DEPRESSION AMONG MOTHERS WITH HIGH-RISK PREGNANCY AT MATERNITY HOSPITAL KUALA LUMPUR

DR. NORASHIKIN BINTI KHAIRUDDIN

FACULTY OF MEDICINE
UNIVERSITY OF MALAYA
KUALA LUMPUR

2017

DEPRESSION AMONG MOTHERS WITH HIGH-RISK PREGNANCY AT MATERNITY HOSPITAL KUALA LUMPUR

DR. NORASHIKIN BINTI KHAIRUDDIN

DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PSYCHOLOGICAL MEDICINE

FACULTY OF MEDICINE
UNIVERISTY OF MALAYA
KUALA LUMPUR

2017

CERTIFICATION

This is to certify that the candidate, Dr. Norashikin binti Khairuddin, had carried out this research project, and to the best of my knowledge, this dissertation is entirely her work.

DR. AMARPREET KAUR
PAKAR PERUNDING / PENSYARAH
PUSAT PERUBATAN UNIVERSITI MALAYA
NO. PENDAFTARAN MPM : 45576

DR. AMARPREET KAUR A/P AMAR SINGH

Senior Lecturer and Psychiatrist,

Department of Psychological Medicine,

University of Malaya.

CERTIFICATION

This is to certify that the candidate, Dr. Norashikin binti Khairuddin, had carried out this research project, and to the best of my knowledge, this dissertation is entirely her work.

.....

DR. UMI ADZLIN BINTI SILIM

Consultation-Liaison Psychiatrist,

Department of Psychiatry and Mental Health,

Hospital Kuala Lumpur.

UNIVERSITI MALAYA

ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: DR. NORASHIKIN BINTI KHAIRUDDIN (I.C/Passport No: [redacted])

Registration/Matric No: MGC 100008

Name of Degree: MASTER OF PSYCHOLOGICAL MEDICINE

Title of Project Paper/Research Report/Dissertation/Thesis ("this Work"):

"Depression Among Mothers With High-Risk Pregnancy At Maternity Hospital Kuala Lumpur"

Field of Study:

I do solemnly and sincerely declare that:

(1) I am the sole author/writer of this Work;
(2) This Work is original;
(3) Any use of any work in which copyright exists was done by way of fair dealing and for permitted purposes and any excerpt or extract from, or reference to or reproduction of any copyright work has been disclosed expressly and sufficiently and the title of the Work and its authorship have been acknowledged in this Work;
(4) I do not have any actual knowledge nor do I ought reasonably to know that the making of this work constitutes an infringement of any copyright work;
(5) I hereby assign all and every rights in the copyright to this Work to the University of Malaya ("UM"), who henceforth shall be owner of the copyright in this Work and that any reproduction or use in any form or by any means whatsoever is prohibited without the written consent of UM having been first had and obtained;
(6) I am fully aware that if in the course of making this Work I have infringed any copyright whether intentionally or otherwise, I may be subject to legal action or any other action as may be determined by UM.

[redacted]

Date 3/8/2016

Subscribed and solemnly declared before,

[redacted]

Witness's Signature

Date 3/8/2016

Name: DR. AMARPREET KAUR
Designation: PAKAR PERUNDING / PENSYARAH
PUSAT PERUBATAN UNIVERSITI MALAYA
NO. PENDAFTARAN MPM : 45576

UNIVERSITI MALAYA

ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: DR. NORASHIKIN BINTI KHAIRUDDIN (I.C/Passport No: [redacted])

Registration/Matric No: MGC 100008

Name of Degree: MASTER OF PSYCHOLOGICAL MEDICINE

Title of Project Paper/Research Report/Dissertation/Thesis ("this Work"):

"Depression Among Mothers With High-Risk Pregnancy At Maternity Hospital Kuala Lumpur"

Field of Study:

I do solemnly and sincerely declare that:

(1) I am the sole author/writer of this Work;
(2) This Work is original;
(3) Any use of any work in which copyright exists was done by way of fair dealing and for permitted purposes and any excerpt or extract from, or reference to or reproduction of any copyright work has been disclosed expressly and sufficiently and the title of the Work and its authorship have been acknowledged in this Work;
(4) I do not have any actual knowledge nor do I ought reasonably to know that the making of this work constitutes an infringement of any copyright work;
(5) I hereby assign all and every rights in the copyright to this Work to the University of Malaya ("UM"), who henceforth shall be owner of the copyright in this Work and that any reproduction or use in any form or by any means whatsoever is prohibited without the written consent of UM having been first had and obtained;
(6) I am fully aware that if in the course of making this Work I have infringed any copyright whether intentionally or otherwise, I may be subject to legal action or any other action as may be determined by UM.

[redacted]

Candidate's Signature

Date 3/8/2016

Subscribed and solemnly declared before,

[redacted]

Witness's Signature

Date 3/8/2016

Name:
Designation: DR. UMI ADZLIN SILIM
No. Pendaftaran Penuh MMC: 34509
PAKAR PSIKIATRI

ABSTRACT

DEPRESSION AMONG MOTHERS WITH HIGH-RISK PREGNANCY AT MATERNITY HOSPITAL KUALA LUMPUR

This study explored the characteristics of mothers with a high-risk pregnancy, the rate of depression among them and examined the relationship between various factors and depression in a high-risk pregnancy. The definition of a high-risk pregnancy in this study is presence of any medical or obstetrics risk factors which can cause an adverse outcome or outcomes to the mother or fetus or both.

A total of 208 outpatients with a high-risk pregnancy at Maternity Hospital Kuala Lumpur in April 2016 and May 2016 had participated in this study. This is a cross-sectional study using convenience sampling method. Participants completed a questionnaire containing sociodemographic data and clinical characteristics and their social support was measured using Oslo-3 Social Support Scale (OSS-3). They were screened for depression using Edinburgh Postnatal Depression Scale (EPDS) which was also validated for screening for antenatal depression. Those who scored 10 or more in EPDS or had past psychiatric illness were interviewed using Mini International Neuropsychiatric Interview (M.I.N.I.) to establish the diagnosis of major depressive disorder.

The rate of major depressive disorder among mothers with a high-risk pregnancy in this study was 8.7% (n=18). After bivariate analysis, participants who had poor social support (p-value = 0.008) and having pre-existing medical condition before pregnancy (p-value = 0.006) had more depressive symptoms compared to others based on EPDS. All participants with past psychiatric illness had major depressive disorder based on M.I.N.I. (p-value <0.001). Participants with low monthly household income and middle

monthly household income were more depressed compared to participants with high monthly household income based on M.I.N.I. (p-value = 0.024). Participants who had poor social support were more depressed compared to participants who had intermediate and strong social support based on M.I.N.I. (p-value <0.001). After multivariate analysis, participants with poor social support had more depressive symptoms based on EPDS and were more depressed based on M.I.N.I.; and participants with low and middle monthly household income were more depressed based on M.I.N.I.

As conclusion, early identification of patients with antenatal depression can facilitate the prevention, assessment and treatment. Depression in pregnancy is one of the risk factors for developing various adverse outcomes in pregnancy such as pre-eclampsia, preterm delivery and intrauterine growth restriction and also during the postpartum period such as postpartum depression and impairment in parenting quality and effectiveness. All high-risk pregnant mothers who have poor social support with low and middle monthly household income in Malaysia should be screened for depression as social support and household income were found to be significant in this study in multivariate analysis. The assessment of their social support can be done by using OSS-3. For the assessment of depression, EPDS can be used as a screening tool in all clinics and hospitals in Malaysia as it has high sensitivity and specificity in both English and Malay versions, easy to use and can be completed in a few minutes.

ABSTRAK

KEMURUNGAN DI KALANGAN IBU YANG MEMPUNYAI KEHAMILAN BERISIKO TINGGI DI HOSPITAL BERSALIN KUALA LUMPUR

Penyelidikan ini mengkaji perwatakan-perwatakan ibu yang mempunyai kehamilan berisiko tinggi, kelaziman kemurungan di kalangan ibu yang mempunyai kehamilan berisiko tinggi dan mengkaji hubungan antara pelbagai faktor dengan kemurungan di kalangan ibu yang mempunyai kehamilan berisiko tinggi. Definisi bagi kehamilan berisiko tinggi untuk penyelidikan ini adalah kehadiran faktor atau faktor-faktor yang boleh memberi kesan yang tidak baik kepada ibu yang mengandung atau bayi yang dikandung atau kedua-duanya sekali.

Sebanyak 208 orang pesakit luar yang mempunyai kehamilan berisiko tinggi di Hospital Bersalin Kuala Lumpur pada bulan April 2016 dan Mei 2016 telah mengambil bahagian dalam penyelidikan ini. Penyelidikan ini adalah penyelidikan secara 'cross-sectional' yang menggunakan kaedah pengambilan sampel secara mudah atau 'convenience.' Peserta-peserta telah menjawab soalan-soalan berkaitan dengan data sosiodemografik dan sejarah klinikal dan tahap sokongan sosial mereka telah diukur menggunakan 'Oslo-3 Social Support Scale' (OSS-3). Mereka juga telah disaring menggunakan 'Edinburgh Postnatal Depression Scale' (EPDS) dan mereka yang mendapat markah 10 dan ke atas dalam saringan 'EPDS' atau mempunyai sejarah penyakit psikiatri telah ditemubual menggunakan 'Mini International Neuropsychiatric Interview' (M.I.N.I.) untuk mengetahui sama ada mereka mengalami kemurungan ataupun tidak.

Didapati bahawa kelaziman bagi mendapat kemurungan di kalangan ibu yang mempunyai kehamilan berisiko tinggi daripada penyelidikan ini adalah 8.7% (n=18).

Selepas analisis ‘bivariate’ dibuat, peserta yang mempunyai sokongan sosial yang lemah (‘p-value’ = 0.008) dan mereka yang mempunyai penyakit perubatan sebelum mengandung (‘p-value’ = 0.006) mempunyai lebih banyak gejala-gejala kemurungan berbanding dengan peserta-peserta lain berdasarkan ‘EPDS.’ Kesemua peserta yang mempunyai sejarah penyakit psikiatri didapati mengalami kemurungan berdasarkan ‘M.I.N.I.’ (‘p-value’ <0.001). Peserta yang mempunyai pendapatan bulanan isi rumah yang rendah dan sederhana adalah lebih murung berbanding peserta yang mempunyai pendapatan bulanan isi rumah yang tinggi berdasarkan ‘M.I.N.I.’ (‘p-value’ = 0.024). Peserta yang mempunyai sokongan sosial yang lemah adalah lebih murung berbanding dengan peserta yang mempunyai sokongan sosial yang sederhana dan kuat (‘p-value’ <0.001). Selepas analisis ‘multivariate’ dibuat, didapati bahawa sokongan sosial merupakan satu-satunya faktor yang penting yang bermaksud peserta yang mempunyai sokongan sosial yang lemah mengalami lebih banyak gejala-gejala kemurungan berbanding dengan peserta-peserta lain.

Secara kesimpulannya, pesakit yang mengalami kemurungan semasa mengandung yang dapat dikenalpasti secara lebih awal dapat memudahkan proses pencegahan, penilaian dan rawatan. Kemurungan semasa mengandung merupakan salah satu faktor risiko bagi mendapat pelbagai kesan yang tidak diingini semasa mengandung seperti ‘pre-eclampsia,’ kelahiran pramatang, perkembangan janin yang terbantut dan kesan selepas bersalin seperti kemurungan selepas bersalin dan pengurangan kualiti dan keberkesanan dalam keibubapaan. Semua ibu yang mempunyai kehamilan berisiko tinggi yang juga mempunyai sokongan sosial yang lemah dan pendapatan bulanan isi rumah yang rendah dan sederhana di Malaysia perlu disaring bagi kemurungan kerana sokongan sosial dan pendapatan bulanan isi rumah merupakan faktor-faktor yang penting selepas analisis ‘multivariate’ dibuat. Penilaian bagi sokongan sosial boleh dibuat sama dengan menggunakan ‘OSS-3.’ Bagi saringan kemurungan, ‘EPDS’ boleh digunakan di

semua klinik dan hospital di Malaysia kerana ia mempunyai sensitiviti dan spesifikasi yang tinggi dalam kedua-dua versi Bahasa Inggeris dan Bahasa Malaysia, mudah untuk digunakan dan mengambil masa hanya beberapa minit.

ACKNOWLEDGEMENTS

I would like to express my appreciation and gratitude to both of my study supervisors, Dr. Amarpreet Kaur A/P Amar Singh and Dr. Umi Adzlin binti Silim for their supervision, suggestions and invaluable guidance in the completion of this study.

I would also like to thank Dr. Noraihan binti Mohd Nordin (Head of Department of Obstetrics and Gynaecology, Hospital Kuala Lumpur) for her kind permission to allow me to conduct the study in the Maternity Hospital Kuala Lumpur. I would like to thank all the doctors, nurses and staffs in Department of Obstetrics and Gynaecology, Hospital Kuala Lumpur, especially those who work at the Combined Clinic, GDM Clinic, Antenatal Clinic and Maternal Fetal Medicine Clinic for their kindness and assistance during my data collection there.

I would like to thank Assoc. Prof. Dr. Ng Chong Guan for his guidance and help during my data analysis. I am indebted to all the participants who consented and participated in this study. Most importantly, I would like to thank my dear beloved husband and son, for which without the support given by them, I would not be able to complete this study successfully.

TABLE OF CONTENTS

Page

Page

Page

Page

LIST OF TABLES

Page

LIST OF SYMBOLS AND ABBREVIATIONS

95% CI = 95% Confidence interval

EPDS = Edinburgh Postnatal Depression Scale

GDM = Gestational diabetes mellitus

M.I.N.I. = Mini International Neuropsychiatric Interview

OR = Odds ratio

OSS-3 = Oslo-3 Social Support Scale

RM = Ringgit Malaysia

SD = Standard deviation

S.E. = Standard error

LIST OF APPENDICES

Page

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Depression has been shown to be one of the important reasons for the disability and morbidity in the developing countries (Patel et al, 2001). Depressive symptoms are mainly seen among women at the age of 20 to 40 years which are the range of reproductive age (Marcus et al, 2009). Nearly 40% of women in the obstetric clinic setting in the United States were identified with a mental health disorder, most commonly depression (Smith et al, 2004 & Kelly et al, 2001).

Antenatal depression and postnatal depression share the same risk factors such as poor social support, particularly from the partner (O'Hara & Swain, 1996 & Gjerdingen et al, 1991), and a family or personal history of depression (O'Hara & Swain, 1996). Depression has been shown to be associated with hormonal changes (Fan et al, 2009), social support and life events (O'Hara, 1986) and demographic factors (Gotlib et al, 1989).

There are certain groups of women who are more vulnerable to psychological problems during pregnancy. These groups include adolescents, substance abusers, women with history of psychiatric disorders (e.g., depression, bipolar disorder, schizophrenia), women with history of previous unfortunate pregnancy outcomes, women with multiple pregnancies, women with medical problems and women with history of postpartum depression or psychosis (Zager, 2009).

Depression during pregnancy was found to be associated with increased risk of developing adverse outcomes in pregnancy such as pre-eclampsia (Kurki et al, 2002), preterm delivery (Elsenbruch et al, 2007; Wisner et al, 2009 & Fransson et al, 2011), and fetal growth restriction (Yonkers et al, 2009). Meta-analysis and other studies found that depression was one of the strongest risk factors for increasing the chance for developing

post-partum depression (Robertson et al, 2004). Antenatal depression can give negative impact to infant (Beydoun & Saftlas, 2008; Van den Bergh et al, 2005; Buss et al, 2010; Forman et al, 2007 & Logsdon et al, 2006) and child development (Hayes et al, 2013).

1.2 RATIONALE OF STUDY

The prevalence of major depressive disorder among pregnant women who attended the Antenatal Clinic at Hospital Tuanku Bainun, Ipoh was 8.6% based on the Mini International Neuropsychiatric Interview (M.I.N.I.) (Fadzil et al, 2013). A study conducted at the maternal and child health clinics in Sabah, Malaysia showed a prevalence of 13.8% (Mohamad Yusuff et al, 2015) for antenatal depressive symptoms based on the Edinburgh Postnatal Depression Scale (EPDS). Another study conducted at the Antenatal Clinic in Science University Hospital, Malaysia showed a prevalence of 25.7% for depressive symptoms in the second and third trimester of pregnancy based on the Edinburgh Postnatal Depression Scale (EPDS) (Mirsanjari et al, 2012).

In view of a high prevalence rate of antenatal depression in Malaysia based on a previous study (Fadzil et al, 2013) and high prevalence rates for antenatal depressive symptoms in Malaysia based on the previous studies (Mohamad Yusuf et al, 2015 & Mirsanjari et al, 2012), this study aims to determine the prevalence of antenatal depression among the mothers with a high-risk pregnancy in outpatient units at Maternity Hospital Kuala Lumpur. This study also hopes to explore the relationship between the depression and the sociodemographic profiles and clinical characteristics among the mothers with a high-risk pregnancy, and also to explore the relationship between the medical and obstetric risk factors and depression.

Most of the women with a high-risk pregnancy had a more severe level of depression based on a study done in an obstetric ward in National University Hospital, Malaysia (Raja Lexshimi, 2007). There has never been any study done in Malaysia

regarding the prevalence of depression among the high-risk obstetric outpatients. A high-risk pregnancy can influence the expected changes of a normal pregnancy therefore it can intensify the experienced emotions of the mother, such as the fear of losing the baby or of the harm potentially done to her own's health (Juhas et al, 2014). A high-risk pregnancy also can aggravate psychological, biological and social suffering (Humphreys & Lee, 2009). Women with antenatal depression also had more incidences of prenatal, perinatal and postnatal complications (Ware et al, 1998). Therefore, this study attempts to look into the relationship between the depression and various associated factors.

1.3 OBJECTIVE

1.3.1 GENERAL OBJECTIVE

To study the characteristics of mothers with a high-risk pregnancy who attend the Maternal Fetal Medicine Clinic, Antenatal Clinic, Combined Clinic and GDM Clinic at Maternity Hospital Kuala Lumpur.

1.3.2 SPECIFIC OBJECTIVES

1) To determine the rate of depression among mothers with a high-risk pregnancy who attend the Maternal Fetal Medicine Clinic, Antenatal Clinic, Combined Clinic and GDM Clinic at Maternity Hospital Kuala Lumpur.
2) To examine the relationship between depression and sociodemographic profiles of mothers with a high-risk pregnancy.
3) To examine the relationship between depression and psychiatric history of mothers with a high-risk pregnancy.
4) To examine the relationship between depression and family history of psychiatric illness of mothers with a high-risk pregnancy.

5) To examine the relationship between depression and social support of mothers with a high-risk pregnancy.
6) To examine the relationship between depression and pre-existing medical conditions of mothers with a high-risk pregnancy.
7) To examine the relationship between depression and pregnancy-related conditions of mothers with a high-risk pregnancy.
8) To examine the relationship between depression and fetal-related conditions of mothers with a high-risk pregnancy.

CHAPTER TWO: LITERATURE REVIEW

2.1 RATE OF DEPRESSION IN PREGNANCY

2.1.1 RATE OF ANTENATAL DEPRESSION IN GENERAL

The prevalence of depression for each trimester during pregnancy according to a systematic review done by Bennett et al in 2004 were 7.4% in the first trimester, 12.8% in the second trimester and 12.0% in the third trimester (Bennett et al, 2004). This study used Beck Depression Inventory and Edinburgh Postnatal Depression Scale as screening instruments and structured interviews (Bennet et al, 2004). The prevalence of antenatal depression among pregnant women attending antenatal clinics in Abeokuta North Local Government Area, Nigeria was 24.5 % using Edinburgh Postnatal Depression Scale (EPDS) as screening tool. (Okechukwu & IkeOluwapo, 2016).

The prevalence of antenatal depression in coastal South India was 16.3%. This study used standard interview and diagnostic criteria (Clinical Interview Schedule–Revised (CIS-R)) to identify depression (George et al, 2015). A study in Thailand showed a prevalence of depressive moods (scores of 10 or more on the EPDS) was 20.5% during pregnancy (Limlomwongse & Liabsuetrakul, 2006).

In a tertiary government hospital setting in Ipoh, Malaysia, the prevalence of major depressive disorder among the antenatal outpatients was 8.6% (Fadzil et al, 2013). This study used the Hospital Anxiety and Depression Scale (HADS) and Mini International Neuropsychiatric Interview (M.I.N.I.). A study conducted at the maternal and child health clinics in Sabah, Malaysia showed a prevalence of 13.8% for antenatal depressive symptoms (Mohamad Yusuff et al, 2015). This study used the validated Malay version of the Edinburgh Postnatal Depression Scale to screen for depressive symptoms

(Mohamad Yusuff et al, 2015). The prevalence of antenatal depressive symptoms during the second and third trimester of pregnancy in a study done in the university hospital setting in Kelantan, Malaysia was 25.7% (Mirsanjari et al, 2012). This study also used the Malay version of the Edinburgh Postnatal Depression Scale to screen for depressive symptoms.

2.1.2 RATE OF ANTENATAL DEPRESSION IN HIGH-RISK PREGNANCY

A study done in a public university hospital in Brazil showed that 9% of their high-risk obstetric outpatients had major depression and 13% of their high-risk obstetric inpatients had major depression (Juhas et al, 2014). The Brazilian version of the Primary Care Evaluation of Mental Disorders was used to evaluate the diagnosis of major depressive disorder in this study (Juhas et al, 2014).

The prevalence of antenatal depression among pregnant women hospitalized in a high-risk pregnancy unit in Greece was 28%. This study used Edinburgh Postnatal Depression Scale (EPDS) to assess depressive symptoms on admission and a cut-off score of ≥13 in EPDS was considered as an indicative of depression (Dagklis et al, 2016). In a study done in Shanghai, China, the prevalence of major depression in high-risk Chinese pregnant women was 8.3%. This study used Chinese version of the Postpartum Depression Screen Scale (PDSS) (Zhao et al, 2016).

A study regarding the severity of anxiety and depression among high-risk pregnant women in an obstetric ward in Hospital Universiti Kebangsaan Malaysia showed 44.7% of the patients had mild depression and 55.3% of them had severe depression (Raja Lexshimi et al, 2007). This study used the Hospital Anxiety and Depression Scale (HADS) to measure the level of anxiety and depression (Raja Lexshimi et al, 2007).

2.2 SOCIODEMOGRAPHIC AND CLINICAL CHARACTERISTICS ASSOCIATED WITH DEPRESSION IN PREGNANCY

A study showed that women who were feeling happy with their pregnancy and women with a planned pregnancy were less likely to suffer from antenatal depressive symptoms (Mohamad Yusuff et al, 2015). The same study also showed that women who took oral contraceptives before pregnancy had an increased risk of having antenatal depressive symptoms (Mohamad Yusuff et al, 2015).

A study showed that there were significant associations between the levels of depressive symptoms and age, gravidity, parity and monthly income (Mirsanjari et al, 2012). Regarding the same study, mothers with a younger age, who had fewer financial resources, less number of parities and less number of pregnancies showed significant differences of depressive symptoms (Mirsanjari et al, 2012). The same study also concluded that there were reducing risks of having antenatal depressive symptoms with increasing monthly income (Mirsanjari et al, 2012).

There are several factors associated with depression in high-risk pregnancy (Sloan & Kirsh, 2008) such as advanced maternal age, low education level, lack of partner or stable relationship, not being primiparous, not having a planned pregnancy for current pregnancy, previous history of psychiatric treatment, tobacco and / or alcohol use during pregnancy, serious physical impairment and informal work (Blom et al, 2010; Benute et al, 2011 & Benute et al, 2010).

Based on a study done by Kitamura et al in 1996, depression during antenatal period was found to be associated with obstetrics factors such as first pregnancy and previous history of abortion (Kitamura et al, 1996). Depressed pregnant women obtain less adequate prenatal care (Kelly et al, 1999) and have more negative health behaviours (e.g., tobacco use) (Zuckerman et al, 1989), which negatively impact the outcomes. Women who are depressed are more likely to have poor prenatal care and pregnancy

complications such as nausea, vomiting, and pre-eclampsia, and more likely to use drugs, alcohol, and nicotine (Yonkers et al, 2009).

A study showed that antenatal depression was significantly associated with past caesarean section and a history of anxiety disorder (Fadzil et al, 2013). Another study showed that patients who suffered from antenatal anxiety had an increased risk of developing antenatal depressive symptoms (Mohamad Yusuff et al, 2015). Based on another study, women with low education and not in relationship with the baby's father were more likely to have depressive symptoms (Westdahl et al, 2007).

2.3 SOCIAL SUPPORT AND DEPRESSION IN PREGNANCY

One of the most important risk factors affecting maternal well-being during and after pregnancy is lack of social support (Elsenbruch et al, 2007). Pregnant women who had poor support had an increase in depressive symptoms and a reduction in their quality of life (Elsenbruch et al, 2007). Lack of social support may have profound effects on women's mental and physical health during pregnancy (Paarlberg et al, 1995, Jesse et al, 2005, McKee et al, 2001, Milan et al, 2004 & Copper et al, 1996) and can directly or indirectly influence pregnancy outcomes through unhealthy life style such as smoking or alcohol (Ahluwalia et al, 2004, Orr et al, 2002, Dole et al, 2003 & Hedegaard et al, 1993).

The high prevalence of perinatal depression is influenced by a number of risk factors, one of them is lack of social support (Sawyer et al, 2010). Maternal lack of social support (Dibaba et al, 2013) has been consistently identified as one of the risk factors of antepartum depression in the low and middle income countries (Faisal-Cury et al, 2004). A previous systematic review (Lancaster et al, 2010) of 57 studies has concluded that stressful life events, a lack of social support and domestic violence are independently associated with antepartum depressive symptoms according to a multivariate analysis. Another study revealed that the odd of developing antenatal depression was 89 % higher

in those pregnant women who experienced lack of baby's father support (Biratu & Haile, 2015).

2.4 MEDICAL ILLNESS AND DEPRESSION IN PREGNANCY

Based on a previous study done in pregnant women with medical disorder, major depressive disorder was diagnosed in 9.0% (Benute et al, 2010). The prevalence of major depression was 7.1% for pre-eclampsia or chronic hypertension, 12.1% for cardiac disorder, 7.1% for diabetes mellitus, 6.3% for maternal anaemia, 8.3% for collagenosis and 12.5% for a high risk of premature delivery (Benute et al, 2010). The same study also demonstrate that unplanned pregnancy is associated with a diagnosis of antenatal major depression in pregnant women with a medical disorder (Benute et al, 2010).

Pregnant women with a medical disorder demonstrated a higher score on the EPDS in comparison to healthy controls; 26.7% had a score of 13 or higher (13 serves as the cut-off for probable major depression) compared to only 6.7% of the healthy controls (King et al, 2010).

2.5 PREVIOUS DEPRESSIVE EPISODES AND DEPRESSION IN PREGNANCY

One of the factors associated with depression in high-risk pregnancy is previous history of depression (Blom et al, 2010, Benute et al, 2011 & Benute et al, 2010). Women who experience antepartum depression often continue to experience depressive symptoms into the postpartum period, with more than 54% of those with postpartum depression reporting depressive episodes before or during pregnancy (Stewart et al, 2003 and Burt & Quezada, 2009).

Those pregnant women who have previous history of depression were nearly three times at higher odds of having antenatal depression as compared to pregnant women who have no history of depression (Biratu & Haile, 2015).

2.6 OUTCOMES OF ANTENATAL DEPRESSION

Depression in pregnancy is associated with an increased risk for developing pre-eclampsia (Kurki et al, 2002), preterm delivery (Wisner et al, 2009), and fetal growth restriction (Horman et al, 2000). Antenatal depression can increase the risk of postpartum depression (Sutter-Dallay et al, 2004). Meta-analysis and other studies found that depression and anxiety during pregnancy are the strongest risk factors for increasing the chance for developing post-partum depression (Robertson et al, 2004).

Depression during pregnancy can give negative impact to infant (Beydoun & Saftlas, 2008; Beumer et al, 2008; Van den Bergh et al, 2005; Buss et al, 2010; Forman et al, 2007 & Logsdon et al, 2006) and child development (Hayes et al, 2013).

Infants who were born by women with antenatal depression have an increased risk of developing irritability, becoming less active and attentive, and having fewer facial expressions compared to infants who were born by mothers without antenatal depression (Yonkers et al, 2009). Depressive symptoms are associated with changes in fetal growth and shorter gestations (Yonkers et al, 2009) and also associated with lower birth weight infants with adverse outcomes in the development of the infants (Schetter & Tanner, 2012). Complications in pregnancy such as preterm deliveries, reduced child body length and low birthweight became more frequent in women who smoked and having poor social support (Elsenbruch et al, 2007).

A study in Sweden found that increased antenatal depressive symptoms predicted increased risk for preterm birth (Fransson et al, 2011). Women with depressive symptoms during pregnancy are more likely to have impairment during the postpartum period such as impairment in parenting quality and effectiveness (Paulson et al, 2006).

CHAPTER THREE: METHODOLOGY

3.1 STUDY SETTING

This study was conducted at Maternity Hospital Kuala Lumpur. In Maternity Hospital Kuala Lumpur, high-risk obstetric outpatients are seen in four different settings which are Combined Clinic (mothers who are seen by doctors from Department of Obstetrics and Gynaecology and Department of Medicine at the same time); GDM Clinic (mothers who have pre-existing diabetes or gestational diabetes mellitus); Antenatal Clinic (mothers who have a moderate-risk pregnancy or a high-risk pregnancy) and Maternal Fetal Medicine Clinic. Maternal Fetal Medicine (MFM) is one of the subspecialties in Obstetrics and Gynaecology. It generally covers the care and management of the high-risk obstetric patient and also the screening, diagnosis, and management of the sick or abnormal fetus (Medical Development Division, Ministry of Health Malaysia, 2010). This study recruited mothers with a high-risk pregnancy who attended at least one of these four clinics during the study period.

3.2 STUDY DESIGN AND SAMPLING METHOD

The study design was a cross-sectional study using convenience sampling method which recruited mothers with a high-risk pregnancy who attended Maternal Fetal Medicine Clinic, Antenatal Clinic, Combined Clinic or GDM Clinic at Maternity Hospital Kuala Lumpur in April 2016 and May 2016.

3.2.1 INCLUSION CRITERIA

i) Patients with a high-risk pregnancy at the age of 18 years and above.

ii) Patients who understood English or Malay Language or both.

iii) Patients who gave consent to participate in this study.

3.2.2 EXCLUSION CRITERIA

i) Patients with a high-risk pregnancy below the age of 18 years.

ii) Patients who did not understand English or Malay Language or both.

iii) Patients who did not give consent to participate in this study.

3.2.3 DATA COLLECTION

Patients with a high-risk pregnancy who attended the Maternal Fetal Medicine Clinic, Antenatal Clinic, Combined Clinic or GDM Clinic at Maternity Hospital Kuala Lumpur in April 2016 and May 2016 were identified and were considered for recruitment in this study. Patients who were eligible for this study were explained regarding the study. They were provided with Patient Information Sheet and were given an adequate time to consider their participation in this study. Informed Consent Form was provided to patients who wish to participate in this study. Then, they were interviewed using an assessment questionnaire which include the sociodemographic profiles (i.e., age, ethnicity, marital status, occupation, education level and monthly household income), clinical characteristics (i.e., gravidity, parity, weeks of pregnancy, pregnancy intendedness – planned or unplanned pregnancy), psychiatric history, medical and surgical history, obstetric history, family history of psychiatric illness, substance history and social support. Monthly household income was categorized into 3 categories which were high income (≥RM4,000), middle income (RM1,000 – 3,999) and low income (RM0 – 999) based on a study done in Malaysia (Ghazali et al, 2015). For the measurement of social support, Oslo-3 Social Support Scale was used (Dalgard et al, 2006).

After the completion of the questionnaire, participants were given another questionnaire which was Edinburgh Postnatal Depression Scale (EPDS) (Murray & Cox, 1990) to screen for depression. Participants who scored 10 or more in the EPDS were interviewed using Mini International Neuropsychiatric Interview (M.I.N.I.) (Sheehan et

al, 1998) to establish the diagnosis of major depressive episode. Patients who had past psychiatric illness were also being interviewed using M.I.N.I. as they might have a major depressive episode during this current pregnancy.

Flowchart of Data Collection

High-risk pregnant mothers

↓

Convenience Sampling

↓

Informed consent

↓

Sociodemographic and Health Questionnaire, Oslo-3 Social Support Scale (OSS-3) and Edinburgh Postnatal Depression Scale (EPDS)

↓

EPDS ≥ 10 ± past psychiatric illness

+

EPDS < 10 + past psychiatric illness

↓

Mini International Neuropsychiatric Interview (M.I.N.I.)

All written data in this study was stored in a locked cabinet for 5 years and would be shredded after 5 years. The data in electronic form was kept in an encrypted password system. All written and electronic data could only be assessed by the principal investigator.

3.3 SAMPLE SIZE

The sample size was calculated using the following formula (Naing et al, 2006):

$$n = \frac{Z^2 P (1-P)}{d^2}$$

where n = Sample size,

Z = Z Statistic for a level of confidence (level of confidence = 95%),

P = Expected prevalence or proportion,

d = Precision

$$n = \frac{(1.96)^2 0.09 (1 - 0.09)}{(0.045)^2}$$

$$= 156$$

Prior data indicated that if the prevalence and the precision of major depressive disorder in high-risk obstetric outpatients were 9% (Juhas et al, 2014) and 0.045 respectively, this study needs 156 samples. With an additional of 10% non-response rate and 20% drop-out rate, a sample size of 203 subjects was estimated for this study.

3.4 STUDY MEASUREMENTS

This study used 3 sets of self-report questionnaires at the first stage of the study. The questionnaires were prepared in English and Malay Languages. In the second stage of this study, a brief structured interview was conducted in English and Malay Languages.

3.4.1 SOCIODEMOGRAPHIC AND HEALTH QUESTIONNAIRE

An assessment questionnaire was designed to collect information from the patients. The information collected include sociodemographic data (i.e., age, ethnicity, marital status, occupation, education level and monthly household income), clinical

characteristics (i.e., gravidity, parity, weeks of pregnancy, pregnancy intendedness - planned or unplanned pregnancy), psychiatric history, medical and surgical history, obstetric history, family history of psychiatric illness, substance history and social support.

3.4.2 OSLO-3 SOCIAL SUPPORT SCALE (OSS-3)

Oslo-3 Social Support Scale (OSS-3) is a three-item scored rating scale that has been developed on the basis of a number of community surveys in Norway (Dalgard et al, 2006). These surveys investigated the association between social support and psychological distress (Dalgard et al, 2006). It has high predictive validity with respect to anxiety and depression, as well as to positive mental health and quality of life (Meltzer, 2003; Lehtinen et al, 2005). Out of 12 questions on support from family, friends and neighbours, three questions were selected because of their high correlations with psychological distress which are a number of persons to count on if in serious trouble; perceived positive interest and concern from other people; and available help from neighbours if necessary (Dalgard et al, 2006). The total score is calculated by adding up the raw scores for each item (Dalgard et al, 2006). The sum of raw score has a range from 3 to 14 (Dalgard et al, 2006). Higher sum of raw indicates that the person has a better support. A score ranging between 3 and 8 is classified as poor support, a score between 9 and 11 as intermediate support and a score between 12 and 14 as strong support (Dalgard et al, 2006). The Malay version of OSS-3 was obtained from a study done in Malaysia (Umi Adzlin et al, 2011), with permission.

3.4.3 EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

Edinburgh Postnatal Depression Scale (EPDS) is a validated, self-administered 10-item screening questionnaire which is used to assess depression during pregnancy

(Murray & Cox, 1990) and the postpartum period (Cox et al, 1987). The intensity of depression is rated for the preceding 7 days. Each item is scored on a 4-point scale. The total score ranging from 0 to 30 with higher scores reflecting a greater severity of the depressive symptoms. It has a sensitivity of 86% and specificity of 78% using a cut-off score of ≥9 for "possible" depression and ≥12 for "probable" depression (Cox et al, 1987). A cut-off score of 9 or 10 provides "strong evidence" for ruling out depression and a cut-off score of 12 or 13 provides "convincing diagnostic evidence" for depression (Gibson et al, 2009).

The Malay version of the EPDS has a cut-off score of 11.5 with 72.7% sensitivity and 95% specificity (Rushidi et al, 2002). For this study, a cut-off score of 10 was used to ensure that all women with scores requiring further assessment for depression will be captured. This is consistent with many studies in the peer-reviewed literature (Chen et al, 2011; Flynn et al, 2006; Burton et al, 2011; Goodman & A. Tyler-Voila, 2010; Glavin et al, 2010; Glavin et al, 2009 & Chaudron et al, 2005).

3.4.4 MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW (M.I.N.I.)

Mini International Neuropsychiatric Interview (M.I.N.I.) was designed as a brief structured interview for the major Axis I psychiatric disorders in the Diagnostic and Statistical Manual - Fourth Edition (DSM-IV) and International Classification of Disease – Tenth Edition (ICD-10) (Sheehan et al, 1998). It has a good validity and reliability and has been translated into many different languages (Sheehan et al, 1998). It is divided into modules identified by letters, each letter corresponding to a diagnostic category. At the beginning of each diagnostic module, screening questions corresponding to the main criteria of the disorder are presented in a grey box. The rating is done by circling either Yes or No on the right of side of each question. M.I.N.I. English Version 6.0.0 and Malay Translation Version 6.0.0 will be used in this study. Only depression section will be used.

3.5 DEFINITION OF VARIABLES

3.5.1 DEPRESSIVE SYMPTOMS

Depressive symptoms is a condition that occurs when they are detected by a screening tool for depression in this study which is Edinburgh Postnatal Depression Scale (EPDS).

3.5.2 MAJOR DEPRESSIVE DISORDER

According to the Mini International Neuropsychiatric Interview (M.I.N.I.), major depressive disorder can be diagnosed when a person felt depressed or down nearly every day for at least two weeks; or became less interested in most things or much less able to enjoy the things she used to enjoy most of the time for at least two weeks; or both; with the presence of other psychological and biological symptoms of depression.

The psychological and biological symptoms of depression according to M.I.N.I. include decreased or increased in appetite or weight, sleeping problem at night, talking or moving slowly than normal or restlessness, feeling tired or having loss of energy, feeling of worthlessness or guilty, have difficulty concentrating or making decisions and recurrent thoughts of hurting own-self, death or suicide. These symptoms should cause significant problems at home, at work, socially, or in some other important ways.

3.5.3 HIGH-RISK PREGNANCY

A pregnancy is defined as high-risk when the probability of an adverse outcome for the mother or child is increased over and above the baseline risk of that outcome among the general pregnant population (or reference population) by the presence of one or more ascertainable risk factors, or indicators (David et al, 2011).

A high-risk pregnancy can also be defined as a pregnancy which is complicated by a factor or factors that adversely affects the pregnancy outcome; maternal or perinatal or both (Hiralal Konar, 2013). According to World Health Organization, high-risk pregnancy are cases such as the following (Hiralal Konar, 2013):

1) Elderly primigravida (age ≥ 30 years)

2) Short stature primigravida (≤ 140 cm)

3) Threatened abortion and antepartum haemorrhage

4) Malpresentations

5) Pre-eclampsia and eclampsia

6) Anaemia

7) Elderly grand multiparas

8) Twins and hydramnios

9) Previous stillbirth, intrauterine death, manual removal of placenta

10) Prolonged pregnancy

11) History of previous caesarean section and instrumental delivery

12) Pregnancy associated with medical diseases

In Malaysia, there is an antenatal colour-coding system based on the assessment of maternal risk factors made by doctors at clinics or hospitals. The colour-coding system consists of 4 colours which are white, green, yellow and red (Division of Family Health Development, Ministry of Health Malaysia, 2013). The colour-coding system also indicates the level of obstetric care that the patient should receive. The level of obstetric care and risk factors based on the colour-coding system were described further in Appendix B.

The definition of a high-risk pregnancy in this study is presence of any medical or obstetrics risk factors which can cause an adverse outcome or outcomes to the mother or fetus or both. In this study, a high-risk pregnancy was identified mostly based on the

colour-coding system which was put as a red-coloured sticker or a yellow-coloured sticker at the front cover of the patient's antenatal book. If the patient's antenatal book was not red or yellow-coloured coded, the identification of a high-risk pregnancy was made by the specialists or medical officers who were in-charge of the clinics.

Conditions which are considered as a high-risk pregnancy at Maternity Hospital Kuala Lumpur can be pre-existing medical conditions which are medical conditions that present before the pregnancy; pregnancy-related conditions which are conditions that are related to the pregnancy itself which can have their onset before or during pregnancy and become significant during pregnancy; fetal-related conditions which are conditions that are related to the fetus or caused by the fetus; past psychiatric illness and advanced maternal age (maternal age of 35 years and above).

Examples of pre-existing medical conditions are pre-existing hypertension, pre-existing diabetes mellitus, heart disease, hyperthyroidism, hypothyroidism, systemic lupus erythematosus, asthma, pre-pregnancy anaemia, obesity, thalassaemia, epilepsy and other conditions. Examples of pregnancy-related conditions are gestational diabetes mellitus, pregnancy-induced hypertension, anaemia in pregnancy, previous caesarean section, placenta praevia, recurrent miscarriages, cervical incompetence, polyhydramnios, oligohydramnios, preterm prelabour rupture of membrane, rhesus negative and other conditions. Examples of fetal-related conditions are multiple pregnancy (for example twin or triplet pregnancy), intrauterine growth restriction, fetal anomaly, malpresentation, unstable lie and other conditions.

3.6 STATISTICAL ANALYSIS

Data was analyzed using the Statistical Package for the Social Science (SPSS) Version 23. To test the statistical significance of difference, Chi-Square Test was used for categorical or nominal variables and Independent T-Test was used for continuous

variables. Mann-Whitney Test was also used to analyze between the categorical and the numerical variables. Univariate analysis with Cox Regression was conducted. Multivariate analysis with Logistic Regression and Cox Regression were performed for significant variables for univariate analysis. All tests of significance were tow-tailed, with an alpha level of 0.05.

3.7 ETHICAL CONSIDERATION

Ethical approval was obtained from the Medical Research and Ethics Committee (MREC). The confidentiality of the participants was assured and the purpose of the study was explained to the participants. Written consent was obtained from all of the participants.

CHAPTER FOUR: RESULTS

4.1 SAMPLE DESCRIPTION

This study used convenience sampling method. Participants were recruited from 4 clinics which were Maternal Fetal Medicine Clinic, Antenatal Clinic, Combined Clinic and GDM Clinic at Maternity Hospital Kuala Lumpur in April 2016 and May 2016. Mothers with a high-risk pregnancy who fulfilled the inclusion criteria of the study were identified for participation.

A total of 590 patients from all 4 clinics were approached in this study period and were given Patient Information Sheet. Out of the 590 patients, 208 patients agreed to participate in this study, signed the Informed Consent Form and completed the study. Out of the 208 patients, 128 patients (61.5%) were from Maternal Fetal Medicine Clinic, 36 patients (17.3%) were from Antenatal Clinic, 12 patients (5.8%) were from Combined Clinic and 32 patients (15.4%) were from GDM Clinic.

FLOWCHART OF STUDY METHOD

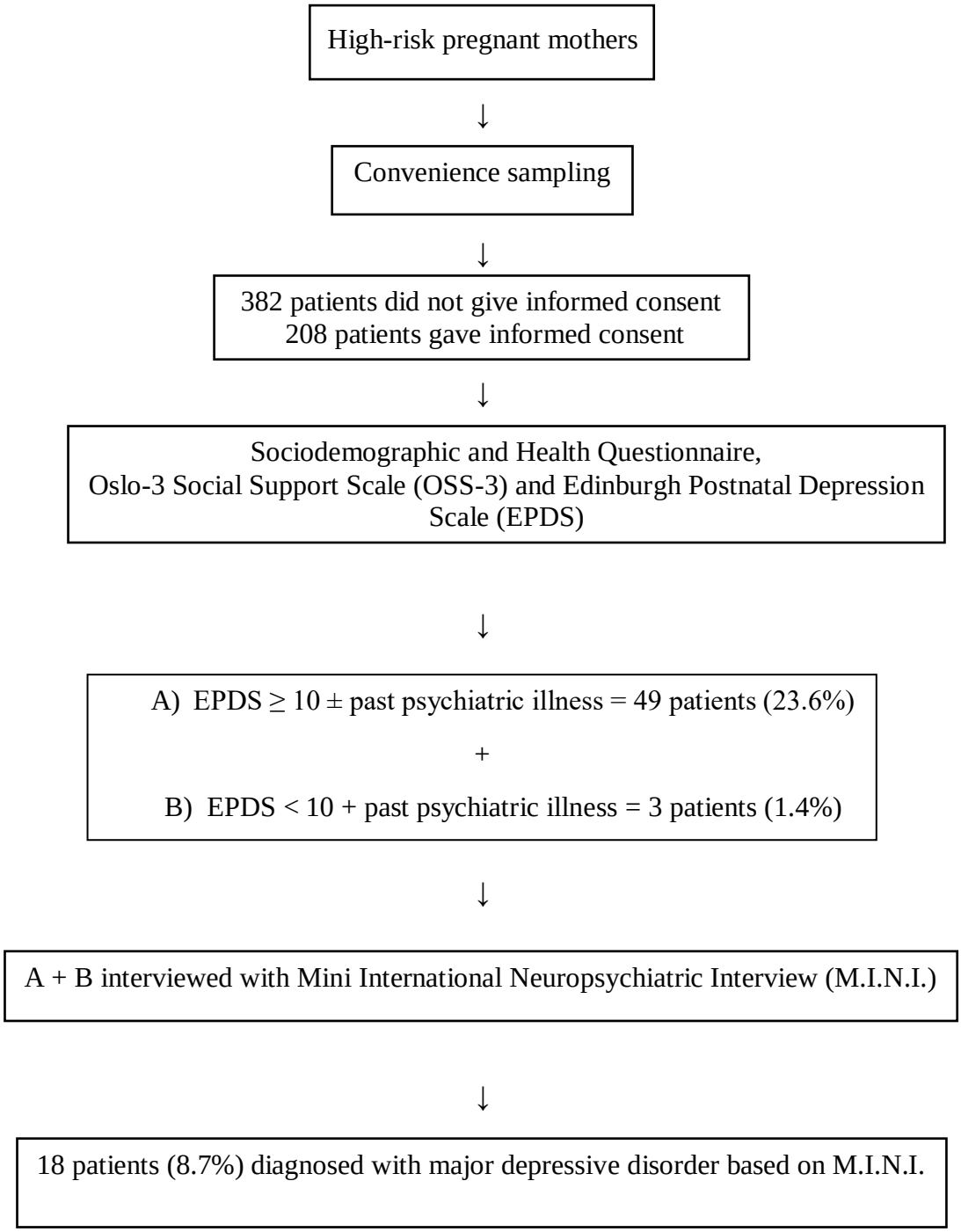


Table 4.1.1: Sociodemographic Profiles and Clinical Characteristics of the Samples

Sociodemographic profiles and clinical characteristics (N=208)	**n (%)**	**Mean (SD)**
Age (years)		
≥35	48 (23.1)	31.26 (4.96)
<35	160 (76.9)	
Ethnicity		
Malay	162 (77.9)	
Chinese	12 (5.8)	-
Indian	21 (10.1)	
Others	13 (6.3)	
Marital status		
Married	204 (98.1)	-
Not married	4 (1.9)	
Employment		
Working	135 (64.9)	-
Not working	73 (35.1)	
Gravidity		
Primigravida	61 (29.3)	-
Multigravida	147 (70.7)	
Parity		
Nullipara	81 (38.9)	
Para 1 – 4	124 (59.6)	-
Grandmultipara	3 (1.4)	
Trimester		
First trimester	10 (4.8)	
Second trimester	80 (38.5)	-
Third trimester	118 (56.7)	
Pregnancy intendedness		
Planned	97 (46.6)	-
Unplanned	111 (53.4)	
Past psychiatric illness		
Yes	6 (2.9)	
Major depressive disorder	4 (1.9)	
Bipolar disorder	2 (1.0)	-
No	202 (97.1)	

SD = Standard deviation

Table 4.1.1, continued.

Sociodemographic profiles and clinical characteristics (N=208)	n (%)	Mean (SD)
Family history of psychiatric illness		
Yes	7 (3.4)	-
No	201 (96.6)	
Education level		
Primary	4 (1.9)	
Secondary	76 (36.5)	-
Tertiary	128 (61.5)	
Monthly household income (RM)		
Low (<1000)	7 (3.4)	
Middle (1000-3999)	96 (46.2)	4324.75 (2998.86)
High (≥4000)	105 (50.5)	
Substance history		
Yes	4 (1.9)	-
No	204 (98.1)	
Social support (OSS-3)		
Poor	20 (9.6)	
Intermediate	101 (48.6)	10.98 (1.88)
Strong	87 (41.8)	
EPDS total score		
≥10 with & without past psychiatric illness	49 (23.6)	7.34 (4.201)
≥10 with past psychiatric illness	3 (1.4)	
< 10 with & without past psychiatric illness	159 (76.4)	
<10 with past psychiatric illness	3 (1.4)	-
Major depressive disorder (based on M.I.N.I.)		
Yes	18 (8.7)	
No	190 (91.3)	

OSS-3 = Oslo-3 Social Support Scale
EPDS = Edinburgh Postnatal Depression Scale
M.I.N.I. = Mini International Neuropsychiatric Interview
SD = Standard deviation

Table 4.1.1 shows the distribution of the sociodemographic profiles and the clinical characteristics among the 208 samples. The average age of the study group was 31.3 years (range =21 to 46 years). Majority of the patients were below the age of 35 years (76.9%) and 23.1% of the patients aged 35 years and above. The study group was predominantly Malays (77.9%), followed by Indian (10.1%), other ethnicities (6.3%) and Chinese (5.8%). Most of the patients were married (98.1%) and majority of them were working mothers (64.9%). Most of the patients were multigravida (70.7%), which means they were gravida 2 and above and 29.3% of them were primigravida.

Regarding their parity, majority of them fall under the group of parity 1 to 4 (59.6%), followed by nullipara (38.9%) and grandmultipara (1.4%) which means para 5 and above. Most of the patients who participated were in their third trimester of pregnancy (56.7%), followed by second trimester (38.5%) and first trimester (4.8%). Regarding their pregnancy intendedness, majority of them were unplanned pregnancy (53.4%) rather than planned pregnancy (46.6%).

Most of the patients did not have past psychiatric illness (97.1%), only 2.9% of them had past psychiatric illness (4 patients had depression and 2 patients had bipolar disorder). Majority of the patients did not have family history of psychiatric illness (96.6%) except 3.4% of them did have family history of psychiatric illness.

Most of the patients achieved tertiary level of education (61.5%), followed by secondary level of education (36.5%) and primary level of education (1.9%). Regarding their monthly household income, majority of them were under the high income group (50.5%), followed by middle income group (46.2%) and low income group (3.4%). The average of their monthly household income was RM4324.75 (SD = 2998.86). Only1.9% of the patients had history of substance use (cigarette and alcohol) and according to them, they did not use the substance during their pregnancy.

Their perceived social support was measured using Oslo-3 Social Support Scale (OSS-3) and majority of them fall under the group of having intermediate social support (48.6%), followed by strong social support (41.8%) and poor social support (9.6%). The mean of their OSS-3 score was 10.98 (SD = 1.88).

There were 49 patients (23.6%) who scored 10 and above in Edinburgh Postnatal Depression Scale (EPDS). Out of the 49 patients, three of them (1.4%) also had past psychiatric illness. Most of the patients (76.4%) scored less than 10 in EPDS and three of them (1.4%) had past psychiatric illness. The rate of major depressive disorder among the mothers with a high-risk pregnancy was 8.7% which was diagnosed using the Mini International Neuropsychiatric Interview (M.I.N.I.).

Table 4.1.2: Clinical Conditions of the Study Subjects

Clinical conditions (N=208)	**n (%)**
Advanced maternal age (35 years and above)	48 (23.1)
Past psychiatric illness	6 (2.9)
Depressive disorder	4 (1.9)
Bipolar disorder	2 (1.0)
Pre-existing medical condition	
Heart disease	16 (7.7)
Pre-existing diabetes mellitus	14 (6.7)
Asthma	12 (5.8)
Systemic lupus erythematosus	7 (3.4)
Pre-pregnancy anaemia	7 (3.4)
Hypothyroidism	7 (3.4)
Pre-existing hypertension	6 (2.9)
Hyperthyroidism	5 (2.4)
Thalassaemia or thalassaemia trait	5 (2.4)
Obesity	1 (0.5)
Epilepsy	1 (0.5)
Psoriasis	1 (0.5)
Idiopathic thrombocytopenic purpura	1 (0.5)
Obstructive sleep apnoea	1 (0.5)
Prolactinoma	1 (0.5)
Pregnancy-related condition	
Previous caesarean section	51 (24.5)
Gestational diabetes mellitus	32 (15.4)
Anaemia in pregnancy	6 (2.9)
Recurrent miscarriages	6 (2.9)
Placenta praevia	5 (2.4)
Cervical incompetence	5 (2.4)
Grandmultipara	3 (1.4)
Oligohydramnios	3 (1.4)
Polyhydramnios	2 (1.0)
Pregnancy-induced hypertension	2 (1.0)
Rhesus negative	1 (0.5)
Preterm prelabour rupture of membrane	1 (0.5)
Uterine fibroid	1 (0.5)
Placental calcification	1 (0.5)
Bicornuate uterus	1 (0.5)
Fetal-related condition	
Fetal anomaly	29 (13.9)
Multiple pregnancy	27 (13.0)
Twin pregnancy	23 (11.1)
Triplet pregnancy	4 (1.9)
Intrauterine growth restriction	12 (5.8)
Malpresentation or unstable lie	5 (2.4)

Table 4.1.2 shows the distribution of the clinical conditions of mothers with a high-risk pregnancy. There were 23.1% of the patients who had advanced maternal age (age 35 years and above) among all the mothers with a high-risk pregnancy. There were 2.9% of mothers with a high-risk pregnancy who had past psychiatric illness. Among all the pre-existing medical condition, heart disease had the highest percentage which was 7.7% (n=16), followed by pre-existing diabetes mellitus (6.7%, n=14) and asthma (5.8%, n=12). Among all the pregnancy-related conditions, having previous caesarean had the highest percentage which was 24.5% (n=51), followed by gestational diabetes mellitus (15.4%, n=32). Regarding fetal-related conditions, fetal anomaly had the highest percentage which was 13.9% (n=29), followed by multiple pregnancy (13%, n=27), intrauterine growth restriction (5.8%, n=12) and malpresentation or unstable lie (2.4%, n=5).

4.2 DEPRESSIVE SYMPTOMS BASED ON EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

Table 4.2.1: Association of Sociodemographic Profiles and Clinical Characteristics with Depressive Symptoms based on EPDS.

Sociodemographic profiles and clinical Characteristics (N=208)	EPDS				
	Mean (SD)	Median	Mean rank	Z statistic	p-value
Ethnicity					
Malay	7.26 (4.23)	7.00	102.45	-0.924	0.356
Non- Malay	7.61 (4.14)	7.50	111.71		
Employment					
Working	7.22 (3.93)	7.00	104.27	-0.076	0.939
Not working	7.55 (4.68)	7.00	104.93		
Gravidity					
Primigravida	8.31 (4.98)	7.00	115.05	-1.635	0.102
Multigravida	6.93 (3.78)	7.00	100.12		
Trimester					
3rd trimester	7.38 (4.38)	7.00	104.37	-0.036	0.971
1st & 2nd Trimester	7.28 (3.97)	7.00	104.67		
Pregnancy intendedness					
Planned	6.92 (3.96)	7.00	99.79	-1.058	0.290
Unplanned	7.70 (4.38)	7.00	108.61		
Family history of psychiatric illness					
Yes	6.57 (4.20)	5.00	87.79	-0.750	0.453
No	7.36 (4.21)	7.00	105.08		
Education level					
Tertiary	7.32 (4.07)	7.00	105.09	-0.178	0.859
Primary & Secondary	7.36 (4.43)	6.50	103.56		

EPDS = Edinburgh Postnatal Depression Scale
SD = Standard deviation

Table 4.2.1, continued.

Sociodemographic profiles and clinical Characteristics (N=208)	EPDS				
	Mean (SD)	**Median**	**Mean rank**	**Z statistic**	**p-value**
Monthly household income					
High income	6.67 (3.40)	7.00	97.68	-1.656	0.098
Low & middle Income	8.02 (4.81)	7.00	111.45		
Social support					
Poor	10.50 (5.60)	9.00	138.23	-0.036	***0.008**
Intermediate & strong	7.00 (3.85)	7.00	100.91		

EPDS = Edinburgh Postnatal Depression Scale
SD = Standard deviation
***p-value <0.05**

Table 4.2.1 shows the distribution of patients who were having depressive symptoms based on their EPDS score according to their sociodemographic and clinical characteristics. Among all the sociodemographic profiles and the clinical characteristics, only social support (p-value = 0.008) was significant, which means the patients who had poor social support were having more depressive symptoms compared to the patients who had intermediate and strong social supports.

Table 4.2.2: Association of Risk Factors and Depressive Symptoms based on EPDS.

Risk factors (N=208)	EPDS				
	Mean (SD)	**Median**	**Mean rank**	**Z statistic**	**p-value**
Advanced maternal age					
Yes	6.79 (3.78)	7.00	99.34	-0.679	0.497
No	7.50 (4.32)	7.00	106.05		
Past psychiatric illness					
Yes	11.00 (6.16)	9.50	142.17	-1.562	0.118
No	7.23 (4.10)	7.00	103.38		
Pre-existing medical condition					
Yes	8.38 (4.18)	8.00	120.01	-2.772	***0.006**
No	6.76 (4.12)	6.50	95.64		
Pregnancy-related condition					
Yes	6.90 (4.59)	6.00	96.16	-1.858	0.063
No	7.71 (3.82)	7.00	111.65		
Fetal-related condition					
Yes	7.47 (4.17)	7.00	106.00	-0.265	0.791
No	7.27 (4.23)	7.00	103.69		

EPDS = Edinburgh Postnatal Depression Scale
SD = Standard deviation
***p-value < 0.05**

Table 4.2.2 shows the association of risk factors and depressive symptoms based on Edinburgh Postnatal Depression Scale (EPDS). Among all the risk factors, having pre-existing medical condition was the only significant risk factor which was associated with having more depressive symptoms compared to other risk factors based on EPDS (p-value = 0.006).

4.3 MAJOR DEPRESSIVE DISORDER BASED ON MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW (M.I.N.I.)

Table 4.3.1: Association of Sociodemographic Profiles and Clinical Characteristics with Major Depressive Disorder based on M.I.N.I.

Sociodemographic profiles and Clinical characteristics (N=208)	Depressive Disorder n (%)		Chi-Square	OR	95% CI	p-value
	Yes	No				
Ethnicity						
Malay	13 (8.0)	149 (92.0)	0.367	1.398	0.471 - 4.148	0.545
Non-Malay	5 (10.9)	41 (89.1)				
Employment						
Working	12 (8.9)	123 (91.1)	0.027	1.089	0.391 – 3.034	0.870
Not working	6 (8.2)	67 (91.8)				
Gravidity						
Primigravida	4 (6.6)	57 (93.4)	0.480	1.500	0.473 – 4.755	0.488
Multigravida	14 (9.5)	133 (90.5)				
Trimester						
3rd trimester	11 (9.3)	107 (90.7)	0.154	0.820	0.305 – 2.208	0.695
1st & 2nd Trimester	7 (7.8)	83 (92.2)				
Pregnancy intendedness						
Planned	6 (6.2)	91 (93.8)	1.401	0.544	0.196-1.509	0.237
Unplanned	12 (10.8)	99 (89.2)				
Family history of psychiatric illness						
Yes	2 (28.6)	5 (71.4)	3.635	4.625	0.830-25.764	**0.115
No	16 (8.0)	185 (92.0)				

M.I.N.I. = Mini International Neuropsychiatric Interview
OR = Odds ratio
95% CI = 95% Confidence interval
**Fisher's Exact Test

Table 4.3.1, continued.

Sociodemographic profiles and Clinical characteristics (N=208)	Depressive Disorder n (%)					
	Yes	No	Chi-Square	OR	95% CI	p-value
Education level						
Tertiary	8 (6.3)	120 (93.8)	2.433	2.143	0.808 – 5.683	0.119
Primary & secondary	10 (12.5)	70 (87.5)				
Social support						
Poor	6 (30.0)	14 (70.0)	12.755	0.159	0.052 – 0.488	***<0.001 ****
Intermediate & strong	12 (6.4)	176 (93.6)				
Monthly household income						
High income	4 (3.8)	101 (96.2)	6.295	3.972	1.261 – 12.508	***0.024****
Low & middle income	14 (13.6)	89 (86.4)				
EPDS total score						
≥ 10	15 (30.6)	34 (69.4)	39.099	22.941	6.920 - 83.667	***<0.001 ****
< 10	3 (1.9)	156 (98.1)				

OR = Odds ratio
95% CI = 95% Confidence interval
**Fisher's Exact Test
***p-value < 0.05**
EPDS = Edinburgh Postnatal Depression Scale

Table 4.3.1 shows the distribution of patients who had depressive disorder based on Mini International Neuropsychiatric Interview (M.I.N.I.) according to their sociodemographic and clinical characteristics.

Among all the sociodemographic profiles and clinical characteristics, patients who had poor social support were more depressed compared to those with intermediate and strong social support with p-value of <0.001. Patients who had low and middle monthly household income were also more depressed compared to those with high monthly household income with p-value of 0.024. There were 15 patients (30.6%) who scored 10 and above in Edinburgh Postnatal Depression Scale (EPDS) who were diagnosed with major depressive disorder.

Table 4.3.2: Association of Risk Factors with Major Depressive Disorder based on M.I.N.I.

Risk Factors (N=208)	Depressive Disorder n (%)		Chi-Square	OR	95% CI	p-value
	Yes	No				
Advanced maternal age	4 (8.3)	44 (91.7)	0.008	0.948	0.297 – 3.028	0.928
Yes	14 (8.8)	146 (91.3)				
No						
Pre-existing medical condition						
Yes	8 (10.8)	66 (89.2)	0.676	1.503	0.566 – 3.991	0.411
No	10 (7.5)	124 (92.5)				
Pregnancy-related condition						
Yes	7 (7.3)	89 (92.7)	0.418	0.722	0.268 - 1.943	0.518
No	11 (9.8)	101 (90.2)				
Fetal-related condition						
Yes	5 (6.8)	68 (93.2)	0.463	0.690	0.236 – 2.018	0.496
No	13 (9.6)	122 (90.4)				
Past psychiatric illness						
Yes	6 (100.0)	0 (0.0)	65.215	-	-	<**0.001***
No	12 (5.9)	190 (94.1)				

M.I.N.I. = Mini International Neuropsychiatric Interview
OR = Odds ratio
95% CI = 95% Confidence interval
***p-value < 0.05**

Table 4.3.2 shows the association of risk factors with major depressive disorder based on Mini International Neuropsychiatric Interview (M.I.N.I.). Among all the risk factors, the only significant risk factor which was associated with major depressive disorder based on M.I.N.I. was having past psychiatric illness with p-value of <0.001. All

patients who had past psychiatric illness fulfil the criteria for major depressive episode based on M.I.N.I. There were 12 patients (5.9%) who were newly diagnosed with major depressive disorder and did not have past psychiatric illness.

4.4 CORRELATION

Table 4.4: Correlation between Social Support and Depressive Symptoms using Spearman's Test based on EPDS.

Oslo-3 Social Support Scale	**EPDS**
Question 1: How many people are so close to you?	-0.192**
Question 2: How much concern do people show?	-0.232**
Question 3: How easy you can get help from neighbours?	-0.292**
Total Oslo-3 Support Scale	-0.333**

**Correlation is significant at the 0.01 level (2-tailed), alpha $p < 0.01$
EPDS = Edinburgh Postnatal Depression Scale

Table 4.4 shows the correlation between social support and depressive symptoms using Spearman's Test. All three questions in the Oslo-3 Social Support Scale were significantly correlated with the depressive symptoms based on Edinburgh Postnatal Depression Scale (EPDS).

4.5 MULTIVARIATE ANALYSIS

Table 4.5.1: Multivariate Analysis of Associated Factors for Depressive Symptoms based on EPDS using Logistic Regression.

Associated factors	**B**	**S.E.**	**Adjusted OR Exp (B)**	**95% CI**	**p-value**
Pre-existing medical condition	-0.261	0.313	0.770	0.417 – 1.423	0.404
Poor social support	1.211	0.488	3.358	1.291 – 8.735	***0.013**

EPDS = Edinburgh Postnatal Depression Scale
S.E.= Standard error
OR = Odds ratio
95% CI = 95% Confidence interval
***p-value < 0.05**

Based on the multivariate analysis showed in Table 4.5, the only factor which was found to be significant was perceived social support. Mothers with a high-risk pregnancy who had poor social support (p-value = 0.013) were having more depressive symptoms compared to others based on Edinburgh Postnatal Depression Scale.

Table 4.5.2: Multivariate Analysis of Associated Factors for Major Depressive Disorder based on M.I.N.I. using Logistic Regression.

Associated factors	**B**	**S.E.**	**Adjusted OR Exp (B)**	**95% CI**	**p-value**
Low and middle monthly household income	-1.222	0.597	0.295	0.091 – 0.950	***0.041**
Poor social support	1.652	0.586	5.219	1.654 – 16.469	***0.005**

M.I.N.I. = Mini International Neuropsychiatric Interview
S.E.= Standard error
OR = Odds ratio
95% CI = 95% Confidence interval
***p-value < 0.05**

Based on the multivariate analysis showed in Table 4.5.2, both factors which were low and middle monthly household income and poor social support were found to be significant in this study. Mothers with a high-risk pregnancy who had low and middle monthly household income (p-value = 0.041) and poor social support (p-value = 0.005) were more depressed compared to others based on Mini International Neuropsychiatric Interview (M.I.N.I.).

CHAPTER FIVE: DISCUSSION

5.1 SAMPLE DESCRIPTION AND SOCIODEMOGRAPHIC PROFILES

The rate of major depressive disorder among the mothers with a high-risk pregnancy who attended the Antenatal Clinic, Combined Clinic, GDM Clinic or Maternal Fetal Medicine Clinic at Maternity Hospital Kuala Lumpur was 8.7%. Eighteen out of 208 patients fulfilled the criteria for major depressive episode based on Mini International Neuropsychiatric Interview (M.I.N.I.). This is consistent with a previous study done in a public university hospital in Brazil which showed that 9% of their high-risk obstetric outpatients had major depression (Juhas et al, 2014). However, their study used The Brazilian version of the Primary Care Evaluation of Mental Disorders to evaluate the diagnosis of major depressive disorder (Juhas et al, 2014).

Most of the patients (n=128, 61.5%) who had participated in this study were from Maternal Fetal Medicine Clinic (MFM Clinic). More participants were recruited from the MFM clinic compared to other clinics mainly because of its operation days which was 5 days per week whereas other clinics did not operate 5 days per week. The total number of participants from Antenatal Clinic was 36 patients (17.3%) which operates 2 days per week, followed by GDM Clinic which was 32 patients (15.4%) and Combined Clinic which was 12 patients (5.8%) which operate once per week.

Most of the patients who had participated in this study were Malays (77.9%) and this is comparable with the distribution of ethnicities in Malaysia which majority of people living in Malaysia are Malays. Majority of the patients in this study were below the age of 35 years (76.9%) and this is not surprising as most of the women at reproductive age prefer to have children when they are younger. One of the reasons could be that they were worried to become pregnant at the age of 35 years and above as this was considered

as an advanced maternal age which had a higher risk of complications for both mother and fetus.

Most of the patients who had participated in this study were married (98.1%). Our community and culture are still supporting married life, therefore most of the family are married family. Majority of patients who are not married do not go for booking in early pregnancy due to a lot of reasons, one of them might be because of their choice not to have a proper antenatal care. Most of them will come to the hospital only when they are in labour. Most of the participants were working mothers (64.9%). Female Labour Force Participation Rate climbed to 54.1% in 2015 compared to 46.8% in 2010 according to the Labour Force Survey conducted by the Department of Statistics, Malaysia. This could be because of the higher living status for people who live in Kuala Lumpur that made them worked to earn more money rather than only depending on their husband financially.

In this study, most of the patients were having an unplanned pregnancy (53.4%). This is understandable because they did not plan to become pregnant however they accepted their pregnancy as a sustenance, which was not surprising because of the nature of the culture of the Malaysians who always accept their pregnancy as a sustenance from God.

Majority of pregnant women in Malaysia go to the government health clinics during the first trimester of their pregnancy for booking of pregnancy and if they have any underlying medical condition which can jeopardize their pregnancy, or if there is any abnormality or problem detected in their fetus, they will be referred to a tertiary hospital for further management. Patients who have a high-risk pregnancy usually come to the tertiary hospital in their second or third trimester of pregnancy after they were seen at the government health clinics. This could be one of the reasons why majority of the participants were in their third trimester of pregnancy (56.7%). Another reason could be because of their more frequent contacts with doctors as they have to come for follow-up

every week or every two weeks when they were in third trimester of pregnancy, depending on their condition, compared to patients in the second or first trimester of pregnancy who majority of them came for follow-up only once a month.

Majority of the patients had high monthly household income (50.5%) which was RM4,000 and above and this could be because of their education level as majority of them achieved tertiary level of education (61.5%). The higher the education level, the more chances to get jobs with higher salary.

The three questions that were asked in the Oslo-3 Social Support Scale (OSS-3) are the number of persons to count on if in serious trouble, perceived positive interest and concern from other people and availability of help from neighbours if necessary. Based on the assessment of perceived social support using the OSS-3 in this study, majority of the patients fall under the group of having intermediate support (48.6%), which means that they did have social support but it was at the average level.

This could be related to their life style as they live in an urban area with high status of living. This makes them become very busy with their work to earn money and do not have time to get to know their neighbours and therefore they might have difficulty to get practical help from their neighbours if they need it. Another reason might be because of their perception towards the social support that they receive. Social support could be defined into an actual support and perceived support. Actual support is support that an individual receives in terms of what is said, what is given and what is done for that individual. However, more significant that actual support is an individual's perception of the availability of the support. Perceived social support refers to an individual's belief that social support is available, is generally considered positive or negative, and provides what is considered needed by that individual (Norris & Kaniasty, 1996; Sarason, Sarason, & Pierce, 1990).

5.2 DEPRESSIVE SYMPTOMS BASED ON EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

According to the sociodemographic and clinical characteristics of the patients in this study, patients who were having poor social support (p-value = 0.008) and who were having pre-existing medical condition (p-value = 0.006) were having more depressive symptoms based on their total score of the Edinburgh Postnatal Depression Scale (EPDS).

In this study, pregnant women who had poor social support were having more depressive symptoms compared to pregnant women who had intermediate and strong social support (p-value = 0.008) based on EPDS. This is consistent with a study done by Elsenbruch et al in 2007 which showed that lack of social support was one of the most important risk factors affecting the maternal well-being during the pregnancy and lead to increased depressive symptoms and a reduction in their quality of life (Elsenbruch et al, 2007). The odd of developing antenatal depression was 89 % higher in those pregnant women who experienced lack of baby's father support (Biratu and Haile, 2015).

Depressive disorders are common in people who have medical illness and this condition can complicate the treatment of both illnesses. In this study, patients who were having pre-existing medical condition such as heart disease, pre-existing diabetes mellitus, systemic lupus erythematosus, pre-pregnancy anaemia, hypothyroidism and hyperthyroidism were having more depressive symptoms based on EPDS with p-value of 0.006. This finding was supported by Zager in 2009 which stated that women with medical problems are more prone to have psychological problems during their pregnancy (Zager, 2009).

5.3 DEPRESSIVE DISORDER BASED ON MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW (M.I.N.I.)

Pregnant women with low and middle monthly household income were more depressed in this study compared to those with high monthly household income (p-value = 0.024). This is consistent with a previous study done in Hospital Universiti Sains Malaysia by Mirsanjuri et al in 2012 which found a significant association between levels of depressive symptoms with monthly income (Mirsanjuri et al, 2012). The same study concluded that there were less risks of having antenatal depressive symptoms with increasing monthly income (Mirsanjuri et al, 2012). A previous study by Sloan and Kirsh showed that low education level was found to be associated with depression in high-risk pregnancy (Sloan & Kirsh, 2008) and another study showed that women with low education were more likely to have depressive symptoms (Westdahl et al, 2007). It is possible that low income will influence a patient to suffer from depression due to its attribution to a higher level of stress, low levels of self-esteem, poor social support and higher religiosity. (Llewellyn et al, 1997).

Previous studies had stated that lack of social support may have profound effects on women's mental health during pregnancy (Paarlberg et al, 1995, Jesse et al, 2005, McKee et al, 2001, Milan et al, 2004 & Copper et al, 1996). In this study, patients who were having poor social support were more depressed compared to those who were having intermediate and strong social support (p-value = 0.000). Absence of social support is associated with onset and relapse of depression. (Paykel, 1994). Social support has been shown to have direct negative effects on current depression, which means that poor social support has negative effects on depression (Aneshensel & Frerichs, 1982).

A personal history of depression is one of the risk factors for antenatal depression based on a previous study (O'Hara & Swain, 1996). In another study, previous history of depression or psychiatric treatment was found to be associated with depression in high-

risk pregnancy (Sloan & Kirsh, 2008). In this study, all patients with past psychiatric illness (n=6) fulfil the criteria for major depressive episode based on M.I.N.I (p-value <0.001) and all of them were having a major depressive episode at the moment of the interview. Four of them were diagnosed with depression and two of them were diagnosed with bipolar disorder before their participation in this study. This finding indicates that all pregnant mothers who have past psychiatric illness regardless of their diagnosis should be assessed for depression as they are more vulnerable of having psychological problems during the pregnancy (Zager, 2009).

Advanced maternal age was found to be associated with depression in high-risk pregnancy based on a previous study (Sloan & Kirsh, 2008) however in this study, advanced maternal age was not found to be significant with having more major depressive episode. This could be because of them having more stable financial status compared to patients with younger age who were having more unstable financial status because they just got married or they just started having their own family.

Previous study showed that not having a planned pregnancy for current pregnancy was one of the factors associated with depression in high-risk pregnancy (Sloan & Kirsh, 2008) however in this study, pregnancy intendedness (planned or unplanned pregnancy) was not found to be significant with having more depression. Another study showed that women with a planned pregnancy were less likely to suffer from antenatal depressive symptoms (Mohamad Yusoff et al, 2015).

Other sociodemographic factors in this study such as ethnicity, employment status, gravidity, parity, weeks of pregnancy, family history of psychiatric illness, education level and substance history were also not found to be significant with having more depressive disorder.

5.4 MULTIVARIATE ANALYSIS

After multivariate analysis done, having pre-existing medical condition was not found to be significant of having more depressive symptoms among mothers with a high-risk pregnancy based on Edinburgh Postnatal Depression Scale (EPDS). The only factor which was identified to be significant of having more depressive symptoms among mothers with a high-risk pregnancy based on EPDS was poor social support. In this study, patients who had poor social support were having more depressive symptoms compared to those who had intermediate and strong social support (p-value = 0.013).

Multivariate analysis was also done for factors associated with major depressive disorder based on based Mini International Neuropsychiatric Interview (M.I.N.I.). Based on the multivariate analysis, both factors which were low and middle monthly household income and poor social support were found to be significant. Mothers with a high-risk pregnancy who had low and middle monthly household income (p=value = 0.041) and poor social support (p-value = 0.005) were more depressed compared to others based on M.I.N.I. A person who has more financial burden due to lower monthly household income would feel more stressed and more likely to suffer from depression compared to those who have higher monthly household income.

Perceived social support refers to an individual's belief that social support is available, is generally considered positive or negative, and provides what is considered needed by that individual (Norris & Kaniasty, 1996; Sarason, Sarason, & Pierce, 1990). Perceived poor social support is one of the established risk factors of developing depression. Previous study found that depression was associated with social support (O'Hara, 1986) and poor social support is one of the risk factors for antenatal depression (OHara & Swain, 1996 & Gjerdingen et al, 1991).

CHAPTER SIX: CONCLUSION

6.1 SUMMARY OF FINDINGS

From this study, the rate of major depressive disorder among mothers with a high-risk pregnancy at Maternity Hospital Kuala Lumpur was 8.7%. There were 2 factors which were found to be significant as having more depressive symptoms based on EPDS; the factors were having poor social support and having pre-existing medical condition. There were 3 factors which were found to be significant of as being more depressed based on M.I.N.I.; they were past psychiatric illness, having low and middle monthly household income and poor social support.

From multivariate analysis, poor social support was the only factor which was found to be significant as having more depressive symptoms based on EPDS. There were 2 factors which were found to be significant as being more depressed compared to others based on M.I.N.I. which were low and middle monthly household income and poor social support. Findings from this study enhance our understanding on how depression in a high-risk pregnancy is related to various factors and that perceived social support and monthly household income are the most important factors among all of them.

6.2 IMPLICATIONS

6.2.1 SCREENING FOR DEPRESSION

This study has several implications for the health professionals who are involved in caring and treating the high-risk pregnant mothers. Screening for depression has been done worldwide in some of the countries as a compulsory assessment for all pregnant mothers however in Malaysia, it is not widely done and it has not been a compulsory assessment. Therefore, compulsory screening for depression for all pregnant mothers

especially those who have a high-risk pregnancy should be done in Malaysia as well.

Edinburgh Postnatal Depression Scale (EPDS) is widely used as the screening instrument of choice for assessing depression in pregnancy by some of the countries as it has high sensitivity and high specificity, easy to use, easy to understand and only takes a few minutes to be completed. The Malay version of EPDS is also available and has high sensitivity and high specificity as well therefore, it can be used as a screening instrument for antenatal depression in Malaysia.

Early identification of patients with antenatal depression can facilitate the prevention, assessment and treatment. Depression in pregnancy is one of the risk factors for developing various adverse outcomes in pregnancy such as increased risk for developing pre-eclampsia (Kurki et al, 2002), preterm delivery (Wisner et al, 2009 and Fransson et al, 2011), and intrauterine growth restriction (Yonkers et al, 2009). Antenatal depression is also one of the risk factors for developing various adverse outcomes during the postpartum period such as increased the risk of postpartum depression (Sutter-Dallay et al, 2004 and Robertson et al, 2004), impairment in parenting quality and effectiveness (Paulson et al, 2006) and the infants can have an increased risk of developing irritability, becoming less active and attentive, and having fewer facial expressions (Yonkers et al, 2009). These adverse outcomes can be avoided or reduced by treating the depressed pregnant mothers as early as possible.

Mothers who scored high in EPDS during screening for depression or who have suicidal tendency based on their answer for item number 10 in EPDS should be referred to psychiatric services for further assessment and management.

6.2.2 SOCIAL SUPPORT

Patients with poor social support were more likely to have more depressive symptoms and they were also more likely being depressed compared to those with

intermediate and strong social support. This shows the importance of the assessment of social support in high-risk pregnant mothers. As a health professional, we should encourage patient's husband or other family members to provide good social support to the patient and we ourselves also must provide good social support to them.

Social support can help an individual to feel better and cope with challenges. It also can lead to improved health, including physical health, psychological health and overall well-being. Having access to adequate social support is essential to a healthy life. There were several studies that linked social support to general health outcomes (Albrecht & Goldsmith, 2003; Cobb, 1976; Lyyra & Heikkinen, 2006; Motl, McAuley, Snook, Gliottoni, 2009; Shaefer, Coyne & Lazarus, 1981). Some of the health outcomes of social support are psychological adjustment, improved efficacy, better coping with upsetting events, resistance to disease, recovering from disease and reduced mortality.

6.3 STRENGHTS

This study had a number of strengths which could be explained as followed:

1. The total number of participants in this study was 208 which was slightly higher than the estimated sample size which was 203 subjects and this increased the power of the study.
2. The choice of p-value < 0.05 in this study reduced the probability of Type 1 error and thus increased the power of the study.
3. This study used two measurement tools which were Edinburgh Postnatal Depression Scale (EPDS) which has a high level of sensitivity and specificity in both English and Malay Versions to screen for depression, and Mini International Neuropsychiatric Interview (M.I.N.I.) to establish the diagnosis of major depressive disorder for patients with EPDS score of 10 or more and for patients with past psychiatric illness.

4. The rate of major depressive disorder among high-risk obstetric outpatients in this study is in keeping with the previous study done by Juhas et al in 2014.

6.4 LIMITATIONS

There were certain limitations in this study which could be described as followed:

1. This study used convenience sampling method which is vulnerable to selection bias. Patients with a high-risk pregnancy in this study who fulfilled the inclusion criteria were approached however not all of them agreed to participate in this study due to several reasons. One of the reasons was because of the environment in the antenatal clinic which was not conducive at certain times due to overcrowding or noisy. Another reason was because they felt tired due to their medical condition and did not have the energy to participate in this study. Time constraint was another reason of unwillingness for participation in this study as they were in a rush to go out from the clinic to settle their own matters. This can be called as selection bias, particularly response bias (a type of selection bias introduced by participants). In this study, one of the ways to reduce the response bias is to interview the participants through the phone.
2. This study is a cross sectional study therefore it could not conclude whether these participants could develop depression later in their pregnancy or in the postpartum period and also could not study the outcomes of the antenatal depression.
3. This study only includes the high-risk obstetric outpatients and did not include the high-risk obstetric inpatients who might have a higher rate for depression and a higher severity of depression.

6.5 RECOMMENDATIONS

Depression in pregnancy is one of the risk factors for developing various adverse outcomes in pregnancy and in the postpartum period therefore, prospective study is strongly recommended for future study to look into the outcomes of the antenatal depression. High-risk pregnant mothers who are inpatients should be recruited as well in future study as the prevalence of depression might be higher among them and the level of depression might be more severe compared to pregnant mothers who are seen as outpatients.

For future studies, the information regarding all medications which are taken by participants would be useful as some of the medications could cause depression. Information regarding any problems or stressors are also useful as they can predispose or precipitate patients to have depression such as domestic violence, marital discord, financial constraint, work-related stress and so on. It would be interesting to assess for personality type of participants as well.

In the future, all high-risk pregnant mothers who have poor social support or low and middle monthly household in Malaysia should be screened for depression as perceived social support and monthly household income were found to be significant in this study after multivariate analysis was done. In order to identify which mothers are the one who have poor social support, assessment can be made by the treating doctors or nurses by asking them directly about their social support or use a screening tool such as Oslo-3 Social Support Scale (OSS-3). For the assessment of depression, Edinburgh Postnatal Depression Scale (EPDS) can be used as a screening tool in all the clinics and hospitals in Malaysia as it has high sensitivity and specificity in both English and Malay versions, easy to use and can be completed in a few minutes.

REFERENCES

Albrecht TL & Goldsmith D. (2003). Social support, social networks and health. In TL Thompson, AM Dorsey, KI Miller & R Parrot (Eds.). *Handbook of Health Communication*. (pp. 263-284). Mahwah, NJ: Lawrence Erlbaum.

Ahluwalia IB, Mack KA, Mokdad A. (2004). Mental and physical distress and high-risk behaviours among reproductive-age women. *Obstet Gynecol*. 104: 477-83.

Aneshensel CS & Frerichs RR. (1982). Stress, support, and depression: A longitudinal causal model. *Journal of Community* Psychology. 10: 363–376.

Bennett HA, Einarson A, Taddio A, Koren G, Einarson TR. (2004). Prevalence of depression during pregnancy: systematic review. *Obstet Gynecol*. 103 (6): 1344.

Benute GRG, Nomura RMY, Jorge VMF, Nonnenmacher D, Fráguas JR. (2011). Risk of suicide in high risk pregnancy: an exploratory study. *Rev. Assoc. Med. Bras*. 57(5):583-7.

Benute GRG, Nomura RMY, Siracuza RJ, Fraguas Jr R, Lucia MCS, Zugaib M. (2010). Depression during pregnancy in women with a medical disorder: risk factors and perinatal outcomes. *Clinics (Sao Paulo).* 65(11):1127-1131.

Beumer A, Swierstra BA, Mulder PG. (2002). Clinical diagnosis of syndesmotic ankle instability: evaluation of stress tests behind the curtains. *Acta Orthopaedica Scandinavica*. 73(6):667–669.

Beydoun H, Saftlas AF. (2008). Physical and mental health outcomes of prenatal maternal stress in human and animal studies: a review of recent evidence. *Paediatric Perinatal Epidemiology*. 22(5):438–466.

Biratu A & Haile D. (2015). Prevalence of antenatal depression and associated factors among pregnant women in Addis Ababa, Ethiopia: a cross-sectional study. *Reproductive Health*. 12:99.

Blom EA, Jansen PW, Verhulst FC, Hofman A, Raat H, Jaddoe VW, Coolman M, et al. (2010). Perinatal complications increase the risk of postpartum depression. The Generation R Study. *BJOG*. 117(11):1390-8.

Burt VK & Quezada V. (2009). Mood disorders in women: focus on reproductive psychiatry in the 21st century. Motherisk update 2008. *Can J Clin Pharmacol*. 16(1):e6–e14.

Burton A, et al. (2011). Depression in pregnancy: time of screening and access to psychiatric care. *Journal of Maternal-Fetal & Neonatal Medicine*. 24(11):1321–1324.

Buss C, Davis EP, Muftuler T, et al. (2010). High pregnancy anxiety during mid-gestation is associated with decreased gray matter density in 6–9 year-old children. *Psychoneuroendocrinology*. 35(1):141–153.

Chaudron LH, et al. (2005). Prevalence of maternal depressive symptoms in low-income Hispanic women. *Journal of Clinical Psychiatry*. 66(4):418–423.

Chen H, et al. (2011). Identifying mothers with postpartum depression early: integrating perinatal mental health care into the obstetric setting. *ISRN obstetrics and gynecology*. 2011:309189.

Cobb S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine.* 38: 300-314.

Copper RL, Goldenberg RL, Das A, Elder N, Swain M, Norman G, et al. (1996). The preterm prediction study: maternal stress is associated with spontaneous preterm birth at less than thrity-five weeks' gestation. National Institute of Child Health And human Development Maternal-Fetal Medicine Units Network. *Am J Obstet Gynecol*. 175: 1286-92.

Cox JL, Holden JM, Sagovsky R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*. 150:782–786.

Dagklis et al. (2016). Prevalence of antenatal depression and associated factors among pregnant women hospitalized in a high-risk pregnancy unit in Greece. *Soc Psychiatry Psychiatr Epidemiol*.51(7):1025-31.

Dalgard OS, Dowrick C, Lehtinen V, Vazquez-Barquero JL, Casey P, Wilkinson G, et al. (2006). Negative life events, social support and gender difference in depression: A multinational community survey with data from the ODIN study. *Soc Psychiatry Psychiatr Epidemiol*. 41: 444-51.

Dayan CM & Panicker V. (2013). Hypothyroidism and depression. *European Thyroid Journal*. 2: 168-179.

Dibaba Y, Fantahun M, Hindin MJ. (2013). The association of unwanted pregnancy and social support with depressive symptoms in pregnancy: evidence from rural Southwestern Ethiopia. *BMC Pregnancy Childbirth*.13:135.

Dole N, Savitz DA, Hertz-Picciotto I, et al. (2003). Maternal stress and preterm birth. *Am J Epidemol*. 157:14-24.

Elsenbruch S, Benson S, Rose M, et al. (2007). Social support during pregnancy: effects on maternal depressive symptoms, smoking and pregnancy outcome. *Human Reproduction*. 22(3): 869-877.

Fadzil A, Balakrishnan K, Razali R, et al. (2013). Risk factors for depression and anxiety among pregnant women in Hospital Tuanku Bainun, Ipoh, Malaysia. *Asia-Pacific Psychiatry*. 5:7–13.

Faisal-Cury A, Tedesco JJ, Kahhale S, Menezes PR, Zugaib M. (2004). Postpartum depression: in relation to life events and patterns of coping. *Arch Womens Ment Health*. 7(2):123–31.

Fan F, Zou Y, Ma A, Yue Y, Mao W, & Ma X. (2009). Hormonal changes and somatopsychologic manifestations in the first trimester of pregnancy and post-partum. *International Journal of Gynecology & Obstetrics*, 105(1), 46-49.

Flynn HA, et al. (2006). The impact of a brief obstetrics clinic-based intervention on treatment use for perinatal depression. *Journal of Womens Health* (Larchmt). 15(10):1195–1204.

Forman DR, et al. (2007). Effective treatment for postpartum depression is not sufficient to improve the developing mother-child relationship. *Development and Psychopathology*. 19(2):585–602.

Fransson E, Ortenstrand A, Hjelmstedt A. (2011). Antenatal depressive symptoms and preterm birth: a prospective study of a Swedish national sample. *Birth*. 38:10–16.

Ghazali et al. (2015). Sociodemographic factors associated with multiple cardiovascular risk factors among Malaysian adults. *BMC Public Health*. 15: 68-74.

Gibson J, et al. (2009). A systematic review of studies validating the Edinburgh Postnatal Depression Scale in antepartum and postpartum women. *Acta Psychiatrica Scandinavica.* 119(5):350–364.

Gjerdingen DK, Froberg DG, Fontaine P. (1991). The effects of social support on women's health during pregnancy, labor and delivery, and the postpartum period. *Family Medicine*. 23:370–5.

Glavin K, et al. (2010). Redesigned community postpartum care to prevent and treat postpartum depression in women--a one-year follow-up study. *Journal of Clinical Nursing*. 19(21–22):3051–3062.

Glavin K, Smith L, Sorum R. (2009). Prevalence of postpartum depression in two municipalities in Norway. *Scandinavian Journal of Caring Sciences*. 23(4):705–710.

Goodman JH, Tyer-Viola L. (2010). Detection, treatment, and referral of perinatal depression and anxiety by obstetrical providers. *Journal of Womens Health* (Larchmt). 19(3):477–490.

Gotlib IH, Whiffen VE, Mount, JH, Milne K & Cordy NI. (1989). Prevalence rates and demographic characteristics associated with depression in pregnancy and the postpartum. *Journal of Consulting and Clinical Psychology*. 57(2), 269-274.

Hayes LJ, Goodman SH, Carlson E. (2013). Maternal antenatal depression and infant disorganized attachment at 12 months. *Attach Human Development*. 15(2):133–153.

Hedegaard M, Henriksen TB, Sabroe S, Secher NJ. (1993). Psychological distress in pregnancy and preterm delivery. BMJ (Clinical Research ed). 307(6898): 234-239.

Hiralal Konar. (2013). *DC Dutta's textbook of obstetrics*. Seventh edition. Jaypee Brothers Medical Publishers (P) Ltd.

Humphreys J, Lee KA. (2009). Interpersonal violence is associated with depression and chronic physical health problems in midlife women. *Issues Ment Health Nurs*. 30(4):206-13.

James DK, et al. (2011). *High risk pregnancy: Management options*. Fourth edition. Saunders, an imprint of Elsevier.

Jesse DE, Walcott-McQuigg J, Mariella A & Swanson MS. (2005). Risk and protective factors associated with symptoms of depression in low-income African American and Caucasian women during pregnancy. *The Journal of Midwifery & Women's Health.* 50(5): 405-410.

Juhas TR, Benute GRG, Francisco RPV, de Lucia MCS, Zugaib M. (2014). Major depression in high-risk obstetric inpatients and outpatients. *Medical Express.* 1(2):87-90.

Kelly R, Zatzick D, Anders T. (2001). The detection and treatment of psychiatric disorders and substance use among pregnant women cared for in obstetrics. *American Journal of Psychiatry*.158(2):213–9.

Kelly RH, Danielsen BH, Golding JM, et al. (1999). Adequacy of prenatal care among women with psychiatric diagnoses giving birth in California in 1994 and 1995. *Psychiatry Service*. 5(12):1584–90.

King NM, Chambers J, O'Donnell K, Jayaweera SR, Williamson C, Glover VA. (2010). Anxiety, depression and saliva cortisol in women with a medical disorder during pregnancy. *Arch Womens Ment Health*. in press.

Kitamura T, et al (1996). Clinical and psychosocial correlates of antenatal depression: a review. *Psychotherapy Psychosom.* 65(3):117-123.

Kurki T, HiilesmaaV, Raitasalo R, et al. (2002). Depression and anxiety in early pregnancy and risk for preeclampsia. *Obstetrics Gynaecology*. 5: 487–90.

Lancaster CA, Gold KJ, Flynn HA, et al. (2010). Risk factors for depressive symptoms during pregnancy: a systematic review. *Am J Obset Gynecol*. 202:5-14.

Lehtinen V, Sohlman B & Kovess-Mastefy V. (2005). Level of positive mental health in the European Union. Results from Eurobarometer survey. *Clinical Practice and Epidemiology in Mental Health.*1: 9.

Limlomwongse N, Liabsuetrakul T. (2006). Cohort study of depressive moods in Thai women during late pregnancy and 6-8 weeks of postpartum using the Edinburgh Postnatal Depression Scale (EPDS). *Archieves Womens Ment*al *Health*. 9(3):131–8.

Llewellyn, A.M., Stowe, Z.N., & Nemeroff, C.B. (1997). Depression during pregnancy and the puerperium. Journal of Clinical Psychiatry, 58(15), 26-32.

Logsdon MC, Wisner KL, Pinto-Foltz MD. (2006). The impact of postpartum depression on mothering. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*. 35(5):652–658.

Lyyra TM & Heikkinen RL. (2006). Perceived social support and mortality in older people. *The Journals of Gerontology Series B: Psychological Science & Social Science*. 61B, S147-S152.

Marcus SM, Heringhausen JE. (2009). Depression in childbearing women: when depression complicates pregnancy. *Primary Care: Clinics in Office Practice*. 36(1), 151-165.

McKee MD, Cunningham M, Jankowski KR, Zayas L. (2001). Health-related functional status in pregnancy: relationship to depression and social support in a multi-ethnic population. *Obstet Gynecol.* 97:988-93.

Medical Development Division, Ministry of Health Malaysia. (2010). *Operational Policy in Obstetrics and Gynaecology Services*. Ministry of Health, Malaysia.

Meltzer H (2003). Development of a common instrument for mental health. In: Nosikov & Gudex (eds). EUROHIS: Developing Common Instruments for Health Surveys. Amsterdam: IOS Press.

Milan S, Ickovics JR, Kershaw T, Lewis J, Meade C, Ethier K. (2004). Prevalence, course, and predictors of emotional distress in pregnant and parenting adolescents. *J Consult Clin Psychol.* 72: 328-40.

Mirsanjari MO, et al. (2012). Depression symptoms in the second and third trimester of gestation. *International Journal of Sustainable Development*. 03: 25-32.

Mohamad Yusuff AS, Li Tang, Binns CW, Lee AH. (2015). Prevalence of antenatal depressive symptoms among women in Sabah, Malaysia. *Journal of Maternal-Fetal & Neonatal Medicine*. Early Online. 1-5.

Motl RW, McAuley E, Snook E, Gliottoni RC. (2009). Physical activity and quality of life in multiple sclerosis: Intermediary roles of disability, fatigue, mood, pain, self-efficacy and social support. *Psychology, Health & Medicine.* 14: 111-124.

Murray D, Cox JL. (1990). mScreening for depression during pregnancy with the Edinburgh Depression Scale (EDS). *Journal of Reproductive Infant Psychology*. 8:99–107.

Naing L, Winn T, Rusli BN (2006). Practical issues in calculating the sample size for prevalence studies. *Archieves of Orofacial Sciences*. 1:9-14.

Norris FH & Kaniasty K. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deference model. *Journal of Personality and Social Psychology*. 71: 498-511.

O'Hara MW (1986). Social support, life events, and depression during pregnancy and the puerperium. *Archives of General Psychiatry*. 43(6), 569-573.

O'Hara MW, Swain AM. (1996). Rates and risk of postpartum depression – a meta-analysis. *International Review of Psychiatry*. 8(1):37–54.

Okechukwu T, IkeOluwapo A. (2016). Prevalence of antenatal depression and Associated risk factors among pregnant women attending antenatal clinics in Abeokuta North Local Government Area, Nigeria. *Depression Research and Treatment*. Volume 2016.

Orr ST, James SA, Blackmore Prince C. (2002). Maternal prenatal depressive symptoms and spontaneous preterm births among African-American women in Baltimore, Maryland. *Am J Epidemol.* 156: 797-802.

Paarlberg KM, Vingerhoets AJ, Passchier J, Dekker GA. (1995). Psychosocial factors and pregnancy outcome: a review with emphasis on methodological issues. *J Psychosom Res.* 39: 563-95.

Patel V, Abas M, Broadhead J, Todd C, Reeler A. (2001). Depression in developing countries: lessons from Zimbabwe. *British Medical Journal*. 322(7284), 482-484.

Paulson JF, Dauber S, Leiferman JA. (2006). Individual and combined effects of postpartum depression in mothers and fathers on parenting behavior. *Pediatrics*. 118:659–668.

Paykel ES. (1994). Life events, Social support and depression. *Acta Psychiatrica Scandinavica*. 89: 50–58.

Raja Lexshimi RG, Ho SE, Hamidah H, Rohani M, Syed Zulkifli SZ. (2007). A study on anxiety and depression level among high-risk inpatient pregnant women in an obstetric ward. *Med & Health*. 2(1): 34-41.

Robertson E, Grace S, Wallington T, Stewart DE. (2004). Antenatal risk factors for postpartum depression: a synthesis of recent literature. *Gen Hosp Psychiatry*. 26(4): 289-95.

Rushidi WM, Azidah AK, Shaiful BI, Jamil MY. (2002). Validation study of the Edinburgh Postnatal Depression Scale (EPDS). *Malaysian Journal of Psychiatry*. 10 (1): 44 – 49.

Sarason BR, Sarason IG & Pierce GG. (1990). Social support: An interectional view New York: John Wiley.

Sawyer A, Ayers S, Smith H. (2010). Pre and postnatal psychological wellbeing in Africa: a systematic review. *J Affect Disord*. 123(1-3):17–29.

Schetter CD & Tanner L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research and practice. *Current Opinion in Psychiatry*. 25(2): 141-148.

Schaefer C, Coyne JC, Lazarus RS. (1981). The health-related functions of social support. *Journal of Behavioral Medicine*. 4: 381-406.

Sheehan DV, Lecrubier Y, Sheehan KH, et al. (1998) The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry*. 59 (Suppl 20), 22–33.

Sloan EP, Kirsh S. (2008). Characteristics of obstetrical inpatients referred to a consultation-liaison psychiatry service in a tertiary-level university hospital. *Arch Womens Ment Health*. 11(5-6):327-33.

Smith MV, Rosenheck RA, Cavaleri A, et al. (2004). Screening for and detection of depression, panic disorder, and PTSD in public-sector obstetric clinics. *Psychiatry Service*. 55(4):407–14.

Stewart DE, Robertson E, Dennis C-L, Grace SL, Wallington T. (2003). Postpartum depression: Literature review of risk factors and interventions.

Sutter-Dallay AL, Giaconne-Marcesche V, Giatigny-Dally E, Verdoux M. (2004). Women with anxiety disorders during pregnancy are at increased risk of intense postnatal depressive symptoms: a prospective survey of the MATQUID cohort. *European Psychiatry*. 19(8):459–463.

Umi Adzlin S, Marhani M, Salina AA. (2011). Prevalence of Psychological Distress & Depressive Disorders among Working Women in Malaysia. *Malaysian Journal of Psychiatry*. Vol 20, No. 1.

Van den Bergh BRH, Mulder EJH, Mennes M, Glover V. (2005). Antenatal maternal anxiety and stress and the neurobehavioural development of the fetus and child: links and possible mechanisms. A review. *Neuroscience and Biobehavioral Reviews*. 29(2):237–258.

Ware JE, Kosinski M, Gandek B, Aaronson NK, Apolone G, Bech P, et al. (1998). The Factor Structure of the SF-36 Health Survey in 10 Countries Results from the IQOLA Project. *Journal of Clinical Epidemiology*, 51(11), 1159-1165.

Westdahl C, Milan S, Magriples U, Kershaw TS, Rising SS, and Ickovics JR. (2007). Social support and social conflict as predictors of prenatal depression. *Obstet Gynecol*. 110(1): 134–140.

Wisner KL, Sit DKY, Hanusa BH, et al. (2009). Major depression and antidepressant treatment: impact on pregnancy and neonatal outcomes. *American Journal of Psychiatry*. 166(5):557–566.

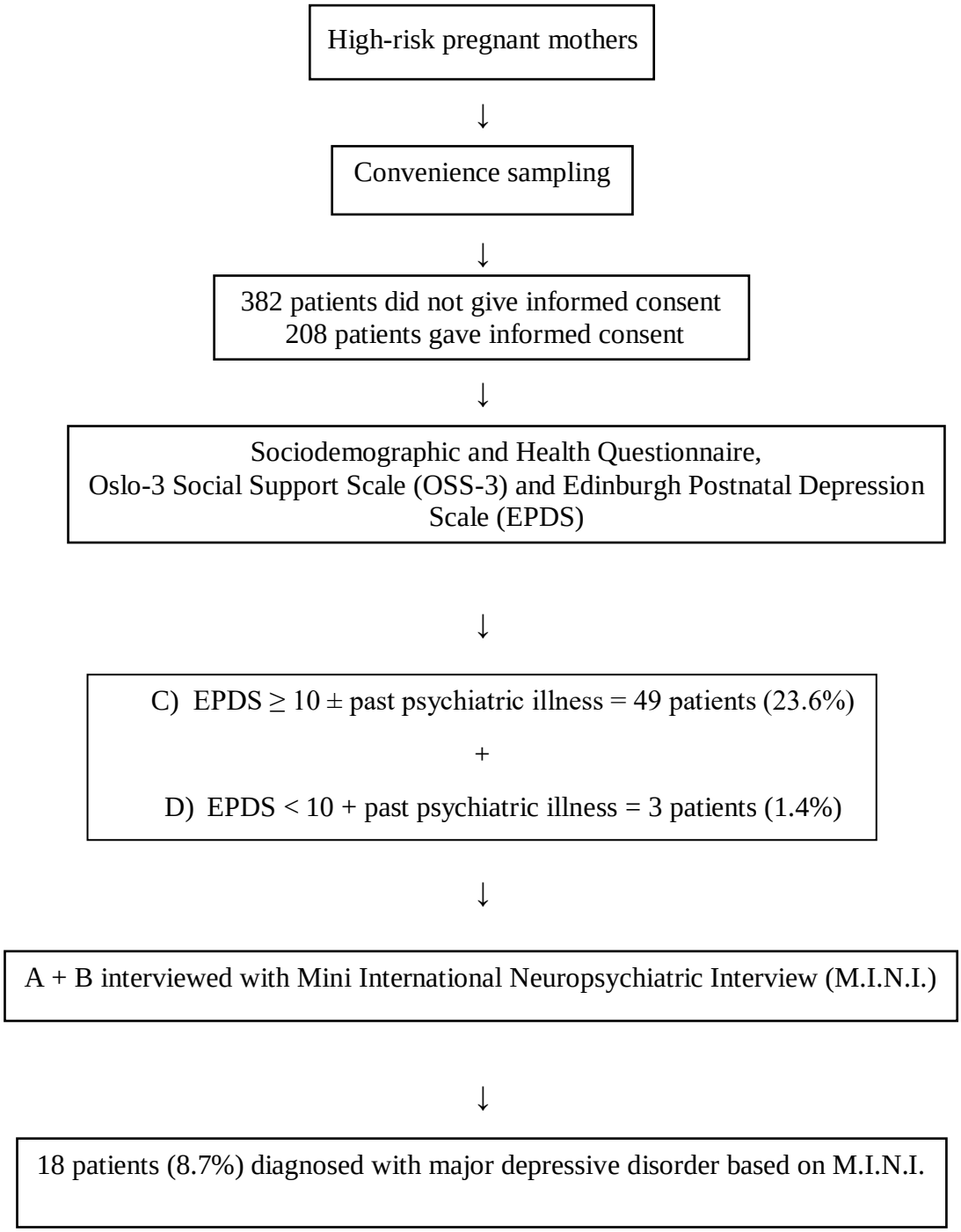
Yonkers KA, et al. (2009). The management of depression during pregnancy: a report from the American Psychiatric Association and the American College of Obstetricians and Gynecologists. *Obstetrics & Gynecology*,114(3): 703-713.

Zager R. (2009). The Global Library of Women's Medicine, *(ISSN: 1756-2228)*; DOI 10.3843/GLOWM.10155.

Zuckerman B, Amaro H, Bauchner H, Cabral H. (1989). Depressive symptoms during pregnancy: relationship to poor health behaviors. *American Journal of Obstetrics Gynecology*. 160: 1107–11.

Zhao Y et al. (2016). The prevalence of antenatal depression and its related factors in Chinese pregnant women who present with obstetrical complications. *Archives of Psychiatric Nursing.* 30(3): 316–321.

APPENDIX A: FLOWCHART OF STUDY METHOD



APPENDIX B

Level of Care and Risk Factors in Malaysian Antenatal Colour-Coding System

White Code

Level of care is by nurses at clinics.

Patient is allowed to deliver at any alternative delivery centre if she fulfils the terms as the following:

1. Gravida 2 – 5
2. No past obstetric problems that might recur or affect current pregnancy
3. No past medical problems
4. No medical or obstetrics problems during current pregnancy
5. Maternal height > 145 cm
6. Maternal age > 18 years and < 40 years
7. Married and has family support
8. Period of amenorrhoea > 37 weeks or < 41 weeks
9. Estimated fetal weight > 2 kg or < 3.5 kg

Green Code

Level of care is by medical officers at health clinics and subsequent care can be done together (shared care) with nurses under the supervision of medical officers.

Risk factors:

1. Rhesus negative
2. Maternal weight before pregnancy or during booking < 45 kg
3. Current medical problems including psychiatric problems and physically handicapped (except diabetes and hypertension)

4. Past gynaecological operation
5. Unsure of last menstrual period
6. Past history of continuous miscarriages ≥ 3 times
7. Past obstetrics history such as:
    - Caesarean section
    - Pregnancy-induced hypertension or eclampsia or diabetes
    - Perinatal death
    - Previous baby birth weight < 2.5 kg or > 4 kg
    - Third degree perineal tear
    - Retained placenta
    - Post-partum haemorrhage
    - Instrumental delivery
    - Prolonged labour
8. Multiple pregnancy
9. Blood pressure 140/90 mmHg without albuminuria
10. Haemoglobin between 9 - 11 g %
11. Glycosuria for 2 times
12. Albuminuria ≥ 1+
13. Maternal weight increased > 2 kg in a week
14. Maternal weight > 80 kg before pregnancy or during booking
15. Symphysio-fundal height is less or more than date
16. Breech or oblique or transverse without signs and symptoms of labour at 36 weeks of gestation
17. Head is not engaged at 37 weeks of gestation for primigravida
18. Gestational diabetes mellitus under diet control
19. Static or reduced maternal weight in a month

20. Maternal age > 40 years
21. Primigravida
22. Gravida 6 and above
23. Last birth < 2 years or > 5 years
24. Maternal height < 145 cm

Yellow Code

Referral for obstetric care by Obstetrics & Gynaecology Specialist or Family Medicine Specialist and subsequent care can be done together (shared care) with medical officers and nurses.

Risk factors:

1. Maternal HIV positive
2. Maternal Hepatitis B positive
3. Maternal tuberculosis or malaria or syphilis
4. Blood pressure >140/90 - < 170/100 mmHg without albuminuria
5. Diabetic with insulin treatment
6. Reduced fetal movement at ≥ 32 weeks of gestation
7. Pregnancy beyond 7 days of estimated date of delivery
8. Medical problems that need hospital treatment
9. Mothers with medico-legal issue
10. Single mother or adolescent mother (age < 19 years)
11. Haemoglobin 7 – 9 g% or symptomatic anaemia
12. Stable placenta previa without bleeding
13. Maternal pyrexia > 38°C or > 3 days
14. History of infertility before current pregnancy
15. Asymptomatic heart disease

16. Drugs or nicotine addiction

Red Code

Urgent referral to hospital and subsequent care (shared care) by Obstetrics & Gynaecology Specialist and Family Medicine Specialist.

Risk factors:

1. Eclampsia
2. Preeclampsia
3. Blood pressure ≥ 170/110 mmHg
4. Blood pressure > 140/90 mmHg with symptoms
5. Symptomatic heart disease during pregnancy
6. Breathlessness during mild exertions
7. Uncontrolled diabetes with ketonuria
8. Antepartum haemorrhage (including miscarriage)
9. Abnormal fetal heart rate ≤ 110/min ≥ 26 weeks of pregnancy or ≥ 160/min after 34 weeks of pregnancy
10. Symptomatic anaemia or haemoglobin ≤ 7g %
11. Premature uterine contraction
12. Leaking liquor without uterine contraction
13. Severe asthmatic attack
14. Seizure
15. Prolonged fever ≥ 5 days

APPENDIX C

Patient Information Sheet

PATIENT INFORMATION SHEET AND INFORMED CONSENT FORM

1.Title of study: Depression among mothers with high-risk pregnancy at Maternity Hospital Kuala Lumpur

2. Name of investigator and institution: Dr. Norashikin binti Khairuddin, Hospital Kuala Lumpur

3. Introduction:

You are invited to participate in this research study because you have a high-risk pregnancy that requires assessment for depression. The details of the research are described in this document. It is important that you understand why the research is being done and what things that are involved in this study. Please take your time to read through and consider this information carefully before you decide if you are willing to participate. Ask the study staff if anything is unclear or if you like to get more information. After you are properly satisfied that you understand this study and that you wish to participate, you must sign this informed consent form. To participate in this study, you are required to provide information regarding your socio-demographic data and health history to the investigator.

Your participation in this study is voluntary. You do not have to be in this study if you do not want to. You may also refuse to answer any questions you do not want to answer. If you volunteer to be in this study, you may withdraw from it at any time. If you withdraw, any data collected from you up to your withdrawal will still be used for the study. Your refusal to participate or withdrawal will not affect any medical or health benefits to which you are otherwise entitled.

This study has been approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia.

4. What is the purpose of the study?

The purpose of this study is to determine the prevalence of depression among mothers with high-risk pregnancy at Maternity Hospital Kuala Lumpur and to identify the factors associated with the depression. This research is necessary because identification of women who have depression or at risk of developing depression can facilitate prevention, assessment and treatment.

A total of 203 participants like you from Antenatal Clinic and Maternal Fetal Medicine Clinic at Maternity Hospital Kuala Lumpur will be participating. Your participation will be about 10 to 15 minutes.

5. What will happen if I decide to take part?

You will be given a questionnaire which consists of your socio-demographic data and health history. You might be interviewed for some of the questions. After completion of the questionnaire, you will be given another questionnaire to screen for depression. If you reach the cut-off point or score from the questionnaire, you will be interviewed further to establish the diagnosis of depression.

6. What are the benefits of being in this study?

There may or may not be any benefits to you. All the information from this study will be beneficial in improving the prevention, assessment, and management of depression in pregnancy.

7. Will my medical information be kept private?

All of your information obtained in this study will be kept and handled in a confidential manner, in accordance with the applicable laws and/or regulations. When publishing or presenting the study results, your identity will not be revealed without your expressed consent. Individuals involved in this study and in your medical care, qualified monitors and auditors, and governmental or regulatory authorities may inspect and copy your medical records, when appropriate and necessary.

Data from the study will be archived and may be transmitted outside the country for the purpose of analysis, but your identity will not be revealed at any time.

8. Who should I call if I have questions?

If you have any questions about the study, please contact the study doctor, Dr. Norashikin binti Khairuddin at telephone number 03-26934005.

If you have any questions about your rights as a participant in this study, please contact The Secretary, Medical Research & Ethics Committee, Ministry of Health Malaysia, at telephone number 03-22874032.

RISALAH MAKLUMAT PESAKIT DAN BORANG PERSETUJUAN ATAU KEIZINAN PESAKIT

1. Tajuk penyelidikan: Kemurungan di kalangan ibu yang mempunyai kehamilan berisiko tinggi di Hospital Bersalin Kuala Lumpur.

2. Nama penyelidik dan nama institusi: Dr. Norashikin binti Khairuddin, Hospital Kuala Lumpur.

3. Pengenalan:

Anda telah dijemput untuk menyertai penyelidikan ini kerana anda mempunyai kehamilan berisiko tinggi yang memerlukan penilaian daripada segi aspek kemurungan. Risalah ini menjelaskan hal-hal berkenaan penyelidikan tersebut dengan lebih mendalam dan terperinci. Amat penting bagi anda memahami tujuan penyelidikan ini dilakukan dan perkara yang dilakukan dalam penyelidikan ini. Sila ambil masa yang secukupnya untuk membaca dan mempertimbangkan perkara ini dengan teliti sebelum anda bersetuju untuk menyertai penyelidikan ini. Jika ada sebarang kemusykilan atau maklumat lanjut yang anda ingin tahu, anda boleh bertanya kepada mana-mana kakitangan yang terlibat dalam penyelidikan ini. Setelah anda berpuashati bahawa anda memahami penyelidikan ini, dan anda berminat untuk menyertai penyelidikan ini, anda dikehendaki menandatangani Borang Persetujuan atau Keizinan Pesakit pada muka surat akhir risalah ini. Bagi menyertai penyelidikan ini, anda perlu memberikan maklumat mengenai data sosio-ekonomi dan sejarah kesihatan anda.

Penyertaan anda dalam penyelidikan ini adalah secara sukarela. Anda tidak perlu menyertai penyelidikan ini jika anda tidak mahu. Anda juga mempunyai hak untuk tidak menjawab mana-mana soalan yang anda tidak mahu jawab. Anda juga boleh menarik diri daripada penyelidikan ini pada bila-bila masa. Jika anda menarik diri, segala maklumat yang telah diperolehi sebelum anda menarik diri tetap akan digunakan dalam penyelidikan ini. Jika anda tidak mahu menyertai ataupun menarik diri daripada penyelidikan ini, tindakan anda tidak akan menjejaskan segala hak dan keistimewaan perkhidmatan perubatan dan kesihatan yang selayaknya anda terima.

Penyelidikan ini telah mendapat kelulusan daripada Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia.

4. Apakah tujuan penyelidikan ini dilakukan?

Tujuan penyelidikan ini dilakukan adalah untuk mengetahui kelaziman masalah kemurungan di kalangan ibu yang mempunyai kehamilan berisiko tinggi di Hospital Bersalin Kuala Lumpur dan faktor-faktor yang berkaitan dengan masalah kemurungan tersebut. Penyelidikan ini diperlukan kerana pengesanan wanita yang mengalami kemurungan atau wanita yang berisiko mengalami kemurungan dapat memudahkan pencegahan, penilaian dan rawatan.

Sejumlah 203 orang pesakit seperti anda daripada Klinik Antenatal dan Klinik Perubatan Ibu Mengandung dan Janin di Hospital Bersalin Kuala Lumpur akan menyertai penyelidikan ini. Tempoh pembabitan anda dianggarkan selama 10 hingga 15 minit.

5. Apakah yang terjadi kepada saya sekiranya saya bersetuju untuk menyertai penyelidikan ini?

Anda dikehendaki menjawab soalan-soalan berkaitan dengan data sosio-ekonomi dan sejarah kesihatan anda secara bertulis atau secara lisan atau kedua-duanya. Setelah selesai menjawab soalan-soalan tersebut, anda dikehendaki menjawab soalan-soalan berkaitan dengan kemurungan. Sekiranya anda mencapai tahap atau markah yang tertentu hasil daripada penilaian tersebut, anda akan ditemuramah bagi mengenalpasti sama ada anda mengalami masalah kemurungan ataupun tidak.

6. Apakah manfaatnya saya menyertai kajian ini?

Penyelidikan ini mungkin akan mendatangkan manfaat ataupun langsung tidak memberi apa-apa manfaat kepada anda. Segala maklumat yang diperolehi daripada penyelidikan ini akan dapat membantu dalam penambahbaikan kepada penccgahan, penilaian dan rawatan kepada pesakit lain yang mengalami masalah kemurungan.

7. Adakah maklumat perubatan saya akan dirahsiakan?

Segala maklumat anda yang diperolehi dalam penyelidikan ini akan disimpan dan dikendalikan secara sulit. bersesuaian dengan peraturan-peraturan dan / atau undang-undang yang berkenaan. Sekiranya hasil penyelidikan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran daripada anda terlebih dahulu. Pihak-pihak tertentu seperti individu yang terlibat dalam penyelidikan dan rawatan perubatan anda, juruaudit dan jurupantau yang terlatih, pihak berkuasa kerajaan atau undang-undang, boleh memeriksa dan membuat salinan laporan perubatan anda jika berkenaan dan diperlukan.

8. Siapakah yang perlu saya hubungi sekiranya saya mempunyai sebarang pertanyaan?

Anda boleh menghubungi doktor penyelidikan ini iaitu Dr. Norashikin binti Khairuddin melalui talian 03-26934005 sekiranya anda mempunyai sebarang pertanyaan mengenai penyelidikan ini.

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anda sebagai pesakit dalam penyelidikan ini, sila hubungi Setiausaha Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia melalui talian 03-22874032.

APPENDIX D

Informed Consent Form

INFORMED CONSENT FORM

Title of Study: Depression among mothers with high-risk pregnancy at Maternity Hospital Kuala Lumpur.

By signing below, I confirm the following:

I have been given oral and written information for the above study and have read and understood the information given.

I have had sufficient time to consider participation in the study and have had the opportunity to ask questions and all my questions have been answered satisfactorily.

I understand that my participation is voluntary and I can at any time withdraw from the study without giving a reason and this will in no way affect my future treatment.

I understand the risks and benefits, and I freely give my informed consent to participate under the conditions stated.

I understand that study staff, qualified monitors and auditors, and governmental or regulatory authorities, have direct access to my medical record in order to make sure that the study is conducted correctly and the data are recorded correctly. All personal details will be treated as STRICTLY CONFIDENTIAL.

I agree / disagree* for my treating doctor to be informed of my participation in this study *(* delete which is not applicable).*

I will receive a copy of this information sheet and informed consent form which has been signed and dated to be brought home.

Subject:

Signature: I/C number:
Name: Date:

Investigator conducting informed consent:

Signature : I/C number:

Name: Date:

Impartial witness: (Required if subject is illiterate and contents of patient information sheet is orally communicated to subject)

Signature: I/C number:

Name: Date:

BORANG PERSETUJUAN ATAU KEIZINAN PESAKIT

Tajuk Penyelidikan : Kemurungan di kalangan ibu yang mempunyai kehamilan berisiko tinggi di Hospital Bersalin Kuala Lumpur.

Dengan menandatangani di bawah, saya mengesahkan bahawa :

Saya telah diberi maklumat tentang penyelidikan di atas secara lisan dan bertulis dan saya telah membaca dan memahami segala maklumat yang diberikan dalam risalah ini.

Saya telah diberikan masa yang secukupnya bagi mempertimbangkan penyertaan saya dalam penyelidikan ini dan telah diberi peluang untuk bertanyakan soalan dan semua persoalan saya telah dijawab dengan sempurna dan memuaskan.

Saya juga faham bahawa penyertaan saya adalah secara sukarela dan pada bila-bila masa saya bebas menarik diri daripada penyelidikan ini tanpa memberikan sebarang alasan dan ianya sama sekali tidak akan menjejaskan rawatan perubatan saya pada masa akan datang.

Saya juga memahami tentang manfaat penyelidikan ini dan saya secara sukarela memberi persetujuan untuk menyertai penyelidikan ini di bawah syarat-syarat yang telah dinyatakan di atas.

Saya faham bahawa kakitangan penyelidikan, pemantau dan juruaudit terlatih, dan pihak berkuasa kerajaan atau undang-undang, mempunyai hak secara langsung dan boleh menyemak laporan perubatan saya bagi memastikan penyelidikan ini dijalankan dengan betul dan data direkodkan dengan betul. Segala maklumat dan data peribadi akan dianggap sebagai SULIT.

Saya akan menerima satu salinan 'Risalah Maklumat Pesakit dan Borang Persetujuan atau Keizinan Pesakit' yang telah lengkap dengan tarikh dan tandatangan untuk dibawa pulang ke rumah.

Saya bersetuju / tidak bersetuju* untuk doktor yang merawat saya diberitahu tentang penyertaan saya dalam penyelidikan ini. *(*Potong mana yang tidak berkenaan)*

Peserta :

Tandatangan : Nombor K/P :
Nama : Tarikh :

Penyelidik yang mengendalikan proses menandatangani borang keizinan :

Tandatangan : Nombor K/P :
Nama : Tarikh :

Saksi tidak-berpihak/adil: *(Diperlukan jika peserta adalah buta huruf dan kandungan risalah maklumat pesakit disampaikan secara lisan kepada peserta)*

Tandatangan: Nombor K/P :
Nama : Tarikh :

APPENDIX E

Sociodemographic and Health Questionnaire

SOCIO-DEMOGRAPHIC AND HEALTH QUESTIONNAIRE

1) Age: _____ years

2) Race: ☐ Malay ☐ Chinese ☐ Indian ☐ Others (Please specify _____)

3) Marital Status: ☐ Married ☐ Separated ☐ Widow ☐ Single

4) Occupation:_____

5) Gravidity:_____ (Number of Current Pregnancy)

6) Parity:_____ (Example: Number of Deliveries = 3; Number of Miscarriages = 2, so Parity = 3+2)

7) Weeks of Pregnancy:_____

8) Pregnancy Intendedness: *Planned pregnancy / Unplanned pregnancy (delete where applicable)

9) Psychiatric History (History of Mental Illness):

10) Medical and Surgical History:

11) Obstetric History (History of Previous Pregnancies, Miscarriages and Deliveries; and Current Pregnancy):

12) Family History of Psychiatric Illness (History of Mental Illness in Family):

13) Education Level:

14) Monthly Household Income: RM_____

15) Substance History (History of Intake of Cigarette, Alcohol, Illict Drugs and Other Substances) :

16) Social Support (ssing Oslo-3 Social Support Scale):
→Please turn to the page behind

SOALAN SOSIO-DEMOGRAFIK DAN KESIHATAN

1) Umur : _____ tahun

2) Bangsa: ☐ Melayu ☐ Cina ☐ India ☐Lain-lain (Sila nyatakan _____)

3) Status Perkahwinan: ☐ Berkahwin ☐ Janda ☐ Bercerai ☐ Bujang

4) Pekerjaan:_____

5) Gravida:_____ (Bilangan kandungan terkini)

6) Para:_____ (Contoh: Bilangan anak = 3 orang + Bilangan keguguran = 2 orang; maka Para = 3 + 2)

7) Minggu Kehamilan:_____

8) Status Kehamilan: *Kehamilan yang dirancang / Kehamilan yang tidak dirancang (potong mana yang tidak berkenaan)

9) Sejarah Psikiatri (Sejarah penyakit mental):

10) Sejarah Perubatan dan Pembedahan:

11) Sejarah Obstetrik (Sejarah kandungan dan keguguran terdahulu dan sekarang):

12) Sejarah Psikiatri Keluarga (Sejarah penyakit mental dalam keluarga):

13) Tahap Pendidikan:

14) Pendapatan Sebulan Seisi Rumah: RM_____

15) Sejarah Pengambilan Ubat dan Bahan-Bahan (termasuk rokok, alkohol dan bahan-bahan terlarang):

16) Sokongan Sosial (menggunakan Skala Sokongan Sosial Oslo-3 atau *Oslo-3 Social Support Scale*)

→Sila lihat mukasurat belakang

APPENDIX F

Oslo-3 Social Support Scale (OSS-3)

Oslo-3 Social Support Scale (OSS-3) (source; Dalgard et al., 2006)

*Instruction: Please tick (√) where applicable.

1) **How many people are so close to you that you can count on them if you have serious problems?**

- ☐ None
- ☐ 1 or 2
- ☐ 3 to 5
- ☐ 6 or more

2) **How much concern do people show in what you are doing?**

- ☐ A lot of concern and interest
- ☐ Some concern and interest
- ☐ Uncertain
- ☐ Little concern and interest
- ☐ No concern and interest

3) **How easy can you get help from neighbours if you should need it?**

- ☐ Very easy
- ☐ Easy
- ☐ Possible
- ☐ Difficult
- ☐ Very difficult

Dalgard OS, Dowrick C, Lehtinen V, Vazquez-Barquero JL, Casey P, Wilkinson G, et al: Negative life events, social support and gender difference in depression: A multinational community survey with data from the ODIN study. Soc Psychiatry Psychiatr Epidemiol. 2006, 41: 444-51

Skala Sokongan Sosial Oslo-3 atau *Oslo-3 Social Support Scale* (OSS-3) (source; Dalgard et al., 2006)

*Arahan: Sila tandakan (√) di dalam kotak yang berkenaan.

1) **Berapakah bilangan orang yang rapat dengan anda yang boleh diharapkan sekiranya sesuatu masalah yang serius berlaku kepada anda?**

- ☐ Tiada
- ☐ 1 hingga 2
- ☐ 3 hingga 5
- ☐ Lebih daripada 5

2) **Sejauh manakah apa yang anda lakukan diambilberat oleh orang lain?**

- ☐ Sangat diambil berat
- ☐ Agak diambil berat
- ☐ Tidak pasti
- ☐ Sedikit diambil berat
- ☐ Tidak diambil berat

3) **Bolehkah anda mendapatkan pertolongan daripada jiran-jiran jika anda memerlukannya?**

- ☐ Sangat mudah
- ☐ Mudah
- ☐ Mungkin boleh
- ☐ Sukar
- ☐ Sangat sukar

Dalgard OS, Dowrick C, Lehtinen V, Vazquez-Barquero JL, Casey P, Wilkinson G, et al: Negative life events, social support and gender difference in depression: A multinational community survey with data from the ODIN study. Soc Psychiatry Psychiatr Epidemiol. 2006, 41: 444-51

APPENDIX G

Edinburgh Postnatal Depression Scale (EPDS)

Edinburgh Postnatal Depression Scale[1] (EPDS)

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

Here is an example, already completed.

I have felt happy:
- ☐ Yes, all the time
- ☒ Yes, most of the time
- ☐ No, not very often
- ☐ No, not at all

This would mean: "I have felt happy most of the time" during the past week. Please complete the other questions in the same way.

In the past 7 days:

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

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

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

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

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

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

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

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

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

10 The thought of harming myself has occurred to me
   - ☐ Yes, quite often
   - ☐ Sometimes
   - ☐ Hardly ever
   - ☐ Never

Administered/Reviewed by _____ Date _____

[1]Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786 .

[2]Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

SKALA DEPRESI POSTNATUM EDINBURGH
(TRANSLATION – MALAY)

Bagaimana perasaan anda?
Oleh sebab anda mengandung, kami ingin bertanya bagaimana perasaan anda. Sila gariskan jawapan yang paling tepat untuk perasaan anda pada 7 hari terakhir, bukan sahaja perasaaan anda hari ini. Berikut ini ialah contoh yang telah dijawab:

Saya berasa gembira:

Ya, kebanyakan masa
Ya, sebahagian masa
Tidak, tidak begitu gembira
Tidak, sama sekali

Ini akan bermakna: 'Saya berasa gembira sebahagian masa selama minggu terakhir.'

Sila jawab soalan lain dengan cara yang sama.

Pada 7 hari terakhir:

1. Saya dapat tertawa dan melihat hal secara lucu:
   Sama seperti biasa
   Agak tidak begitu sering sekarang
   Pasti tidak begitu sering
   Tidak sama sekali

2. Saya suka menantikan sesuatu berlaku:
   Sama seperti biasa
   Agak tidak begitu sering sekarang
   Pasti tidak begitu sering
   Jarang sekali

3. Saya menyalahkan diri sendiri apabila masalah timbul:
   Ya, kebanyakan masa
   Ya, sebahagian masa
   Tidak begitu sering
   Tidak, sama sekali

4. Saya resah dan bimbang tanpa sebab:
   Tidak, sama sekali
   Jarang sekali
   Ya, kadangkala
   Ya, sering sekali

(Sila jawab soalan 5-10 pada halaman sebelah)

5. Saya berasa takut atau panik tanpa sebab:
   - Ya, agak sering
   - Ya, kadangkala
   - Tidak begitu sering
   - Tidak, sama sekali

6. Saya berasa terdesak:
   - Ya, kebanyakan masa saya tidak dapat menghadapi keadaan sama sekali
   - Ya, adakalanya saya tidak menghadapi keadaan seperti biasa
   - Tidak, kebanyakan masa saya menghadapi keadaan dengan cukup baik
   - Tidak, saya menghadapi keadaan dengan sebaik mungkin

7. Saya begitu sedih sehingga susah tidur:
   - Ya, kebanyakan masa
   - Ya, agak sering
   - Tidak begitu sering
   - Tidak, sama sekali

8. Saya berasa sedih atau sengsara:
   - Ya, kebanyakan masa
   - Ya, agak sering
   - Tidak begitu sering
   - Tidak, sama sekali

9. Saya begitu sedih sehingga saya menangis:
   - Ya, kebanyakan masa
   - Ya, agak sering
   - Kadang-kadang sahaja
   - Tidak pernah

10. Saya terfikir ingin membahayakan diri sendiri:
    - Ya, agak sering
    - Kadangkala
    - Jarang sekali
    - Tidak pernah

APPENDIX H

Mini International Neuropsychiatric Interview (M.I.N.I.)

A. MAJOR DEPRESSIVE EPISODE

(➡ MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

A1 a Were you ever depressed or down, most of the day, nearly every day, for two weeks? NO YES

IF NO, CODE NO TO A1b: IF YES ASK:

b For the past two weeks, were you depressed or down, most of the day, nearly every day? NO YES

A2 a Were you ever much less interested in most things or much less able to enjoy the things you used to enjoy most of the time, for two weeks? NO YES

IF NO, CODE NO TO A2b: IF YES ASK:

b In the past two weeks, were you much less interested in most things or much less able to enjoy the things you used to enjoy, most of the time? NO YES

IS A1a OR A2a CODED YES? ➡ NO YES

A3 IF A1b OR A2b = YES: EXPLORE THE CURRENT AND THE MOST SYMPTOMATIC PAST EPISODE, OTHERWISE
IF A1b AND A2b = NO: EXPLORE ONLY THE MOST SYMPTOMATIC PAST EPISODE

Over that two week period, when you felt depressed or uninterested:

	Past 2 Weeks		Past Episode	
a Was your appetite decreased or increased nearly every day? Did your weight decrease or increase without trying intentionally (i.e., by ±5% of body weight or ±8 lb or ± 3.5 kg, for a 160 lb/70 kg person in a month)? IF YES TO EITHER, CODE YES.	NO	YES	NO	YES
b Did you have trouble sleeping nearly every night (difficulty falling asleep, waking up in the middle of the night, early morning wakening or sleeping excessively)?	NO	YES	NO	YES
c Did you talk or move more slowly than normal or were you fidgety, restless or having trouble sitting still almost every day?	NO	YES	NO	YES
d Did you feel tired or without energy almost every day?	NO	YES	NO	YES
e Did you feel worthless or guilty almost every day?	NO	YES	NO	YES
IF YES, ASK FOR EXAMPLES. THE EXAMPLES ARE CONSISTENT WITH A DELUSIONAL IDEA. Current Episode ☐ No ☐ Yes; Past Episode ☐ No ☐ Yes				
f Did you have difficulty concentrating or making decisions almost every day?	NO	YES	NO	YES
g Did you repeatedly consider hurting yourself, feel suicidal, or wish that you were dead? Did you attempt suicide or plan a suicide? IF YES TO EITHER, CODE YES.	NO	YES	NO	YES
A4 Did these symptoms cause significant problems at home, at work, socially, at school or in some other important way?	NO	YES	NO	YES

A5 In between 2 episodes of depression, did you ever have an interval of at least 2 months, without any significant depression or any significant loss of interest? N/A NO YES

ARE 5 OR MORE ANSWERS (A1-A3) CODED YES AND IS A4 CODED YES FOR THAT TIME FRAME?

SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST.

IF A5 IS CODED YES, CODE YES FOR RECURRENT.

NO	YES
MAJOR DEPRESSIVE EPISODE	
CURRENT	☐
PAST	☐
RECURRENT	☐

A6 a How many episodes of depression did you have in your lifetime? ____

Between each episode there must be at least 2 months without any significant depression.

A. EPISOD KEMURUNGAN MAJOR (MAJOR DEPRESSIVE EPISODE)

(➔ BERMAKNA: PERGI KE KOTAK DIAGNOSTIK, BULATKAN TIDAK DALAM SEMUA KOTAK DIAGNOSTIK, DAN MAJU KE MODUL SETERUSNYA)

A1	a	Pernahkah anda berasa murung atau sedih, pada kebanyakan masa dalam sehari, hampir setiap hari, selama dua minggu?	TIDAK	YA
		JIKA TIDAK, KODKAN TIDAK PADA A1b: JIKA YA TANYAKAN:		
	b	Sepanjang dua minggu lalu, adakah anda berasa murung atau sedih, pada kebanyakan masa dalam sehari, hampir setiap hari?	TIDAK	YA
A2	a	Pernahkah anda tidak berapa berminat dalam kebanyakan perkara atau tidak berapa dapat menikmati apa yang anda biasa nikmati pada kebanyakan masa, selama dua minggu?	TIDAK	YA
		JIKA TIDAK, KODKAN TIDAK PADA A2b: JIKA YA TANYAKAN:		
	b	Sepanjang dua minggu lalu, adakah anda tidak berapa berminat dalam kebanyakan perkara atau tidak berapa dapat menikmati perkara yang biasa anda nikmati, pada kebanyakan masa?	TIDAK	YA
		ADAKAH A1a ATAU A2a DIKODKAN YA?	➔ TIDAK	YA

A3 JIKA **A1b** ATAU **A2b** = YA: TEROKAI EPISOD SEMASA DAN LALU YANG PALING SIMPTOMATIK, JIKA TIDAK
JIKA **A1b** DAN **A2b** = TIDAK: TEROKAI HANYA EPISOD LALU YANG PALING SIMPTOMATIK

Sepanjang tempoh dua minggu tersebut, apabila anda berasa murung atau tidak berminat:

		2 Minggu Lalu	Episod Lalu
a	Adakah selera makan anda berkurang atau bertambah hampir setiap hari? Adakah berat anda berkurang atau bertambah tanpa sengaja mencuba (iaitu, sebanyak ±5% berat badan atau ±8 lb atau ±3.5 kg, untuk seseorang seberat 150 lb/70 kg dalam sebulan)? JIKA YA PADA MANA-MANA SAHAJA SATU, KODKAN YA.	TIDAK YA	TIDAK YA
b	Adakah anda menghadapi masalah tidur hampir setiap malam (sukar untuk tidur, terjaga pada tengah malam, terjaga pada awal pagi atau tidur berlebihan)?	TIDAK YA	TIDAK YA
c	Adakah anda bercakap atau bergerak lebih perlahan daripada biasa atau resah gelisah, gelisah atau sukar untuk duduk diam hampir setiap hari?	TIDAK YA	TIDAK YA
d	Adakah anda berasa letih atau tidak bertenaga hampir setiap hari?	TIDAK YA	TIDAK YA
e	Adakah anda berasa tidak berguna atau bersalah hampir setiap hari? JIKA YA, MINTA BERI CONTOH. CONTOH ADALAH KONSISTEN DENGAN IDEA DELUSI. Episod Semasa ☐ Tidak☐ Ya Episod Lalu ☐ Tidak☐ Ya	TIDAK YA	TIDAK YA
f	Adakah anda sukar menumpukan perhatian atau membuat keputusan hampir setiap hari?	TIDAK YA	TIDAK YA
g	Adakah anda berulang kali mempertimbangkan untuk mencederakan diri anda sendiri, rasa hendak membunuh diri, atau ingin mati? Adakah anda cuba untuk membunuh diri atau merancang untuk membunuh diri? JIKA YA PADA SALAH SATU, KODKAN YA.	TIDAK YA	TIDAK YA

		TIDAK	YA	TIDAK	YA
A4	Adakah simptom ini menyebabkan masalah yang ketara di rumah, tempat kerja, secara sosial, di sekolah atau dalam perkara lain yang penting?				
A5	Antara 2 episod kemurungan, pernahkah anda alami waktu selang sekurang-kurangnya 2 bulan, tanpa sebarang kemurungan ketara atau apa-apa kehilangan minat yang ketara?			TIDAK	YA

ADAKAH 5 ATAU LEBIH JAWAPAN (A1-A3) DIKODKAN YA DAN A4 DIKODKAN YA UNTUK RANGKA MASA TERSEBUT?

TENTUKAN JIKA EPISOD ITU SEMASA DAN / ATAU LALU

JIKA A5 DIKODKAN YA, KODKAN YA UNTUK BERULANG.

TIDAK	YA
EPISOD KEMURUNGAN MAJOR	
SEMASA	☐
LALU	☐
BERULANG	☐

A6 a Berapa banyak episod kemurungan yang dialami sepanjang hayat anda? ___

Antara setiap episod mesti ada sekurang-kurangnya 2 bulan tanpa apa-apa kemurungan ketara.

APPENDIX I

Approval Letter by Medical Research and Ethics Committee

JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(Medical Research & Ethics Committee)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 KUALA LUMPUR

Tel.: 03-2287 4032/2282 0491/2282 9065
03-2282 9082/2282 1402/2282 1449
Faks: 03-2282 0015

Ruj. Kami : (5)KKM/NIHSEC/P16-509
Tarikh : 7hb April 2016

DR NORASHIKIN BINTI KHAIRUDDIN
UNIVERSITY OF MALAYA (UM)

TUAN/PUAN,

NMRR- 16-218-29296 (IIR)
Depression among mothers with high-risk pregnancy at Maternity Hospital Kuala Lumpur

Lokasi Kajian:
HOSPITAL KUALA LUMPUR

Dengan hormatnya perkara di atas adalah dirujuk.

2. Jawatankuasa Etika & Penyelidikan Perubatan (JEPP), Kementerian Kesihatan Malaysia (KKM) tiada halangan, dari segi etika, ke atas pelaksanaan kajian tersebut. JEPP mengambil maklum bahawa kajian tersebut hanya melibatkan pengumpulan data melalui **borang kaji selidik dan temuramah** sahaja.

3. Segala rekod dan data subjek adalah **SULIT** dan hanya digunakan untuk tujuan kajian ini dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi.

4. **Kebenaran daripada Pegawai Kesihatan Daerah/Pengarah Hospital dan Ketua-Ketua Jabatan atau pegawai yang bertanggungjawab disetiap lokasi kajian di mana kajian akan dijalankan mesti diperolehi sebelum kajian dijalankan. Dato'/Dr/ Tuan/ Puan perlu akur dan mematuhi keputusan tersebut. Sila rujuk kepada garis panduan Institut Kesihatan Negara mengenai penyelidikan di Institusi dan fasiliti Kementerian Kesihatan Malaysia (Pindaan 01/2015) serta lampiran *Appendix 5* untuk templet surat memohon kebenaran tersebut.**

5. Adalah dimaklumkan bahawa kelulusan ini adalah sah sehingga **6hb April 2017**.Dato'/Dr./ Tuan/ Puan perlu menghantar perkara-perkara berikut kepada JEPP selepas mengikut kesesuaian. Borang-borang berkaitan boleh dimuat turun daripada laman web MREC (http://www.nih.gov.my/mrec).

I. Borang ***Continuing Review Form*** perlu dihantar ke JEPP selewat-lewatnya 2 bulan sebelum tamat tempoh kelulusan ini bagi memperbaharui kelulusan etika.
II. ***Study Final Report*** perlu dihantar ke JEPP pada penghujung kajian.
III. Mendapat kelulusan etika sekiranya terdapat pindaan ke atas sebarang dokumen kajian/ lokasi kajian/ penyelidik.

6. Sila ambil maklum bahawa sebarang urusan surat-menyurat berkaitan dengan penyelidikan ini haruslah dinyatakan nombor rujukan surat ini untuk melicinkan urusan yang berkaitan.

Sekian terima kasih.

BERKHIDMAT UNTUK NEGARA

Saya yang menurut perintah,

.....

(DATO' DR. CHANG KIAN MENG)
Pengerusi
Jawatankuasa Etika & Penyelidikan Perubatan
Kementerian Kesihatan Malaysia