PREVALENCE OF DEPRESSIVE SYMPTOMS AND RISK FACTORS AMONG POSTPARTUM MOTHERS AT SINZA AND MAGOMENI HEALTH FACILITIES IN KINONDONI MUNICIPAL - DAR ES SALAAM, TANZANIA

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MSc Nursing (Mental Health) Dissertation
Muhimbili University of Health and Allied Sciences
November 2010

PREVALENCE OF DEPRESSIVE SYMPTOMS AND RISK FACTORS AMONG POSTPARTUM MOTHERS AT SINZA AND MAGOMENI HEALTH FACILITIES IN KINONDONI MUNICIPAL - DAR ES SALAAM, TANZANIA

By:

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A dissertation Submitted in (partial) Fulfillment of the Requirements for the Degree of Master of Mental Health Nursing of the Muhimbili University of Health and Allied Sciences.

Muhimbili University of Health and Allied Sciences
November 2010

CERTIFICATION

The undersigned certify that they have read and here by recommended for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation titled: **Prevalence of depressive symptoms and risk factors among Postpartum mothers at Sinza and Magomeni Health facilities in Kinondoni Municipal – Dar es Salaam** in partial fulfillment of the requirements for the degree of Master of Mental Health Nursing.

.....

Dr. Khadija Yahya Malima

(Supervisor)

Date 22nd NOV 2010

DECLARATION AND COPYRIGHT

I, Alaphisa G. Msigwa, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

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ACKNOWLEDGEMENT

I would like to express my gratitude first and foremost to the Almighty God. Without His blessings and guidance, I would not have succeeded in passing through this difficult period and preparing this manuscript.

Secondly, I would like to thank the Ministry of Health and Social Welfare for funding my studies.

Thirdly, I would like to convey my sincere word of thanks to my research lecturer Dr. T. Kohi for her efforts for proving me with a foundation in nursing research. I would like to thank my supervisor Dr. K. Yahya-Malima for her patience, endless and tireless guidance in this work.

Fourthly, I would like to thank Prof. S. Kaaya, Dr. C. Moshiro, Dr. J. Mbatia and Ms. E. Rugalabamu for their technical support.

In addition, I would like to convey my thanks to the Research Co-ordinator of Kinondoni Municipal for allowing me to conduct my study in her area, and the Drs in-charge of Sinza and Magomeni Health Centres for their support during the study.

Last but not least, I thank all the people who contributed in one way or another in this study.

Lastly, I am obliged to my family, my beloved husband Prof. J. S. Madumulla for his love, patience and moral support during the whole period of my study. I would like to thank and acknowledge my daughter Faraja, for her endless moral support, and in the same manner, my sons Richard, Emmanuel and Thomas for their tolerance and encouragement.

DEDICATION

This work is dedicated to my beloved late mother Rahel Selongo. I will always remember her encouragement about studying since I was in primary school and wished for my success. Also, I dedicate to my beloved husband Prof. J. S. Madumulla who tolerated my absence at home and encouraged physical and moral support.

ABSTRACT

Background:

Postpartum depression is a transient mood that starts within four weeks up to one year after delivery, and is an important cause of morbidity and life threatening condition varying from 8% to 36% among women worldwide.

Objectives:

This study sought to assess prevalence of depressive symptoms and the associated risk factors among postpartum mothers attending reproductive health and child health clinics.

Methods:

Using a cross-sectional methodology, 309 postpartum mothers aged 15 to 45 years delivered within one month to one year within the study period were conveniently enrolled from Sinza and Magomeni Health Centres (Kinondoni Municipality). Coded structured Kiswahili questionnaires were used to collect demographic data and an adapted "SONONA questionnaire" by the Ministry of Health and Social welfare was used to screen for depressive symptoms. Data entry and analysis was done using the SPSS version 15.

Results:

Out of 309 postpartum mothers, 53 (17.2%) mothers were found to have symptoms of postpartum depression (PPD). The overall prevalence of PPD symptoms was 17.2%; 95% CI (13.0 - 21.4). Prevalence for Magomeni Health Centre was 16.9% (n=21); 95% CI (10.3 - 23.5) and for Sinza was 17.3% (n=32); 95% CI (11.9 - 22.8). On multivariate analysis, factors associated with PPD symptoms were; poor relationship with in-laws, poor relationship with husband, miscarriage, death of a child, lack of breastfeeding and having a higher number of children.

Conclusion and recommendations:

Post partum depression is a considerable problem that needs attention. However, early detection of postpartum depression is important in assisting postpartum mothers, and this should begin during prenatal period. Prevention of depression for nursing mothers helps not only the psychological well-being of the mothers but also the entire family. Postpartum depression is under-researched and under-reported, therefore priority should be given.

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ABBREVIATIONS

CDC	-	Centre for Disease Control and Prevention
GHQ	-	General Health Questionnaire
DSMV-TR	-	Diagnostic and Statistical Manual of Mental Disorders -Text Revised
EPDS	-	Edinburg Postnatal Depression Scale
MOHSW	-	Ministry of Health and Social Welfare
MUHAS	-	Muhimbili University of Health Sciences
PPD	-	Postpartum Depression
LSCS	-	Lower Segment Caesarean Section
SVD	-	Spontaneous Vaginal Delivery

DEFINITION OF TERMS

Depression	- Is a transient mood disturbance
Perinatal	- Events surrounding labour and the first seven days of life of a new born.
Postnatal	- A period of not less than 10 and not more than 28 days after the end of labour.
Postpartum	- After labour.
Prenatal	- The period of time when a woman is pregnant.
Pueperal psychosis	- The most severe and dramatic of psychiatric disturbance occurring in the postpartum period.

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CHAPTER ONE: INTRODUCTION

Postpartum depression is a transient mood disturbance characterized by mood labiality, sadness, dysphoria, subjective confusion, tearfulness, depressed mood, excessive anxiety, insomnia and change in weight (Ahuja, 2002; Sadock & Sadock, 2007). Other symptoms include; loss of interest or pleasure in almost all activities, which is present throughout the day, social withdrawal, and in severe cases there may be complete anhedonia (inability to experience pleasure). Suicidal ideas may be present in severe cases and delusions of nihilism. Depression occurs with a deficit in brain monoamines norepinephirine or serotonin. Individuals with major depression have elevated levels of cortisol. An increase in cortisol secretion appears to be a reflection of elevated secretion of corticotrophin-releasing factor, which is hypothesized to produce some of the symptoms associated with depression (McCance & Huether, 2006). Neuroendocrine abnormalities that involve thyroid and growth hormones are also found in depression.

Depression also occurs when there are other corresponding illnesses, such as in individuals with hypothyroidism have depressed mood and cognitive impairments. The frontal lobe and limbic system volumes are reduced in depression. Functionally, the blood flow to these two brain areas are altered in the sense that it is decreased to the prefrontal regions and increased in frontal regions with interconnections to amygdala of limbic system (McCance & Huether, 2006).

The prevalence of postpartum depression varies widely from place to place. The onset starts within four weeks up to one year after delivery, due to rapid changes in women's hormonal levels, also can occur in women with pregnancy (Tannous, Gigante, Sandra, & Busnello, 2008). The condition can result from stress undergoing during pregnancy and six weeks post delivery, reduction in brain oestrogen, alterations in body image which activate unconscious psychological conflicts pertaining to pregnancy and intrapsychic reorganization of becoming a mother (Ndosi & Mtawali, 2002).

Other causes of postpartum depression include; genetic factors involving first degree relatives to an extent of 20%, risk of children of one parent with mood disorder is 27%, both parents is 74%. In monozygotic twins is 46%, while in dizygotic twins is 20% (Ahuja, 2002), also the stress of childbirth and the awareness of increased responsibility of motherhood. Prevalence of post partum depression in North and South American women is between 8% and 36.7% and in western countries 10% or more (Tannous et al., 2008). In non-Western countries the disorder is thought to occur three times more, than what is common in developing countries compared to developed countries.

In Sub-Saharan countries, such as in South Africa, the prevalence rate was reported to be 34.7%, while in Uganda, it was found to be 16% (Nakku, Nakasi, & Mirembe, 2006). In Tanzania, studies show that 85% of women develop some form of postpartum mental illness accompanied with co-morbidity conditions whereby the prevalence was 3.2 per 1000 births (Ndosi & Mtawali, 2002). Despite the fact that mental health services are integrated into the component of primary health care services (MOH, 2008), the problem still exists. About 10% up to 28% of women living in poverty develop the disorder (Bernstein et al., 2008; Nakku et al., 2006; Sadock & Sadock, 2007; Tannous et al., 2008). Pregnancy and the postpartum months may be vents of heightened vulnerability to postpartum depression (Rich-Edwards et al., 2006), and it can occur after adoption of a baby especially in the developed countries (Driscoll, 2006).

Postpartum depression may also be accompanied with other co-morbidity conditions, leading to high degree of suicide among women worldwide (Bernstein et al., 2008; Driscoll, 2006; Grigoriadis & Ravitz, 2007; Rich-Edwards et al., 2006). If the condition is left unidentified or untreated it can lead to serious impacts such as altered family dynamics, disregulated maternal-child connection, altered cognitive and emotional development in infant or childcare, resulting in abuse and negligence in child's care and affecting the relationship between the woman with her partner, which is a risk factor for new episodes of postpartum depression (Driscoll, 2006; Leitch, 2002; Tannous et al., 2008). It also causes developmental problems, higher rates of behavioral problems and lower vocabulary skills which have been observed to the children of mothers with depression (Leitch, 2002). This can lead to thoughts of harming the

infant or infanticide (Bernstein et al., 2008). Undetected postpartum depression affects the society as well through illness, social dysfunction, death and the cost of medical treatment and services (Chaaya, Campbell, El Kak, Shaar, & Kaddour, 2002).

Interest in postpartum depression has come to the forefront in recent years due to media coverage of specific cases of infanticide and suicide linked with postpartum depression (Leitch, 2002). This has taken tragic events to create awareness of this condition. Public awareness leads to knowledge, education, and hopefully prevention and /or diagnosis and treatment. Statistics show that between 60% and 85% of women after birth suffer from baby blues, while 10% to 15% of new mothers suffer from postpartum depression, and less than 2 in 1,000 new mothers develop postpartum psychosis (Leitch, 2002). Women have been silently suffering from postpartum depression for years, resulting to guilt of not feeling the expected joy of giving birth that the culture expects. Thus education of the public is a key to helping people recognize the signs of postpartum depression so that these new mothers can find help in coping with postpartum depression. Health care professionals need to be alert for the signs of postpartum depression and discuss with the clients prenatally and after delivery (Leitch, 2002).

In the Tanzanian context, most pregnant women are being cared for by the first degree relative till they deliver and a few months after delivery (3-6months). The pre and postpartum mothers are given special care during that period which helps to act as a protective factor against developing postpartum depression.

1.1 Statement of the Problem

Postpartum depression (PPD) is a global problem and an important public health issue that affects women after birth. Reasons do vary from various stressful factors to biological factors. PPD can bring serious implications to the mother, child and family, also being a risk to suicide and infanticide. In spite of the serious implications brought about, it has been under researched, under reported (Chaaya et al., 2002; O'hara, 2009) and misdiagnosed due to the problems of identifying it so as to intervene in time.

Tanzania being one of the low income resource developing countries, postpartum depression has been diagnosed in several health care facilities though the magnitude has never

been established nation-wide, to date. However, there was a study that evaluated postpartum psychosis at Muhimbili National Hospital. The study showed that complications of pregnancies and puerperal psychoses pose a disproportionate burden to females in Tanzania. The majority of women suffering from this morbidity often remain at home with their families undiagnosed medically or under the care of traditional healers. The postpartum mothers having postpartum psychosis remain unidentified thus vulnerable to greater maternal mortality (Ndosi & Mtawali, 2002).

This gap can be filled by conducting studies that would help to determine the prevalence of depression symtoms in postpartum mothers and risk factors as additional information for appropriate preventive intervention during pregnancy to reduce morbidity and mortality.

1.2 Rationale of the Study

Most postpartum mothers undergo depression without their awareness, which can lead to delay or no reporting at all, as well as incorrect diagnosis. Since the previous studies focused on postpartum psychosis and co-morbidity conditions, this study intended to focus specifically on the determination of the prevalence of depressive symptoms in postpartum mothers and risk factors which will add knowledge to the previous results. The knowledge will provide additional information that could assist in planning for proper interventions.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

Postpartum depression (PPD) is considered as a debilitating mental disorder with prevalence rates ranging from 0.5 to 63.3% around the world (Bena, 2008; Dennis et al., 2009; Gemmill, Leigh, Erickson, & Milgrom, 2006; Klainin & Arthur, 2009; Leigh & Milgrom, 2007; Nakku et al., 2006), depending on the definitions used (Halbreich & Karkun, 2006). The definitions of PPD are provided by two existing diagnostic systems; the Diagnostic and statistical manual of mental disorders (DSM-IV-TR: APA 2000) and the International Statistical Classification of disease and related Health Problems (ICD-10: WHO, 2007). The DSM IV-TR identifies PPD as a major depressive disorder with postpartum onset and indicates that depressive symptoms within 4 weeks after delivery. While the ICD-10 identifies PPD is a mild mental and behavioral disorder commencing within 6 weeks of delivery (Klainin & Arthur, 2009). The prevalence differs from country to country worldwide which might be due to the difference in instruments used to detect PPD, the diagnostic criteria used or sample size.

Women who experience postpartum depression have increased risk of depression later in life (Campbell & Cohn, 1991). This suggests that to prevent such problem later in life, proper interventions should be done during postpartum period in order to minimize the occurrence of postpartum depression later in life.

Postpartum depression is managed by various treatment modalities that include psychotherapy, pharmacotherapy, family therapy and group therapy. Psychotherapy is mostly preferred because of the risk of transmitting antidepressants to the newborn during lactation. Most studies suggest a combination of psychotherapy and pharmacotherapy is the most effective treatment (Sadock & Sadock, 2007). Hospitalization may be indicated in case there is a risk of suicide or homicide, otherwise can be attended as an outpatient (Gelder, Lopez-Ibor Junior, & Anderson, 2004; Sadock & Sadock, 2007).

Psychotherapy may be given in three ways; cognitive therapy, interpersonal therapy, and behavioral therapy. Cognitive therapy is used to alleviate depressive episodes and prevent

their recurrence, while interpersonal therapy focus on patient's current interpersonal problems which might be involved in precipitating the postpartum depressive symptoms. The behavioral therapy is based on the maladaptive behavioral patterns that result in a person's receiving little positive feedback and probably rejection from society (Sadock & Sadock, 2007).

Family and group therapy help the patient to reduce and cope with stress and thus lessen the chance of relapse. This also reduces the interfamilial problems and helps to regain fast and complete recovery (Ahuja, 2002; Gelder et al., 2004; Sadock & Sadock, 2007).

Antidepressant medications may be given such as, tricyclic antidepressants or selective serotonin reuptake inhibitors for symptom remission. Antidepressants may take up to 3 to 4 weeks to show significant therapeutic effects though may begin showing earlier. The antidepressants should not be given to breastfeeding mothers due to the risk of causing over sedation to the infant. In severe cases with suicidal risk, severe postpartum depression with stupor, presence of significant side effects or intolerance to drugs, ECT may be preferred (Ahuja, 2002; Sadock & Sadock, 2007).

Regarding the management of postpartum depression in Tanzania, mothers are managed within the family homes except in severe cases where they are admitted to hospital. Prevention in mothers with history of severe or prolonged postpartum depression is important. Those mothers found to have risk factors should need immediate support from the community psychiatry nurses. Prophylactic antidepressant medication may be considered (Gelder et al., 2004).

2.2 Risk factors for postpartum depression:

2.2.1 Social demographic factors

Various socio-demographic factors have been reported to be associated with postpartum depression. (Ahuja, 2002; Fraser & Cooper, 2003; Klainin & Arthur, 2009; Leitch, 2002; Nakku et al., 2006). In their studies they found that being single, young age, negative life events, occupational instability, unemployment of the woman or partner, low income, marital discord, divorce, polygamy, poor social support from family or father of the child or the

woman's own mother, death of immediate family member, being immigrant, uneducated husband, domestic violence, lack of emotional support, dissatisfaction with support from husband, parents and parent-in-law are factors contributing to the development of postpartum depression. Study by (Ndosi & Mtawali, 2002) revealed 60.5% married women, 37.2% single, 2.3% divorce, 62.8% Muslims, 37.2% Christians, 81.4% unemployed, 15.1% employed, 3.5% petty business,7% informal school, 81.4% primary education, 10.5% secondary education and 1.2% university graduate developed postpartum psychosis.

2.2.2 Cultural Factors

Cultural factors contribute to the occurrence of postpartum depression. In western countries the prevalence of PPD is 10% to 20% (Bena, 2008). While in under developing countries, for example Kenya, to evaluate postpartum depression by using Edinburg Postnatal Depression Scale (EPDS) instrument in association with cultural factors, it was found that there was no evidence of postpartum depression among Kipsigis women (an ethnic tribe) (Bena, 2008). Thus emphasizing that, culture is a mediator factor in the postpartum period and helps to prevent postpartum depression (Bena, 2008). This is due to the fact that western culture is based on individualistic culture while in the developing countries worldwide, culture is almost similar among societies which have strong ties (Bena, 2008). (Klainin & Arthur, 2009) in their study in Asian countries they found that new mothers rely on practical and emotional support from family members such as mother, mother-in-law, husband and relatives. After giving birth, women are physiologically vulnerable, thus need a certain convalescence period with specific diets. This also applies to Tanzanian context, where women are treated in the same way. When it happens that they are deprived from this support, they are forced to depend on their own, as a result for those who have weak coping mechanisms develop postpartum depression. Parity may play as a protective factor to the mother because of previous experience although may make the woman be vulnerable to develop depression because of having many children. High parity increases the responsibility of taking care of the children, if the family economy is low and has poor support the mother cannot fulfill the children's needs thus easily develop depression, while when there is no spacing of children the mother is at risk of getting physical and psychological problems.

2.2.3 Socio-economic status of women

In most of the developing countries women occupy a number of roles at one time: wife, mother, employee, housewife or participant in community activities. Meeting these demands of many roles leads to stressful situation, where mothers are forced to choose whether to pursue or further a career or devote more time at home and family (Efthim, Keny, & Mahalick, 2001; Lengua & Stormshark, 2000; Merecek, 2002). Women are given jobs with less autonomy or creativity and which decrease their level of job satisfaction. They are given positions of lower caliber compared to men, and sometimes paid lower salaries than those of men of the same position. Increased workloads and decreased attention to rest and relaxation are stressful situations which affect the health of the woman (Efthim et al., 2001; Lengua & Stormshark, 2000). Women experience internal disorders which involve negative inner emotions, such as postpartum depression (Efthim et al., 2001; Lengua & Stormshark, 2000; Merecek, 2002). In developed countries, such as study done in Switzerland showed that 57% were found to have postpartum depression (Kammerer et al., 2009), while in Africa there is no evidence.

2.2.4 Gender preference

Gender preference has got an important role to play in most of the societies. Giving birth to a baby boy brings joy within the family because a baby boy is taken as the father of the future who will inherit and look after the family property. While a baby girl is taken differently that once she becomes an adult, may get married and belong to another family. That is the reason when a baby is born the family becomes anxious to know the gender. Furthermore, it is about a belief that a baby boy expands the family. (Klainin & Arthur, 2009), in their study found that in China 17.3%, in Turkey 40.4% and in India 22% women who gave birth to girl babies developed postpartum depression. In Uganda a study by (Nakku et al., 2006) found that gender of baby contributed to postpartum depression by (p=0.05; OR= 0.41; 95% CI=0.19-0.88). This might take a different outlook with the developed countries whereby a child is given consideration regardless of the gender.

2.2.5 Obstetric and pediatric factors

Studies have shown that obstetric and pediatric problems during pregnancy, previous abortion and pregnancy termination, obstetric complication, previous loss of a baby, third pregnancy, unplanned pregnancy, unintended pregnancy, unwanted sex of baby, low birth weight, birth abnormalities, negative attitudes toward mother roles, lack of childcare knowledge, and absence of breast feeding contribute to the development of postpartum depression (Chaaya et al., 2002; Klainin & Arthur, 2009; Leitch, 2002; Nakku et al., 2006). Prim parity 46.5%, caesarean sections 11.6%, EPH gestosis 17.5%, obstetric haemorrage 2.3%, miscarriages 29.5%, twin pair 9.45, female babies 49%, sick babies 22.3%, stillbirths 9.6%, living babies weighing less than 1kg-54%, weighing between 1 and 2 kg 31.8%, (Ndosi & Mtawali, 2002). However, these factors suggest that more emphasis be made on the education given to pre and postpartum mothers regarding the risk factors.

2.2.6 Psychological factors

Psychological factors include depressive symptoms during pregnancy, antenatal anxiety, past psychiatric history, premenstrual dysphoric disorder, child care stress, negative effect, low self-esteem, poor self image, insecure attachment style and negative attitude toward employment (Klainin & Arthur, 2009; Leigh & Milgrom, 2007; Ndosi & Mtawali, 2002). Studies have shown that majority of women do not seek professional help from family neither friends (McCarthy & McMahon, 2008). Therefore proper interventions in screening and identifying depression earlier may lead to minimizing the problem.

2.2.7 Physical factors

Physical factors are found to be associated with postpartum depression (Klainin & Arthur, 2009) such as current physical illness in both mother and new born, chronic illness, (Aydin, Inandi, & Karabuluti, 2005; Chen, Chan, H Tan, & Lee, 2004), and poor physical health (Eilat-Tsanani et al., 2006). Women with low Body Mass Index (BMI) (<20kg/m2) below normal range reflect poor nutritional status (Ho-Yen, Tschudi, Malin, Gran, & Bjorvaln, 2006), anaemia 51.4%, and infections 44.2%, malaria 22%, HIV 3%, seizures 1.2%, cerebral vascular accident 1.2%, bronchial asthma 3.5%, psychotic illness in family 5.8%, previous

non-pueperal psychosis 10.5%, first psychotic episode 88.4%, schizophrenia 8.1%, paranoid reaction 4.7% and affective psychosis 4.7% (Ndosi & Mtawali, 2002). These are important factors which suggest for more studies to be done especially in the developing countries where majority of women live in poor health conditions in order to explore and detect the affected mothers so that proper interventions are done.

2.3 Research Question

What is the prevalence of depressive symptoms and its risk factors among postpartum mothers at Sinza and Magomeni Health facilities in Kinondoni Municipality?

2.4 Objectives of the Study

2.4.1 Broad Objective

To assess the prevalence of depressive symptoms and related risk factors of postpartum mothers attending reproductive health and child health clinics in Sinza and Magomeni Health Centres in Dar es Salaam.

2.4.2 Specific Objectives

1. To assess the socio demographic characteristics of the postpartum mothers and their association with the symptoms of postpartum depression at Sinza and Magomeni Health facilities in Kinondoni Municipality.
2. To assess the birth outcome and the association to postpartum depressive symptoms.

2.5 Theoretical framework

The study used a theoretical framework adapted from the ecological model of health behavior (individual, family, community and environment), whereby an individual is able to help address stressing issues. The theoretical foundation approaches the health

promotion to increased mothers at a multilevel approach which allows for long-term changes focusing just upon the individual (Sallis & Owen, 2002). The factors contributing to the prevalence of depressive symptoms and risk factors among postpartum mothers are as follows;

1. Intrapersonal Factors: These are the factors which are mainly involving the individual such as prenatal and postnatal problems which affect the mother psychologically.

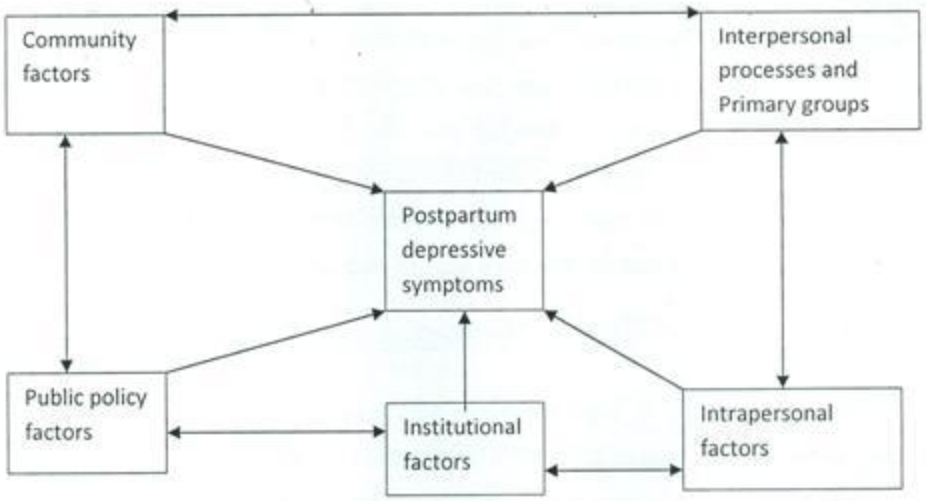
2. Interpersonal Processes and Primary Groups: These include issues which involve people surrounding the client and the conflicts and stresses arising in between which affect the mother psychologically. These could be family conflicts, friends and colleagues misunderstandings.

3. Institutional factors: These are factors which can affect the mother during treatment process such as hospital policies whereby the client has to pay the costs and does not have that money, or the hospital protocols from which the client has to wait for a long time in order to see the Physicians (Obstetricians and Pediatricians), and how different tests can be collected and the waiting time to get results.

4. Community Factors: These are the factors which occur in the community and affect the mother psychologically, such as the community's stigma towards the mother, especially after becoming mentally sick, negative community's perception towards the mother, lack of knowledge in caring for the postpartum mother and lack of support.

5. Public Policy: This may affect the mother especially for those living in remote areas where they can not access public services easily.

Theoretical Framework



CHAPTER THREE: METHODOLOGY

3.1 Study Design

The study employed a descriptive cross- sectional study due to its intended outcomes, where a post partum mother one month to one year after delivery, and has given consent attending MCH clinics were consequently enrolled and interviewed at one time to determine their prevalence of depressive symptoms based on the depression detection tool. A mother who withdrew herself from the study, and did not give consent was excluded. The study was conducted for a period of two months from May to June 2010.

3.2 Study Area

The study was conducted at Sinza and Magomeni Health facilities in Kinondoni Municipality as they are among the Health facilities which provide MCH services to postpartum mothers. Kinondoni Municipality is among three municipalities of Dar es Salaam City situated on the northern part of the city. This Municipal has an area of 531km2 with a total population of 1,083,913 females accounting to 538,938 and a growth rate of 5.4%. It is a semi-urban having different tribes with different culture. The Municipal has got 4 divisions and 27 wards; Sinza and Magomeni being among the wards (According to the National Census of 2002).

3.3 Study Population

The study enrolled postpartum mothers one month to one year after delivery who attended the MCH clinic aged 15 to 45 years (bearing age).

3.4 Sample Size

Participants were selected according to the inclusion and exclusion criteria.

The following formula was used to calculate the sample size which was adapted from the Epi_Info 6.04 program(Epi_Info, 2001).

$n = \frac{Nz^2p(1-p)}{d^2(N-1)+z^2p(1-p)}$

Whereas:

N= total population

Z= z-value =1.96 95% confidence level

n= sample size,

p= expected proportion of depressive symptoms among postpartum mothers

d = margin of error

m= design effect 1.5

$\frac{2000x1.96x1.96x16x84}{5x5x1999+1.96x1.96x16x84} = \frac{10326000}{55138} = 187.3$

=187x1.5=280.5

=281x10%=28.1

=281+28= 309

=309

Hence the sample size was **309**

Population calculated: Sinza 1200+800 from Magomeni=2000 total postpartum mothers who have attended MCH clinic for four months. The prevalence rate used in calculation is from Uganda.

3.5 Sampling Procedure

The sample was obtained through a non-probability convenient sampling as the postpartum mothers brought their infants for vaccinations at the time of data collection. After the mothers had weighed their babies, they were asked to enter into a separate room one by one where they were explained about the purpose of the study and the informed consent. Only postpartum mothers who are biological mothers were recruited for the study, while those who had brought the babies on behalf were not. Those who agreed to participate into the study signed the informed consent and continued with answering the questionnaire. Consequent enrolment was done as the women attended the clinic until the sample size was reached.

3.6 Data Collection

3.6.1 Data instruments

Data was obtained using the structured questionnaires prepared in English and translated in Swahili specifically developed for this study for the socio demographic data (Appendix 1) to determine the prevalence and assess the risk factors in association with depressive symptoms in postpartum mothers. The structured questionnaires were designed by the researcher to obtain demographic data such as; age, living place, type of house, family members, religion, educational level, occupation, income, marital status, type of marriage, relationship, previous episodes of depression, family history of depression. Risk factors such as; pregnancy, mode of delivery, full term/premature baby, gender of baby, birth weight, health status, breast feeding, number of children and death of a child were also included in the questionnaire.

Secondly, the General Health Questionnaire-12 (GHQ-12) was an instrument used to detect depressive symptoms. It was a validated instrument by the Ministry of Health and Social Welfare, and has already been used in previous studies in Tanzania from which has shown to be an effective instrument. The origin of the instrument is an English version (Goldberg & Williams, 1988). The twelve-item GHQ-12 was developed to screen for non-specific psychiatric morbidity. It has been widely validated and found to be reliable (Hankins, 2008). Its sensitivity was found to be 68% and specificity 70% in a study conducted by (Gureje & Obikoya, 1990) in Nigeria. However sensitivity 84.6% and specificity 89.3% was found in the study by (Bussel, Spitzi, & Demyttenaere, 2006).

Pre-testing: This was conducted to test the study tools at Magomeni Health Centre, where ten (10) postpartum mothers were interviewed. These mothers were not included in the study. During pre-testing it was found that some of the questions were not well constructed thus had to be modified and added.

Validity: The degree to which an instrument measures what is intended to measure such as the questionnaire must match with the research objectives used in the study. Also the structured questionnaires were checked by the psychiatrist and gynecologist to confirm its validity.

Reliability: This is the degree of consistency with which an instrument measures the same way each time it is used under the same condition with the same subjects. Data was collected through Kiswahili questionnaire in a standardized manner, and all participants were asked the same questions.

3.6.2 Table 1: Framework for data collection tools per study objectives

	Objective	Variable	Tool
1.	To assess the socio demographic characteristics of the postpartum mothers and their association with postpartum depressive symptoms.	Age, living place, type of house, family members, religion, educational level, occupation, income, marital status, type of marriage, relationship, previous episodes, family history of depression.	General Questionnaire and GHQ-12 instrument
2.	To assess the birth outcome and the association to postpartum depressive symptoms.	Pregnancy, mode of delivery, gender of baby, full term/premature baby, birth weight, health status, breastfeeding, number of children, death of a child and smoking.	General Questionnaire and GHQ-12 instrument

3.7 Ethical Consideration

The study was granted ethical clearance from the Senate Research and Publication Committee of Muhimbili University of Health and Allied Sciences (MUHAS). Permission to conduct the study was obtained from the Research Coordinator at Kinondoni Municipal, and then from the Medical Officers in- charge of Sinza and Magomeni Health facilities, and from individual clients, a written consent was obtained from each participant prior to enrolment. Information about the study was given to the postpartum mothers to ensure that they had the information needed to make an informed choice and a complete description of the aims of the study as well as benefits; risk and willingness to participate was included. Postpartum mothers who did not consent for participation were assured of the same quality of care as any other client. Only five

(5) mothers out of one hundred twenty four at Magomeni Health Centre and three (3) mothers out of one hundred eighty five at Sinza Health Centre making 2.6% refused to participate into the study. This percent is very small and did not affect the study. All participants' information was kept confidential (i.e. using code number instead of their names).

3.8 Data Processing and Analysis

Data collected was entered, cleaned and analyzed using SPSS Version 15. Univariate odds ratio were calculated by logistic regression to determine factors associated with depressive symptoms. The final statistically associated factors were analyzed by multiple regressions to give adjusted odds ratio and 95% confidence interval. Differences were considered statistically significant for the P-value less than 0.05.

3.9 Dissemination

The results will be disseminated to; the School of Nursing, MUHAS Directorate of Research and Publications, Postgraduate directorate Studies, the Ministry of Health and Social Welfare; and Kinondoni Municipal.

3.10 Limitation of the Study

Sample size was not large enough to allow adequate precision of estimated of factors associated with depressive symptoms. Another limitation was the use of the validated depression instrument which had optional answers to which limited some of the answers that were outside the options, thus affecting the study by limitation of exploration of other causes. Moreover, the standard diagnosis of depression was beyond the scope of this study even though the SONONA as a validated instrument was used. The study could only come up with the prevalence of depressive symptoms and not the definitive diagnosis. Additional qualitative data collection and DSM IV diagnosis would have been ideal but was beyond the scope of this investigator due to time limitation.

CHAPTER FOUR: RESULTS

A total of 309 postpartum mothers were recruited for the study of which 124 (40.1%) women were from Magomeni Health Centre and the rest were from Sinza Health Centre. Fifty three (17.2%) of postpartum mothers were found to have symptoms for postpartum depression (PPD) out of which 21 (16.9%) were from Magomeni and 32 (17.3%) from Sinza. The study revealed factors that were weakly associated with symptoms for postpartum depression such as higher parity than three children, miscarriage, death of a child, lack of breastfeeding, and poor relationship with husband and in-laws.

The twelve-item General Health Questionnaire (GHQ-12) instrument was used to detect depressive symptoms, whereby the cut-off point was 2.0. The lowest score was 1.33 and the highest score was 3.92, while the mean score being 1.76.

Table 2 below shows the socio-demographic characteristics of postpartum mothers. In regard to age groups the majority (52.8% (n=163) aged from 21- 30yrs and few 18.1% (n=5) from 31-45yrs. The study found that majority of mothers 72.2% (n=223) were living in rented houses, while only few 11.0% (n=34) living in self-owned houses. In terms of number of family members living in one house, the study found that mothers living in a house with family members 1-4 were 76.7% (n=237) which were the majority compared to others. A smaller number of mothers were found to be living in a house with family members 9-12 who were 4.2% (n=13). With respect to religion; 46.9% (n=145) were Christians while 53.1% (n=164) were Muslim, to which the difference is small. In respect to education level this study revealed that, majority of mothers 68.3% (n=211) had primary school education while few 4.9% (n=15) had informal education.

The current study found that 74.4% (n=230) were unemployed and few of them 12.3% (n=38) were self-employed. Regarding marital status, the results indicated that majority 53.4% (n=165) were married, 28.5% (n=88) cohabiting, while 17.2% (n=53) being single, and only

1.0% (n=3) was divorced. Mothers living in monogamy marriage were 51.1% (n=158) those in polygamy were 2.6% (n=8).

4.1 Table 2: Socio-demographic characteristics of postpartum mothers

Variable	n (309)
Age group:	
15-20yrs	90 (29.1%)
21-30yrs	163 (52.8%)
31-45yrs	5 (18.1%)
Type of living house:	
Rented	223 (72.2%)
Self-owned	34 (11.0%)
Family home	52 (16.8%)
Family members:	
1 - 4	237 (76.7%)
5 - 8	59 (19.1%)
9 -12	13 (4.2%)
Religion:	
Christians	145 (46.9%)
Muslims	164 (53.1%)
Education level:	
Informal	15 (4.9%)
Primary school education	211 (68.3%)
Secondary school education	75 (24.3%)
College/University	8 (2.6%)
Occupation:	
Employed	41 (13.3%)
Self-employed	38 (12.3%)
Unemployed	230 (74.4%)
Marital status:	
Single	53 (17.2%)
Married	165 (53.4%)
Divorced	3 (1.0%)
Cohabiting	88 (28.5%)
Type of Marriage:	
Monogamy	158 (51.1%)
Polygamy	8 (2.6%)

Table 3 below shows the overall prevalence of symptoms of postpartum depression to be 17.2%, 95% CI (13 - 21.4). The prevalence for Magomeni Health Centre is 16.9%, 95% CI (10.3- 23.5) and for Sinza Health Centre is 17.3%, 95% CI (11.9- 22.8).

4.2 Table 3: Prevalence of symptoms for Postpartum Depression between Magomeni and Sinza Health Centre

Factor	N(309)	Depressive symptoms		Unadjusted OR (95% CI)	P-value
		Yes	No		
Magomeni Health Centre	124 (100.0%)	21 (16.9%)	103 (83.1%)		
Sinza Health Centre	185 (100.0%)	32 (17.3%)	153 (82.7%)	2.3 (1.2- 4.1)	0.00
Total	309 (100.0%)	53 (17.2%)	256 (82.8%)		

Table 4 below shows the socio-demographic characteristics and association with postpartum depressive symptoms.The age ranged from 17 to 40 years, where the mean age was 25.9 years (SD 5.07). Age groups: 31- 45yrs, where 23.2% (n=13) were having symptomatic PPD and 21-30yrs 17.8% (n=29) were also having symptoms of PPD. In respect with religion, 16.6% (n=26) Christian women had symptoms for PPD, and this was almost similar to 16.5% (n=27) Muslim women who had these symptoms.

Of these women, 19.0% (n=40) had primary school education and 13.3% (n=2) were informally educated. The univariate analysis of these factors; age group, education level, occupation were not positively associated with depressive symptoms (OR < 1). Religion was not associated with PPD symptoms (OR=1) while the age group and level of education showed a weak protective effect (OR=0.5 and 0.6) but was not statistically significant (0.7). Unmarried single women were 1.9 times likely to suffer from PPD symptoms compared to married ones (OR=1.9) but again this was not statistically significant as the confidence interval included the null value 1. Of the married women in monogamous relationships were

1.4 times likely to have PPD symptoms compared to cohabiting women and this was also not statistically significant (p=0.3).

4.3 Table 4: Socio-demographic characteristics and association with postpartum depressive symptoms

Factor	N	Depressive symptoms		Unadjusted OR (95% CI)	P-value
		Yes	No		
Age Group:					
15-20yrs	90	11 (12.2%)	79 (87.8%)	ref	
21-30yrs	163	29 (17.8%)	134 (82.2%)	0.6 (0.3- 1.3)	0.28
31-45yrs	56	13 (23.3%)	43 (76.8%)	0.5 (0.4- 1.3)	0.1
Religion:					
Christian	145	26 (16.6%)	119 (82.1%)		
Muslim	164	27 (16.5%)	137 (83.5%)	1.1 (0.6-2.0)	0.8
Education:					
Informal	15	2 (13.3%)	13 (86.7%)	-	
Primary	211	40 (19.0%)	171 (81.0%)	ref	
Secondary/University	83	11 (13.3%)	72 (86.7%)	1.5 (0.7- 2.7)	0.3
Occupation:					
Self-employed	38	7 (18.4%)	31 (81.6%)	ref.	
Employed	41	5 (12.2%)	36 (87.8%)	1.6 (0.5-5.6)	0.54
Unemployed	230	41 (17.8%)	189 (82.2%)	1. (0.4-2.5)	1
Marital Status:	3	3 (100.0%)	0 (.0%)	-	
Divorce	53	13 (24.5%)	40 (75.5%)	ref	
Single	253	37 (69.8%)	216 (69.9%)	1.9 (0.9 – 3.9)	0.06
Married					
Type of marriage:					
Polygamy	8	2 (25.0%)	6 (75.0%)	-	
Monogamy	158	18 (11.4%)	140 (88.6%)	ref.	
Cohabiting	143	33 (23.1%)	110 (76.9%)	1.4 (0.5- 13.8)	0.3
Total	309 (100.0%)	53 (17.2%)	256 (82.8%)		

Table 5 below shows living conditions and association of PPD symptoms and shows that 19.2% (n=10) mothers were living in family homes, while 16.6% (n=37) were living in rented houses. Regarding family members per household, the category of 9-12 family members,

23.1% (n=3) were found to have PPD symptoms, and in the category of 1-4, 15.6% (n=37) were symptomatic. Among these factors, there was no association with PPD symptoms.

4.4 Table 5: Type of living house and number of family members with association to postpartum depressive symptoms

Factor	N(309)	Depressive symptoms		Unadjusted OR (95% CI)	P-value
		Yes	No		
Type of house					
Self owned	34	6 (17.6%)	28 (82.4%)	ref	
Family home	52	10 (19.2%)	42 (80.8%)	0.9(0.3- 2.8)	0.27
Rented	223	37 (16.6%)	186 (83.4%)	1.1(0.4-2.8)	0.31
No. of Family Members:					
9-12	13	3 (23.1%)	10 (76.9%)	-	-
5-8	59	13 (22.0%)	46 (78.0%)	ref	0.33
1-4	237	37 (15.6%)	200 (84.4%)	1.5 (0.8-3.2)	
Total	309(100.0%)	53 (17.2%)	256 (82.8%)		

Table 6 below shows the income of postpartum mothers, where 17.2% (n=5) were getting less than 100,000/= per month and 19.4% (n=7) being paid between 200,000/= and 300,000/= per month were found to have symptoms of PPD though there is no association with PPD when using Fisher's exact test and the P-value 0.29. Regarding support, 42.9% (n=12) from petty business and 12.8% (n=195) who got support from husband/partner had 2.6 times likely to have symptoms of PPD (OR=2.6; 95% CI; 0.7 -9.9) but this was not statistically significant.

4.5 Table 6: Income and support with association to postpartum depressive symptoms

Factor	N(309)	Depressive symptoms		Unadjusted OR (95%CI)	P-value
		Yes	No		
Income:					
≥300,000/=p.m.	12	0 (.0%)	12 (100.0%)	ref	
100,001/= to 200,000/=p.m.	36	7 (19.4%)	29 (80.6%)	*	0.17
<100,000/= p.m.	29	5 (17.2%)	24 (82.8%)	*	0.29
Not employed	232	41 (17.7%)	191 (82.3%)		
Support:					
Parents/relatives	12	4 (33.3%)	8 (66.7%)	-	
Petty business	28	12 (42.9%)	16 (57.1%)	ref	
Employed	74	12 (16.2%)	62 (83.8%)	0.7 (0.6-2.7)	0.73
Husband/partner	195	25 (12.8%)	170 (87.2%)	2.6 (0.7-9.9)	0.07
Total	309	53 (17.2%)	256 (82.8%)		

*Fisher exact test done and p-values given in the last column

Table 7 below shows the relationship of the postpartum mothers with the family members and their association with postpartum depressive symptoms. Mothers who had poor relationship with their husbands were 3.3 times likely to suffer from symptomatic PPD and this was statistically significant at P-value 0.00; while those with poor relationship with in-laws were 4.3 likely to have symptomatic PPD (OR=4.3 95% CI: 2.2 – 8.4) and this was also statistically significant. Other relationships were not significantly associated with PPD symptoms.

4.6 Table 7: Relationship of postpartum mothers and significant family members and their association with postpartum depressive symptoms

Factor	Depressive symptoms		Unadjusted OR (95% CI)	P-value
	Yes	No		
In-laws:				
Died/Don't know	6 (25.0%)	18 (75.0%)	-	
Poor	20 (36.4%)	35 (63.63%)		
Good	27 (11.7%)	203 (88.3%)	**4.3 (2.2 – 8.4)**	**0.000**
Husband: Poor	13 (36.1%)	23 (63.9%)		
Good	40 (14.7%)	233 (85.3%)	**3.3 (1.5 – 7.0)**	**0.003**

There were few mothers with family history of mental illness. The results indicated that 30.0% (n=6) of them had mental illness, while 16.3% (n=47) had no mental illness in the family.

Table 8 below shows whether the pregnancy was planned or unplanned and the mode of delivery in association to postpartum depressive symptoms. There were 22.9% (n=22) mothers with unplanned pregnancy and 14.6% (n=31) had planned pregnancy. Symptomatic PPD was not associated with unplanned pregnancy (Odds Ratio 1.7; 95% CI (0.9- 3.2) P-value 0.08) nor mode of delivery. 27.8% (n=15) mothers who had miscarried at one point in time were found to have PPD symptoms, OR=2.2 indicating twice likely that this was associated but weakly since the null value is included in the confidence interval.

4.9 Table 8: Pregnancy, mode of delivery and miscarriage with association to postpartum depressive symptoms

Factor	No(309)	Depressive symptoms		Unadjusted OR (95% CI)	P-value
		Yes	No		
Pregnancy:					
Unplanned/unwanted	96	22 (22.9%)	74 (77.1%)		
Planned/wanted	213	31 (14.6%)	182 (85.4%)	1.7 (0.9- 3.2)	0.08
Total	309(100.0%)	53 (17.2%)	256 (82.8%)		
Mode of delivery:					
LSCS	37	10 (27.0%)	27 (73.0%)		
SVD	272	43 (15.8%)	229 (84.2%)	2 (0.9, 4.4)	0.1
Total	309(100.0%)	53(17.2%)	256 (82.8%)		
Miscarriage:					
Yes	54	15 (27.8%)	39 (72.2%)		
No	255	38 (14.9%)	217 (85.1%)	**2.2 (1.1, 4.4)**	**0.03**
Total	309(100.0%)	53 (17.2%)	256 (82.8%)		

Table 9 below shows the birth outcome with association to symptomatic postpartum depression. The results were; 33.3% (n=2) mothers who had premature babies while 16.8% (n=51) had full term babies had symptoms of PPD. The study also found that 17.5% (n=30) mothers with male babies and 16.7% (n=23) with female babies had symptoms of PPD (Odds Ratio 0.9; 95% CI (0.5-1.7) P-value 0.08). 17.3% (n=23) families accepted gender of baby,

while 10.0% (n=1) did not. 23.3% (n=7) mothers had babies weighing below 2.5kg while 15.3% (n=9) had babies above 3.5kg who had symptoms of PPD (Odds Ratio 1.5, 95% CI (0.6- 3.8) P-value 0.44). In respect of number of children, mothers with 1-3 children were 15.7% (n=44) while those without symptoms of depression were 84.3% (n=237) and those with 4-5 children were 32.1% (n=9), this is considered as there is association with symptomatic PPD. Odds Ratio; 2.5, 95% CI (1.1-3.7) P-value 0.03. Women with symptoms of PPD due to loss of a child were 22.2% (n=8). Odds ratio was 2.6; 95% CI (1.1-6.0) P-value 0.03.This is considered as there is association. Lack of breastfeeding was significantly associated with symptoms of PPD (OR 5.0 95% CI: 1.9- 13.1).

4.10 Table 9: Birth outcome with association to postpartum depressive symptoms

Factor	No(309)	Depressive symptoms		Unadjusted OR (95% CI)	P-value
		Yes	No		
Premature Baby	6	2 (33.3%)	4 (66.7%)		
Term baby	303	51 (16.8%)	252 (83.2%)	2.5 (0.4- 13.9)	0.59
Gender of baby:					
Female	138	23 (16.7%)	115 (83.3%)	0.9 (0.5- 1.7)	0.08
Male	171	30 (17.5%)	141 (82.5%)		
Birth Weight:					
< 2.5kg	30	7 (23.3%)	23 (76.7%)	ref.	
2.6-3.5kg	230	37 (16.8%)	183 (83.2%)	1.5 (0.6- 3.8)	0.44
≥ 3.5kg	59	9 (15.3%)	50 (84.7%)	1.7 (0.5- 5.1)	0.39
Health Status:					
Sick	8	2 (28.6%)	6 (71.5%)	1.6 (0.3- 8.3)	0.63
Good	301	51 (16.9%)	250 (83.1%)		
Breastfeeding:					
No	19	9 (47.4%)	10 (52.6%)		
Yes	290	44 (15.2%)	246 (84.8%)	**5.0 (1.9- 13.1)**	**0.00**
No. of children:					
4-5	28	9 (32.1%)	19 (67.9%)		
1-3	281	44 (15.7%)	237 (84.3%)	**2.5 (1.1-3.7)**	**0.03**
Died child:					
Yes	36	8 (77.8%)	28 (77.8%)		
No	273	45 (16.5%)	228 (83.5%)	**2.6 (1.1- 6.0)**	**0.03**
Total	309 (100.0%)	53 (17.2%)	256 (82.8%)		

CHAPTER FIVE: DISCUSSION

The overall prevalence of postpartum depressive symptoms in this study was found to be 17.2%; 95% CI (13 - 21.4). This result is higher than the previous findings of the studies done in Uganda-East Africa. 10% (Cox, 1983) and 6.1% reported by (Nakku et al., 2006) but almost similar to 16% study done by (Assael, Nambooze, German, & Bennet, 1972). The prevalence for Magomeni Health Centre was 16.9%, 95% CI (10.3- 23.5) and for Sinza Health Centre is 17.3%, 95% CI (11.9- 22.8) and these were not very different though women were twice likely to suffer from PPD compared to those in Sinza. Urban areas have always been associated with higher levels of stress compared to rural areas and it is not certain that these would be the reason for the study findings since both areas are found within urban areas. Most of the depressed mothers (73.6%) were from semi-urban areas. The Odds ratio was 2.3, that is, the odds of Magomeni women is twice likely compared to women living in Sinza. P-value 0.00 is statistically significant. Magomeni is allocated few kilometers away from the city centre, while Sinza is further from the city centre and urban areas are known to be associated with more stress compared with sub-urban areas (Horowitz, McKay, & Marshall, 2005).

Higher prevalence had been found in other African countries such as Morocco (18.7%) and Lebanon (21%)(Agoub, 2005; Chaaya et al., 2002), but these were reports of earlier decades and it is not certain that the rates would be similar to the one found in this study. However, findings of this study indicate that PPD is a considerable problem that needs attention, though there are few published studies to support these findings. One study on postpartum psychosis and co-morbidity conditions was conducted at Muhimbili National Hospital (Ndosi & Mtawali, 2002) where the prevalence was 3.2 per 1000 births. The reason for this difference may be due to study methodology, different instruments used in detecting depression and the sample size.

The socio-demographic factors associated with the symptoms of postpartum depression as shown in **Table 4** were as follows; Age with regard to this, the age group between 31-45 years (23.2%) was more affected, which might be due to increased

responsibilities, though there was no association with postpartum depression. This is in consistent with the previous study (Agoub, 2005) done in Morocco. Most of the participants (98.1%) were from Kinondoni District while only 1.9% was from Temeke District. The current study found that (19.2%) of the postpartum mothers were living in family homes with their family members and were most affected. This might be due to the extended family conflicts and misunderstandings. Most of the mothers were living in rented houses or rooms, while few of them had self owned/inherited homes. There was no significant association with postpartum depression.

Regarding religion, Christians were affected by (16.6%) which was almost the same percentage as Muslims who were (16.5%), though there was no association to postpartum depression with religious affiliation (Agoub, 2005). Most of the postpartum mothers were cohabiting which might have contributed to the development of symptoms of PPD due to uncertainty of their future.

With regard to education level, the primary school education leavers were (19.0%) and the majority of mothers fall under this category. They are the ones who were more affected, which could be due to their education level, possibly because they lack adequate knowledge and skills needed for parenting but there was no significant association with symptomatic postpartum depression. This was in consistent with the previous studies (Agoub, 2005; Da Costa, Larouche, Drista, & Brender, 2000).

Occupation wise, the current study revealed that 18.4% self-employed mothers were the most affected than the employed and the non- employed, which might be due to insecurity of life though there was no association with postpartum depression. In addition, the study found that mothers who were getting between Tsh.100, 001/= to 200,000/= per month, 19.4% were more affected **(Table 6)**. This might be due to expectations of the family, responsibilities and over expenditure resulting to insufficient funds to fulfill their needs. However, there was no significant association with postpartum depression and this is similar with other studies by (Agoub, 2005; Da Costa et al., 2000). Poor support from husband/ partner, parents or relatives from whom mothers had to run petty business were affected which might be due to uncertainty

of business and dissatisfaction with the support. This finding is in consistent with the previous studies (Agoub, 2005; Nakku et al., 2006). Though 87.2% of non-depressive mothers were getting support from husband/partner, this indicates that they were satisfied.

This study also found that marital status was not significantly associated with postpartum depressive symptoms, although single and cohabiting mothers were more affected than married mothers. 88.6% were non-depressive monogamy mothers which are a high percentage indicating that women are happy with monogamy marriage than polygamy.

Poor relationship of the postpartum mothers with significant family members was significantly associated with postpartum depression. Relationships with in-laws was significantly associated with symptomatic PPD (OR =4.3 95%CI; 2.2 – 8.4). The specific reasons for this concept is beyond the scope of this study but it is known that in most African marital relationships, mother in laws have strong influence in their son's marriage. This influence is more pronounced when there is a birth or other special event. The concept can also be explained by the cultural predisposition of mother in-laws having caring responsibilities for their in laws once they give birth and the likely hood of development of conflicts may be higher compared to other times. This is supported by (Klainin & Arthur, 2009) who reported this as a potential risk factor. Poor relationship with their husbands was highly associated with symptoms of PPD (OR=3.3; 95%CI: 1.5 – 7.0) with P-value 0.003. This is consistent and expected since the husband is an important person for any woman and the likelihood of influencing their mood and affect at this point in time is more pronounced. The study fell short of delineating what are the main causes of the poor relationship but marital conflicts might be a major problem The findings above are consistent with other studies in Africa and Asia (Chaaya et al., 2002; Ho-Yen et al., 2006; Klainin & Arthur, 2009; Nakku et al., 2006) .

There was no significant association between unplanned pregnancies (22.7%), nor mode of delivery with postpartum depressive symptoms **(Table 8)**. Birth outcomes are important factors that influence the mood and affect of women after delivery. It was found that miscarriage (27.8%) was significantly associated with postpartum depression. This is in

agreement with the previous study by (Ndosi & Mtawali, 2002). It could be due to the expectations of becoming a mother but ending up with losing the baby. Again higher number of children, death of a child and lack of breastfeeding, was significantly associated with postpartum depression. However, low birth weight was not, and this can be due to the fact that in poor income resource countries such as Tanzania, low birth weight babies though a health problem is not viewed negatively by the local society, it could be so because such an event is either common or death of newborn or miscarriage is considered a more profound loss than a low weight live baby. Women who do not breastfeed are more likely not to have bonded appropriately with their children and it is likely that these women would feel inadequate or feel cheated and hence more likely to suffer from depression The findings above are consistent with other studies in Africa and Asia (Chaaya et al., 2002; Ho-Yen et al., 2006; Klainin & Arthur, 2009; Nakku et al., 2006). More over, breastfeeding is the norm in a Tanzanian society and if is not done, it is due to some serious health problems for the mother and most likely, these are women who are HIV positive, and in such a case, they are more prone to PPD than other healthier women. The findings above are consistent with other studies (UNICEF/UNAIDS/WHO/UNFPA, 2007; WHO, 2006) On multivariate analysis, factors associated with PPD were; poor relationship with in laws, husband, miscarriage, death of a child, lack of breastfeeding and a higher number of children.

CHAPTER SIX: CONCLUSSION AND RECOMMENDATIONS

6.1 Conclusion

Findings of this study indicate that PPD is a considerable problem that needs attention. It was found that there are weak risk factors associated with the development of symptoms of postpartum depression such as poor relationship with husband and in laws, miscarriages, death of a child, lack of breastfeeding and a higher number of children. However, detection of postpartum depression is key in assisting the postpartum mothers. This should begin during prenatal period. Education should be given starting at the family members, community level and the health care professionals on symptoms of postpartum depression particularly at early stage. Prevention of depression for nursing mothers helps not only the psychological well-being of the mothers but also the entire family.

Childbirth is a very emotional and sometimes traumatic event for women, their partners and families. Postpartum depression affects many women and its significance must not be under estimated. All new mothers need education, support, encouragement and guidance when going through this period of change and adjustment. If women develop symptoms of postpartum depression, it is important that it is diagnosed so that they receive the support and treatment they need to overcome it.

6.2 Recommendations

1. Postpartum depression is under-researched and under-reported especially in developing countries such as Tanzania therefore, priority should be given.
2. Health professionals working at primary health care levels should be trained how to identify early signs and symptoms of depression so that they can refer for proper management.
3. Husbands should accompany their wives during antenatal and postnatal visits an aspect which may help to prevent mothers from developing symptoms of PPD.

4. Mother who has lost a baby needs to be counseled before being discharged from the hospital in order to prevent falling into symptoms of depression including follow ups.
5. Marriage stability on married couples is important.
6. Couples should maintain good relationship with in laws (extended family members), that should observe respect, unconditional love and empathy between each other.
7. Allocation of mental health providers should be based according to their profession.
8. The Government should consider availability of drugs (Antidepressants) at all health care levels.
9. Prospective studies are needed in child bearing mothers within communities with bigger sample size to obtain a representative prevalence rate of postpartum depression as most of them never report to health facilities.

6.3 Implication for Nursing Practice

Postpartum depression is prevalent in developed and developing countries, mainly being more prevalent in developing countries. It is important to the mental health practitioners that the results of this study, will help to make them take appropriate measures in providing effective interventions at appropriate time, before the problem becomes complicated by referring the identified mothers to specialists for earlier management. Secondly, the added information to the relevant authorities will help to train more mental health professionals which is important, so that screening of PPD symptoms begins at primary health care level, where early identification of risk factors, treatment of those showing to have symptoms of PPD, routine follow-ups and home visits whenever possible to prevent relapses and detection of side effects of drugs is carried out appropriately.

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