women's Health Care, 3*(5). doi: 10.4172/2167-0420.1000183

Parcells, D. A. (2010). Women's mental health nursing: depression, anxiety and stress during pregnancy. *Journal of Psychiatric and Mental Health Nursing 17*(9), 813-820. doi: 10.1111/j.1365-2850.2010.01588.x

Rallis, S., Skouteris, H., McCabe, M., & Milgrom, J. (2014). A prospective examination of depression, anxiety and stress throughout pregnancy. *Women Birth, 27*(4), e36-42. doi: 10.1016/j.wombi.2014.08.002

Sawyer, A., Ayers, S., & Smith, H. (2010). Pre- and postnatal psychological wellbeing in Africa: A systematic review. *Journal of Affective Disorders, 123*(1-3), 17-29. doi: https://doi.org/10.1016/j.jad.2009.06.027

Shidhaye, P. R., & Giri, P. A. (2014). Maternal Depression: A Hidden Burden in Developing Countries. *Annals of Medical and Health Sciences Research 4*(4). doi: 10.4103/2141-9248.139268

Shrestha, S., & Awasthi, A. (2016). Anxiety among Pregnant Women Visiting Antenatal Care (ANC) OPD at Dhulikhel Hospital. *International Journal of Health Sciences and Research, 6*(8). from http://www.ijhsr.org/IJHSR_Vol.6_Issue.8_Aug2016/35.pdf

Silva, M. M. d. J., Nogueira, D. A., Clapis, M. J., & Leite, E. P. R. C. (2017). Anxiety in pregnancy: prevalence and associated factors. *Journal of school of nursing, University of Sao Paulo, 51*(e03253). doi: http://dx.doi.org/10.1590/S1980-220X2016048003253

Simkhada, B., Teijlingen, E. v., Porter, M., & Simkhada, P. (2006). Major problems and key issues in Maternal Health in Nepal. *Kathmandu University Medical Journal, 4, 2*(14), 258-263. from https://www.researchgate.net/publication/5249099 Major problems and key issues in Maternal Health in Nepal

Simkhada, P., Teijlingen, E. v., Winter, R. C., Fanning, C., Dhungel, A., & Marahatta, S. B. (2015). Why are so many Nepali women killing themselves? A review of key issues. *Journal of Manmohan Memorial Institute of Health Sciences - NepJOL, 1*(4), 43-49. doi: http://dx.doi.org/10.3126/jmmihs.v1i4.12001

Staneva, A., Bogossian, F., Pritchard, M., & Wittkowski, A. (2015). The effects of maternal depression, anxiety, and perceived stress during pregnancy on preterm birth: A systematic review. *Women Birth, 28*(3), 179-193. doi: 10.1016/j.wombi.2015.02.003.

Teijlingen, E. v., Simkhada, P., Devkota, B., Fanning, P., Ireland, J., Simkhada, B., & Maharjan, R. K. (2015). Mental Health Issues in Pregnant Women in Nepal. *Nepal Journal of Epidemiology, 5*(3), 499-501. from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4762507/

Verbeek, T., Arjadi, R., Vendrik, J. J., Burger, H., & Berger, M. Y. (2015). Anxiety and depression during pregnancy in Central America: a cross-sectional study among pregnant women in the developing country Nicaragua. *BioMed Central Psychiatry, 15*(292). doi: 10.1186/s12888-015-0671-y

Vijayaselvi, R., Beck, M. M., Abraham, A., Kurian, S., Regi, A., & Rebekah, G. (2015). Risk Factors for Stress During Antenatal Period Among Pregnant Women in Tertiary Care Hospital of Southern India. *Journal of Clinical Diagnostic Research, 9* (10), QC01–QC05. doi: 10.7860/JCDR/2015/13973.6580

Woods, S. M., Melville, J. L., Guo, Y., Fan, M.-Y., & Gavin, A. (2010). Psychosocial stress during pregnancy. *American Journal of Obstetrics and Gynecology, 202*(1), 61.e61-61.e67. doi: https://doi.org/10.1016/j.ajog.2009.07.041

World health Organization (WHO). (2008). Maternal mental health and child health and development in low and middle income countries. Report of meeting held in Geneva, Switzerland. 7-8. from https://www.who.int/mental_health/prevention/suicide/mmh_jan08_meeting_report.pdf?ua=1

World health Organization (WHO). (2018). Maternal and child mental health, from http://www.who.int/mental_health/maternal-child/en/

APPENDICES

APPENDIX A

INFORMED CONSENT FORM

Namaskar,

I am Radha Maharjan, Master in Nursing (MN) student of Pokhara Nursing Campus, Pokhara, Tribhuwan University, Institute of Medicine. Researcher is going to conduct a research according to the requirement of Master in Nursing course of study. The purpose of this study is to assess the level of depression, anxiety and stress among pregnant women and to determine association between the selected demographic and the depression, anxiety and stress among pregnant women. You are invited to participate in this study if you want. This study will be used solely for study purpose and no any adverse implications. Anonymity will be maintained by using code instead of identity and information that you provided will be kept confidential. Your participation in this study will be voluntary and you can feel free to discontinue study whenever you feel discomfort and unable to do so or to refuse to answer in any particular question. Interview session will take 20-25 minutes. Your cooperation will be very much helpful to give the final structure of this study. I am looking forward for your valuable response.

Do you agree to participate in the study?

Agree ☐ Disagree ☐

Consent:

In signing this consent form, I state that I have read this document completely and I understand its content and purpose. I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. I further state that I have no questions regarding the procedure and my questions have been answered to my satisfaction. I hereby give permission to enroll me as a candidate.

Signature of respondent……. Date……

Signature of researcher……. Date……

Right thumb Left thumb

Thank you for your support and participation!

सु-सुचित मन्जुरीनामा फाराम

नमस्कार,

म, **राधा महर्जन,** अनुसन्धानकर्ता त्रिभुवन विश्वविधालय चिकित्साशास्त्र अध्ययन संस्थान पोखरा नर्सिङ्ग क्याम्पस, पोखरामा स्नातकोत्तर **तह** नर्सिङ्ग दोस्रो वर्षमा अध्ययनरत विधार्थी हुँ । म यहाँ **"गर्भावस्था भएका आमाहरुमा उदासीनता, चिन्ता र तनाव बारे केन्द्रिय स्तरको अस्पतालमा अध्ययन"** शिर्षकमा अनुसन्धानका लागि उपस्थित भएकी हुँ । यो अनुसन्धान नर्सिङ्ग विषयको स्नातकोत्तर तहको आंशिक आवश्यकता पूरा गर्नको लागि गरिन **लागिएको** हो । यो अनुसन्धानगर्नको **निमित्त** पोखरा नर्सिङ्ग क्याम्पसको अनुसन्धान विभाग, चिकित्साशास्त्र अध्ययन संस्थान, **संस्थागत समीक्षा बोर्डबाट** अनुमति प्राप्त भइसकेको छ । यस अनुसन्धानबाट तपाईलाई कुनै पनि क्षतिहुने छैन । यहाँहरुलाई अनुसन्धानकर्ताबाट केहि प्रश्नहरु सोधिने छ र तपाईले भनेका जवाफहरु फारममा लेखिने छ । यसका लागि तपाईले २५ देखी ३० मिनेट समय दिनुपर्नेछ ।

यस अध्ययनमा तपाईको सहभागिता पूर्ण स्वेच्छिक हुनेछ र यसका साथै यस अनुसन्धानमा तपाई आफ्नो स्वेच्छिक सहभागिा आफुले नचाहेको खण्डमा कुनै पनि समयमा विना कुनै संकोच छोड्न सक्नुहुनेछ । अनुसन्धानकर्ताले तपाईलाई यो विश्वास दिलाउन चाहन्छ कि यहाँहरुबाट प्राप्त सम्पूर्ण विवरण गोप्य ढंगले **राखिने** छ र प्राप्तविवरण विशुद्ध यस अध्ययनको लागि मात्र प्रयोग गरिनेछ । कुनै पनि यहाँको व्यक्तिगत विवरण उल्लेख गरिने छैन । यहाँ प्रस्तुत गरिएका प्रश्नहरुको उत्तर दिई अनुसन्धानमा सहयोग पुऱ्याइदिनु हुनेछ भन्ने आशा व्यक्त गरिएको छ । तपाईं अध्ययनमा सहभागी हुन सहमत हुनुहुन्छ ?

म सहमत छु ।☐ **म असहमत छु☐**

मन्जुरीनामाः

मैले यस मन्जुरीनामामा उल्लेखित सबै कुरा साथै यसको उद्देश्य बुझेको छु । मैले मेरो सबै प्रश्नहरुको चित्त बुझ्ने गरि उत्तर पाईसकेको छु । तसर्थ यस अनुसन्धानमा मलाई सहभागी बनाउन अनुमति दिन्छु । यस मन्जुरीनामामा सहि गर्दा मैले **आफ्नो** कुनै पनि कानुनी अधिकार हनन् हुनदिइएको छैन ।

सहभागीको **हस्ताक्षर**..... मिति.....

अनुसन्धानकर्ताको **हस्ताक्षर**..... मिति.....

दाँया	बाँया

तपाईको सहयोग र सहभागिताको लागि धन्यवाद ।

APPENDIX B

Interview Schedule Related to Depression, Anxiety and Stress among Antenatal Mothers in Tertiary Level Hospital, Kathmandu.

Part I: **Selected characteristics**

Code no:

Demographic information			
S.No	Question	Response	Code
1.	How old are you? (Completed age in years) Date of birth:	Years └┘└┘ └┘└┘ └┘└┘ └┘└┘ Month, Date and Year (e.g., 03/ 09 for Asadh 9)	D1
2.	What is your ethnic background?	1. Dalit 2. Disadvantaged Janajatis 3. Disadvantaged non dalit Terai caste groups 4. Religious minorities 5. Relatively advantaged Janajatis 6. Upper caste groups	D2
3	What is your religious background?	1. Hindu 2. Muslim 3. Buddhist 4. Christian 5. Other	D3
4	What is your marital status?	1. Married 2. Unmarried 3. Divorced/Separated 4. Widowed 5. Cohabitating	D4
5	What is the type of your family?	1. Nuclear 2. Joint	D5
6	What is the highest level of education you have completed?	1. Illiterate 2. Informal Education 3. Less than Primary School (grades1-5) 4. Primary School completed 5. Secondary School completed (grades 6-8) 6. Higher secondary (10+2)/ PCL completed 7. Bachelor degree completed	D6

		8. Post graduate degree and above	

Demographic information continued			
S.No	Questions	Response	Code
7	Which of the following best describes your **main work** status over the past 12 months?	1. Government employee 2. Non-government employee 3. Self-employed/Business 4. Farmer 5. Animal Husbandry 6. Daily Labor 7. House maker 8. Student 9. Others, Specify……	D7
8	Which of the following best describes your Husband's main work status over the past 12 months?	1. Government employee 2. Non-government employee 3. Self-employed/Business 4. Farmer 5. Animal Husbandry 6. Daily Labor 7. House maker 8. Student 9. Others, Specify……	D8
9	What is your approximate monthly family income (in NRs)?	……NRs Don't Know	D9

Part II: Depression, Anxiety and Stress Scale (DASS-21)

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

Q.N	**Statement**	**Never**	**Sometimes**	**Often**	**Almost Always**	**Code**
1	I found it hard to wind down	0	1	2	3	S1
2	I was aware of dryness of my mouth	0	1	2	3	S2
3	I couldn't seem to experience any positive feeling at all	0	1	2	3	S3
4	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3	S4

5	I found it difficult to work up the initiative to do things	0	1	2	3	S5
6	I tended to over-react to situations	0	1	2	3	S6
7	I experienced trembling (e.g. in the hands)	0	1	2	3	S7
8	I felt that I was using a lot of nervous energy	0	1	2	3	S8
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3	S9
10	I felt that I had nothing to look forward to	0	1	2	3	S10
11	I found myself getting agitated	0	1	2	3	S11
12	I found it difficult to relax	0	1	2	3	S12
13	I felt down-hearted and blue	0	1	2	3	S13
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3	S14
15	I felt I was close to panic	0	1	2	3	S15
16	I was unable to become enthusiastic about anything	0	1	2	3	S16
17	I felt I wasn't worth much as a person	0	1	2	3	S17
18	I felt that I was rather touchy	0	1	2	3	S18
19	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3	S19
20	I felt scared without any good reason	0	1	2	3	S20
21	I felt that life was meaningless	0	1	2	3	S21
Total Scoring						

Part III: Factors associated with Depression, Anxiety and Stress

Obstetric History related questionnaire			
S.No	**Question**	**Response**	**Code**
10	How many times have you been pregnant including the current pregnancy, abortion, still or live birth?(Gravida)	Primigravida Multigravida ⌊_⌊_⌋ Times	F1
11	What is the term of your current pregnancy?	⌊_⌊_⌋ weeks ⌊_⌋ months (if primigravida go to Q.no 15)	F2
12	What is the total number of live children in your home?	⌊_⌊_⌋ no of children.	F3
13	Can you tell me the sex of your child?	1. Boy 2. Girl 3. Both	F4
14	If you have ever had pregnancy that did not end in a live birth (Prior Miscarriage/Spontaneous Abortion, Still birth), please tell the number of such cases?	⌊_⌊_⌋ Total Pregnancy Losses ⌊_⌊_⌋ Number of Miscarriages / Spontaneous Abortion ⌊_⌊_⌋ Number of Still births /Intra Uterine Fetal Death.	F5a F5b F5c
15	How many of your pregnancies did you terminate on your will/did abortion?	⌊_⌊_⌋ no of pregnancies.	F6

Obstetric History related questionnaire continued			
S.no	**Question**	**Response**	**Code**
16	Was the current/recent pregnancy a planned pregnancy?	1. Yes 2. No	F7
Sex preference of child related questionnaire			
17	What is your expecting about sex of the child?	1. Boy 2. Girl 3. Either boy or girl	F8
18	What are your family's preference about sex of the child?	1. Boy 2. Girl 3. Either boy or girl	F9
Interpersonal relationships in family related questionnaire			
19	How is the relationship with your family?	1. Very Poor 2. Poor 3. Fair 4. Good 5. Very Good	F10
20	How supportive are your family members?	1. Very unsupportive 2. Somewhat unsupportive 3. Neither Supportive nor unsupportive 4. Somewhat supportive 5. Very supportive	F11
Rest related questionnaire			
21	How long do you take a rest?	1. Not at all 2. 1-4 hours a day 3. 5-8 hours a day 4. 9- 12 hours a day 5. 13-16 hours a day 6. >16 hours a day	F12
Working hours related questionnaire			
22	How long do you work per day?	1. Not at all 2. 1-4 hours a day 3. 5-8 hours a day 4. 9- 12 hours a day 5. 13-16 hours a day 6. >16 hours a day	F13
Daily Intake of Balance diet related questionnaire			
23	How many times do you take meal per day?	1. 3 times a day 2. 4 times a day	F14

		3. 5 times a day 4. 6 times a day	
24	Do you eat balance diet adequately? (meat product/dairy product, fruits and green leafy vegetables)	1. Yes 2. No	F15
Exposure to domestic violence related questionnaire			
25	Have you ever suffer from any kind of torture in your family within a year? (mental torture, physical torture, verbal abuse and sexual abuse)	1. Never 2. Rarely 3. Sometimes 4. Often 5. Always	F16
26	Who used to make you sufferer? (perpetrator)	Specify relationship with person……	F17

“गर्भावस्था भएका आमाहरुमा उदासीनता, चिन्ता र तनाव बारे केन्द्रिय स्तरको अस्पतालमा अध्ययन ”

संरचित साक्षात्कार अनुसूची

भाग१: जनसंख्यिकीय विशेषताहरू

कोड नं:

जनसंख्यिकीय जानकारी			
संनं	**प्रश्न**	**प्रतिक्रिया**	**कोड**
१	तपाईं कति बर्ष हुनुभयो ? जन्ममिति:	बर्ष └─┴─┘ ..... बर्ष, महिना र गते	D1
२	तपाईंको जात के हो?	1. दलित 2. विपन्न जनजाती 3. विपन्न गैरदलित तराइ जाति समूह 4. धार्मिक अल्पसंख्यकहरू 5. तुलनात्मक सुविधा पाएको जनजाती 6. माथिल्लो जाति समूह	D2
३	तपाईंको धर्म कुन हो?	1. हिन्दू 2. मुस्लिम 3. बौद्ध 4. ईसाई 5. अन्य	D3
४	तपाईंको वैवाहिक अवस्था के हो?	1. विवाहित 2. अविवाहित 3. पारपाचुके / विभाजित 4. विधवा 5. सँगै वसोवास	D4
५	तपाईंको परिवारको प्रकार कुन हो?	1. एकल 2. संयुक्त	D5
६	तपाईले कति सम्म पढ्नु भएको छ?	1. अनौपचारिक 2. औपचारिक शिक्षा 3. प्राथमिक विद्यालय भन्दा कम (कक्षा१-५) 4. प्राथमिकविद्यालय पूरा भयो 5. माध्यमिक विद्यालय पूरा (कक्षा ६-१०)	D6

		6. उच्च माध्यमिक (१० + २) / पीसीएल पूरा भयो 7. स्नातक पूराभयो 8. स्नातकोत्तर र अझैमाथि	
७	यो १ वर्षामा तपाई कुन काममा संग्लग्न हुनुहुन्छ?	1. सरकारी कर्मचारी 2. गैरसरकारी कर्मचारी 3. स्वोरोजगार/ व्यापार 4. किसान 5. पशुपालन 6. दैनिक ज्यालादरी 7. गृहिणी 8. विद्यार्थी 9. अन्य भए, खुलाउनुहोस्.....	D7
८	यो १ वर्षामा तपाईको श्रीमान कुन काममा संग्लग्न हुनुहुन्छ?	1. सरकारी कर्मचारी 2. गैरसरकारी कर्मचारी 3. स्वोरोजगार / व्यापार 4. किसान 5. पशुपालन 6. दैनिक ज्यालादरी 7. गृहिणी 8. विद्यार्थी 9. अन्यभए, खुलाउनुहोस्.....	D8
९	तपाइँको अनुमानित मासिक पारिवारिक आम्दानी(रु मा) कति हो?	रु ..... थाहाछैन……	D9

भाग २ : गर्भावस्थाको बेला उदासीनता, चिन्ता र तनावसंग सम्बन्धित प्रश्नावली

कृपया प्रत्येक भनाई राम्रोसँग पढ्नुहोस् । यि भनाइहरु तपाइको अघिल्लो हप्तामा भएको महसुस र अनुभवको बारेमा सोधिएका छन । यि भनाइहरु कतिको हदमा मिल्दा जुल्दा थिए त्यसमा चिन्ह (√) लगाउनुहोस् । जुन कहिल्यै भएन, वा कहिलेकाहीं भयो, वा प्राय जसो भयो अथवा लगभग सधैं भयो। कुनै पनि भनाईमा चिन्ह लगाउन धेरै समय नलगाउनुहोला।

प्र न	भनाईहरु	कहिल्यै भएन	कहिलेकाहीं भयो	प्रायजसो भयो	लगभग सधैं भयो	D	A	S
१	चिन्ताले गर्दा आराम महसुस गर्न अप्ठ्यारो	०	१	२	३			
२	मेरो मुख सुख्खा हुने	०	१	२	३			
३	मैले कुनै पनि सकारात्मक भावना अनुभव गर्न नसक्ने	०	१	२	३			
४	मलाई सास फेर्न अप्ठ्यारो भएको महसुस हुने(जस्तै, अत्यन्त तीव्र श्वास, शारीरिक परिश्रम को अभाव मा पनि सास फेर्न अप्ठ्यारो) ।	०	१	२	३			
५	मलाई काम शुरु गर्नको लागि पहल गर्न अप्ठ्यारो	०	१	२	३			
६	मैले परिस्थितीको आवश्यकता भन्दा बढी प्रतिकृया गर्ने	०	१	२	३			
७	मैले कापेको अनुभव गर्ने (जस्तै हात कापेको)	०	१	२	३			
८	मैले आफुलाई धेरै चोटि आतिएको महसुस	०	१	२	३			
९	म आफु आत्तिने र लज्जास्पद हुनसक्ने खालको परिस्थितीको बारेमा धेरै चिन्तित हुने	०	१	२	३			
१०	मलाई आफु अगाडि बढ्न कुनै आशा नरहेको महसुस	०	१	२	३			

११	मैले आफुलाई बिचलित भएको महसुस गर्ने	०	१	२	३			
१२	मलाई आराम गर्न अप्ठ्यारो भएको महसुस	०	१	२	३			
१३	मलाई आफु दुखी र हिन भएको महसुस	०	१	२	३			
१४	मलाई काम गर्न रोक्न खोज्ने कुनैपनी कुरा सहन गाह्रो हुन्छ	०	१	२	३			
१५	मलाई एकदम धेरै पिरचिन्ता हुने	०	१	२	३			
१६	म कुनै पनि कुरामा उत्साहित हुन नसक्ने	०	१	२	३			
१७	म आफु योग्य व्यक्ती नभएको महसुस गर्ने	०	१	२	३			
१८	म धेरै भावुक हुने	०	१	२	३			
१९	मैले शारिरीक् परिश्रम् नहुँदा पनि मुटुको कामको बारेमा थाहा पाउने (जस्तै मुटुको धड्कन बढेको, मुटुको धड्कन हराइरहेको) ।	०	१	२	३			
२०	मैले कुनै कारणबिनानै डराएको महसुस गर्ने	०	१	२	३			
२१	मलाई जिन्दगी अर्थहीन भएको महसुस हुने	०	१	२	३			
	कुल संख्या							

भाग३: गर्भावस्थाको बेला उदासीनता, चिन्ता र तनावसंग सम्बन्धित कारकतत्वहरु

प्रशुतीसंग सम्बन्धी प्रश्नावली			
संनं	**प्रश्न**	**प्रतिक्रिया**	**कोड**
१०	अहिले सम्म कति पटक गर्भवती हुनु भएको छ?	1. पहिलो गर्भ 2. मल्तिग्राविदा ⌊⌊⌋⌋ पटक	F1
११	तपाईंको गर्भ कति समयको भयो? (हप्ता वा महिनामा रेकर्ड गर्नुहोस् यदि हप्ता थाहा नभएमा, LMP रेकर्ड गर्नुहोस्)	1. ⌊⌊⌋⌋ हप्ता ⌊⌋ महिना 2. ⌊⌊⌋⌋ ⌊⌊⌋⌋ महिना र गते (जस्तै., ०३/ ०९असार ९ कोलागि) **(**यदि प्रैमि ग्राविदा भए प्र**.** न म**.** १५मा जाने**)**	F2

१२	तपाईंको कति जना बालबच्चाहरू छन्?	└┴┘ बच्चाहरूको संख्या	F3
१३	तपाईंको घरमा छोरा या छोरी के छन्?	1. छोरा 2. छोरी 3. दुवै	F4
१४	तपाईं गर्भवति भइ गर्भ खेर गएको छ? यदि छ भने कति पटक भयो?	1. └┴┘ कुल खेर गएको गर्भावस्था 2. └┴┘ खेर गएको संख्या / स्वत:गर्भपात 3. └┴┘ मृत शिशुको संख्या / गर्भमानै शिशुको मृत्यु। 4. छैन	F5a F5b F5c
१५	तपाईंले आफ्नो इच्छा अनुसार कति वटा गर्भपतन गर्नुभयो?	1. └┴┘ गर्भपातको संख्या 2. छैन	F6
१६	**अहिलेको गर्भ तपाईंको इच्छा या योजना अनुसार भएको हो?**	1. **हो** 2. **होइन**	**F7**
बच्चाको लिङ्ग प्रति प्राथमिकता सम्बन्धी प्रश्नावली			
१७	तपाईंले छोरा या छोरी के चाहनु भएको छ?	1. केटा 2. केटी 3. जे भए पनि हुन्छ	F8
१८	तपाइको परिवारले छोरा या छोरी के चाहनुभएको छन्?	1. केटा 2. केटी 3. जे भए पनि हुन्छ	F9
पारिवारिक सम्बन्ध सम्बन्धी प्रश्नावली			
१९	तपाईँको परिवारसँग सम्बन्ध कस्तो छ?	1. धेरै नराम्रो 2. नराम्रो 3. उचित 4. राम्रो 5. धेरै राम्रो	F10
२०	तपाईंका परिवारका सदस्यहरू कतिको सहयोगी छन्?	1. धेरै असहयोगी 2. केहि हद सम्म असहयोगी 3. नत सहयोगी न त असहयोगी	F11

		4. केही हद सम्म सहयोगी 5. धेरै सहयोगी	
आराम सम्बन्धित प्रश्नावली			
२१	तपाईं कति लामो समयसम्म आराम लिनुहुन्छ?	1. आराम गर्दिन 2. दिनको१ -४घण्टा 3. दिनको५ -८घण्टा 4. दिनको ९ - १२घण्टा 5. दिनको १३-१६घण्टा 6. दिनको १६ घण्टा भन्दा माथि	F12
कामको समय सम्बन्धी प्रश्नावली			
२२	तपाईं दिनको कति समय काम गर्नुहुन्छ?	1. काम गर्दिन 2. दिनको१ -४घण्टा 3. दिनको५ -८घण्टा 4. दिनको ९ - १२घण्टा 5. दिनको १३-१६घण्टा 6. दिनको १६ घण्टा भन्दा माथि	F13
सन्तुलित भोजन सम्बन्धी प्रश्नावली			

२३	**तपाई दिनको कति पटक खानेकुरा खानुहुन्छ?**	1. दिनको ३ पटक 2. दिनमा ४ पटक 3. दिनमा ५ पटक 4. दिनमा ६ पटक	F14
२४	तपाईं सन्तुलित आहार दैनिक रूपमा खानुहुन्छ कि खानुहुन्न? (हरियो सागसब्जी, फलफुल , माछा मासु, दूधजन्य पदार्थ)	1. छ 2. छैन	F15
घरेलू हिंसा सम्बन्धी प्रश्नावली			
२५	तपाईंले कहिल्यै आफ्नो परिवार मा कुनै पनि प्रकार को यातना पाउनु भएको छ (यो एक वर्ष भित्रमा)? (सारीरिक यातना , मानसिक यातना, गाली, दुर्व्यवहार, यौन दुर्व्यवहार)	1. कहिल्यै छैन 2. शायद 3. कहिलेकाहीँ 4. प्राय 5. सधैं	F16
२६	यदि छ भने, कसले तपाईंलाई यातना दिनुहुन्छ?	त्यो व्यक्तिसँगको सम्बन्ध खुलाउनुहोस्.....	F17
२७	के कारणले हो?	कारण खुलाउनुहोस्.....	

APPENDIX C

ADMINISTRATIVE LETTERS

त्रिभुवन विश्वविद्यालय
चिकित्सा शास्त्र अध्ययन संस्थान
डीनको कार्यालय, महाराजगंज
पो.ब.नं.: १५२४, काठमाडौं, नेपाल ।
फोन नं. ४४१०९११, ४४१२०४०, ४४१३७२९, ४४१८१८७

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पत्र संख्या / Ref.:- 130(6-11)E2/075/076

मिति / Date:- September 4, 2018

Research Department

Ms. Radha Maharjan
MN Student
Pokhara Nursing Campus
Ramghat, Pokhara

Ref: **Approval of Research Proposal**

Dear Ms. Maharjan,

Thank you for the submission of your research proposal,entitled **"Depression, anxiety and stress among antenatal mothers in a tertiary level hospital of Kathmandu"**

I am pleased to inform you that after careful evaluation, the above mentioned research proposal has been approved by Institutional Review Committee (IRC) of Institute of Medicine (IOM), Tribhuvan University on September 4, 2018.

As per our rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in title, objectives, problem statement, research questions or hypothesis, methodology, implementation procedures, data management and budget may be made so and implemented only after prior approval from IRC. Thus, it is compulsory to submit the details of such changes intended with justifications prior to actual change in the protocol.

Please note that you can start recruiting the research participants only after getting approval letter from the IRC. You are also requested to follow the ethical guidelines of IRC of IOM.

After completion of your study you must submit a copy of final draft of your research to the Research Department.

If you have any further queries, please do not hesitate to contact us.

Singh

.....
Prof. Dr. Yogendra P. Singh, MD, PhD
Member Secretary
Institutional Review Committee

CC
Head of Department
Department of Nursing
Pokhara Nursing Campus
Ramghat, Pokhara

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पोखरा नर्सिङ्ग क्याम्पस
Pokhara Nursing Campus

प.सं. :
च.नं. :

मिति: २०७५।०५।१७

श्रीमान् प्रमुख ज्यू,
त्रि.वि., शिक्षण अस्पताल
महाराजगंञ्ज, काठमाडौं ।

विषय:– शैक्षिक अनुसन्धान अनुमति सम्वन्धमा ।

महोदय,
प्रस्तुत विषयमा यस क्याम्पसमा स्नातकोत्तर तह नर्सिङ्ग दोश्रो वर्षमा अध्ययनरत विद्यार्थी राधा महर्जन शैक्षिक अनुसन्धान कार्यको लागि निम्न टपिकमा डाटा कलेक्सनको लागि प्रि-टेस्ट गर्न मिति २०७५।०५। गते त्यस अस्पतालमा आउने भएकोले अनुमति दिनु भई आवश्यक सहयोग गरि दिनु हुन अनुरोध गर्दछु ।

Topics:
"Depression, Anxiety and Stress of Pregnancy among Antenatal Mothers in tertiary Level Hospital, Kathmandu."

(नीता ताम्राकार)
क्याम्पस प्रमुख

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Government of Nepal

Nepal Health Research Council (NHRC)

Estd. 1991

Ref. No.: 2333

20 February 2019

Ms. Radha Maharjan
Principal Investigator
Pokhara Nursing Campus
Ramghat

Ref: **Approval of thesis proposal** entitled **Depression, anxiety and stress of pregnancy among antenatal mothers in tertiary level hospital, Kathmandu**

Dear Ms. Maharjan,

It is my pleasure to inform you that the above-mentioned proposal submitted on **23 January 2019** (**Reg. no. 67/2019**) has been approved by Nepal Health Research Council (NHRC) National Ethical Guidelines for Health Research in Nepal, Standard Operating Procedures Section 'C' point no. 6.3 through Expedited Review Procedures.

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol. Expiration date of this proposal is **May 2019.**

If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their research proposal and **submit progress report in between and full or summary report upon completion.**

As per your thesis proposal, the total research budget is **Rs. 35,000.00.** The processing fee was waived as the researcher had received by NHRC Grant.

If you have any questions, please contact the Ethical Review M & E Section at NHRC.

Thanking you,

Prof. Dr. Anjani Kumar Jha
Executive Chairman

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Cable : TUTHMED, KATH
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Ref. No.

Date:.....
2075/06/15

To Whom It May Concern

This is to certify that Ms. Radha Maharjan, Masters in Nursing Pokhara Nursing Campus received permission to collect data for the research entitled **"Depression, Anxiety and Stress of Pregnancy among Antenatal Mothers in Tertiary Level Hospital Kathmandu".** In this regard, she has successfully collected data from 17 Bhadra 2075 to 12 Ashwin 2075 in Gynaecology O.P.D of this hospital.

I wish all the best for her future endeavor.

Ram Bikram Adhikari
Deputy Controller (Public Health)
Clinical Administration

Phone No. : 44-12303, 44-12505, 44-12707, Fax No.: 977-1-44-22553, Post Box o. 3578
E-mail: tuthdirector@iom.edu.np, Website : www.iom.edu.np

Permission to use DASS-21 tool

radha maharjan <radha.mag502@gmail.com> Wed, Aug 1, 2018, 8:15 AM
to P.Lovibond

I, Radha Maharjan, Master of Nursing Student, from Nepal would like to humbly request you for your permission to use your DASS-21 tool for my Thesis,"Anxiety and Stress of pregnancy among antenatal mothers in Tertiary level Hospital, Kathmandu, Nepal. and also need permission to make some modification, only include the statements of anxiety and stress, and remove the depression portion to assess anxiety and stress among pregnant mothers. hope you for kind consideration and quick response. Thank You.

Peter Lovibond <p.lovibond@unsw.edu.au> Aug 2, 2018, 12:24 PM
to me

Dear Radha,

You are welcome to use the DASS in your research. Please see the DASS website www.psy.unsw.edu.au/dass/ to download the questionnaires (including translations in certain languages) and scoring key. Please also see the FAQ page on the website for further information, including the advantages and disadvantages of administering only 1 or 2 of the DASS scales.

Best regards,

Peter Lovibond

...

radha maharjan <radha.mag502@gmail.com> Aug 6, 2018, 4:47 PM
to p.lovibond

Thank you, Sir
I will follow your instruction, this will be very fruitful for my study. you are so kind hearted.

APPENDIX D

Simple stress management techniques for pregnancy

The antenatal mothers, those who had higher score in DASS-21 tool were provided information in following topics for simple stress management and place to seek help as needed.

1. Focus on baby health (positive way to divert mind)
2. Get enough rest and sleep
3. Exercise regularly
4. Share the problems
5. Eat balanced diet well
6. Birth preparedness
7. Seek out financial worries (money)
8. Try complementary therapies like
    i. lower back massage
    ii. a relaxation massage
    iii. simple yoga
    iv. meditation