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SOCIOLOGICAL, BIOLOGICAL AND BEHAVIORAL FACTORS IN RELATION WITH MATERNAL PSYCHOLOGICAL STATE AMONG MOTHER-INFANT DYADS IN WILAYAH PERSEKUATUAN HOSPITALS

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BY

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A project submitted as a partial fulfilment of the requirement for the degree of Bachelor of Science (Dietetics) from the Faculty Medicine and Health Sciences, Universiti Putra Malaysia.

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ABSTRACT

SOCIOLOGICAL, BIOLOGICAL AND BEHAVIORAL FACTORS IN RELATION WITH MATERNAL PSYCHOLOGICAL STATE AMONG MOTHER-INFANT DYADS IN WILAYAH PERSEKUATUAN HOSPITALS

Olivia Senjaya

Introduction: Maternal psychological distress is a detrimental factor affecting both mother and infant's wellbeing. This study aims to determine factors associated with maternal psychological state among mother-infant dyads. **Methods:** A cross-sectional study consisted of 219 participants recruited from Women and Children Hospital

Kuala Lumpur and Hospital Putrajaya was carried out between February and March 2020. Sociological (maternal sociodemographic characteristic, maternity care and social support), biological (obstetric characteristic, birth experience and infant factors), behavioral factors (breastfeeding practice, challenges and self-efficacy) and maternal psychological state were assessed using a self-administered questionnaire. **Results:** Most mothers had moderate level of stress (n=144, 65.8%, *M*=16.66, *SD*=5.43) and minimal to mild level of anxiety (n=164, 74.9%, *M*=11.46, *SD*=11.18). Around 1 in 4 mothers had depression (n=53, 24.2%, *M*=9.37, *SD*=5.32). Sociological factors found to be significantly associated with maternal psychological distress are mother's age, marital status, social support, and traditional postpartum care such as massage ($p<0.05$). Biological factors found to be significantly associated with maternal psychological state were number of children, initiation of breastfeeding, infant's age, birth weight, and weight-for-age z score ($p<0.05$). Behavioral factors found to be significantly associated with maternal psychological state are duration of first milk expression, satisfaction on breastfeeding experience, breastfeeding problems and pain, as well as breastfeeding self-efficacy ($p<0.05$). **Conclusion:** The prevalence of maternal psychological distress has displayed an importance to perform screening among mothers. Furthermore, maternal psychological health should be taken into account as part of postpartum care to ensure wellbeing of mothers and infants. Multiple factors, some were modifiable, have shown to influence maternal psychological state.

ABSTRAK

PERKAITAN ANTARA FAKTOR SOSIOLOGI, BIOLOGI DAN TINGKAH LAKU DENGAN STATUS PSIKOLOGI IBU DALAM KALANGAN PASANGAN IBU-BAYI DI HOSPITAL WILAYAH PERSEKUTUAN.

Olivia Senjaya

Pengenalan: Status psikologi ibu merupakan faktor yang mempengaruhi kesihatan ibu dan bayi. Kajian ini bertujuan untuk mengenal pasti faktor perilaku, sosiologi dan bilogi yang mempengaruhi psikologi ibu. **Kaedah:** Kajian yang melibatkan 219 pasangan ibu-bayi di Hospital Wanita dan Kanak-kanak Kuala Lumpur dan Hospital Putrajaya telah dijalankan pada Februari hingga Mac 2020. Faktor sosiologi (sosiodemografi ibu, penjagaan ibu selepas bersalin, dan sokongan sosial), biologi (ciri-ciri obstetrik dan faktor bayi), perilaku (amalan penyusuan dan efikasi diri dalam penyusuan) dan status psikologi ibu dinilai dengan menggunakan borang soal selidik. **Keputusan:** Kebanyakan ibu mengalami tahap tekanan yang sederhana (n=144, 65.8%, *M*=16.66, *SD*=5.43) dan tahap kebimbangan yang ringan (n=164, 74.9%, *M*=11.46, *SD*=11.18). 1 dari 4 ibu menunjukkan saringan positif terhadap kemurungan (n=53, 24.2%, *M*=9.37, *SD*=5.32). Faktor sosiologi yang mempunyai hubungan signifikan dengan status psikologi ibu adalah umur ibu, status perkahwinan, sokongan sosial, dan penjagaan tradisional selepas bersalin seperti urut ($p<0.05$). Faktor biologi yang berhubungan signifikan dengan status psikologi ibu dalah bilangan anak, permulaan penyusuan susu ibu, umur bayi, berat lahir, dan z skor berat untuk umur ($p<0.05$). Faktor perilaku yang mempunyai hubungan signifikan dengan status psikologi ibu adalah masa yang diambil untuk menghasilkan susu badan awal, perasaan terhadap penyusuan susu ibu, masalah penyusuan, rasa sakit, dan efikasi diri untuk menyusu ($p<0.05$). **Kesimpulan:** Prevalens status psikologi ibu telah menunjukkan kepentingan untuk menjalankan pemeriksaan atau saringan dalam kalangan ibu selepas bersalin. Kesihatan psikologi ibu harus diambil kira sebagai bahagian dari penjagaan selepas bersalin untuk memastikan kesihatan ibu dan bayi.

CHAPTER 1

INTRODUCTION

1.1 Background

UNICEF Innocenti (2018) stated that the first 1000 days of human life is a period of time where optimum health, growth and foundation of neurodevelopment are established in infant. In other words, the first 1000 days of life creates the foundation of a person's future health and life capacity. In particular, breastfeeding greatly influence child's health, growth and development. Optimum growth, development, as well as health can be achieved if infants are breastfed exclusively for 6 months and continued with addition of appropriate complementary feeding (WHO, 2019). The latest data on breastfeeding practice from UNICEF (2019) have shown that only 42% of infants aged 0-5 months worldwide are exclusively breastfed in 2018. Whereas in Malaysia, the data was obtained from the latest National Health and Morbidity Survey on Maternal and Child Health showing prevalence of 47.1% exclusive breastfeeding among infants 6 months and below (IPH, 2016).

Breastfeeding practice and early cessation are highly affected by breastfeeding challenges or difficulties. Poor technique of breastfeeding, especially positioning and latching are known to lead to breast health problem such as cracked nipples, engorgement and mastitis (WHO/UNICEF, 1993). Another factor that determines the practice of breastfeeding is self-efficacy. Breastfeeding self-efficacy or also known as confidence in the ability to effectively breastfeed is a well-known factor in the continuation of breastfeeding (Dennis & Faux, 1999). A study by Henshaw, Fried,

Siskind, Newhouse, and Cooper (2015) found that high breastfeeding self-efficacy is negatively correlated with depressive symptom and is positively correlated with 6 months exclusive breastfeeding, as recommended by World Health Organization.

It is important to look deeper into maternal psychological state because of its association with breastfeeding, which in return could be associated with child's health, growth and development. A study by Doulougeri et al. (2013) found that postpartum stress may hinder establishment of a successful breastfeeding.

It is well established that lack of social support lead to higher risk of developing symptoms related to maternal postpartum depression (Brugha et al., 1998; Ege et al., 2008; Hung & Chung, 2001). Another factor that may be associated with maternal psychological state is maternity care. Traditional cultural practice as part of maternity care is very common among Asian countries, including Malaysia. During this period of time, several practices that involve the usage of herbs, heat, massage as well as avoidance of certain foods are observed (Fadzil, Shamsuddin, & Wan Puteh, 2016). As part of the cultural practice, maternity care in the form of confinement practice may either become a source of comfort or stress that may either positively or negatively associate with psychological state. Therefore, it is important to explore the relation of maternal stress and maternity care, including traditional confinement practice.

Infant health condition is another factor that may be associated with maternal psychological state. Preterm birth has significant psychosocial implications among mothers, especially when the babies are admitted to neonatal intensive care unit (NICU) (Chertok et al., 2014). The same goes with birth and neonatal experiences of mothers whose infants are presented with health conditions.

1.2 Problem Statement

According to World Health Organization (2015), around 1 in 10 pregnant women and women who just gave birth experience mental disorder. The prevalence of mental disorder or illness is even higher in developing countries with 15% among pregnant women and 19.8% among mothers after birth (WHO, 2015). A systematic review of 64 studies in 17 countries by Klainin and Arthur (2009) shown that prevalence of postpartum depression in Asian country ranged from 3.5% to 63.3% with Malaysia in the lowest (3.5%). In addition to this data, another recent review on the prevalence of postnatal depression in Malaysia by Roshaidai Mohd Arifin, Cheyne, and Maxwell (2018) reported that the average rate of maternal postnatal depression within the first 6 months among Malaysian mothers in Kuala Lumpur, Sabah and Kelantan is 17.05% (ranging from 6.8% to 27.3%). Hence, it would be important to determine the current prevalence in urban area, specifically the capital of Malaysia, Wilayah Persekutuan Kuala Lumpur and Putrajaya, in which the environmental factors leading to stress would likely be higher. For example, a study by Lederbogen et al. (2011) suggested that urban social environment has negative effect on mental health. Another study suggested that mood and anxiety disorders, as well as incidence of schizophrenia are more prevalent among those who are born, raised and lives in the city (Krabbendam & Van Os, 2005; Peen et al., 2010). Therefore, it is important to seek the prevalence of maternal psychological state and its associated mother-infant factors among population in the urban area, specifically in Wilayah Persekutuan Malaysia.

Maternal psychological distress and breastfeeding practice are intercorrelated to each other as breastfeeding is stimulated by hormones, and psychological state could either stimulate or interrupt these hormone changes during breastfeeding. For instance, a study by Stuebe, Grewen, and Meltzer-Brody (2013) found that oxytocin, a hormone involved in breastfeeding process is correlated with higher likeliness to experience postpartum depression. Another study reported that stressful life events experienced anytime throughout pregnancy results in higher odds of early discontinuation of breastfeeding (Li et al., 2008). Breastfeeding may also affect psychological distress negatively due to challenges and difficulties experienced by mothers. Another factor that affect psychological state is social support during postnatal period. Symptoms of postpartum depression is significantly associated with level of social support (Ege et al., 2008). It shows that lack of social support to mothers increases the risk of maternal postpartum depression. Apart from that, several infant health conditions such as being preterm, congenital malformation, neonatal jaundice, infections or other hospitalization conditions among infants may increase risk of mothers being distressed (Davis et al., 2003; Miles et al., 2007; Shaw et al., 2006). Moreover, prolonged hospitalization may affect maternal psychological state and will likely to also interfere with breastfeeding process. Thus, this study aims to determine the prevalence of maternal psychological distress, as well as its association with behavioral, sociological and biological factors.

1.3 Research Questions

1. What are the factors associated with maternal psychological state?

1.4 Significance of the Study

The current study found that the prevalence of postpartum distress among mothers of infants in two different hospital located in Wilayah Persekutuan, which are Hospital Kuala Lumpur and Hospital Putrajaya to be quite high, compared to past findings from both international and national data. Thus, the importance of having screening for psychological health among mothers was addressed. Screening is very important in preventing worsen condition as well as to identify mothers who are at risk of distress.

The current study has identified different groups of mothers who has higher risk of being distressed. Thus, these groups of mothers can be the target group for future intervention in improving maternal psychological state. Moreover, challenges or difficulties faced by mothers as well as mother's level of confidence in breastfeeding their babies have been identified. This study has demonstrated the importance to address challenges, difficulties, as well as confidence in breastfeeding in order to improve breastfeeding exclusivity and duration, particularly in Malaysia. The role of health professionals, including dietitians can be shown through the effort to improve overall breastfeeding practice through the improvement of maternal psychological health.

Limited study on traditional postpartum care combined with the high number of people practicing confinement practice in Malaysia have shown urgency in assessing the practice of traditional postpartum care. Overall, this study serves a baseline for further study that would like to look deeper into infants with certain health or medical conditions.

1.5 Objectives

1.5.1 General Objective

To identify factors associated with maternal psychological state among mothers with infants below 6 months in Woman and Children Hospital Kuala Lumpur and Hospital Putrajaya.

1.5.2 Specific Objectives

1. To determine level of psychological state (stress, anxiety and depression) among mothers of infants with health conditions.
2. To examine sociological factors (sociodemographic characteristic, maternity care and social support) among mothers.
3. To examine biological factors (obstetric characteristic and infant factors) of mother-infant dyads.
4. To examine behavioral factors (breastfeeding practice, breastfeeding challenges and breastfeeding efficacy) among mothers.
5. To examine the associations of, sociological, biological and behavioral factors with maternal psychological state.

1.6 Hypothesis

1.6.1 Null Hypothesis

1. There is no association between sociological factors (sociodemographic characteristic, maternity care and social support) and maternal psychological state.

2. There is no association between biological factors (obstetric characteristic and infant factors) and maternal psychological state.
3. There is no association between behavioral factors (breastfeeding practice, breastfeeding challenges and breastfeeding efficacy) and maternal psychological state.

1.7 Conceptual Framework

Figure 1.1 shows the conceptual framework of this study, whereby the independent variable that includes behavioral factors, sociological factors, and biological factors were tested against three spectrum of maternal psychological state – stress, anxiety, and depression.

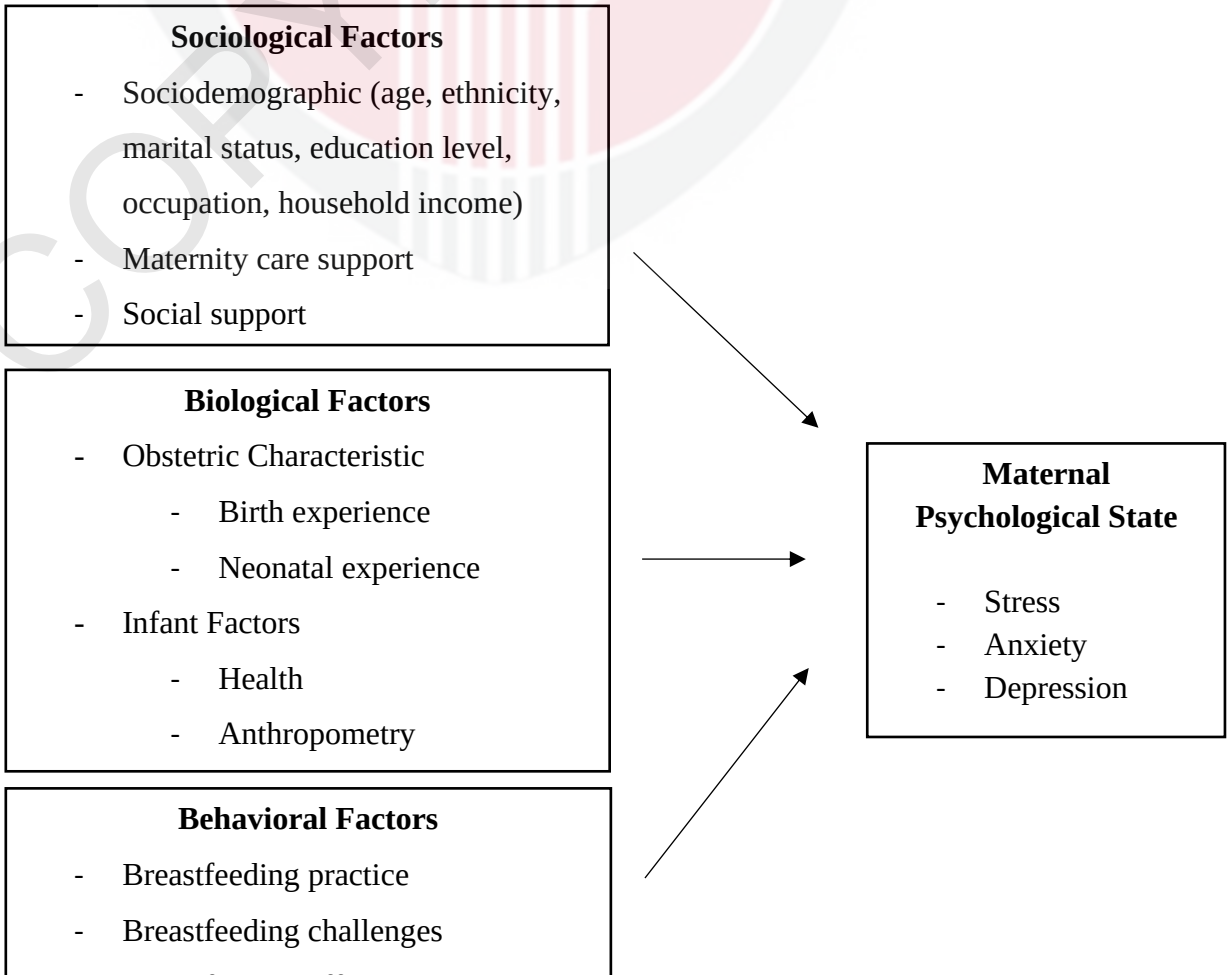

Figure 1.1 Conceptual Framework

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

World Health Organization define mental health as a state of well-being whereby individuals realize own's potential, able to cope with normal stress in life, work fruitfully and productively, as well as able to contribute to the society (WHO, 2014). According to U.S. Department of Health and Human Services (2019), mental health comprises of emotional, psychological and social well-being that affect the way we think, feel and act, as well as handle stress, make choices and relate to others. Being mentally healthy is crucial as it will determine the life outcome of an individual. State of mental distress may affect physical health. In a review of research findings on relation of stressful life event with physical health, Tosevski & Milovancevic (2006) found that stressful life events is closely related to physical health. In the review, Tosevski & Milovancevic identified women, young and unmaried individuals and

ones with lower socioeconomic status as having greater risk to develop unwanted health conditions due to stressful life events. Stressful life events affect immunological function negatively (Glaser, 2005) and increase risk of cardiovascular diseases (Carroll et al., 2005). Past traumatic event and recent severe stressful life events are associated with poor phyisical function, increased risk of disabilities, increased use of health services and overall worse quality of life (QoL) related to health (Leserman et al., 2005).

2.2 Maternal Psychological State

Starting from the period of pregnancy onwards, women experience major changes physically and emotionally. These changes may greatly influence psychological state of the mothers. Psychological or mental health is defined as a state of well-being, whereby individuals are aware or their abilities and able to cope with normal life-induced stress, able to work productively and able to contribute to the society (WHO, 2018). This indicate that the state of being psychologically healthy is not merely by the absence of illness or disorder.

World Health Organization (2015) has addressed the issue of maternal mental health problems as a major public concern. World Health Organization expressed that suicide among women in the peripartum and postpartum period needs urgent attention. Depression is one of the major mental illness which may interfere with health and well-being of mothers. Depression among mothers lead to suffering, disability, and lower response to needs of the child (WHO, 2015). Evidence show that reduced in

maternal depression is associated with improved growth and development of child, as well as reduced incident of diarrhea and undernutrition.

Stress and anxiety, which are seem to be a less serious condition that may be experienced on a normal day-to-day life, are another detrimental condition which can turn severe when left unattended. Stress is defined as a reaction towards pressure which is needed to survive but at the same time can be unfavorable when not managed properly (Ng, 2012). Anxiety is defined as someone's feeling under threat, which can manifest into psychological and physical symptoms such as feeling worried, afraid, irritated, palpitation, uncomfortable stomach, headache, sweating and feeling cold (Ministry of Health Malaysia, 2020). Normal stress and anxiety can turn into various disorders with varying degree of severity. World Health Organization identified migration, poverty, natural disasters, emergency or conflict situation, extreme stress, exposure to violence (gender-based, domestic and sexual) and low social support as factors that increase risk of developing maternal mental disorders.

2.3 Prevalence of Maternal Psychological Distress

According to World Health Organization (2015), around 10% of pregnant women and 13% of women worldwide who just gave birth experience a mental disorder, especially depression. The prevalence is even higher in developing countries with 15% among pregnant women and 19.8% among mothers after child birth. Furthermore, a study on postpartum depression, stress and anxiety by Bener, Gerber, & Sheikh (2012) found that among 1569 Arab women, the prevalence of depression, anxiety and stress were 18.6%, 13.1%, and 8.7% respectively. In Malaysia, the reported average rate of maternal postpartum depression within the first 6 months among Malaysian mothers is 17.05% (Roshaidai et al., 2018). Furthermore, a cohort

study in Sabah found that 14.3% of mothers had postpartum depression in the first 6 months (Mohamad Yusuff et al., 2015). Another study which assessed the prevalence of postpartum depression among Malaysian mothers at 6 to 8 weeks postpartum found that 6.8% of mothers experienced postpartum depression.

Stress, anxiety and depression may lead to the development of more severe psychotic condition such as psychosis. A paper on perinatal mental health by Jones, Chandra, Dazzan, and Howard (2014) found that several studies have estimated rate of postpartum admission to psychiatric hospitals to be around 1-2 admission per 1000 births and this number is often applied to postpartum psychosis.

2.4 Factors Associated with Maternal Psychological State

Since there are numerous factors that could affect maternal psychological state, this research focuses on the three main areas, which are sociological, biological and behavioral factors. Webster Dictionary by Merriam Webster define the word sociology refer to the science of society, social institution and social relationship, specifically on the development, structure, interaction, and collective behaviour of organized group of human being. Thus, sociological factor in this study refer to social structure of the mother, as well as social relationship with people in the surroundings. The word biology is defined as a branch of knowledge that deals with living organisms and vital processes (Merriam-Webster, 1828). Whereas the word biological refer to something relating to life and living processes (Merriam-Webster, 1828). Biology in this study is defined as biological process, as well as features of individuals that are unmodifiable or is natural. Thus, biological factors in this study refer to the natural or unmodifiable conditions of mothers and infant, as well as biological processes that happened within prenatal and postpartum period such as obstetric characteristics, birth

experience, and infant factors which includes infant's characteristic (anthropometric measurement and gestational week at birth) and health condition. Meanwhile, behavior is defined as the way in which someone conduct oneself or behaves in response to stimulation or environment (Merriam-Webster, 1828). Thus, behavioral factors in this study refer to the way mother behave in the practice of breastfeeding, in response to various situation experienced after birth and psychological stimulus.

2.4.1 Sociological Factors

Sociological factors in this research is focusing on mother's sociodemographic characteristic, maternity care which will focus on traditional postpartum care or confinement practice and social support.

2.4.1.1 Sociodemographic Characteristic

Sociodemographic characteristics of the mothers were associated with maternal psychological state. A study by Ege, Timur, Zincir, Geçkil, & Sunar-Reeder (2008) found that mean score of Edinburgh Postnatal Depression Scale (EPDS) was related to mother's age (F=6.742, p=0.000), mother's education (F=3.163, p=0.025), mother's occupation (t=3.606, p=0.000), and socioeconomic status (F=7.414, p=0.001). According to Eastwood, Phung, & Barnett (2011), EPDS score of >12 was independently associated with difficult financial situation (OR 2.7, 95% CI: 2.1-3.5). Moreover, the study confirms importance of difficult financial situation- defined as poverty, as independent factor that increase risk of depressive symptoms. This finding is consistent with a meta analyses by O'Hara & Swain (1996) that suggested difficult

financial situation or low social status as a small but significant predictor for postpartum depression. However, Clout & Brown (2015) found that sociodemographic characteristic, including maternal age, level of education and income were not related to postpartum stress, anxiety and depression among new mothers.

Furthermore, multivariate analysis by Petrosyan, Armenian, & Arzoumanian (2011) shown that employment status and exposure to second hand smoke has statistically significant association with occurrence of postpartum depression.

2.4.1.2 Maternity Care

Traditional cultural practice is common among Asian country, including Malaysia. According to a review on traditional postpartum practice among Malaysian by Fadzil et al. (2016), confinement period is viewed as the most vulnerable period and it is practiced in belief that failing to do so will result in ill state. During this period of time, several practices that involve the usage of herbs, heat, massage as well as avoidance of certain foods are observed. A study investigating the Chinese population in Malaysia found that postpartum period is believed to be a cold state, thus mother should avoid "cold" food and consume more "hot" or heaty food such as ginger (Poh et al., 2005). In addition, traditional postpartum practice may be influenced by religious aspect (Fadzil et al., 2016; Hishamshah et al., 2012). Traditional cultural practice might be an important factor affecting maternal psychological state. A study on belief and practices of traditional care among rural Malaysian in Penang showed that 86.8% of 68 subjects practice confinement due to self-belief, 4.4% practiced confinement due to family pressure, and the other 4.4% due to convenience (Hishamshah et al., 2012).

Wan et al. (2009) studied the relationship between traditional postpartum practice and postpartum depression among Chinese women during postpartum period. The study found that among women who practiced traditional postpartum care, having mother-in-law to lead the practice and the perception that traditional postpartum care was not helpful increased odds of having postpartum depression by 2-fold. However, the study has limited power to assess whether traditional postpartum practice reduce the risk of postpartum depression due to normality of the data.

There is a very limited study that assess traditional postpartum care, especially its relationship to maternal psychological state. However, there is a need to determine the current practice of traditional care and whether it affect maternal psychological state, considering that traditional practice is very common in Malaysia.

2.4.1.3 Social Support

Social support comprises of support from family, friends and spouse or significant others. It is well established that social support has strong relationship with maternal psychological state. Ege, Timur, Zincir, Geçkil, & Sunar-Reeder (2008) conducted a cross-sectional study on the relationship between social support and postpartum depression among Turkish mothers who were in 6 to 28 weeks postpartum. The study found that social support was negatively correlated to symptoms of postpartum depression (-0.39, $p < 0.001$). In other words, mothers who has lower social support tend to present with higher symptoms of postpartum depression.

Razurel, Kaiser, Sellenet, & Epiney (2013) reviewed 37 articles, among which, 25 studies - consisting of a controlled clinical trial, longitudinal, and cross-sectional studies - evaluated the relationship between social support and maternal psychological health. Studies found that social support during the period of pregnancy

was related to prenatal (Leigh & Milgrom, 2008) and postnatal depressive symptoms (Honey et al., 2003; Webster et al., 2000; Xie et al., 2009). Furthermore, some studies also found that there is a relationship between lower score of postnatal social support and depressive symptoms (Dennis, 2003; Dennis et al., 2004; Dennis & Ross, 2006; Heh et al., 2004; Honey et al., 2003; Howell et al., 2006; Liabsuetrakul et al., 2007; Wang & Chen, 2006; Xie et al., 2009).

2.4.2 Biological Factors

Biological factors in this research is focusing on obstetric characteristic, which comprises of birth and neonatal experience and infant factors, which comprises of infant characteristic and health status.

2.4.2.1 Obstetric Characteristic

A case-control study by Petrosyan et al. (2011) investigated factors that determine development of postpartum depression among mothers in Yerevan, Armenia. Current BMI, employment status, exposure to second hand smoke, score of child care anxiety, and score of self-esteem were addressed as confounding variable of possible postpartum depression and age at last childbirth. After controlling identified confounding variable, the study found that the odds of possible postpartum depression were 1.19 times higher among women aged below 25 compared to women aged 25 and above. Moreover, mode of delivery affects the association of maternal age at last birth with possible postpartum depression. Risk of postpartum depression in association with maternal age below 25 increased among women who deliver through C-section (OR=7.8; 95% CI: 1.5-40.7) when compared to women who delivered through vaginal delivery (OR=0.9, 95% CI: 0.4-1.8).

Clout & Brown (2015) evaluated the relationships of pregnancy, sociodemographic, obstetric, and postnatal variables with levels of postpartum stress, anxiety and depression among 105 new mothers. The study reported that there was an association between Cesarean delivery and increased postpartum stress, anxiety and depression. Despite of not being significant after controlling antenatal distress level, the study found that women who delivered by Cesarean delivery had higher level of maternal distress (stress, anxiety, and depression) compared to women who did not undergo Cesarean procedure.

A study by Barton, Redshaw, Quigley, & Carson (2017) found that unplanned pregnancy was highly associated with significant increased odds of having postpartum depression (OR=1.73, 95% CI: 1.53, 1.95), especially among those who reflected ambivalent (OR=2.56, 95% CI: 1.95, 3.34) or negative (OR=2.72, 95%CI: 2.17, 3.41) feeling towards the pregnancy.

2.4.2.2 Infant Factors

Yuksel et al. (2014) conducted a cross-sectional study among 522 pregnant women in Turkey to assess the level of prenatal distress and factors associated with prenatal maternal distress. The study found that mothers were concerned and distressed about premature delivery, having unhealthy baby, experience of labour and delivery, feeling tired and having low energy. Another study by Deklava, Lubina, Circenis, Sudraba, & Millere (2015) examined level of anxiety during pregnancy and its causes. The study found that most mothers (26.9%) were highly anxious about the possibility of neonatal development disorder. 23.2% were highly anxious about complications during pregnancy and 20.2% were highly anxious about possible newborn birth trauma.

According to World Health Organization (2018), around 15 million babies are born before 37 weeks of gestation each year. In addition, the number of preterm

births is increasing. Chertok, McCrone, Parker, & Leslie (2014) conducted a review on interventions to reduce maternal stress among mothers whose infants are admitted to Neonatal Intensive Care Unit (NICU). It was found that preterm birth significantly affects psychological wellbeing of mothers, especially when the baby is admitted to NICU. Stress that is experienced by parents with infants in the NICU related to feelings of helplessness, exclusion in taking care of their babies, feeling of isolation, and lack of knowledge of parenting and interaction with infants in NICU.

Infant birth weight was found to be associated with postpartum depression. A systematic review of 26 articles by Vigod et al. (2010) concluded that having a premature baby or one with low birth weight lead to depressive symptoms. Furthermore, Helle et al. (2015) conducted a cross-sectional analysis as part of controlled multicenter cohort-study in Germany, to assess factors associated with postpartum depression (PPD). The study found that birth of a very low birth weight infant was a significant risk factor of PDD.

However, limited study has been done in assessing various infant factors, including infant birth characteristics and specific health conditions such as jaundice.

2.4.3 Behavioral Factors

Behavioral factors in this research is focusing on the behavior related to breastfeeding, such as breastfeeding practices, challenges or difficulty and breastfeeding self-efficacy.

2.4.3.1Breastfeeding Practice and Challenges

Breastfeeding is a crucial for optimum growth and development of children. It brings many health benefits for both mother and infant. During the first 6 months of life, breastfeeding is sufficient in supplying infant with necessary nutrients for optimum growth. World Health Organization (2019) recommendations are that infant should be exclusively breastfed for six months in order to achieve optimal health, growth and development. Exclusive breastfeeding is whereby infant only receive breastmilk, without additional solid or liquid given – not even water, with exception of medical purposes. After six months, safe and nutritious complementary food should be introduced with the continuation of breastfeeding until two years or beyond. A review of 23 studies comprised of controlled clinical trial and observational study from both developed and developing country on optimal duration of exclusive breastfeeding concluded that six months exclusive breastfeeding should keep being recommended as general policy (Kramer & Kakuma, 2004). According to American Pregnancy Association (2019) stages of breastmilk starts with colostrum – yellowish fluid that is high in protein, vitamins, minerals and immune mediator, followed by transitional milk and matured milk. Infant aged less than 7 days are most likely consuming colostrum as the breastmilk is not yet established. Whereas 7 to 14 days postpartum is the period of breastfeeding establishment and infants are consuming transitional milk. Breastfeeding is nearly established at 15 days to 1 month postpartum. By this time, infants are consuming matured milk. After 1 month postpartum, breastfeeding is mostly established and exclusive feeding is continued for at least up to 4 months. Lastly, many infants started to be exposed to complimentary feeding when they reach 4-6 months old. Exposure to complimentary feeding can be as early as four months.

Global prevalence of exclusive breastfeeding was estimated to be 38% in 2006 until 2010 (WHO, 2014). In 2018, the global rate of exclusive breastfeeding among infants aged 5 months or less was 42% (UNICEF, 2019). World Health Organization Global Target 5 on exclusive breastfeeding among infants aged less than 6 months targeted 50% of global exclusive breastfeeding rate by 2025 (WHO, 2017).

Kelleher (2006) identified physical challenges experienced during early breastfeeding by 60 mothers, of which 30 is from Toronto, Canada and 30 is from Boston, United States. In her study, semi-structured, in depth interview was done around five weeks postpartum. Quite a number of mothers were surprised by the intensity, extent and duration of pain of discomfort resulted from breastfeeding. Mothers reported that the thought of pain and discomfort from breastfeeding had occurred. However, some mothers did not expect the pain and discomfort to that extent. Some mothers even reported the experience of breastfeeding as worsts than giving birth and some are scared of the pain they know they are going to have when breastfeeding their babies. These physical challenges are obstacle to the success of breastfeeding practice. Another study by Thulier & Mercer (2009) identified variables associated with duration of breastfeeding. The study found that demographic variables (age, race, marital status, socioeconomic, education, and special nutritional program), biological variable (infant health problems, insufficient milk supply, maternal obesity, maternal smoking, method of delivery, parity and physical challenges of breastfeeding), sociological variables (family and professional support as well as paid work), and psychological variables (intention, interest and confidence in breastfeeding) influence breastfeeding duration.

A study by Montgomery, Ehlin, & Sacker (2006) suggested that breastfeeding is associated with better coping against psychosocial stress linked with divorce or

separation. Prospective randomized case-controlled study by Yuksel, Akin, & Durna (2014) assessed the effect of immediate skin-to-skin contact and early breastfeeding on postoperative pain and maternal oxidative stress. 90 subjects were randomized into two groups. The first group were provided with immediate skin-to-skin contact as well as breastfeeding directly after cesarean section, in the operating room. Whereas second group initiate breastfeeding one-hour post operation. Result shown that group 1 has significantly higher total antioxidant status (TAS), lower total oxidant status (TOS) and lower oxidative stress indices (OSI). It was concluded that early breastfeeding and immediate skin-to-skin contact reduced maternal oxidative stress among mothers undergone cesarean section. A longitudinal cohort study by Stuebe, Grewen, & Meltzer-Brody (2013) measured association between maternal mood and neuroendocrine response to breastfeeding. Oxytocin is a hormone involved in expression of breastmilk. The study found that levels of oxytocin was negatively correlated with Edinburgh Postnatal Depression Scale (EPDS) and Spielberg State and Trait Anxiety Inventory (STAI) score ($p \leq 0.01$). Thus, it could be suggested that maternal mood is associated with neuroendocrine changes in response to lactation. Breastfeeding has been shown to be associated with postpartum depression.

Furthermore, a prospective cohort study by Figueiredo et al. (2014) found that there were a significant decrease of postpartum depression from birth to 3 months postpartum when mothers exclusively breastfeed their infants for at least 3 months ($F_{1,65} = 3.73$, $p < 0.10$).

2.4.3.2 Breastfeeding Self-Efficacy

Breastfeeding self-efficacy is another factor that strongly influence breastfeeding duration and exclusivity. Breastfeeding self-efficacy (BSE) is defined as maternal confidence in the ability to breastfed their infants. Henshaw, Fried, Siskind, Newhouse, & Cooper (2015) conducted a study on the relationship of breastfeeding self-efficacy with breastfeeding and mood outcome among primiparous women in Ohio. The study assessed breastfeeding self-efficacy, depressive symptoms, work status, partner support, breastfeeding difficulties and use of lactation services using hierarchical multiple regression analysis. Survey was conducted at 2 days, 6 weeks and 6 months postpartum. Result shown that high BSE at 2 days postpartum is associated with a more positive emotion and less depressive symptoms at 6 weeks postpartum. In addition, after taking depression risk factor, work status and other psychosocial factors into account, women with high BSE at 2 days postpartum are more likely to exclusively breastfeed their babies at 6 months postpartum.

Another study on the relationship between breastfeeding self-efficacy and depression during early postpartum period in Turkey by Sahin (2019) shown that women with higher BSE are less likely to be depressed. This study was a descriptive study using Breastfeeding Self-Efficacy Scale - Short Form (BSES-SF) and Edinburgh Postnatal Depression Scale (EPDS) to assess BSE and rate of depression among mothers.

2.5 Summary

The practice of breastfeeding, especially exclusive breastfeeding for the first 6 months of life is important for optimum health, growth and development (WHO, 2019). Studies have shown that maternal psychological state is highly associated with breastfeeding practice (Montgomery et al., 2006; Stuebe et al., 2013; Yuksel et al.,

2014). Several factors are associated with maternal psychological state. Higher breastfeeding self-efficacy or level of confidence in breastfeeding increases exclusive breastfeeding and reduce likeliness to be depressed (Henshaw et al., 2015; Sahin, 2019). Furthermore, sociological factors such as sociodemographic characteristic, maternity care and social support may have association with maternal psychological state. Different findings have been presented on the association of sociodemographic characteristics with maternal psychological state. Furthermore, limited study has looked into the association between traditional maternity care and maternal psychological state. Thus, it is beneficial to bridge the gap of knowledge regarding this matter. As for social support, it is well established that social support is associated with lower psychological distress among mothers (Ege et al., 2008; Razurel et al., 2013). Lastly, biological factors such as obstetric characteristic (Barton et al., 2017; Clout & Brown, 2015; Petrosyan et al., 2011) and infant factors (Chertok et al., 2014; Deklava et al., 2015; Yuksel et al., 2014) have been linked to maternal psychological distress. However, limited study has been done in assessing various infant factors, including infant birth characteristics and specific health conditions such as jaundice, and its association with maternal psychological state.

CHAPTER 3

METHODOLOGY

3.1 Study Design

This was a cross-sectional study that assessed the associations of sociological (sociodemographic characteristic, maternity care and social support), biological (obstetric characteristic and infant factors) and behavioral factors (breastfeeding practice, breastfeeding challenges and breastfeeding self-efficacy) with maternal psychological state among mothers of infants with health conditions within the first 6 month postpartum.

3.2 Study Location

This study was conducted in two hospitals in Wilayah Persekutuan, which are Women and Children Hospital Kuala Lumpur and Hospital Putrajaya. Hospital Kuala Lumpur or commonly known as HKL is the largest government hospital under Ministry of Health Malaysia and is also one of the biggest hospitals in Asia. HKL comprises 83 wards and 2300 beds. It was first built in 1870 with their maternity hospital officially launched on 18th January 1963. It is one of the largest and busiest maternity hospital in the world. Women and Children Hospital Kuala Lumpur (WCHKL) is their newly built hospital that care for women and children. Maternity Hospital Kuala Lumpur has been integrated and operated under WCHKL.

Hospital Putrajaya is a newly established government hospital that is located in Putrajaya. Pediatric Department in Hospital Putrajaya comprises General Pediatrics

Ward, Neonatal Intensive Care Ward, Pediatrics Daycare Ward, Pediatrics Specialist Clinics, and Intensive Care / High Dependency Units.

3.3 Sample Size Determination

Sample size determination was calculated using Hulley et al. (2013) formula to estimate an adequate sample for correlation analysis. Table 3.1 summarizes the sample size calculation. After comparison of several studies on the correlation of various factors that correlate with maternal psychological state, the highest sample size obtained was from a study on the correlation of life event stress and infant birth weight by Wadhwa et al., (1993). After adjusting the response rate to 80%, a minimum of 210 subjects were required for the study.

Correlation Sample Size Formula:

$$N = [(Z\alpha+Z\beta)/C]^2 + 3$$

Where,

C = $0.5 * \ln [(1+r)/(1-r)]$

N = the calculated sample size

$Z\alpha$ = 1.96

$Z\beta$ = 0.84

r = the expected correlation coefficient

Table 3.1 Sample size calculation for independent variables based on the previous studies investigating factors associating with maternal psychological state

Studies	Correlation (r)	p-value (p)	Sample size (N)	Adjusted for 80% response rate
Life event stress and infant birth weight (Wadhwa et al., 1993)	-0.21	< 0.05	175	**210**
Pregnancy anxiety and gestational age at birth (Wadhwa et al., 1993)	-0.31	< 0.01	79	95
Pregnancy anxiety and preterm birth	0.25	< 0.01	123	148

(Wadhwa et al., 1993)	

Table 3.2 Sample size calculation for independent variables based on the previous studies investigating factors associating with maternal psychological state

Studies	Correlation (r)	p-value (p)	Sample size (N)	Adjusted for 80% response rate
Postpartum stress and social support (Hung & Chung, 2001)	-0.25	< 0.010	123	148
Postpartum stress and family support (Hung & Chung, 2001)	-0.34	< 0.010	66	80
Level of adherence to doing-the-month practice and physical symptoms (Chien et al., 2006)	-0.25	< 0.001	123	148
Post-traumatic Stress (PTS) and Breastmilk volume on the 4th day after birth (Dimitraki et al., 2016)	-0.507	< 0.01	28	34
Negative feelings and Breastmilk volume on the 4th day after birth (Dimitraki et al., 2016)	-0.453	<0.01	36	43
Maternal newborn bonding (after labor) and Breastmilk volume on the 4th day after birth (Dimitraki et al., 2016)	0.373	<0.01	54	65

3.4 Respondents

Mothers of infants 6 months and below found in Women and Children Hospital Kuala Lumpur and Hospital Putrajaya who fulfilled criteria shown in Table 3.2 were invited to join the study.

Table 3.3 Inclusion and exclusion criteria for selection of subjects

Inclusion Criteria	Exclusion Criteria
Malaysian	Unable to understand English or Malay
Have at least moderate literacy	Mothers with communicable or non-communicable diseases (e.g. Diabetes)

Not on medication for psychological well-being.	Mothers with history of mental health or psychological problems.
Aged 19 – 45	Never practice breastfeeding
Non-smoker	Smoker

3.5 Sampling Design

Purposive sampling was used in this study. Women and Children Hospital Kuala Lumpur and Hospital Putrajaya were chosen as study location as both are big hospitals in Wilayah Persekutuan that has established child and maternity care. In addition, Hospital Kuala Lumpur is known as the largest and busiest maternity hospital. All mothers whose child was admitted to NICU, pediatric ward, Special Care Nursery (SCN) or found in outpatient clinic for either a medical check-up or follow-up treatment were listed in a sampling frame and approached. Mothers that met criteria of the study listed in Table 3.2 and agreed to give their consent were then admitted to the study.

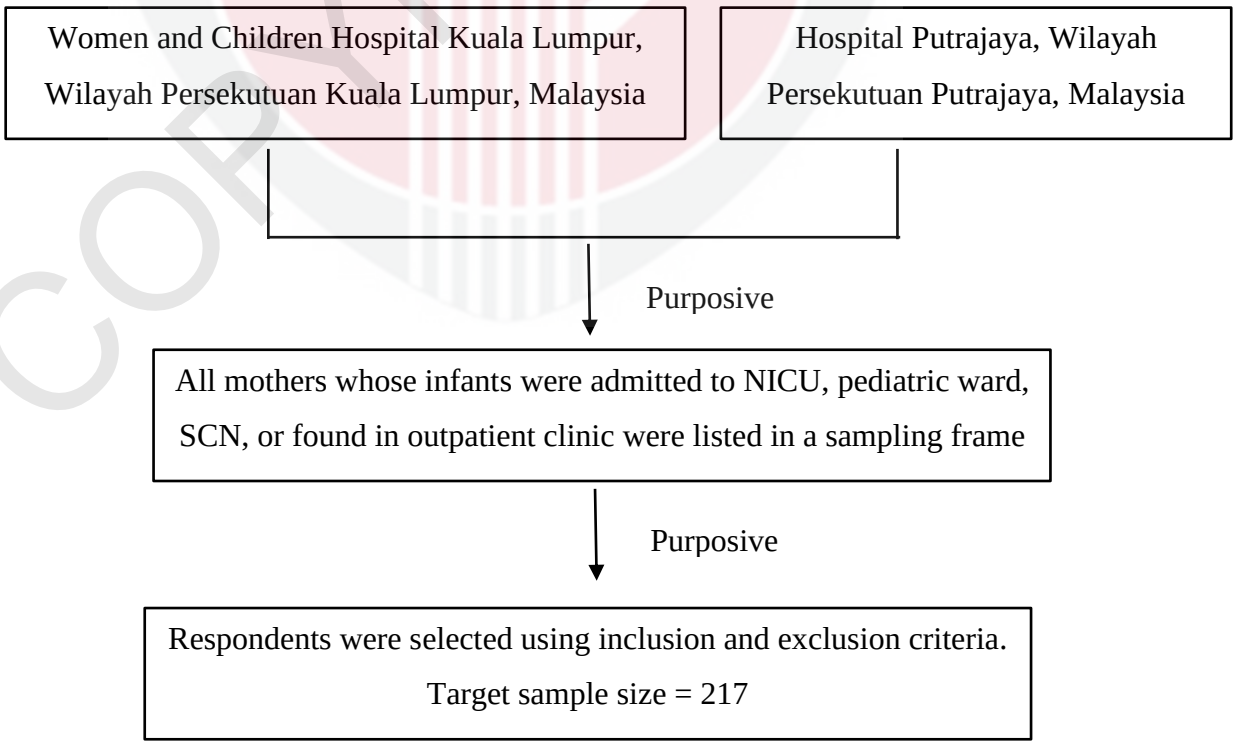

Figure 3.1 Flow chart of sampling design

3.6 Study Procedure

Data collection was conducted from January 2020 to March 2020. Prior to data collection, approval from Medical Research and Ethics Committee (MREC) with reference number KKM/NIHSEC/ P19-2696 (6), as well as permission to conduct study in Women and Children Hospital Kuala Lumpur (WCHKL) and Hospital Putrajaya were obtained. Mothers who were in special care nursery (SCN), Neonatal Intensive Care Unit (NICU), pediatric ward, as well as pediatric clinic in Hospital Putrajaya were approached. In WCHKL, mothers who were in SCN (ward 9A), pediatric ward (9D and 10A), as well as pediatric clinic were approached. Potential participants were given oral and written information sheet regarding the purpose of the study. Those who agreed to join the study and have signed the consent form were given a set of self-administered questionnaires consisting of 10 sections.

After completion of the questionnaire, research investigators collected all the relevant documents. Participants were provided with bookmark and facial mask as token of appreciation for their involvement in the study. Furthermore, participants were also provided with a list of contact number and address of maternal and child health clinics, clinics under *Lembaga Penduduk dan Pembangunan Keluarga (LPPKN)*, mental health support and breastfeeding support as shown in Appendix D

3.7 Measure

Self-administered questionnaire available in English and Malay were used to measure all variable in the study. Some questionnaires were adapted from

previous study and some were validated questionnaires. Table 3.3 presents the list of questionnaires used, in sequence.

Table 3.4 List of questionnaires used to measure independent and dependent variables

Section	Questionnaire / Tool	Variable	Method
A	Birth Experiences	Obstetric characteristic	Self-administered
B	Breastfeeding Practice and Challenges	- Breastfeeding practice - Breastfeeding challenges	Self-administered
C	Breastfeeding Self-Efficacy Scale Short Form (BSES-SF)	Breastfeeding self-efficacy	Self-administered
D	Traditional Postpartum Care	Maternity Care	Self-administered
E	Multidimensional Scale of Perceived Social Support (MSPSS)	Social support	Self-administered
F	Perceived Stress Scale (PSS)	Postpartum stress	Self-administered
G	Beck Anxiety Inventory (BAI)	Postpartum anxiety	Self-administered
H	Edinburgh Postnatal Depression Scale	Postpartum depression	Self-administered
I	Sociodemographic	Sociodemographic characteristic	Self-administered
J	Infant Characteristic and Health Status	Infant factors	- Self-administered - Filled by investigator

3.7.1 Obstetric Characteristic

Birth experiences were assessed through self-administered questionnaire, adapted from Neonatal Questionnaire of Infant Feeding Practices Study II (CDC,

2019). Attributes in this section were parity, pregnancy weight gain, family planning, delivery method, company during labor, skin-to-skin contact, and breastfeeding initiation.

3.7.2 Breastfeeding Practice and Challenges

Breastfeeding practice and challenges were assessed using questionnaire adapted from Postnatal Questionnaire of Infant Feeding Practice Study II Month 2 Questionnaire (IIFPS 2- Month 1) by Centers for Disease Control and Prevention (CDC). The questions were selected from Module A: Infant Feeding and Health for breastfeeding practice and Module B: Breastfeeding Cessation. Part of this section was adapted from Mother-Offspring Milk (MOM) Study by Shukri et al., (2017). This section consisted of 19 questions comprising of early experience and breastfeeding practice, as well as on current feeding practice.

3.7.3 Breastfeeding Self-Efficacy

Breastfeeding efficacy is defined as confidence in ability to breastfeed effectively (Henshaw et al., 2015). Breastfeeding self-efficacy was assessed using Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF) developed by Dennis (2003). It is a shortened version of BSES 33 items and consist of 14 items with 5-point scale from "not at all confident" to "very confident". The maximum score of BSES-SF is 70, with higher self-efficacy when score is high (Dennis & Faux, 1999). BSES-SF has high internal consistency of Cronbach's $\alpha = 0.91$(Henshaw et al., 2015). The internal consistency of BSES-ST in this study was found to be high with Cronbach's alpha of 0.96. There are no established cut-off points to determine level of

breastfeeding self-efficacy. Thus, percentile of 33.3 and 66.7 were used to further categorized level of breastfeeding self-efficacy into low moderate and high.

3.7.4 Maternity Care

Maternity care includes traditional care or confinement practice. It was assessed through self-administered questionnaire that has been developed by research investigators in adoption to a study on the practice of Malay traditional postpartum care by Azmi, Rahim, & Omar (2019). The study looked into association between traditional treatments and women's health. A total of 9 questions from selected parts were used in this developed questionnaire and has been translated to English. Furthermore, a scale of 5 from "I don't like it" until "I like it" was used to determine satisfaction level on traditional postpartum care or confinement practice. Different food groups were listed as item 11-24 to inquire on changes of food intake during confinement practice with scale consisting of "no change", "eat more than usual", "eat less than usual", and "completely avoid".

3.7.5 Social Support

Social Support was assessed through self-administered questionnaire of Multidimensional Scale of Perceived Social Support (MSPSS). MSPSS is a tool developed by Zimet, Dahlem, Zimet, Gordon, & Farley (1998) to assess perceived social support from three different angle which are friends, family, and significant others with internal consistency of $\alpha = 0.91$. It consists of 12 items with 7 possible

response for each statement (scoring ranged from 0-6 with maximum score of 72) (Stewart et al., 2014). Higher score indicates higher perceived social support. A study by Ege, Timur, Zincir, Geçkil, & Sunar-Reeder (2008) used MSPSS to measure social support among mothers in Eastern Turkey. This study found internal consistency of α = 0.91. The Malay version of MSPSS has also been validated, although not among mothers. It has been validated among medical student with overall Cronbach alpha of 0.89 with 0.94 for significant others, 0.88 for friends and 0.82 for family (C. G. Ng et al., 2010). This study has also found a high internal consistency of 0.94 for significant others, 0.88 for family, 0.93 for friends and an overall Cronbach's alpha of 0.93. There are no established cut-off points to determine level of social support using MSPSS. Thus, percentile of 33.3 and 66.7 were used to further categorized level of breastfeeding self-efficacy into low moderate and high.

3.7.6 Postpartum Stress

Perceived stress scale is a validated tool to assess the degree to which people perceived their life as stressful. A review of psychometric evidence of PSS shown that the internal consistency of PSS 10 items was more than α = 0.70 in 12 studies (Lee, 2012). The Malay version of PSS is validated and reliable (Cronbach's α > 0.70) (Al-Dubai, 2012). The internal consistency of PSS in this study is 0.74. PSS is assessed using a scale from 0-4 indicating "never" to "very often". It consists of 10 items and scoring is obtained by summing up total score (reversing response for item 4,5,7, and 8 (0=4, 1=3, 2=2, 3=1, 4=0)) (Cohen, 1994). The score ranged from 0-40 with higher score indicating higher level of stress. The cut off points that were used are 0-13 (low stress), 14-26 (moderate stress), and 27-40 (high stress) (State of New Hempshire Government, n.d.).

3.7.7 Postpartum Anxiety

Beck Anxiety Inventory (BAI) is a tool consisting of 21 items with 4 points Likert-scale to determine level of anxiety by assessing experienced symptoms. The higher the score, the more likely subject experience anxiety. BAI scores ranged from 0 to 63 with suggested clinical cut off point of 16 (Beck et al., 1996). BAI shows a very high internal consistency of Cronbach's $\alpha = 0.94$ (Fydrich et al., 1992). The Malay version of BAI was validated among Malaysian population and resulted in Cronbach's α ranging from 0.66 to 0.89 with overall satisfactory α value of 0.91 (Firdaus & Nor Sheereen, 2011). Internal consistency of BAI in this study is 0.95. The cut off points that were used for BAI are as recommended: 0-7 (minimal anxiety), 8-15 (mild anxiety), 16-25 (moderate anxiety), and 26-63 (severe anxiety) (Carney et al., 2011).

3.7.8 Postpartum Depression

Edinburgh Postnatal Depression Scale (EPDS) is a widely used 10 items screening tool for depression developed by Cox, Holden, & Sagovsky (1987). Score range from 0 to 30 with higher score indicating higher depressive symptoms. Reversed scoring is used for item 3,5,6,7,8,9, and 10. EPDS has been validated among postpartum women in the United States with internal consistency of 0.84 (Henshaw et al., 2015). The Malay version of EPDS was validated among postnatal women in Kedah and show internal consistency of $\alpha = 0.86$ (Mahmud et al., 2003). The internal consistency of EPDS in this study is 0.80. Studies have shown that score of 13 and above is an appropriate cut off point for positive screening of depression (Khanlari et al., 2019). Furthermore, less stringent cut off point of 10 and above shall be used for

initial screening in community settings. Thus, the cut off points that were used for EPDS are 0-9 (not likely), 10-12 (possible depression), and 13 or above (positive screening).

3.7.9 Sociodemographic

Information on sociodemographic characteristic of mothers were obtained through self-administered questionnaire. Close-ended questions were provided to obtain information on age, ethnicity, marital status, education level, occupation, and household income.

3.7.10 Infant Factors

Infant Factors can be categorized into two; Infant Characteristics and Infant Health Status. In this section of the questionnaire, infant factors were assessed through self-administered questionnaire that has been developed by research investigators in adoption to Infant Feeding Study questionnaire by CDC. Attributes under Infant Characteristics were gender, age, gestational week at birth, and anthropometry measurement of weight, length and head circumference for three different time points – birth, 1 month and current (latest data if current data was not able to be obtained). Whereas attributes for Infant Health Status are conditions at birth – including preterm, jaundice, G6PD, and fetal distress, length of hospitalization, and jaundice experience. Infant medical book (baby book) was assessed to obtain data regarding gestational week at birth, anthropometric data and other medical records.

At birth, anthropometric measurement needs to be done with speed as infants need to undergo other assessment and care. Thus, measurement of length and head

circumference may be biased as there is high chance of inaccuracy due to human error. In contrast, weigh is measured solely by placing infants on measuring scale. Thus, human error was eliminated from the measurement. Recorded anthropometric data at birth were used to calculate Weight-for-age z-score (WAZ). Infants were then classified according to WHO Child Growth Standard (2006) as shown in Table 3.4.

Table 3.5 Growth indicator of weight-for-age (WAZ) for children aged below 5 years (WHO, 2006)

Weight-for-age (z-score)	Growth Indicator
Z < +1 SD	Possible growth problem
-2 SD < Z <+1 SD	Normal
-3 SD < Z < -2 SD	Underweight
-3 SD < Z	Severely underweight

3.8 Pretesting

Pretesting is important to be done in order to ensure clarity of questionnaire. Pretesting was done in January 2020 among 10 breastfeeding mothers that met selection criteria of the study. Information sheet was provided and informed consent was obtained from participants who are eligible and consented or agreed to participate in the pilot testing group. All 10 pretesting subjects were excluded from the study sample. Duration of time to complete the questionnaires ranged from 20-45 minutes depending on mother's availability to fully concentrate in filling the questionnaire besides taking care of their infants. Unclear questions and typing error were found and corrected for the actual data collection. One limitation that researchers faced were the absence of baby book during maternal and baby visit or routine check-up. Some

mothers who were approached in clinics did not have their baby book due to several reasons such as baby was not there for monthly assessment. Thus, mothers only brought the medical card with them. In addition, some of the mothers in SCN did not have the baby book with them due to the book being used for birth registration. Another limitation found was some information was not written in the baby book, either because there was a different book given by private hospital or the information was printed and was not attached to the baby book. To overcome this, researcher asked the mothers if they can recall some essential information such as gestational week at birth and birth length. In addition, researchers tried to find missing information from other records available from the hospital, with permission.

3.9 Data Analysis

All data were analyzed using IBM SPSS Statistic 21 with statistical significance level of $p < 0.05$. Descriptive data with nominal and ordinal variables were presented as frequency and percentage, whereas interval and ratio variables were presented in mean and standard deviation. Correlation between two continuous variables were analyzed using Pearson Product Moment Correlation Coefficient and Spearman's Rho Correlation. Furthermore, association between categorical variable were analyzed against categorized stress, anxiety, and depression level using Chi Square Test of Independence. Fisher Exact was used for Chi Square result with more than 20% of the cells have expected count of less than 5.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter comprises result and discussion sections, which begin with sociological factors (sociodemographic characteristic, maternity care and social support variables), and followed with biological (infant factor and obstetric characteristic variables), and behavioral factors (breastfeeding practice, challenges, and self-efficacy variables). This chapter starts with descriptive findings and followed with statistical analysis results to test the study hypothesis with the additional discussion of the results.

A total of 331 mothers were invited to join this study. Eighty-nine percent of them fulfilled the study criteria according to inclusion and exclusion criteria shown in Table 3.2 and 76% agreed to participate in the study. The response rate of this study was 74%. In the end, 219 mothers completed the questionnaires, which achieved the target sample size of 210, as calculated in sample size determination.

4.1 Sociological Factors

Sociological factor comprises of sociodemographic characteristics of mothers, maternity care in the form of traditional postpartum care or confinement, and social support from significant other, family, and friends.

4.1.1 Sociodemographic Characteristics of Mothers

Table 4.1 presents sociodemographic characteristics of the respondents (n=219). Age of the mothers ranged from 19 to 44 years, with mean age of 31.62 $\pm$ 4.87 years. Most of the mothers were Malay (n=198, 90.5%), followed by Chinese (n=11, 5%), and Indian (n=6, 2.7%). According to Department of Statistics Malaysia (2019), current population estimates by ethnic group shows a ratio of 10:3:1 for Bumiputera – including Malays and Orang Asli, Chinese, and Indian respectively. However, the ratio found in this study was 34:2:1. Thus, the study population does not represent national ethnicity. Furthermore, according to National Health and Morbidity Survey (NHMS) 2015, Chinese preferred to give birth in private facilities. Data were collected in two government hospitals. This might be the reason that a very high number of participants were Malay and very small number of participants were Chinese or Indian. Most mothers were married (n=216, 98.6%). Majority of the mothers had either pre-university certificates (n=78, 35.6%) or bachelor degree (n=74, 33.8%). In terms of occupation, 40.6% of the mothers (n=89) worked in private sector, while 28.8% (n=63) worked in public sectors. Around 25% of the mothers were unemployed (n=54). Lastly, almost half (46.7%) of the mothers were from low income category with household income of below RM3800 each month. Thirty-eight percent were in the middle-income category with household income within range of RM3801-RM8300 (n=82), and 15% were in the high-income category with household income of above RM8301 per month (n=32).

Table 4.1 Sociodemographic characteristics of mothers (n=219)

Characteristics	n (%)	Mean ± SD
Age (years)		31.62 ± 4.87
Ethnicity		
Malay	198 (90.5)	
Chinese	11 (5.0)	
Indian	6 (2.7)	
Bumiputera	4 (1.8)	
Marital status		
Single	3 (1.4)	
Married	216 (98.6)	
Education level		
Primary /secondary school	57 (26.0)	
Pre-University	78 (35.6)	
Bachelor Degree	74 (33.8)	
Postgraduate	10 (4.6)	

Table 4.2 Sociodemographic characteristics of mothers (n=219)

Characteristics	n (%)	Mean ± SD
Occupation		
Private sector	89 (40.6)	
Public sector	63 (28.8)	
Self-employed	13 (5.9)	
Unemployed	54 (24.7)	
Household income	**214 (97.7)**	
Low (<3800)	100 (46.7)	
Middle (3081-8300)	82 (38.3)	
High (>8301)	32 (15.0)	

4.1.2 Maternity Care

Maternity care in this study is focusing on the practice of traditional postpartum care and confinement practice after birth. Table 4.2 presents the practice of home maternity care and perception towards traditional postpartum confinement. Confinement practice is a very common traditional postpartum care adopted by Malaysian. Different races may have different approach or practice to confinement. In

this study, confinement practice was assessed as a general traditional postpartum care, across all race, religion, and ethnicity.

Nearly all participants practiced traditional postpartum care (n=218, 99.5%). This study found that around 70% of mothers underwent confinement period by their own choice (n=160, 73.1%). This finding is lower compared to a study by Hishamshah et al. (2012) that found majority (86.8%) of mothers practiced traditional care own their own accord. Around 50% were advised by family member to practice confinement (n=110, 50.2%) and 28% practiced confinement as their own cultural practice (n=61, 27.9%).

As for the care itself, the most common traditional care mothers had during confinement period were massage (n=186, 84.9%), hot compress (n=167, 76.3%), and usage of corset, also known as *bengkung* / *barut* (n=146, 66.7%). This finding is similar with a recent study that found massage, hot compress and usage of corset to be the most commonly preferred traditional care (Azmi et al., 2019). Furthermore, 50% used herbs in their face and body, including herbal bath (n=110, 50.2%). Around 40% practiced vaginal steam or *bertangas* (n=87) and 31.5% consumed herbal drink (n=69). Confinement practice is a part of cultural practice that is perceived to bring benefit for mother's postpartum recovery. In this study, perceived benefits of confinement practice were assessed. Almost 80% of mothers reported that traditional care has helped them through recovery from birth pain at a faster rate (n=172, 78.5%). Nearly 70% believed that traditional postpartum care has helped them to do daily routine better (n=151, 68.9%). Furthermore, around 65% reported that traditional postpartum care has aided them in breastfeeding (n=144, 65.8%) and has helped them to become more calm (n=142, 64.8%). Other perceived benefits mothers reported were bleeding stopped early (n=82, 37.4%) and wound healed at faster rate (n=63, 28.8%).

Lastly, satisfactory level was assessed in order to know mother's feeling on practicing traditional postpartum care based on 5-point scale, from scale of 1 showing that mothers were not pleased and happy about overall traditional postpartum care, and 5 showing that mothers are pleased and happy. The mean score of mothers' satisfaction towards the practice of traditional postpartum care was 4.29 (*SD*=0.82). This result reflected that mothers were pleased and happy with their traditional postpartum care experience.

Table 4.3 The practice of traditional postpartum care

Traditional Postpartum Care	**n (%)**	**Mean ± SD**
Reason of practice		
Own choice	160 (73.1)	
Advised by family	110 (50.2)	
As own cultural practice	61 (27.9)	
Advised by friends	23 (10.5)	
Advised by doctors / nurses	11 (5.0)	

Table 4.4 The practice of traditional postpartum care

Traditional Postpartum Care	n (%)	Mean ± SD
Traditional Care		
Massage	186 (84.9)	
Hot compress	167 (76.3)	
Corset (*bengkung / barut*)	146 (66.7)	
Usage of herbs	110 (50.2)	
Vaginal steam (*bertangas*)	87 (39.7)	
Herbal drink	69 (31.5)	
Perceived Benefits		
Faster recovery from birth pain	172 (78.5)	
Able to do daily routine better	151 (68.9)	
Aid in breastfeeding	144 (65.8)	
Become more calm	142 (64.8)	
Bleeding stopped early	82 (37.4)	
Wound healed at faster rate	63 (28.8)	
Satisfactory level	**216 (98.6)**	4.29 ± 0.82

4.1.3 Maternal Social Support

Maternal social support was assessed using Multidimensional Scale of Perceived Social Support (MSPSS). The score ranged from 20 to 72 with mean score of 58.37 (*SD* = 10.62). Figure 4.1 shows the distribution of MSPSS score of mothers after being categorized to low, moderate and high level of social support. The distribution of those with low, moderate and high social support was more or less the same, with around 33% to 34% in each category. A study on social support and maternal depression in Penang, Malaysia found different prevalence of social support with most mother had moderate social support (61.3%), 22% had poor support and 16.7% had strong support when measured by Oslo-3 Social Support Scale (OSS-3)(Rashid & Mohd, 2017). The difference in prevalence may be due to different instrument use, whereby OSS-3 measures number of dependable people in time of trouble, perception on concerns of surrounding people and practicality to get help from neighbors. Whereas MSPSS used in this study measure wide range of social support from emotional to practical support from family, friends and significant others.

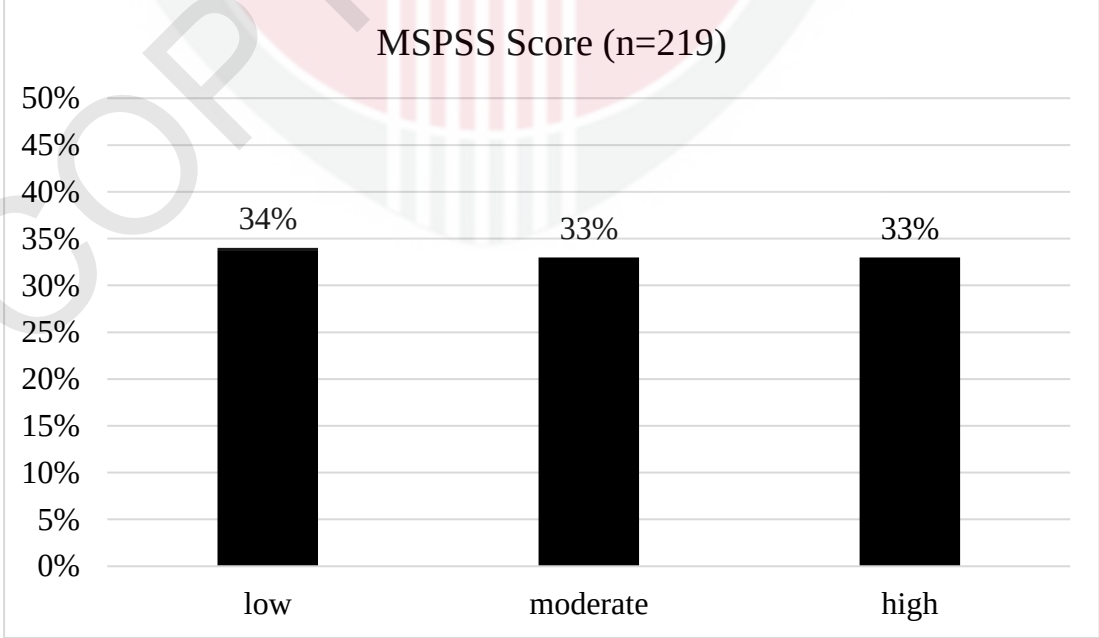

Figure 4.1 MSPSS score distribution by percentile

Social Support is very important as mothers are going through major changes in life starting from prenatal period. Experiencing pregnancy, labour, until postpartum period may not be something easy for most mothers, especially those experiencing it for the first time. This is where support comes in and help mothers to overcome adaptation and challenges faced throughout these periods of time.

4.2 Biological Factors

Biological factor in this study mostly refers to unmodifiable or naturally occurred biological or physiological factors. Variables assessed under biological factors are infant characteristic and health status, as well as birth experience and obstetric characteristics.

4.2.1 Infant Characteristics and Health Status

Among 219 infants, there were more male (n=127, 58%) than female (n=92, 42%). This finding is similar with data from Department of Statistics Malaysia (2019), that showed more male (51.7%) than females (48.3%) were born in 2018. The mean age of infants were 52 days (*SD* = 57.22). This study found that 31.7% (n=69) of the infants were aged less than 1 week. A little over 10% (n=26, 11.9%) were aged between 1 until 2 weeks. Around 8% (n=18, 8.3%) were aged between 3-4 weeks and 33.5% (n=73) were aged between 1 until 4 months. The remaining (n=32, 14.7%) were aged between 4 to 6 months. As for gestational week at birth, nearly three quarter (n=163, 76.2%) of infants were born full term at 37 weeks or more, whereas 23.8% were born preterm. Among those who were preterm, around 10% were very preterm (n=5, 98%) and around 6% were born extremely preterm (n=3, 5.8%). Almost in line with gestational week at birth, 77% (n=167) of the infants had normal weight of at least 2500g. The proportion of low birth weight (less than 2500g), very low birth

weight (less than 1500g) and extremely low birth weight (less than 1000g) were 18.9% (n=41), 3.2% (n=7), and 0.9% (n=2) respectively. Mean birth weight found in this study is slightly lower than finding from Malaysian national data, which is 2.83kg compared to 3.02kg (NHMS(III), 2016). Furthermore, Malaysian national data found a lower prevalence of low birth weight infants with only 9.7%, compared to this study that find prevalence of low birth weight of 23%. The difference may be due to study population, in which this study focuses more on infants with health conditions such as preterm infants, and those experiencing jaundice, sepsis, and other medical conditions.

Weight-for-age was used to assess infant's growth. Mean birth weight-for-age Z-score (WAZ) was -3.3 $\pm$ 2.66, indicating that the mean WAZ fell under severely underweight. More than half of the infants (60.9%) had Z-score of less than -2, with 50.7% among those underweight fell under the category of severely underweight (Z= less than -3). As for WAZ at 1 month, the mean score was -3.9 $\pm$ 1.98, with only less than 20% were within normal weight category (1> Z < -2). Number of children with WAZ of less than -3 (severely underweight) increased by 22% in the first month of life. This is quite alarming as it showed the needs to reflect and improve current practice in child care, especially in the first month of life of infants with health conditions. Findings from Malaysian national data on WAZ among children aged 0 to 5 years showed a prevalence of 13.7% of children with WAZ of below -2 (underweight) (IPH, 2016). Similar with birth weight, this study's finding on higher prevalence of infants being underweight or severely underweight may be due to study population which focuses on infants below 6 months presented with health conditions.

Table 4.5 Infant characteristics

Characteristics	n (%)	Mean ± SD
Sex	**219 (100.0)**	

Male	127 (58.0)	
Female	92 (42.0)	
Age (days)	**218 (99.5)**	52.38 ± 57.22
< 7 days	69 (31.7)	
7-14 days	26 (11.9)	
15-30 days	18 (8.3)	
1-4 months	73 (33.5)	
> 4 months	32 (14.7)	
Gestational week	**214 (97.7)**	37.16 ± 2.47
Extreme Preterm	3 (1.4)	
Very Preterm	5 (2.3)	
Preterm	43 (20.1)	
Full term	163 (76.2)	
Birth weight (kg)	**217 (99.1)**	2.83 ± 0.64
ELBW[a]	2 (0.9)	
VLBW[b]	7 (3.2)	
LBW[c]	41 (18.9)	
Normal weight	167 (77.0)	
Birth WAZ*	**215 (98.2)**	-3.3 ± 2.66
Normal weight	84 (39.1)	
Underweight	22 (10.2)	
Severely underweight	109 (50.7)	
WAZ at 1 month	**84 (38.4)**	-3.9 ± 1.98
Normal weight	14 (16.7)	
Underweight	9 (10.7)	
Severely underweight	61 (72.6)	

*WAZ = weight-for-age Z-score

[a] Extremely Low Birth Weight (ELBW), [b] Very Low Birth Weight (VLBW), [c] Low Birth Weight (LBW)

Table 4.4 contains information on health status of infants. Over 30% of infants had jaundice at birth (n=72, 33%). Among 218 infants, 6.4% (n=14) experienced fetal distress and 5% (n=11) had G6PD. Other health conditions infants had at birth included pulmonary condition, heart condition, sepsis, bone disease, esophageal atresia and others. Around 20% of mothers perceived that their child has a serious, long-term health conditions (n=48, 22.6%). However, this perception is very subjective because seriousness and length of experienced health condition may vary

according to different perception. Among 218 infants, nearly 80% had been hospitalized (n=174, 79.8%), with mean hospitalization days of around 5 days (*M*= 5.59, *SD*=13.35).

In order to have a closer look at overall jaundice rate, incident of infant having jaundice, either at birth or after birth were assessed. Result shows that a very high number of infants had experienced jaundice at some point of their life (n=188, 85.8%). This study found a significantly higher prevalence of jaundice compared to past studies from selected Asian country that found prevalence of neonatal jaundice (including severe condition) ranging from 3.8% to 49.1% (Greco et al., 2016). As seen from Table 4.5, phototherapy in addition to breastfeeding were the most common treatment for jaundice (n=84, 38.4%). Second common treatment was phototherapy in addition to mix feeding – which means infant were fed with both breastmilk and formula milk (n=54, 24.7%), as well as breastfeeding only, without phototherapy (n=51, 23.3%). Additional feeding as jaundice management referred to herbal and goat milk. Despite only 2 mothers reported incorporation of additional feeding, it suggested that education on jaundice and its management can be further extended, so that no harm may occur.

Table 4.6 Infant health condition

Characteristics	n (%)	Mean ± SD
Health Condition at Birth	**218 (99.5)**	
Jaundice	72 (33.0)	
Fetal distress	14 (6.4)	
G6PD	11 (5.0)	
Others	44 (20.2)	

Serious, long-term Health Conditions	**212 (96.8)**	
Yes	48 (22.6)	
No	164 (77.4)	
Hospitalization (days)	**218 (99.5)**	5.59 ± 13.35
Yes	174 (79.8)	
No	44 (20.2)	
Jaundice	**219 (100.0)**	
Yes	188 (85.8)	
No	31 (14.2)	

Table 4.7 Jaundice management (n=219)

Jaundice Management	Frequency (n)	Percentage (%)
Phototherapy + breastmilk	84	38.4
Phototherapy + formula milk	1	0.5
Phototherapy + mixed feeding	54	24.7
Breastfeeding only	51	23.3
Formula feeding only	2	0.9
Mixed feeding	27	12.3
Additional feeding	2	0.9

4.2.2 Birth Experience and Obstetric Characteristics

Birth experience and obstetric characteristics are shown in Table 4.6. Among all participants, around 30% were on their first pregnancy (n=66) and more than half of the mothers had less than three children (n=122, 55.7%). Meanwhile, gestational weight gain was ranging from 0 to 30 kg with mean value of 11.24 kg (*SD*= 4.99). Slightly over 50% of the mothers did not plan for their pregnancy (n=116, 53.2%).

As for birth experience, 47.9% of the mothers had natural vaginal delivery without induction (n=105) and 16.4% had induced vaginal delivery (n=36). Meanwhile, around 36% of the mothers had cesarean delivery (n=78), with 23.7% experienced emergency cesarean delivery (n=52). During labour, most of the mothers were accompanied by their husband (n=153, 70.2%), while 26.6% were not

accompanied by anyone other than the medical staffs (n=58). UNICEF and WHO (2018) in revised "Ten Steps to Successful Breastfeeding" recommends immediate skin-to-skin contact and breastfeeding to be initiated as soon as possible. Skin-to-skin contact and breastfeeding initiation can be delayed due to several factors such as infant's condition. The urgency for infant with health problems to be directly taken to NICU makes it hard for skin-to-skin contact and breastfeeding initiation to happen immediately after birth, or even within the first 1 hour of life. This study found that almost 80% had skin-to-skin contact within the first hour of life (n=175, 79.9%) with 57.5% had skin-to-skin contact directly after birth (n=57.5). A review of randomized control trials which assess skin-to-skin contact and breastfeeding found that early skin-to-skin contact helps in initiation of breastfeeding as well as improve breastfeeding exclusivity and duration (Moore et al., 2016). This study found that only around 25% of mothers attempted to breastfeed their infants directly after birth (n=54, 24.7%), despite nearly 60% tried to breastfeed their child within one hour after birth (n=129). The rate of early skin-to-skin contact in this study might be the reason that the number of mothers who initiate breastfeeding within first hour of life was found to be lower compared Malaysian national data which found around 65% of mothers initiate breastfeeding within one hour (IPH, 2016).

Table 4.8 Birth experience and obstetric characteristics (n=219)

Characteristics	n (%)	Mean ± SD
Number of children		
1	66 (30.1)	
2	56 (25.6)	
3	55 (25.1)	
4	22 (10.0)	

> 4	20 (9.1)	
Gestational weight gain (kg)*	**218 (99.5)**	11.24 ± 4.99
< 11.5	119 (54.3)	
11.5-16	62 (28.3)	
> 16	38 (17.4)	
Family planning	**218 (99.5)**	
Yes	102 (46.8)	
No	116 (53.2)	
Method of delivery		
Vaginally (not induced)	105 (47.9)	
Vaginally (induced)	36 (16.4)	
Cesarean (planned)	26 (11.9)	
Cesarean (emergency)	52 (23.7)	
Company during labour	**218 (99.5)**	
Baby's father	153 (70.2)	
Family or friends	7 (3.2)	
None other than medical staff	58 (26.6)	
Skin-to-skin contact		
Directly after birth	126 (57.5)	
In less than 30 mins	43 (19.6)	
Within 30-60 mins	6 (2.7)	
> 60 mins	44 (20.1)	
First Breastfeeding Attempt		
Directly after birth	54 (24.7)	
In less than 30 mins	39 (17.8)	
Within 30-60 mins	36 (16.4)	
> 60 mins	90 (41.1)	

*GWG are categorized based on recommendation for mothers with healthy weight.

4.3 Behavioral Factors

Behavioral factor in this study focuses on behavior related to breastfeeding. This includes the practice, challenges and confidence in breastfeeding, particularly self-efficacy of the mothers in breastfeeding their child.

4.3.1 Breastfeeding Practice, Challenges and Self Efficacy

Breastfeeding practice, challenges, as well as self-efficacy are as shown in Table 4.7. First milk reflected the duration it takes for the first milk to be expressed.

Around 57% of the mothers had their first milk expressed within 1 day (n=124, 56.6%). Meanwhile, around 43% of the mothers were able to express their milk after the second day onwards (n=95), with 3.7% were able to express their milk after more than 4 days (n=8). A single feeding session takes around 4 minutes up to 2 hours, with mean reported duration of around 25 minutes (M= 25.33, SD= 14.70). Furthermore, based on a 5-point scale, with 1 to 5 indicating not pleased to pleased, the average score is 4.54 ± 0.79 with majority of mothers (71%) rated their breastfeeding experience as 5 (pleased).

Only around 20% of the mothers (n=46, 21%) did not encounter any breastfeeding problems as described in Table 4.8. Meanwhile, 18.3% and 21% of the mothers experienced at least 1 or 2 problems respectively (n=40; n=46). The remaining 40% had 3 or more problems during breastfeeding (n=87, 39.7%). The most frequent problems that were encountered by mothers were having sore or cracked or bleeding nipple (n=73, 33.3%), baby had trouble sucking or latching (n=66, 30.1%), baby wouldn't wake up (n=55. 25.1), didn't have enough milk (n=51, 23.3), baby nursed too often (n=50, 22.8%) and engorgement (n=48, 21.9%). A study among breastfeeding mothers in Denmark found similar finding with this study. The study found that the most common breastfeeding problems were inability of infant to latch on (40%) and sore, wounded and cracked nipple (38%) (Feenstra et al., 2018). In terms of external pressure to stop breastfeeding, this study assessed encouragement to stop breastfeeding from family members and employer. Around 95% of mothers were not encouraged to stop breastfeeding by anyone (n=209), while 4.1% were encouraged to stop breastfeeding by family members or employer (n=9). Another breastfeeding challenges that mothers might experience is pain. More than 50% reported to have experienced pain while breastfeeding (n=121, 55.5%). To look further into this

challenge, pain levels were measured by using a scale, with increasing level of pain from 1 to 10. The mean pain levels at first day, first week and second week were 3.55 (*SD*=2.44), 3.70 (*SD*=2.42), and 2.99 (*SD*=2.25) respectively, showing that overall, moderate to low pain were experienced by mothers. Pain during the first week was slightly higher than the first day. However, pain level was reduced by almost one point at the second week.

Table 4.9 Breastfeeding practice, challenges and self-efficacy (n=219)

Characteristics	**n (%)**	**Mean ± SD**
First milk		
1 day or less	124 (56.6)	
2 days	47 (21.5)	
3 days	28 (12.8)	
4 days	12 (5.5)	
> 4 days	8 (3.7)	
Feeding duration per session (mins)	**216 (98.6)**	25.33 ± 14.70
Satisfactory level on breastfeeding experience		4.54 ± 0.79
Number of breastfeeding problems		
0	46 (21.0)	
1	40 (18.3)	
2	46 (21.0)	
3	30 (13.7)	
4	18 (8.2)	
5	18 (8.2)	
> 5	21 (9.6)	

Table 4.10 Breastfeeding practice, challenges and self-efficacy (n=219)

Characteristics	**n (%)**	**Mean ± SD**
Encourage to stop breastfeeding		
No one	209 (95.4)	
Mother	5 (2.3)	
Baby's father	2 (0.9)	
Other family member	1 (0.5)	

Employer	1 (0.5)	
Pain during breastfeeding	**218 (99.5)**	
Yes	121 (55.5)	
No	97 (44.5)	
Breastfeeding pain level		
First day	212 (96.8)	3.55 ± 2.44
First week	212 (96.8)	3.70 ± 2.42
Second week	170 (77.6)	2.99 ± 2.25
Breastfeeding Self-efficacy		56.70 ± 10.73

Table 4.11 Breastfeeding problems mothers encountered (n=219)

Breastfeeding Problems	Frequency (n)	Percentage (%)
None	67	30.6
Sore/cracked/bleeding nipple	73	33.3
Baby had trouble sucking or latching	66	30.1
Baby wouldn't wake up	55	25.1
I didn't have enough milk	51	23.3
Baby nursed too often	50	22.8
Engorgement (breast too full)	48	21.9
Took a long time for my milk to come in	37	16.9
I had trouble initiating milk flow	32	14.6
Baby didn't get enough / lose too much weight	28	12.8
Clogged milk duct	28	12.8
Baby chocked	23	10.5
Breast leaked too much	21	9.6
Baby got distracted	16	7.3
Baby not interested	10	4.6
Others	5	2.3

Breastfeeding self-efficacy has been an area of interest as studies shown that breastfeeding self-efficacy is corelated with exclusive breastfeeding (Henshaw et al., 2015; Sahin, 2019). The mean score of breastfeeding self-efficacy assessed through Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF) was 56.70 ± 10.73, with

minimum score of 14 and maximum score of 70. Reflecting to Figure 4.2, most mother were found to have low level of confidence in breastfeeding their baby (n=81, 37%).

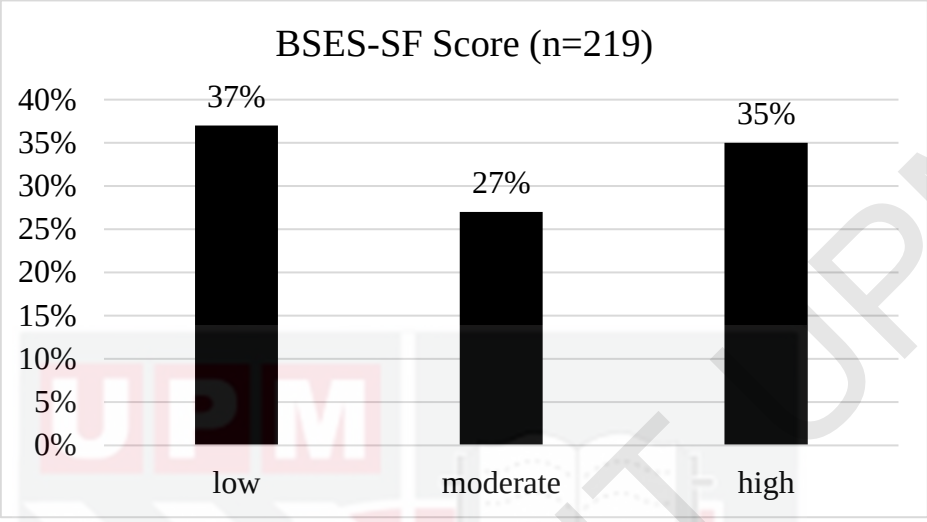

Figure 4.2 BSES-SF score distribution by percentile

4.4 Maternal Psychological State

Stress, anxiety, and depression were assessed using validated questionnaire of PSS, BAI and EPDS respectively. The mean score of PSS is 16.66 $\pm$ 5.43 with most mothers had moderate level of stress (n=144, 65.8%, *M*=16.66, *SD*=5.43). Prolonged stress may lead to post-traumatic stress disorder (PTSD). A meta-analysis by Grekin & O'Hara (2014) found that among high-risk mothers – mothers who experienced traumatic labour experience, depression or faced with infant complications, the prevalence of postpartum PTSD was 15.7%.

As for anxiety, most mothers had a score of 15 or less (n=164, 74.9%) with mean BAI score of 11.46 $\pm$ 11.18. A quarter of mothers had moderate to severe anxiety (n=55). A systematic review by (Dennis et al., 2017) found the prevalence of postpartum anxiety symptom assessed mainly using State-Trait Anxiety Inventory (STAI) to be 15%.

More than half of the mothers had EPDS score of less than 10 (n=125, 57.1%) with overall mean score of 9.37 ± 5.32. However, nearly one fourth of mothers had positive screening of depression (n=53, 24.2%). This number is higher compared to global data from WHO that reported around 20% of mothers experienced some kind of mental illness, including depression (WHO, 2015). This number is also higher compared to previous studies done in Malaysia that shown mean prevalence of 17.05%, despite the fact that these findings ranged from 6.8% to 27.3%, showing that findings from this study is similar with certain region in Malaysia (Roshaidai Mohd Arifin et al., 2018).

Table 4.12 Level of maternal psychological state (n=219)

Maternal Psychological State	n (%)	Mean ± SD
PSS Score (stress)		16.66 ± 5.43
Low	65 (29.7)	
Moderate	144 (65.8)	
High	10 (4.6)	
BAI Score (anxiety)		11.46 ±11.18
Minimal	96 (43.8)	
Mild	68 (31.1)	
Moderate	27 (12.3)	
Severe	28 (12.8)	
EPDS Score (depression)		9.37 ± 5.32
Not likely	125 (57.1)	
Possible depression	41 (18.7)	
Positive screening	53 (24.2)	

4.5 Hypothesis Testing

The associations of sociological, biological and behavioral factors with maternal psychological state was assessed.

4.5.1 Sociological Factors and Maternal Psychological State

Table 4.10 shows the association between sociodemographic characteristic, maternity care and maternal psychological state. Age was found to be negatively associated with postpartum anxiety score (r = -0.138, p = 0.042), showing that mothers who were younger were more likely to experience postpartum anxiety. However, there were no significant association between age and postpartum stress as well as postpartum depression scores. No significant associations were found between education level, household income, satisfaction towards the practice of traditional postpartum care and levels of maternal psychological state. Although this finding is consistent with prior study that found no association between sociodemographic and postpartum stress, anxiety and depression (Clout & Brown, 2015), there is inconsistency in the findings. Other studies found association between sociodemographic characteristic and maternal psychological state, especially economic status with postpartum depression (Eastwood et al., 2011; Ege et al., 2008; O'Hara & Swain, 1996; Petrosyan et al., 2011).

Social support was found to be significantly associated with level of maternal psychological state. Negative correlations were found between social support and postpartum stress (r = -0.241, p = 0.001), postpartum anxiety (r = -0.171, p = 0.011), and postpartum depression scores (r = -0.263, p = 0.001). This indicate that lower social support is associated with higher postpartum stress, anxiety, and depression. This finding is consistent with other findings that particularly found the association of social support with postpartum depression (Ege et al., 2008; Razurel et al., 2013).

Table 4.13 Pearson correlation between sociological factors and maternal psychological state

Variables	Postpartum Stress		Postpartum Anxiety		Postpartum Depression	
	r	p-value	r	p-value	r	p-value
Sociodemographic Characteristics						
Age	-0.058[a]	0.392	-0.138[b]	**0.042***	-0.070[b]	0.305
Education level	0.002[b]	0.980	0.091[b]	0.181	0.027[b]	0.689
Household income	-0.105[b]	0.126	-0.059[b]	0.387	-0.014[b]	0.842
Maternity Care						
Satisfactory level of traditional postpartum care	-0.083[b]	0.227	-0.053[b]	0.440	-0.097[b]	0.155
Social Support	-0.241[b]	**0.001****	-0.171[b]	**0.011***	-0.263[b]	**0.001****

[a] Pearson
[b] Spearman
* Correlation is significant at the 0.05 level
**Correlation is significant at the 0.01 level

Fisher exact test shows that marital status was associated with postpartum depression categories (χ^2 = 5.174, p = 0.045). However, there were no significant association between marital status and postpartum anxiety and stress categories. It was found that single mothers had either possible risk of depression (66.7%) or positive screening of depression (33.3%). In contrast, nearly 60% mothers who were married had EPDS score of less than 10, indicating unlikeliness of being depressed. There were no significant association between ethnicity, occupation and levels of maternal psychological state.

Chi square results of traditional postpartum care with levels of maternal psychological state are presented in Table 4.12. Practicing traditional postpartum care by own choice, without pressure from surroundings is significantly associated with

postpartum stress (χ^2= 9.948, p = 0.007) and postpartum depression categories (χ^2=10.995, p = 0,004). However, there were no significant association found between practicing confinement by own choice and postpartum anxiety category. Among those who had high level of stress and depression, higher numbers were found to be forced into confinement practice (stress=11.3%, depression=39%) compared to those who did confinement by their own will (stress=1.9%, depression=18.8%). Furthermore, mothers who were advised to do confinement by family were shown to have higher level of anxiety (χ^2= 8.113, p = 0.044). Among mothers who had minimal anxiety, 34.5% were advised to do confinement by family member while 53.2% were not pressured into doing confinement. In contrast, among mothers who had severe anxiety, slightly higher number of mothers were found to practice confinement as advised by family (13.6%) compared to those who were not advised to do confinement by their family (11.9%). There were no significant association between other reason of practicing confinement- as own cultural practice, advised by friends, advised by doctor or nurses, and levels of maternal psychological state.

Association between different types of traditional care and levels of maternal psychological distress are also presented in Table 4.12. Massage or commonly known as *urut* was found to be significantly associated with postpartum stress (χ^2= 8.817, p = 0.012) and postpartum depression categories (χ^2 = 7.259, p = 0.027). However, it was not significantly associated with postpartum anxiety category. Mothers who had massage as part of their confinement practice were more likely to have lower stress and depression level. Massage was shown to reduce chance having high level of stress and depression by 2.3% and 1.8% respectively. Usage of corset (*bengkung* or *barut*) was also found to be significantly associated with postpartum depression category (χ^2=7.465, p = 0.024). Those who used corset were more prevalent in having no

depression (63%) compared to those who did not (45.2%). However, there were no significant associations between usage of corset and postpartum stress and anxiety categories. Furthermore, no significant association were found between hot compress, usage of herbs, vaginal steam (*bertangas*), herbal drink and levels of maternal psychological state. These findings on the association of traditional postpartum care with maternal psychological state has provided support to previous finding that suggested traditional postpartum care as a potential physiological and psychological support to mothers (Azmi et al., 2019). Overall, the traditional practices would possibly provide a direct of support in the form of maternal care, as well as potentially make mothers to have a better rest or experience relaxation, such as during massages. Hence, this indirectly could reduce the maternal psychological distress during the postpartum period.

In terms of perceived benefits, the only significant association found was between postpartum stress category and perceived benefit of being able to do daily routine better after practicing traditional confinement care (χ^2= 8.346, p = 0.015). The prevalence of high level of stress were five times higher among those who did not believe that traditional confinement practice can help aid in doing daily routine better. There were no significant association found between other perceived benefits with levels of maternal psychological state. This also indicates that personal choice or maternal consent plays important role on the perceived of benefits in practicing the traditional confinement practices.

Table 4.14 Chi square result of mother's sociodemographic characteristics with maternal psychological state

Characteristic	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Ethnicity	8.715[a]	0.139		10.822[a]	0.163			3.069[b]	0.834	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Malay	59 (29.8)	130 (65.7)	9 (4.5)	86 (43.4)	61 (30.8)	24 (12.1)	27 (13.6)	114 (57.6)	38 (19.2)	46 (23.2)
Chinese	1 (9.1)	10 (90.9)	0 (0.0)	5 (45.5)	5 (45.5)	0 (0.0)	1 (9.1)	5 (45.5)	2 (18.2)	4 (36.4)
Indian	2 (33.3)	3 (50.0)	1 (16.7)	4 (66.7)	2 (33.3)	0 (0.0)	0 (0.0)	4 (66.7)	1 (16.7)	1 (16.7)
Bumiputera	3 (75.0)	1 (25.0)	0 (0.0)	1 (25.0)	0 (0.0)	3 (75.5)	0 (0.0)	2 (50.0)	0 (0.0)	2 (50.0)
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Marital Status	1.405[a]	0.612		3.973[a]	0.216			5.174[b]	**0.045***	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Single	0 (0.0)	3 (100.0)	0 (0.0)	0 (0.0)	2 (66.7)	0 (0.0)	1 (33.3)	0 (0.0)	2 (66.7)	1 (33.3)
Married	65 (30.1)	141 (65.3)	10 (4.6)	96 (44.4)	66 (30.6)	27 (12.5)	27 (12.5)	125 (57.9)	39 (18.1)	52 (24.1)
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Occupation	5.145[b]	0.497		8.378[a]	0.497			2.843[a]	0.828	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Public sector	22 (34.9)	40 (63.5)	1 (1.6)	28 (44.4)	19 (30.2)	9 (14.3)	7 (11.1)	37 (58.7)	14 (22.2)	12 (19.0)
Private sector	26 (29.2)	58 (65.2)	5 (5.6)	36 (40.4)	27 (30.3)	13 (14.6)	13 (14.6)	49 (55.1)	14 (15.7)	26 (29.2)
Self-employed	5 (38.5)	7 (53.8)	1 (7.7)	5 (38.5)	4 (30.8)	0 (0.0)	4 (30.8)	8 (61.5)	2 (15.4)	3 (23.1)
Unemployed	12 (22.2)	39 (72.2)	3 (5.6)	27 (50.0)	18 (33.3)	5 (9.3)	4 (7.4)	31 (57.4)	11 (20.4)	12 (22.2)

[a] Pearson Chi Square
[b] Fisher's exact

* Correlation is significant at the 0.05 level

Table 4.15 Chi square result of traditional postpartum care with maternal psychological state

Traditional Postpartum Care	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Reason of Practice										
Own choice	9.948[a]	**0.007***		4.842[a]	0.184			10.995[a]	**0.004***	
Advised by family	2.460[a]	0.292		8.113[a]	**0.044***			0.824[a]	0.662	
As own cultural practice	1.568[a]	0.457		3.951[a]	0.267			2.141[a]	0.343	
Advised by friends	1.922[a]	0.383		1.683[b]	0.679			1.867[a]	0.395	
Advised by doctors / nurses	1.599[b]	0.426		2.415[b]	0.471			0.252[b]	1.000	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Own choice										
Yes	48 (30.0)	109 (68.1)	3 (1.9)	72 (45.0)	52 (32.5)	15 (9.4)	21 (13.1)	95 (59.4)	35 (21.9)	30 (18.8)
No	17 (28.8)	35 (59.3)	7 (11.9)	24 (40.7)	16 (27.1)	12 (20.3)	7 (11.9)	30 (50.8)	6 (10.2)	23 (39.0)
Advised by family										
Yes	29 (26.4)	74 (67.3)	7 (6.4)	38 (34.5)	41 (37.3)	16 (14.5)	15 (13.6)	60 (54.5)	23 (20.9)	27 (24.5)
No	36 (33.0)	70 (64.2)	3 (2.8)	58 (53.2)	27 (24.8)	11 (10.1)	13 (11.9)	65 (59.6)	18 (16.5)	26 (23.9)
As own cultural practice										
Yes	15 (24.6)	44 (72.1)	2 (3.3)	23 (37.7)	25 (41.0)	6 (9.8)	7 (11.5)	31 (50.8)	15 (24.6)	15 (24.6)
No	50 (31.6)	100 (63.3)	8 (5.1)	73 (46.2)	43 (27.2)	21 (13.3)	21 (13.3)	94 (59.5)	26 (16.5)	38 (24.1)
Advised by friends										
Yes	4 (17.4)	18 (78.3)	1 (4.3)	9 (39.1)	10 (43.5)	2 (8.7)	2 (8.7)	14 (60.9)	2 (8.7)	7 (30.4)
No	61 (31.1)	126 (64.3)	9 (4.6)	87 (44.4)	58 (29.6)	25 (12.8)	26 (13.3)	111 (56.6)	39 (19.9)	46 (23.5)
Advised by doctors/nurses										
Yes	2 (18.2)	8 (72.7)	1 (9.1)	4 (36.4)	5 (45.5)	0 (0.0)	2 (18.2)	6 (54.5)	2 (18.2)	3 (27.3)

No	63 (30.3)	136 (65.4)	9 (4.3)	92 (44.2)	63 (30.3)	27 (13.0)	26 (12.5)	119 (57.2)	39 (18.8)	50 (24.0)

Table 4.16 Chi square result of traditional postpartum care with maternal psychological state

Traditional Postpartum Care	Postpartum Stress		Postpartum Anxiety		Postpartum Depression	
	χ^2	p-value	χ^2	p-value	χ^2	p-value
Traditional Care						
Massage	8.817[a]	**0.012***	4.482[b]	0.210	7.259[a]	**0.027***
Hot compress	0.106[a]	0.948	2.152[a]	0.542	2.052[a]	0.358
Corset (*bengkung / barut*)	1.774[a]	0.412	4.985[a]	0.173	7.465[a]	**0.024***
Usage of herbs	2.675[a]	0.263	2.413[a]	0.491	3.674[a]	0.159
Vaginal steam (*bertangas*)	1.721[a]	0.423	2.537[a]	0.469	0.401[a]	0.818
Herbal drink	4.842[a]	0.089	0.556[a]	0.907	1.327[a]	0.515

	Low	Moderate	High	Minimal	Mild	Moderate	Severe	Not likely	Possible Depression	Positive Screening
Massage										
Yes	62 (33.3)	117 (62.9)	7 (3.8)	86 (46.2)	54 (29.0)	24 (12.9)	22 (11.8)	113 (60.8)	33 (17.7)	40 (21.5)
No	3 (9.1)	27 (81.8)	3 (9.1)	10 (30.3)	14 (42.4)	3 (9.1)	6 (18.2)	12 (36.4)	8 (24.2)	13 (39.4)
Hot Compress										
Yes	49 (29.3)	110 (65.9)	8 (4.8)	75 (44.9)	51 (30.5)	18 (10.8)	23 (13.8)	99 (59.3)	28 (16.8)	40 (24.0)
No	16 (30.8)	34 (65.4)	2 (3.8)	21 (40.4)	17 (32.7)	9 (17.3)	5 (9.6)	26 (50.0)	13 (25.0)	13 (25.0)
Usage of Corset										
Yes	46 (31.5)	95 (65.1)	5 (3.4)	71 (48.6)	43 (29.5)	17 (11.6)	15 (10.3)	92 (63.0)	26 (17.8)	28 (19.2)
No	19 (26.0)	49 (67.1)	5 (6.8)	25 (34.2)	25 (34.2)	10 (13.7)	13 (17.8)	33 (45.2)	15 (20.5)	25 (34.2)
Usage of Herbs										
Yes	30 (27.3)	77 (70.0)	3 (2.7)	47 (42.7)	39 (35.5)	12 (10.9)	12 (10.9)	65 (59.1)	24 (21.8)	21 (19.1)
No	35 (32.1)	67 (61.5)	7 (6.4)	49 (45.0)	29 (26.6)	15 (13.8)	16 (14.7)	60 (55.0)	17 (15.6)	32 (29.4)
Vaginal Steam										

Yes	26 (29.9)	59 (67.8)	2 (2.3)	39 (44.8)	29 (33.3)	7 (8.0)	12 (13.8)	49 (56.3)	18 (20.7)	20 (23.0)
No	39 (29.5)	85 (64.4)	8 (6.1)	57 (43.2)	39 (29.5)	20 (15.2)	16 (12.1)	76 (57.6)	23 (17.4)	33 (25.0)

Table 4.17 Chi square result of traditional postpartum care with maternal psychological state

Traditional Care	**Low**	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Herbal Drink										
Yes	21 (30.4)	48 (69.6)	0 (0.0)	32 (46.4)	21 (30.4)	7 (10.1)	9 (13.0)	37 (53.6)	16 (23.2)	16 (23.2)
No	44 (29.3)	96 (64.0)	10 (6.7)	64 (42.7)	47 (31.3)	20 (13.3)	19 (12.7)	88 (58.7)	25 (16.7)	37 (24.7)

Traditional Postpartum Care	**Postpartum Stress**		**Postpartum Anxiety**		**Postpartum Depression**	
	χ^2	**p-value**	χ^2	**p-value**	χ^2	**p-value**
Perceived Benefits						
Faster recovery from birth pain	2.386[c]	0.303	5.584[c]	0.134	4.706[c]	0.095
Able to do daily routine better	8.346[c]	**0.015***	2.584[c]	0.460	0.874[c]	0.646
Aid in breastfeeding	3.107[c]	0.211	1.758[c]	0.624	0.179[c]	0.914
Become more calm	2.837[c]	0.242	0.963[c]	0.810	3.144[c]	0.208
Bleeding stopped early	0.443[c]	0.801	1.569[c]	0.667	0.452[c]	0.798
Wound healed at faster rate	0.055[c]	0.973	0.825[c]	0.844	0.093[c]	0.954

	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Faster recovery from birth pain										
Yes	53 (30.8)	113 (65.7)	6 (3.5)	80 (46.5)	52 (30.2)	17 (9.9)	23 (13.4)	102 (59.3)	34 (19.8)	36 (20.9)
No	12 (25.5)	31 (66.0)	4 (8.5)	16 (34.0)	16 (34.0)	10 (21.3)	5 (10.6)	23 (48.9)	7 (14.9)	17 (36.2)
Able to do daily routine better										
Yes	49 (32.5)	99 (65.6)	3 (2.0)	67 (44.4)	50 (33.1)	18 (11.9)	16 (10.6)	89 (58.9)	28 (18.5)	34 (22.5)
No	16 (23.5)	45 (66.2)	7 (10.3)	29 (42.6)	18 (26.5)	9 (13.2)	12 (17.6)	36 (52.9)	13 (19.1)	19 (27.9)

Aid in breastfeeding										
Yes	44 (30.6)	96 (66.7)	4 (2.8)	63 (43.8)	45 (31.3)	20 (13.9)	16 (11.1)	82 (56.9)	28 (19.4)	34 (23.6)
No	21 (28.0)	48 (64.0)	6 (8.0)	33 (44.0)	23 (30.7)	7 (9.3)	12 (16.0)	43 (57.3)	13 (17.3)	19 (25.3)

Table 4.18 Chi square result of traditional postpartum care with maternal psychological state

Perceived Benefits	**Low**	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Become more calm										
Yes	43 (30.3)	95 (66.9)	4 (2.8)	64 (45.1)	45 (31.7)	17 (12.0)	16 (11.3)	85 (59.9)	28 (19.7)	29 (20.4)
No	22 (28.6)	49 (63.6)	6 (7.8)	32 (41.6)	23 (29.9)	10 (13.0)	12 (15.6)	40 (51.9)	13 (16.9)	24 (31.2)
Bleeding stopped early										
Yes	26 (31.7)	53 (64.6)	3 (3.7)	37 (45.1)	25 (30.5)	12 (14.6)	8 (9.8)	49 (59.8)	15 (18.3)	18 (22.0)
No	39 (28.5)	91 (66.4)	7 (5.1)	59 (43.1)	43 (31.4)	15 (10.9)	20 (14.6)	76 (55.5)	26 (19.0)	35 (25.5)
Wound healed at faster rate										
Yes	18 (28.6)	42 (66.7)	3 (4.8)	26 (41.3)	19 (30.2)	8 (12.7)	10 (15.9)	35 (55.6)	12 (19.0)	16 (25.4)
No	47 (30.1)	102 (65.4)	7 (4.5)	70 (44.9)	49 (31.4)	19 (12.2)	18 (11.5)	90 (57.7)	29 (18.6)	37 (23.7)

[a] Pearson Chi Square
[b] Fisher's exact
* Correlation is significant at the 0.05 level

4.5.2 Biological Factors and Maternal Psychological State

Table 4.13 summarizes the association of infant characteristic, infant health characteristic, as well as birth experience and obstetric characteristic with maternal psychological state. This study found that postpartum depression score was significantly associated with infant's age, birth weight, birth weight-for-age z-score (WAZ), and WAZ at 1 month. Older infants were associated with higher postpartum depression score (r = 0.173, p = 0.010). Meanwhile, lower birth weight of infants was associated with higher postpartum depression score (r = -0.165, p = 0.015). This finding is similar to previous studies that have shown negative association between infant's birth weight and postpartum depression (Helle et al., 2015; Vigod et al., 2010). Furthermore, postpartum depression score was higher among mothers whose infants had lower birth WAZ (r = -0.204, p = 0.003) and WAZ at 1 month (r = -0.224, p = 0.041). No significant association was found between gestational week at birth and levels of maternal psychological state. This contradicts previous findings that found preterm birth as a significant factor that affects mother's psychological wellbeing (Chertok et al., 2014; Vigod et al., 2010). Furthermore, length of hospitalization was not significantly associated with level of maternal psychological state.

In terms of birth experience and obstetric characteristic, number of children (parity) was found to be significantly associated with postpartum anxiety. Mothers with more children were found to have lower postpartum anxiety score (r = -0.185, p = 0.006). Meanwhile, no significant association was found between parity and postpartum stress. However, there was a trend of negative association between parity and postpartum depression score (r = -0.132, p = 0.051). Although not significant, gestational weight gain was shown to have weak negative association with levels of maternal psychological state as shown in Table 4.13. Furthermore, there was no significant association between first skin-to-skin contact after birth with levels of

maternal psychological distress. Lastly, initiation of breastfeeding was found to be significantly correlated with postpartum stress (r = 0.168, p = 0.013) and depression scores (r = 0.146, p = 0.031), showing that early breastfeeding initiation is associated with lower level of stress and depression.

Table 4.19 Pearson correlation between biological factors and maternal psychological state

Variables	Postpartum Stress		Postpartum Anxiety		Postpartum Depression	
	r	p-value	r	p-value	r	p-value
Infant's Characteristic						
Age	0.053[b]	0.439	0.055[b]	0.417	0.173[b]	**0.010***
Gestational week	-0.005[b]	0.947	0.034[b]	0.622	-0.039[b]	0.570
Birth weight	-0.062[b]	0.360	-0.037[b]	0.592	-0.165[a]	**0.015***
Birth WAZ	-0.078[b]	0.256	-0.063[b]	0.354	-0.204[b]	**0.003****
WAZ at 1 month	-0.133[a]	0.227	-0.114[b]	0.303	-0.224[b]	**0.041***
Infant's Health Characteristic						
Days of hospitalization	0.086[b]	0.207	0.063[b]	0.357	0.097[b]	0.157
Birth Experience and Obstetric Characteristic						
Number of children	-0.091[b]	0.178	-0.185[b]	**0.006****	-0.132[b]	0.051
Gestational weight gain	-0.070[b]	0.314	-0.051[b]	0.465	-0.110[b]	0.113
Timing of skin-to-skin contact	0.111[b]	0.101	0.090[b]	0.182	0.086[b]	0.207
Timing of first breastfeeding attempt	0.168[b]	**0.013***	0.099[b]	0.145	0.146[b]	**0.031***

[a] Pearson
[b] Spearman
* Correlation is significant at the 0.05 level
**Correlation is significant at the 0.01 level

Association of nominal variables with categorized level of maternal psychological distress were assessed using chi square and fisher exact as presented in Table 4.14 for infant characteristic as well as their health characteristic, and Table 4.15 for birth experience and obstetric characteristic. There were no associations between infant's sex, health conditions at birth, presence of serious, long-term health condition, jaundice, and levels of maternal psychological state. Furthermore, no significant associations were found between expected or unexpected pregnancy, method of delivery, company during labour, and levels of maternal psychological state. However, a recent study found that unplanned pregnancy or unexpected pregnancy was highly associated with increased chance of having postpartum depression (OR=1.73, 95% CI: 1.53, 1.95), especially in mothers who has negative feeling towards the pregnancy (Barton et al., 2017). It is possible that odds of having postpartum depression was increased due to the negative feeling towards the pregnancy, rather than the absence of planning itself. Overall, the findings on the biological variables could help in identifying the target groups specifically for the significant results in the current study, either characterized by infant or maternal factors, in relating with maternal psychological distress. For instance, mothers with preterm infants and low birth weight infants, which was shown to have higher level of postpartum depression.

Table 4.20 Chi square result of infant's characteristic and infant's health characteristic with maternal psychological state

Characteristic	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Sex	3.638[a]	0.162		1.328[a]	0.723			0.448[a]	0.799	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Male	44 (34.6)	78 (61.4)	5 (3.9)	55 (43.3)	38 (29.9)	15 (11.8)	19 (15.0)	73 (57.5)	22 (17.3)	32 (25.2)
Female	21 (22.8)	66 (71.7)	5 (5.4)	41 (44.6)	30 (32.6)	12 (13.0)	9 (9.8)	52 (56.5)	19 (20.7)	21 (22.8)
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Health condition at birth										
Jaundice	2.036[a]	0.361		0.235[a]	0.972			2.702[a]	0.259	
Fetal distress	4.556[b]	0.070		1.701[b]	0.701			1.209[b]	0.560	
G6PD	1.648[b]	0.355		3.374[b]	0.287			3.012[b]	0.202	
Others	2.316[a]	0.314		1.627[a]	0.653			1.919[a]	0.383	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Jaundice										
Yes	26 (36.1)	43 (59.7)	3 (4.2)	31 (43.1)	22 (30.6)	9 (12.5)	10 (13.9)	38 (52.8)	18 (25.0)	16 (22.2)
No	39 (26.7)	100 (68.5)	7 (4.8)	65 (44.5)	46 (31.5)	18 (12.3)	17 (11.6)	87 (59.6)	23 (15.8)	36 (24.7)
Fetal distress										
Yes	8 (57.1)	6 (42.9)	0 (0.0)	5 (35.7)	4 (28.6)	3 (21.4)	2 (14.3)	9 (64.3)	1 (7.1)	4 (28.6)
No	57 (27.9)	137 (67.2)	10 (4.9)	91 (44.6)	64 (31.4)	24 (11.8)	25 (12.3)	116 (56.9)	40 (19.6)	48 (23.5)
G6PD										
Yes	4 (36.4)	6 (54.5)	1 (9.1)	4 (36.4)	2 (18.2)	2 (18.2)	3 (27.3)	7 (63.6)	0 (0.0)	4 (36.4)
No	61 (29.5)	137 (66.2)	9 (4.3)	92 (44.4)	66 (31.9)	25 (12.1)	24 (11.6)	118 (57.0)	41 (19.8)	48 (23.2)
Others										
Yes	10 (22.7)	33 (75.0)	1 (2.3)	21 (47.7)	14 (31.8)	3 (6.8)	6 (13.6)	28 (63.6)	9 (20.5)	7 (15.9)
No	55 (31.6)	110 (63.2)	9 (5.2)	75 (43.1)	54 (31.0)	24 (13.8)	21 (12.1)	97 (55.7)	32 (18.4)	45 (25.9)

Table 4.21 Chi square result of infant's characteristic and infant's health characteristic with maternal psychological state

	χ^2		p-value	χ^2			p-value	χ^2		p-value
Serious- long term health condition	2.297[a]		0.317	5.883[a]			0.117	2.676[a]		0.262
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Yes	52 (31.7)	106 (64.6)	6 (3.7)	76 (46.3)	47 (28.7)	17 (10.4)	24 (14.6)	27 (56.3)	6 (12.5)	15 (31.3)
No	12 (25.0)	32 (66.7)	4 (8.3)	17 (35.4)	17 (35.4)	10 (20.8)	4 (8.3)	94 (57.3)	34 (20.7)	36 (22.0)
	χ^2		p-value	χ^2			p-value	χ^2		p-value
Jaundice	1.044[a]		0.593	3.533[b]			0.308	1.350[a]		0.509
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Yes	58 (30.9)	122 (64.9)	8 (4.3)	86 (45.7)	54 (28.7)	23 (12.2)	25 (13.3)	108 (57.4)	33 (17.6)	47 (25.0)
No	7 (22.6)	22 (71.0)	2 (6.5)	10 (32.3)	14 (45.2)	4 (12.9)	3 (9.7)	17 (54.8)	8 (25.8)	6 (19.4)

[a] Pearson Chi Square
[b] Fisher's exact

Table 4.22 Chi square result of obstetric characteristic with maternal psychological state

Characteristic	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Family Planning	1.266[a]	0.531		1.509[a]	0.680			0.006[a]	0.997	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Yes	30 (29.4)	69 (67.6)	3 (2.9)	43 (42.2)	30 (29.4)	13 (12.7)	16 (15.7)	58 (56.9)	19 (18.6)	25 (24.5)
No	35 (30.2)	74 (63.8)	7 (6.0)	52 (44.8)	38 (32.8)	14 (12.1)	12 (10.3)	66 (56.9)	22 (19.0)	28 (24.1)
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Method of Delivery	3.630[b]	0.729		12.635[b]	0.168			7.311[a]	0.293	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Vaginally (not induced)	34 (32.4)	66 (62.9)	5 (4.8)	56 (53.3)	24 (22.9)	12 (11.4)	13 (12.4)	66 (62.9)	17 (16.2)	22 (21.0)
Vaginally (induced)	12 (33.3)	23 (63.9)	1 (2.8)	11 (30.6)	17 (47.2)	4 (11.1)	4 (11.1)	23 (63.9)	6 (16.7)	7 (19.4)
Cesarean (planned)	7 (26.9)	19 (73.1)	0 (0.0)	12 (46.2)	8 (30.8)	4 (15.4)	2 (7.7)	14 (53.8)	6 (23.1)	6 (23.1)
Cesarean (emergency)	12 (23.1)	36 (69.2)	4 (7.7)	17 (32.7)	19 (36.5)	7 (13.5)	9 (17.3)	22 (42.3)	12 (23.1)	18 (34.6)
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Company during labour	2.250[b]	0.679		4.669[b]	0.554			3.024[b]	0.553	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
Baby's father	45 (29.4)	102 (66.7)	6 (3.9)	70 (45.8)	48 (31.4)	16 (10.5)	19 (12.4)	92 (60.1)	26 (17.0)	35 (22.9)
Family / friends	1 (14.3)	6 (85.7)	0 (0.0)	3 (42.9)	1 (14.3)	1 (14.3)	2 (28.6)	3 (42.9)	2 (28.6)	2 (28.6)
None other than medical staff	19 (32.8)	35 (60.3)	4 (6.9)	22 (37.9)	19 (32.8)	10 (17.2)	7 (12.1)	29 (50.0)	13 (22.4)	16 (27.6)

[a] Pearson Chi Square
[b] Fisher's exact

4.5.3 Behavioral Factors and Maternal Psychological State

Associations were found between early initiation of breastfeeding, breastfeeding satisfaction, number of breastfeeding problems, pain, self-efficacy and levels of maternal psychological state. Early initiation of breastfeeding was found to be significantly associated with lower level of postpartum depression score (r = 0.178, p = 0.008). Furthermore, breastfeeding satisfaction was found to be negatively correlated with postpartum stress (r = -0.235, p = 0.001), anxiety (r -0.166, p = 0.014), and depression scores (r = -0.209, p = 0.002). It shows that the higher level of satisfaction mother has towards breastfeeding, the less likely will they experience psychological distress.

Number of breastfeeding problems and pain was found to be significantly associated with levels of maternal psychological state. Mothers who encountered more breastfeeding problems were shown to be more stressed (r = 0.194, p = 0.004), anxious (r = 0.303, p = 0.001), and depressed (r = 0.285, p = 0.001). Furthermore, pain level at first day and first week of breastfeeding were significantly associated with levels of maternal psychological state as shown in Table 4.16. However, pain during the second week of breastfeeding was not found to be significantly associated with postpartum stress score (r = 0.121, p = 0.117). It was significantly associated with postpartum anxiety score (r = 0.229, p = 0.003) and there was a trend of non-significant positive association with postpartum depression score (r = 0.135, p = 0.080). These findings are supported by previous findings from a secondary analysis of data from Infant Feeding Practices Study II that found association between early breastfeeding experience and postpartum depression at 2 months (Watkins et al., 2011). The study found that women who disliked breastfeeding or those who experience pain at first day, first week and second week of breastfeeding, were more likely to have postpartum depression.

Studies have shown that breastfeeding self-efficacy is correlated with maternal psychological state (Henshaw et al., 2015; Sahin, 2019). This study has a consistent finding with other studies, showing that breastfeeding self-efficacy is very much significantly associated with level of postpartum stress (r = -0.386, p = 0.001), anxiety (r = -0.321, p = 0.001), and depression (r = -0.314, p = 0.001). Mothers who has higher confidence in their capacity and capabilities to breastfeed their baby were found to be less distressed.

Table 4.23 Spearman correlation between behavioral factors and maternal psychological state

Characteristics	Postpartum Stress		Postpartum Anxiety		Postpartum Depression	
	r	p-value	r	p-value	r	p-value
First milk	0.085	0.210	0.111	0.102	0.178	**0.008****
Feeding duration per session (mins)	0.105	0.124	0.054	0.426	0.073	0.283
Satisfactory level on breastfeeding experience	-0.235	**0.001****	-0.166	**0.014***	-0.209	**0.002****
Number of Breastfeeding problems	0.194	**0.004****	0.303	**0.001****	0.285	**0.001****
Breastfeeding pain level						
First day	0.144	**0.036***	0.294	**0.001****	0.184	**0.007****
First week	0.210	**0.002****	0.366	**0.001****	0.280	**0.001****
Second week	0.121	0.117	0.229	**0.003****	0.135	0.080
Breastfeeding Self-efficacy	-0.386	**0.001****	-0.321	**0.001****	-0.314	**0.001****

* Correlation is significant at the 0.05 level

**Correlation is significant at the 0.01 level

Table 4.17 presents chi-square result of breastfeeding problems with levels of maternal psychological state. Having problems related to breastfeeding was found to be associated with postpartum anxiety (χ^2 = 9.335, p = 0.025) and depression categories (χ^2 = 8.920, p = 0.012). Higher number of mothers who had encountered breastfeeding problems were found with severe anxiety (15.8%) and positive screening of depression (29.6%). In contrast, those who reported to not encounter any problems were found with minimal anxiety (58.2%) and are not likely to be depressed (70.1%). Among breastfeeding problems that were looked into, none was found to be significantly associated with postpartum stress. However, several problems were found to be significantly associated with postpartum anxiety and depression. It was found that postpartum anxiety is significantly associated with sore, cracked or bleeding nipple (χ^2 = 9.346, p = 0.025), baby had trouble sucking or latching (χ^2 = 8.124, p = 0.044), took a long time for milk to come in (χ^2 = 9.828, p = 0.018), trouble initiating milk flow (χ^2 = 10.113, p = 0.014), baby got distracted (χ^2 = 15.046, p = 0.001), baby not interested categories (χ^2 = 8.224, p = 0.024), and other problems (χ^2 = 6.566, p = 0.042). Furthermore, level of postpartum depression was found to be significantly associated with several problems such as baby would not wake up (χ^2 = 8.268, p = 0.016), trouble initiating milk flow (χ^2 = 8.435, p = 0.015), baby got distracted (χ^2 = 19.185, p = 0.001), and baby not interested (χ^2 = 5.960, p = 0.036). A study on breastfeeding problems and maternal mood which include anxiety and depression found that having 2 or more breastfeeding problems which includes nipple pain, mastitis, frequent expression of breastmilk or over or under milk supply at 2 or more time points were associated with poorer maternal mood (β =10.6, p=0.01).

Table 4.24 Chi square result of breastfeeding problems with maternal psychological state

Breastfeeding Problems	Postpartum Stress		Postpartum Anxiety		Postpartum Depression	
	χ^2	p-value	χ^2	p-value	χ^2	p-value
None	3.362[a]	0.186	9.335[a]	**0.025***	8.920[a]	**0.012***
Sore/cracked/ bleeding nipple	3.398[a]	0.183	9.346[a]	**0.025***	2.697[a]	0.260
Baby had trouble sucking or latching	1.627[a]	0.443	8.124[a]	**0.044***	4.995[a]	0.082
Baby wouldn't wake up	3.715[a]	0.156	3.669[a]	0.300	8.268[a]	**0.016***
I didn't have enough milk	3.274[a]	0.195	2.552[a]	0.466	1.939[a]	0.379
Baby nursed too often	1.615[a]	0.446	6.071[a]	0.108	1.048[a]	0.592
Engorgement	0.919[a]	0.631	4.940[a]	0.176	0.626[a]	0.731
Took a long time for my milk to come in	3.313[a]	0.191	9.828[b]	**0.018***	4.879[a]	0.087
I had trouble initiating milk flow	4.880[a]	0.087	10.113[b]	**0.014***	8.435[a]	**0.015***
Baby didn't get enough / lose too much weight	0.491[a]	0.782	4.841[b]	0.173	4.169[a]	0.124
Clogged milk duct	0.725[a]	0.696	4.016[b]	0.248	1.243[a]	0.537
Baby chocked	0.809[a]	0.667	4.524[b]	0.209	1.990[a]	0.370
Breast leaked too much	1.667[a]	0.435	1.346[b]	0.765	0.576[a]	0.750
Baby got distracted	1.302[b]	0.436	15.046[b]	**0.001***	19.185[b]	**0.001***
Baby not interested	1.997[b]	0.324	8.224[b]	**0.024***	5.960[b]	**0.036***
Others	2.948[b]	0.237	6.566[b]	**0.042***	3.823[b]	0.094

	Low	Moderate	High	Minimal	Mild	Moderate	Severe	Not likely	Possible Depression	Positive Screening
None										
Yes	24 (35.8)	42 (62.7)	1 (1.5)	39 (58.2)	17 (25.4)	7 (10.4)	4 (6.0)	47 (70.1)	12 (17.9)	8 (11.9)
No	41 (27.0)	102 (67.1)	9 (5.9)	57 (37.5)	51 (33.6)	20 (13.2)	24 (15.8)	78 (51.3)	29 (19.1)	45 (29.6)

Table 4.25 Chi square result of breastfeeding problems with maternal psychological state

Breastfeeding Problems	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	Low	Moderate	High	Minimal	Mild	Moderate	Severe	Not likely	Possible Depression	Positive Screening
Sore/cracked/bleeding nipple										
Yes	16 (21.9)	54 (74.0)	3 (4.1)	23 (31.5)	28 (38.4)	8 (11.0)	14 (19.2)	36 (49.3)	16 (21.9)	21 (28.8)
No	49 (33.6)	90 (61.6)	7 (4.8)	73 (50.0)	40 (27.4)	19 (13.0)	14 (9.6)	89 (61.0)	25 (17.1)	32 (21.9)
Baby had trouble sucking or latching										
Yes	16 (24.2)	46 (69.7)	4 (6.1)	20 (30.3)	23 (34.8)	12 (18.2)	11 (16.7)	31 (47.0)	13 (19.7)	22 (33.3)
No	49 (32.0)	98 (64.1)	6 (3.9)	76 (49.7)	45 (29.4)	15 (9.8)	17 (11.1)	94 (61.4)	28 (18.3)	31 (20.3)
Baby wouldn't wake up										
Yes	11 (20.0)	42 (76.4)	2 (3.6)	20 (36.4)	16 (29.1)	9 (16.4)	10 (18.2)	24 (43.6)	10 (18.2)	21 (38.2)
No	54 (32.9)	102 (62.2)	8 (4.9)	76 (46.3)	52 (31.7)	18 (11.0)	18 (11.0)	101 (61.6)	31 (18.9)	32 (19.5)
I didn't have enough milk										
Yes	11 (21.6)	36 (70.6)	4 (7.8)	18 (35.3)	17 (33.3)	7 (13.7)	9 (17.6)	27 (52.9)	8 (15.7)	16 (31.4)
No	54 (32.1)	108 (64.3)	6 (3.6)	78 (46.4)	51 (30.4)	20 (11.9)	19 (11.3)	98 (58.3)	33 (19.6)	37 (22.0)
Baby nursed too often										
Yes	13 (26.0)	36 (72.0)	1 (2.0)	15 (30.0)	21 (42.0)	8 (16.0)	6 (12.0)	31 (62.0)	7 (14.0)	12 (24.0)
No	52 (30.8)	108 (63.9)	9 (5.3)	81 (47.9)	47 (27.8)	19 (11.2)	22 (13.0)	94 (55.6)	34 (20.1)	41 (24.3)
Engorgement										
Yes	14 (29.2)	33 (68.8)	1 (2.1)	18 (37.5)	18 (37.5)	3 (6.3)	9 (18.8)	25 (52.1)	10 (20.8)	13 (27.1)
No	51 (29.8)	111 (64.9)	9 (5.3)	78 (45.6)	50 (29.2)	24 (14.0)	19 (11.1)	100 (58.5)	31 (18.1)	40 (23.4)
Took a long time for my milk to come in										
Yes	7 (18.9)	27 (73.0)	3 (8.1)	12 (32.4)	8 (21.6)	9 (24.3)	8 (21.6)	21 (56.8)	3 (8.1)	13 (35.1)
No	58 (31.9)	117 (64.3)	7 (3.8)	84 (46.2)	60 (33.0)	18 (9.9)	20 (11.0)	104 (57.1)	38 (20.9)	40 (22.0)
I had trouble initiating milk flow										
Yes	5 (15.6)	24 (75.0)	3 (9.4)	7 (21.9)	11 (34.4)	6 (18.8)	8 (25.0)	12 (37.5)	6 (18.8)	14 (43.8)

No	60 (32.1)	120 (64.2)	7 (3.7)	89 (47.6)	57 (30.5)	21 (11.2)	20 (10.7)	113 (60.4)	35 (18.7)	39 (20.9)

Table 4.26 Chi square result of breastfeeding problems with maternal psychological state

Breastfeeding Problems	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	Low	Moderate	High	Minimal	Mild	Moderate	Severe	Not likely	Possible Depression	Positive Screening
Baby didn't get enough / lose too much weight										
Yes	8 (28.6)	18 (64.3)	2 (7.1)	9 (32.1)	9 (32.1)	7 (25.0)	3 (10.7)	12 (42.9)	5 (17.9)	11 (39.3)
No	57 (29.8)	126 (66.0)	8 (4.2)	87 (45.5)	59 (30.9)	20 (10.5)	25 (13.1)	113 (59.2)	36 (18.8)	42 (22.0)
Clogged milk duct										
Yes	7 (25.0)	19 (67.9)	2 (7.1)	11 (39.3)	6 (21.4)	6 (21.4)	5 (17.9)	15 (53.6)	4 (14.3)	9 (32.1)
No	58 (30.4)	125 (65.4)	8 (4.2)	85 (44.5)	62 (32.5)	21 (11.0)	23 (12.0)	110 (57.6)	37 (19.4)	44 (23.0)
Baby chocked										
Yes	5 (21.7)	17 (73.9)	1 (4.3)	6 (26.1)	9 (39.1)	5 (21.7)	3 (13.0)	10 (43.5)	6 (26.1)	7 (30.4)
No	60 (30.6)	127 (64.8)	9 (4.6)	90 (45.9)	59 (30.1)	22 (11.2)	25 (12.8)	115 (58.7)	35 (17.9)	46 (23.5)
Breast leaked too much										
Yes	8 (38.1)	13 (61.9)	0 (0.0)	8 (38.1)	9 (42.9)	2 (9.5)	2 (9.5)	12 (57.1)	5 (23.8)	4 (19.0)
No	57 (28.8)	131 (66.2)	10 (5.1)	88 (44.4)	59 (29.8)	25 (12.6)	26 (13.1)	113 (57.1)	36 (18.2)	49 (24.7)
Baby got distracted										
Yes	3 (18.8)	12 (75.0)	1 (6.3)	3 (18.8)	2 (12.5)	5 (31.3)	6 (37.5)	3 (18.8)	1 (6.3)	12 (75.0)
No	62 (30.5)	132 (65.0)	9 (4.4)	93 (45.8)	66 (32.5)	22 (10.8)	22 (10.8)	122 (60.1)	40 (19.7)	41 (20.2)
Baby not interested										
Yes	1 (10.0)	9 (90.0)	0 (0.0)	1 (10.0)	4 (40.0)	1 (10.0)	4 (40.0)	3 (30.0)	1 (10.0)	6 (60.0)
No	64 (30.6)	135 (64.6)	10 (4.8)	95 (45.5)	64 (30.6)	26 (12.4)	24 (11.5)	122 (58.4)	40 (19.1)	47 (22.5)
Others										
Yes	1 (20.0)	3 (60.0)	1 (20.0)	1 (20.0)	1 (20.0)	3 (60.0)	0 (0.0)	1 (20.0)	1 (20.0)	3 (60.0)
No	64 (29.9)	141 (65.9)	9 (4.2)	95 (44.4)	67 (31.3)	24 (11.2)	28 (13.1)	124 (57.9)	40 (18.7)	50 (23.4)

[a] Pearson Chi Square
[b] Fisher's exact
* Correlation is significant at the 0.05 level

For other breastfeeding-related problems, no significant association were found between the absence of encouragement to stop breastfeeding and maternal psychological state. However, there was a significant association between encouragement to stop breastfeeding from mothers and postpartum anxiety categories (χ^2 = 6.582, p = 0.037). Majority of mothers who was not encouraged to stop breastfeeding by their respective mother had either minimal (44.9%) or mild (30.4%) anxiety, while 40% of mothers who were encouraged to stop breastfeeding by their mother had severe anxiety. No significant associations were found between encouragement to stop breastfeeding from mother and postpartum stress or depression. Furthermore, no significant associations were found between encouragement to stop breastfeeding from baby's father and levels of maternal psychological distress. Limited study found on direct association of encouragement of breastfeeding with level of maternal psychological state. However, a very recent systematic review found that partner or father's support which include verbal encouragement and other supportive actions improve duration, exclusivity and overall practice of breastfeeding (Ogbo et al., 2020). Improvement in overall breastfeeding practice and experience may in return lower the level of maternal psychological distress among mothers. Lastly, mothers who have previous encounter with breastfeeding problems were found to have higher level of anxiety (χ^2 = 15.106, p = 0.002).

Table 4.27 Chi square result of breastfeeding challenges with maternal psychological state

Characteristic	Postpartum Stress			Postpartum Anxiety				Postpartum Depression		
	χ^2	p-value		χ^2	p-value			χ^2	p-value	
Encouraged to stop breastfeeding										
No one	2.823[b]	0.202		3.154[b]	0.306			1.475[b]	0.547	
Mother	2.113[b]	0.469		6.582[b]	**0.037***			2.996[b]	0.175	
Baby's father	5.293[b]	0.089		3.636[b]	0.219			1.175[b]	0.675	
Pain during breastfeeding	3.280[a]	0.194		15.106[a]	**0.002***			4.633[a]	0.099	
	Low	**Moderate**	**High**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Not likely**	**Possible Depression**	**Positive Screening**
No one										
Yes	64 (30.6)	136 (65.1)	9 (4.3)	92 (44.0)	65 (31.1)	27 (12.9)	25 (12.0)	120 (57.4)	40 (19.1)	49 (23.4)
No	1 (10.0)	8 (80.0)	1 (10.0)	4 (40.0)	3 (30.0)	0 (0.0)	3 (30.0)	5 (50.0)	1 (10.0)	4 (40.0)
Mother										
Yes	0 (0.0)	5 (100.0)	0 (0.0)	0 (0.0)	3 (60.0)	0 (0.0)	2 (40.0)	2 (40.0)	0 (0.0)	3 (60.0)
No	65 (30.4)	139 (65.0)	10 (4.7)	96 (44.9)	65 (30.4)	27 (12.6)	26 (12.1)	123 (57.5)	41 (19.2)	50 (23.4)
Baby's father										
Yes	0 (0.0)	1 (50.0)	1 (50.0)	0 (0.0)	1 (50.0)	0 (0.0)	1 (50.0)	1 (50.0)	0 (0.0)	1 (50.0)
No	65 (30.0)	143 (65.9)	9 (4.1)	96 (44.2)	67 (30.9)	27 (12.4)	27 (12.4)	124 (57.1)	41 (18.9)	52 (24.0)
Pain during breastfeeding										
Yes	30 (24.8)	85 (70.2)	6 (5.0)	42 (34.7)	37 (30.6)	21 (17.4)	21 (17.4)	63 (52.1)	22 (18.2)	36 (29.8)
No	35 (36.1)	58 (59.8)	4 (4.1)	54 (55.7)	30 (30.9)	6 (6.2)	7 (7.2)	62 (63.9)	18 (18.6)	17 (17.5)

[a] Pearson Chi Square
[b] Fisher's exact
* Correlation is significant at the 0.05 level

CHAPTER 5

CONCLUSION

5.1 Conclusion

This study found a higher prevalence of maternal psychological distress compared to previous studies - both worldwide and in Malaysia. This might be due to study population that were focused on mothers with infant who has health conditions and vast city area which is a contributing factor for distress. Therefore, this emphasize the target group and population for future intervention, which can be focused more to mothers whose infants are presented with certain health condition such as preterm. Furthermore, findings of this study have shown a strong relationship of early breastfeeding – practice, pain, challenges, and self-efficacy, with maternal psychological state. This shows the importance to have screening among mothers that have just undergone labour to assess early breastfeeding practice and experience, as well as level of distress, especially depression that has been found to be strongly associated with early breastfeeding experience and practice. Moreover, taking into account maternal psychological health in postpartum care of mothers would be beneficial for both mothers and infants to achieve better quality of life and optimum growth and development. Safe and supportive environment of maternity hospital shall be emphasized to increase support and confidence of mothers. Lastly, maternal postpartum distress shall be addressed and solved, to reduce its impact or prevent from severe outcome.

Traditional postpartum care or confinement practice was shown to be associated with maternal psychological state. Some of the practices were shown to be beneficial for maternal psychological health when done voluntarily. For instance,

massage (*urut*) was found to be significantly associated with lower postpartum distress. Thus, maternity hospital may include massage as part of postpartum care for mothers. Nevertheless, further studies shall be done to establish a stronger evidence on confinement practice and maternal psychological state. This includes the thorough investigation on the dietary assessments following the traditional confinement practice, which is lacked in the current study.

5.2 Strengths and Limitations

One of the strengths of this study is the comprehensiveness of factors associating with maternal psychological state. This study has successfully looked into multiple factors, of which some have not been focused on before such as traditional postpartum care or confinement practice in Malaysia. Furthermore, this study assessed breastfeeding self-efficacy, a factor that has been recently found to be an important contributing factor for maternal psychological health and the practice of breastfeeding itself. In addition, this study looked into three different spectrums of maternal psychological distress, which are stress, anxiety and depression. Lastly, considering this study as one of a few that looked into infant with health conditions in Malaysia, this study has created a baseline for future study that would like to look into infants with certain medical condition, or those who need medical attention. This is especially among infants who need close monitoring or regular check-up such as preterm infants.

Limitations of the study came from methodological procedure. Type of the study which is cross-sectional study has made it impossible to establish a causal relationship. Furthermore, absence of randomization in purposive sampling design used in the study can lead to bias in recruitment process of participants. Moreover, findings are unable to represent whole population as study was conducted only in 2 government hospitals in the same region, which is Wilayah Persekutuan Malaysia. Comprehensiveness of this study in assessing wide range of factors can be one of the

limitations aside from being a strength of the study. This is because assessment of many different factors contributed to length of the questionnaire. Questionnaire used in this study is considered long and participant may lose focus along the way and thus answer might not be 100% accurate. Lastly, questionnaire was self-administered. Participants may have their own understanding or misunderstood the question. This might lead to bias in the result. The maternal dietary assessment was not thorough, and the confinement practices questionnaire was not validated, hence this is suggested to be improved in the future studies.

5.3 Recommendations

Future studies should use larger sample size and include different states in Malaysia so that findings can be generalized for the whole population in the country. Furthermore, sampling design should be improved. For instance, using stratified random sampling may allow result to be generalized as study population will be more representative of the whole population.

Future studies should also establish clearer focus. For instance, whether researchers want to focus on factors that are relevant during early life (around after birth) or later time. In order to assess many factors related to maternal psychological state comprehensively and accurately, it would be better to have longer time span for data collection and assess different factors at different relevant time point. For instance, data on obstetric characteristic, birth experience and early breastfeeding experience can be obtained when baby was still around 2 weeks old. However, for confinement practice, it would be better to be assessed around 1 month after birth, when mother has gone through their confinement period. Hence, cohort study design would be more suitable as it will provide a more accurate data at different time-points.

Social support and breastfeeding practice (satisfaction, pain, problems and self-efficacy), as well as infant's condition (preterm and low birth weight) were found

to be significantly associated with maternal psychological state. Thus, future study should look deeper into these factors and study the factors more comprehensively in order to determine causal relationship as well as solutions to better improve maternal psychological health.

REFERENCES

Al-Dubai, S. A. R., Alshagga, M. A., Rampal, K. G., & Sulaiman, N. A. (2012). Factor structure and reliability of the Malay version of the perceived stress scale among Malaysian medical students. *The Malaysian journal of medical sciences: MJMS*, *19*(3), 43.

American Pregnancy Association. (2019). *Breastfeeding: Overview - American Pregnancy Association*. https://americanpregnancy.org/breastfeeding/breastfeeding-overview/

Anxiety - PORTAL MyHEALTH, Health Online Unit, Ministry of Health Malaysia. (2020). Retrieved September 28, 2020, from http://www.myhealth.gov.my/en/anxiety/

Azmi, N. A. M., Rahim, N. A. A., & Omar, E. A. (2019). Malay traditional practices surrounding the postpartum period: a qualitative case study. *Evidence Based Midwifery*, *17*(2), 40–46.

Barton, K., Redshaw, M., Quigley, M. A., & Carson, C. (2017). Unplanned pregnancy and subsequent psychological distress in partnered women: A cross-sectional study of the role of relationship quality and wider social support. *BMC Pregnancy and Childbirth*, *17*(1), 1–9. https://doi.org/10.1186/s12884-017-1223-x

Beck AT, Steer RA, & Brown GK. (1996). *Manual for the Beck Depression Inventory-II (BDI-II) – ScienceOpen*. San Antonio, TX: Psychology Corporation.

Bee Koon, P., Yuen Peng, W., & Karim, N. A. (2005). Postpartum dietary intakes and food taboos among Chinese women attending maternal and child health clinics and maternity hospital, Kuala Lumpur. *Malaysian Journal of Nutr*ition, 11(1), 1-21.

Behavior | Definition of Behavior by Merriam-Webster. (1828). Retrieved January 7, 2020, from https://www.merriam-webster.com/dictionary/behavior

Bener, A., Gerber, L. M., & Sheikh, J. (2012). Prevalence of psychiatric disorders and associated risk factors in women during their postpartum period: A major public health problem and global comparison. *International Journal of Women's Health*, *4*(1), 191–200. https://doi.org/10.2147/IJWH.S29380

Biological | Definition of Biological by Merriam-Webster. (1828). Retrieved January 7, 2020, from https://www.merriam-webster.com/dictionary/biological

Biology | Definition of Biology by Merriam-Webster. (1828). Retrieved January 7, 2020, from https://www.merriam-webster.com/dictionary/biology

Brugha, T. S., Sharp, H. M., Cooper, S. A., Weisender, C., Britto, D., Shinkwin, R., Sherrif, T., & Kirwan, P. H. (1998). The Leicester 500 Project. Social support and the development of postnatal depressive symptoms, a prospective cohort survey. *Psychological Medicine*, *28*(1), 63–79. https://doi.org/10.1017/S0033291797005655

Carney, C. E., Moss, T. G., Harris, A. L., Edinger, J. D., & Krystal, A. D. (2011). Should we be anxious when assessing anxiety using the beck anxiety inventory

in clinical insomnia patients? *Journal of Psychiatric Research*, *45*(9), 1243. https://doi.org/10.1016/J.JPSYCHIRES.2011.03.011

Carroll, D., Phillips, A. C., Ring, C., Der, G., & Hunt, K. (2005). Life events and hemodynamic stress reactivity in the middle-aged and elderly. *Psychophysiology*, *42*(3), 269–276. https://doi.org/10.1111/j.1469-8986.2005.00282.x

CDC. (2019). *IFPS II - Neonatal Questionnaire*. Retrieved May 21, 2020, from https://www.cdc.gov/breastfeeding/pdf/ifps/ifps_ii/neonatal/neonatalgop.pdf

Chertok, I. R. A., McCrone, S., Parker, D., & Leslie, N. (2014). Review of interventions to reduce stress among mothers of infants in the NICU. *Advances in Neonatal Care*, *14*(1), 30–37. https://doi.org/10.1097/ANC.0000000000000044

Chien, L. Y., Tai, C. J., Ko, Y. L., Huang, C. H., & Sheu, S. J. (2006). Adherence to "doing-the-month" practices is associated with fewer physical and depressive symptoms among postpartum women in Taiwan. *Research in Nursing and Health*, 29(5), 374-383. https://doi.org/10.1002/nur.20154

Clout, D., & Brown, R. (2015). Sociodemographic, pregnancy, obstetric, and postnatal predictors of postpartum stress, anxiety and depression in new mothers. *Journal of Affective Disorders*, *188*, 60–67. https://doi.org/10.1016/j.jad.2015.08.054

Cohen, S. (1994). Perceived tress cale. *Psychology*, 1–3. http://www.mindgarden.com/products/pss.htm

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: development of the 10-item edinburgh postnatal depression scale. *British Journal of Psychiatry*, *150*(JUNE), 782–786. https://doi.org/10.1192/bjp.150.6.782

Davis, L., Edwards, H., Mohay, H., & Wollin, J. (2003). The impact of very premature birth on the psychological health of mothers. *Early Human Development*, *73*(1–2), 61–70. https://doi.org/10.1016/S0378-3782(03)00073-2

Deklava, L., Lubina, K., Circenis, K., Sudraba, V., & Millere, I. (2015). causes of anxiety during pregnancy. *Procedia - Social and Behavioral Sciences*, *205*(May), 623–626. https://doi.org/10.1016/j.sbspro.2015.09.097

Dennis, C.-L., Falah-Hassani, K., & Shiri, R. (2017). Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. *British Journal of Psychiatry*, *210*(5), 315–323. https://doi.org/10.1192/bjp.bp.116.187179

Dennis, C. (2003). The Breastfeeding Self-Efficacy Scale: Psychometric Assessment of the Short Form. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *32*(6), 734–744. https://doi.org/10.1177/0884217503258459

Dennis, C. L. (2003). The effect of peer support on postpartum depression: A pilot randomized controlled trial. *Canadian Journal of Psychiatry*, *48*(2), 115–124. https://doi.org/10.1177/070674370304800209

Dennis, C. L. E., Janssen, P. A., & Singer, J. (2004). Identifying women at-risk for postpartum depression in the immediate postpartum period. *Acta Psychiatrica Scandinavica*, *110*(5), 338–346. https://doi.org/10.1111/j.1600-0447.2004.00337.x

Dennis, C. L., & Faux, S. (1999). Development and psychometric testing of the breastfeeding self-efficacy scale. *Research in Nursing and Health*, *22*(5), 399–409. https://doi.org/10.1002/(SICI)1098-240X(199910)22:5<399::AID-NUR6>3.0.CO;2-4

Dennis, C. L., & Ross, L. (2006). Women's perceptions of partner support and

conflict in the development of postpartum depressive symptoms. *Journal of Advanced Nursing*, *56*(6), 588–599. https://doi.org/10.1111/j.1365-2648.2006.04059.x

Department of Statistics Malaysia. (2019a). *Current Population Estimates, Malaysia, 2018-2019*. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=155&bul_id=aWJZRkJ4UEdKcUZpT2tVT090Snpydz09&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09

Department of Statistics Malaysia. (2019b). *Vital Statistics*. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=165&bul_id=bE5PcWNLaFBMUy9FK3ZhOEpTdG0xdz09&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09

Dimitraki, M., Tsikouras, P., Manav, B., Gioka, T., Koutlaki, N., Zervoudis, S., & Galazios, G. (2016). Evaluation of the effect of natural and emotional stress of labor on lactation and breast-feeding. *Archives of Gynecology and Obstetrics*, *293*(2), 317–328. https://doi.org/10.1007/s00404-015-3783-1

Doulougeri, K., Panagopoulou, E., & Montgomery, A. (2013). The impact of maternal stress on initiation and establishment of breastfeeding. *Journal of Neonatal Nursing*, *19*(4), 162–167. https://doi.org/10.1016/J.JNN.2013.02.003

Eastwood, J. G., Phung, H., & Barnett, B. (2011). Postnatal depression and socio-demographic risk: Factors associated with Edinburgh Depression Scale scores in a metropolitan area of New South Wales, Australia. *Australian and New Zealand Journal of Psychiatry*, *45*(12), 1040–1046. https://doi.org/10.3109/00048674.2011.619160

Ege, E., Timur, S., Zincir, H., Geçkil, E., & Sunar-Reeder, B. (2008). Social support and symptoms of postpartum depression among new mothers in Eastern Turkey. *Journal of Obstetrics and Gynaecology Research*, *34*(4), 585–593. https://doi.org/10.1111/j.1447-0756.2008.00718.x

Fadzil, F., Shamsuddin, K., & Wan Puteh, S. E. (2016a). Traditional postpartum practices among Malaysian mothers: A review. *Journal of Alternative and Complementary Medicine*, *22*(7), 503–508. https://doi.org/10.1089/acm.2013.0469

Fadzil, F., Shamsuddin, K., & Wan Puteh, S. E. (2016b). Traditional Postpartum Practices Among Malaysian Mothers: A Review. *The Journal of Alternative and Complementary Medicine*, *22*(7), 503–508. https://doi.org/10.1089/acm.2013.0469

Feenstra, M. M., Jørgine Kirkeby, M., Thygesen, M., Danbjørg, D. B., & Kronborg, H. (2018). Early breastfeeding problems: A mixed method study of mothers' experiences. *Sexual and Reproductive Healthcare*, *16*, 167–174. https://doi.org/10.1016/j.srhc.2018.04.003

Figueiredo, B., Canário, C., & Field, T. (2014). Breastfeeding is negatively affected by prenatal depression and reduces postpartum depression. *Psychological Medicine*, *44*(5), 927–936. https://doi.org/10.1017/S0033291713001530

Firdaus, M., & Nor Sheereen, Z. (2011). The beck anxiety inventory for malays (BAI-Malay): A preliminary study on psychometric properties. *Malaysian Journal of Medicine and Health Sciences*, *7*(1), 75–81.

Fydrich, T., Dowdall, D., & Chambless, D. L. (1992). Reliability and validity of the beck anxiety inventory. *Journal of Anxiety Disorders*, 6, 55-61. https://doi.org/10.1016/0887-6185(92)90026-4

Glaser, R. (2005). Stress-associated immune dysregulation and its importance for

human health: A personal history of psychoneuroimmunology. *Brain, Behavior, and Immunity*, *19*(1), 3–11. https://doi.org/10.1016/j.bbi.2004.06.003

Greco, C., Arnolda, G., Boo, N. Y., Iskander, I. F., Okolo, A. A., Rohsiswatmo, R., Shapiro, S. M., Watchko, J., Wennberg, R. P., Tiribelli, C., & Coda Zabetta, C. D. (2016). Neonatal Jaundice in low- and middle-income countries: lessons and future directions from the 2015 don ostrow trieste yellow retreat. *Neonatology*, *110*(3), 172–180. https://doi.org/10.1159/000445708

Grekin, R., & O'Hara, M. W. (2014). Prevalence and risk factors of postpartum posttraumatic stress disorder: A meta-analysis. *Clinical Psychology Review*, *34*(5), 389–401. https://doi.org/10.1016/J.CPR.2014.05.003

Heh, S. S., Coombes, L., & Bartlett, H. (2004). The association between depressive symptoms and social support in Taiwanese women during the month. *International Journal of Nursing Studies*, *41*(5), 573–579. https://doi.org/10.1016/j.ijnurstu.2004.01.003

Helle, N., Barkmann, C., Bartz-Seel, J., Diehl, T., Ehrhardt, S., Hendel, A., Nestoriuc, Y., Schulte-Markwort, M., von der Wense, A., & Bindt, C. (2015). Very low birth-weight as a risk factor for postpartum depression four to six weeks postbirth in mothers and fathers: Cross-sectional results from a controlled multicentre cohort study. *Journal of Affective Disorders*, *180*, 154–161. https://doi.org/10.1016/J.JAD.2015.04.001

Henshaw, E. J., Fried, R., Siskind, E., Newhouse, L., & Cooper, M. (2015). Breastfeeding self-efficacy, mood, and breastfeeding outcomes among primiparous women. *Journal of Human Lactation*, *31*(3), 511–518. https://doi.org/10.1177/0890334415579654

Hishamshah, M., Ramzan, M., Rashid, A., Mustaffa, W. W., & Haroon, R. (2012). Belief and Practices of Traditional Post Partum Care Among a Rural Community in Penang Malaysia". *The Internet Journal of Third World Medicine*, *9*(2), 1–9. https://doi.org/10.5580/49f

Honey, K. L., Bennett, P., & Morgan, M. (2003). Predicting postnatal depression. *Journal of Affective Disorders*, *76*(1–3), 201–210. https://doi.org/10.1016/S0165-0327(02)00085-X

Howell, E. A., Mora, P., & Leventhal, H. (2006). Correlates of early postpartum depressive symptoms. *Maternal and Child Health Journal*, *10*(2), 149–157. https://doi.org/10.1007/s10995-005-0048-9

Hulley, S. B., Cummings, S. R., & Newman, T. B. (2013). Designing Clinical Research, Chapter 7: designing cross-sectional and cohort studies. *Wolters Kluwer*.

Hung, C. H., & Chung, H. H. (2001). The effects of postpartum stress and social support on postpartum women's health status. *Journal of Advanced Nursing*, 36(5), 676-684. https://doi.org/10.1046/j.1365-2648.2001.02032.x

Innocenti, U. O. of R.-. (2018). The first 1,000 days of life: The brain's window of opportunity. In *Unicef-Irc*. https://doi.org/10.1111/j.1552-6909.2010.01100.x

Jones, I., Chandra, P. S., Dazzan, P., & Howard, L. M. (2014). Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period. *The Lancet*, *384*(9956), 1789–1799. https://doi.org/10.1016/S0140-6736(14)61278-2

Kelleher, C. M. (2006). The physical challenges of early breastfeeding. *Social Science and Medicine*, *63*(10), 2727–2738. https://doi.org/10.1016/j.socscimed.2006.06.027

Khanlari, S., Barnett AM, B., Ogbo, F. A., & Eastwood, J. (2019). Re-examination

of perinatal mental health policy frameworks for women signalling distress on the Edinburgh Postnatal Depression Scale (EPDS) completed during their antenatal booking-in consultation: a call for population health intervention. *BMC Pregnancy and Childbirth*, *19*(1), 221. https://doi.org/10.1186/s12884-019-2378-4

Klainin, P., & Arthur, D. G. (2009). Postpartum depression in Asian cultures: a literature review. *International Journal of Nursing Studies*, *46*(10), 1355–1373. https://doi.org/10.1016/j.ijnurstu.2009.02.012

Krabbendam, L., & Van Os, J. (2005). Schizophrenia and urbanicity: A major environmental influence - Conditional on genetic risk. *Schizophrenia Bulletin*, *31*(4), 795–799. https://doi.org/10.1093/schbul/sbi060

Kramer, M. S., & Kakuma, R. (2004). The optimal duration of exclusive breastfeeding. In *Protecting infants through human milk* (pp. 63-77). Springer, Boston, MA.

Lederbogen, F., Kirsch, P., Haddad, L., Streit, F., Tost, H., Schuch, P., Wüst, S., Pruessner, J. C., Rietschel, M., Deuschle, M., & Meyer-Lindenberg, A. (2011). City living and urban upbringing affect neural social stress processing in humans. *Nature*, *474*(7352), 498–501. https://doi.org/10.1038/nature10190

Lee, E. H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian Nursing Research*, *6*(4), 121–127. https://doi.org/10.1016/j.anr.2012.08.004

Leigh, B., & Milgrom, J. (2008). Risk factors for antenatal depression, postnatal depression and parenting stress. *BMC Psychiatry*, *8*, 1–11. https://doi.org/10.1186/1471-244X-8-24

Leserman, J., Whetten, K., Lowe, K., Stangl, D., Swartz, M. S., & Thielman, N. M. (2005). How trauma, recent stressful events, and PTSD affect functional health status and health utilization in HIV-infected patients in the South. *Psychosomatic Medicine*, *67*(3), 500–507. https://doi.org/10.1097/01.psy.0000160459.78182.d9

Li, J., Kendall, G. E., Henderson, S., Downie, J., Landsborough, L., & Oddy, W. H. (2008). Maternal psychosocial well-being in pregnancy and breastfeeding duration. *Acta Paediatrica, International Journal of Paediatrics*, *97*(2), 221–225. https://doi.org/10.1111/j.1651-2227.2007.00602.x

Liabsuetrakul, T., Vittayanont, A., & Pitanupong, J. (2007). Clinical applications of anxiety, social support, stressors, and self-esteem measured during pregnancy and postpartum for screening postpartum depression in Thai women. *Journal of Obstetrics and Gynaecology Research*, *33*(3), 333–340. https://doi.org/10.1111/j.1447-0756.2007.00532.x

Mahmud, W. M. R. W., Awang, A., & Mohamed, M. N. (2003). Revalidation of the Malay version of the Edinburgh postnatal depression scale (EPDS) among Malay postnatal women attending the Bakar Bata Health Center in Alor Setar, Kedah, North West of Peninsular Malaysia. *Malaysian Journal of Medical Sciences*, *10*(2), 71–75.

Mental health: strengthening our response. (2018). World Health Organization. Retrieved September 28, 2020, from https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

Miles, M. S., Holditch-Davis, D., Schwartz, T. A., & Scher, M. (2007). Depressive symptoms in mothers of prematurely born infants. *Journal of Developmental and Behavioral Pediatrics*, *28*(1), 36–44. https://doi.org/10.1097/01.DBP.0000257517.52459.7a

Ministry of Health Malaysia. (2015). *National Health and Morbidity Survey: Vol. III*. https://www.moh.gov.my/moh/resources/NHMS2015-VolumeIII.pdf

Montgomery, S. M., Ehlin, A., & Sacker, A. (2006). Breast feeding and resilience against psychosocial stress. *Archives of Disease in Childhood*, *91*(12), 990–994. https://doi.org/10.1136/adc.2006.096826

Moore, E., Bergman, N., Anderson, G., & Medley, N. (2016). Early skin-to-skin contact for mothers and their healthy newborn infants (Review) Summary of findings for the main comparison. *Cochrane Database of Systematic Reviews*, *5*(11), 125. https://doi.org/10.1002/14651858.CD003519.pub4.www.cochranelibrary.com

Ng, C. G., Amer Siddiq, A. N., Aida, S. A., Zainal, N. Z., & Koh, O. H. (2010). Validation of the Malay version of the Multidimensional Scale of Perceived Social Support (MSPSS-M) among a group of medical students in Faculty of Medicine, University Malaya. *Asian Journal of Psychiatry*, *3*(1), 3–6. https://doi.org/10.1016/j.ajp.2009.12.001

Ng, L. O. (2012). Stress management. *Health Online Unit, Ministry of Health Malaysia*. Retrieved September 28, 2020, from http://www.myhealth.gov.my/en/stress-management/

NHMS(III). (2016). *National Health and Morbidity Survey (NHMS) 2016: Maternal and Child Health. Vol. II: Findings*. *2*, 272.

O'Hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression - A meta-analysis. *International Review of Psychiatry*, *8*(1), 37–54. https://doi.org/10.3109/09540269609037816

Ogbo, F. A., Akombi, B. J., Ahmed, K. Y., Rwabilimbo, A. G., Ogbo, A. O., Uwaibi, N. E., Ezeh, O. K., & Agho, K. E. (2020). Breastfeeding in the community—how can partners/fathers help? A systematic review. *International Journal of Environmental Research and Public Health*, *17*(2). https://doi.org/10.3390/ijerph17020413

Peen, J., Schoevers, R. A., Beekman, A. T., & Dekker, J. (2010). The current status of urban-rural differences in psychiatric disorders. *Acta Psychiatrica Scandinavica*, *121*(2), 84–93. https://doi.org/10.1111/j.1600-0447.2009.01438.x

Petrosyan, D., Armenian, H. K., & Arzoumanian, K. (2011). Interaction of maternal age and mode of delivery in the development of postpartum depression in Yerevan, Armenia. *Journal of Affective Disorders*, *135*(1–3), 77–81. https://doi.org/10.1016/j.jad.2011.06.061

Preterm birth. (2018). Retrieved December 9, 2019, from https://www.who.int/news-room/fact-sheets/detail/preterm-birth

Questionnaires: Breastfeeding and Infant Feeding Practices | Breastfeeding | CDC. (2019). Retrieved November 7, 2019, from https://www.cdc.gov/breastfeeding/data/ifps/questionnaires.htm

Rashid, A., & Mohd, R. (2017). Poor social support as a risk factor for antenatal depressive symptoms among women attending public antennal clinics in Penang, Malaysia. *Reproductive Health*, *14*(1), 1–8. https://doi.org/10.1186/s12978-017-0404-4

Razurel, C., Kaiser, B., Sellenet, C., & Epiney, M. (2013). Relation Between Perceived Stress, Social Support, and Coping Strategies and Maternal Well-Being: A Review of the Literature. *Women and Health*, *53*(1), 74–99. https://doi.org/10.1080/03630242.2012.732681

Roshaidai Mohd Arifin, S., Cheyne, H., & Maxwell, M. (2018). Review of the prevalence of postnatal depression across cultures. *AIMS Public Health*, *5*(3),

260–295. https://doi.org/10.3934/publichealth.2018.3.260
Sahin, B. M. (2019). The relationship between breastfeeding self-efficacy and depression in the early postpartum period in Turkey. *International Journal of Caring Sciences, 12(2), 729-736.*
Shaw, R. J., Deblois, T., Ikuta, L., Ginzburg, K., Fleisher, B., & Koopman, C. (2006). Acute stress disorder among parents of infants in the neonatal intensive care nursery. *Psychosomatics*, *47*(3), 206–212. https://doi.org/10.1176/appi.psy.47.3.206
Shukri, N. H. M., Wells, J., Mukhtar, F., Lee, M. H. S., & Fewtrell, M. (2017). Study protocol: An investigation of mother-infant signalling during breastfeeding using a randomised trial to test the effectiveness of breastfeeding relaxation therapy on maternal psychological state, breast milk production and infant behaviour and growt. *International Breastfeeding Journal*, *12*(1), 1–14. https://doi.org/10.1186/s13006-017-0124-y
Sociology | Definition of Sociology by Merriam-Webster. (1828). Sociology. In The Merriam-Webster.Com Dictionary. Retrieved January 7, 2020, from https://www.merriam-webster.com/dictionary/sociology.
State of New Hempshire Government. (n.d.). *Perceived Stress Scale*. Retrieved May 4, 2020, from https://das.nh.gov/wellness/Docs/Percieved Stress Scale.pdf
Stewart, R. C., Umar, E., Tomenson, B., & Creed, F. (2014). Validation of the multi-dimensional scale of perceived social support (MSPSS) and the relationship between social support, intimate partner violence and antenatal depression in Malawi. *BMC Psychiatry*, *14*, 180. https://doi.org/10.1186/1471-244X-14-180
Stuebe, A. M., Grewen, K., & Meltzer-Brody, S. (2013). Association between maternal mood and oxytocin response to breastfeeding. *Journal of Women's Health*, *22*(4), 352–361. https://doi.org/10.1089/jwh.2012.3768
Thulier, D., & Mercer, J. (2009). Variables associated with breastfeeding duration. *JOGNN - Journal of Obstetric, Gynecologic, and Neonatal Nursing*, *38*(3), 259–268. https://doi.org/10.1111/j.1552-6909.2009.01021.x
Tosevski, D. L., & Milovancevic, M. P. (2006). Stressful life events and physical health. *Current Opinion in Psychiatry*, *19*(2), 184–189. https://doi.org/10.1097/01.yco.0000214346.44625.57
UNICEF. (2019). *Infant and young child feeding - UNICEF DATA*. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding/
UNICEF and WHO. (2018). *IMPLEMENTATION GUIDANCE 2018 Protecting, promoting and supporting Breastfeeding in facilities providing maternity and newborn services: the revised BABY-FRIENDLY HOSPITAL INITIATIVE*. http://apps.who.int/bookorders.
Vigod, S., Villegas, L., Dennis, C.-L., & Ross, L. (2010). Prevalence and risk factors for postpartum depression among women with preterm and low-birth-weight infants: a systematic review. *BJOG: An International Journal of Obstetrics & Gynaecology*, *117*(5), 540–550. https://doi.org/10.1111/j.1471-0528.2009.02493.x
Wadhwa, P. D., Sandman, C. A., Porto, M., Dunkel-Schetter, C., & Garite, T. J. (1993). The association between prenatal stress and infant birth weight and gestational age at birth: A prospective investigation. *American Journal of Obstetrics and Gynecology*, *169*(4), 858–865. https://doi.org/10.1016/0002-9378(93)90016-C
Wan, E. Y., Moyer, C. A., Harlow, S. D., Fan, Z., Jie, Y., & Yang, H. (2009). Postpartum depression and traditional postpartum care in China: Role of

Zuoyuezi. *International Journal of Gynecology and Obstetrics*, *104*(3), 209–213. https://doi.org/10.1016/j.ijgo.2008.10.016
Wang, S. Y., & Chen, C. H. (2006). Psychosocial health of Taiwanese postnatal husbands and wives. *Journal of Psychosomatic Research*, *60*(3), 303–307. https://doi.org/10.1016/j.jpsychores.2005.08.012
Watkins, S., Meltzer-Brody, S., Zolnoun, D., & Stuebe, A. (2011). Early Breastfeeding Experiences and Postpartum Depression. *Obstetrics & Gynecology*, *118*(2, Part 1), 214–221. https://doi.org/10.1097/AOG.0b013e3182260a2d
Webster, J., Linnane, J. W. J., Dibley, L. M., Hinson, J. K., Starrenburg, S. E., & Roberts, J. A. (2000). Measuring social support in pregnancy: Can it be simple and meaningful? *Birth*, *27*(2), 97–101. https://doi.org/10.1046/j.1523-536x.2000.00097.x
What Is Mental Health? | MentalHealth.gov. (2019). Retrieved November 19, 2019, from https://www.mentalhealth.gov/basics/what-is-mental-health
Who/Unicef. (1993). Breastfeeding counselling a training course participants ' manual part one Sessions 1-9.
WHO. (2014). Comprehensive implementation plan on maternal, infant and young child nutrition. https://apps.who.int/iris/bitstream/handle/10665/113048/WHO_NMH_NHD_14.1_eng.pdf?ua=1
WHO. (2017). Global nutrition monitoring framework targets for *2025*. https://www.who.int/nutrition/publications/operational-guidance-GNMF-indicators.pdf?ua=1
WHO | Exclusive breastfeeding for optimal growth, development and health of infants. (2019). *WHO*.
WHO | Maternal mental health. (2015). *WHO*. https://www.who.int/mental_health/maternal-child/maternal_mental_health/en/
WHO | Mental health: a state of well-being. (2014). *WHO*. https://www.who.int/features/factfiles/mental_health/en/
WHO Child Growth Standard. (2006). *Interpreting Growth Indicator*. https://www.who.int/childgrowth/training/module_c_interpreting_indicators.pdf?ua=1
Xie, R. H., He, G., Koszycki, D., Walker, M., & Wen, S. W. (2009). Prenatal Social Support, Postnatal Social Support, and Postpartum Depression. *Annals of Epidemiology*, *19*(9), 637–643. https://doi.org/10.1016/j.annepidem.2009.03.008
Yuksel, F., Akin, S., & Durna, Z. (2014). Prenatal distress in Turkish pregnant women and factors associated with maternal prenatal distress. *Journal of Clinical Nursing*, *23*(1–2), 54–64. https://doi.org/10.1111/j.1365-2702.2012.04283.x
Zimet, G. D., Dahlem, N. W., Zimet, S. G., Gordon, K., & Farley, G. K. (1998). The Multidimensional Scale of Perceived Social Support The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, *52*(1), 37–41. https://doi.org/10.1207/s15327752jpa5201

Appendix A

Ethical Approval

JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(*Medical Research & Ethics Committee*)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Kompleks Institut Kesihatan Negara
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Ref : KKM/NIHSEC/ P19-2696 (6)
Date: 13-January-2020

DR NURUL HUSNA BT MOHD SHUKRI
UNIVERSITY PUTRA MALAYSIA (UPM)

Dear Sir/ Mdm,

ETHICS INITIAL APPROVAL: NMRR-19-3216-51651 (IIR)
BEHAVIORAL, SOCIOLOGICAL AND BIOLOGICAL FACTORS IN RELATION WITH MATERNAL PSYCHOLOGICAL STATE AMONG MOTHER-INFANT DYADS IN WILAYAH PERSEKUTUAN HOSPITALS

This letter is made in reference to the above matter.

2. The Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia (MOH) has provided ethical approval for this study. Please take note that all records and data are to be kept strictly **CONFIDENTIAL** and can only be used for the purpose of this study. All precautions are to be taken to maintain data confidentiality. Permission from the District Health Officer / Hospital Administrator / Hospital Director and all relevant heads of departments / units where the study will be carried out must be obtained prior to the study. You are required to follow and comply with their decision and all other relevant regulations, including the Access to Biological and Benefit Sharing Act 2017.

3. The investigators and study sites involved in this study are:

HOSPITAL PUTRAJAYA
Dr Nurul Husna Bt Mohd Shukri (Principal Investigator)
Dr. Zurina Bte Zainudin
Ms Buganna A/P S Saravana Kumar
Ms Olivia Senjaya
Nuruljannah Binti Mohamad Nasri
Mawarni Binti Abdullah

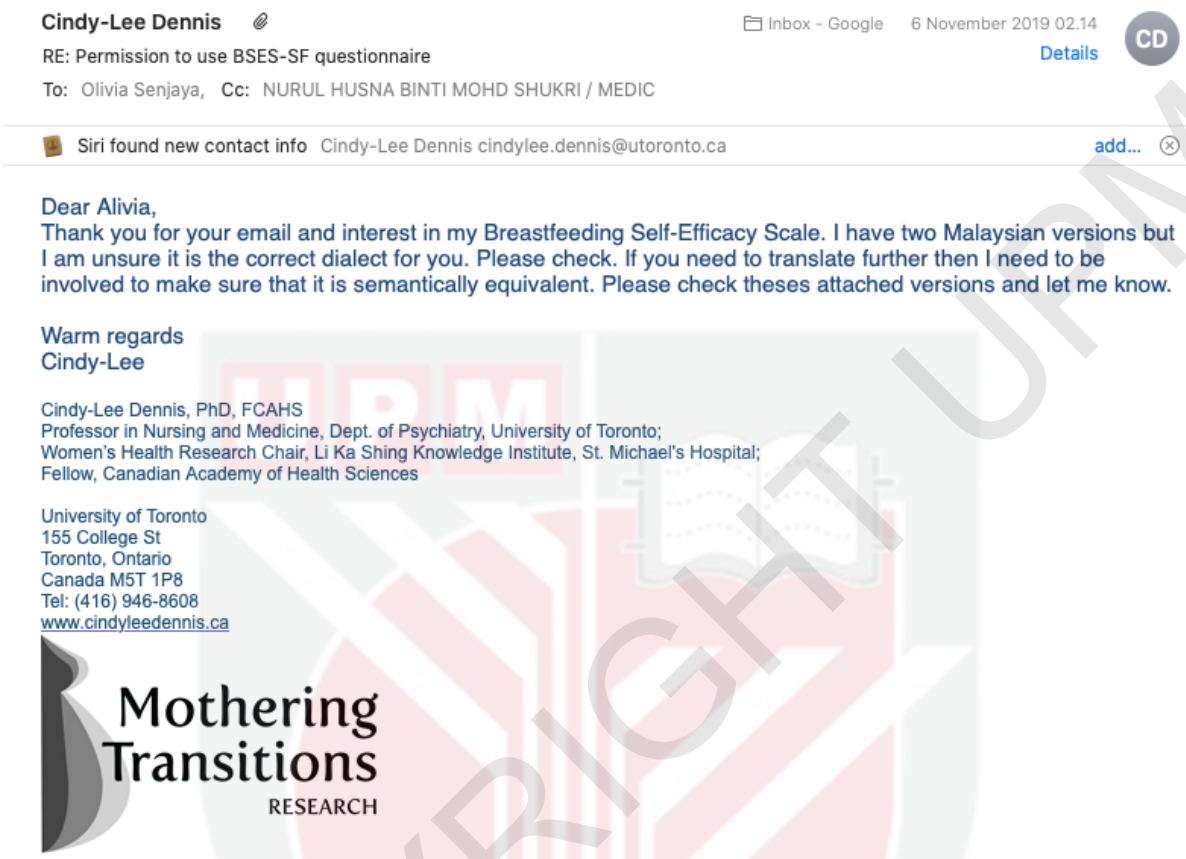
Hospital Wanita dan Kanak-Kanak Kuala Lumpur
Dr Nurul Husna Bt Mohd Shukri (Principal Investigator)
Dr. Zurina Bte Zainudin
Ms Buganna A/P S Saravana Kumar
Ms Olivia Senjaya
Nuruljannah Binti Mohamad Nasri
Mawarni Binti Abdullah

4. The following study documents have been received and reviewed with reference to the above study:

Documents received and reviewed with reference to the above study:
1. Study Protocol_Version 3, dated 23-December-2019 2. Participation Information Sheet & Informed Consent Form (English)_Version 3, dated 23-December-2019

Appendix C

Approval from Authors (Research Instrument)



Cindy-Lee Dennis Inbox - Google 6 November 2019 02.14 Details

RE: Permission to use BSES-SF questionnaire

To: Olivia Senjaya, Cc: NURUL HUSNA BINTI MOHD SHUKRI / MEDIC

Siri found new contact info Cindy-Lee Dennis cindylee.dennis@utoronto.ca add...

Dear Alivia,
Thank you for your email and interest in my Breastfeeding Self-Efficacy Scale. I have two Malaysian versions but I am unsure it is the correct dialect for you. Please check. If you need to translate further then I need to be involved to make sure that it is semantically equivalent. Please check theses attached versions and let me know.

Warm regards
Cindy-Lee

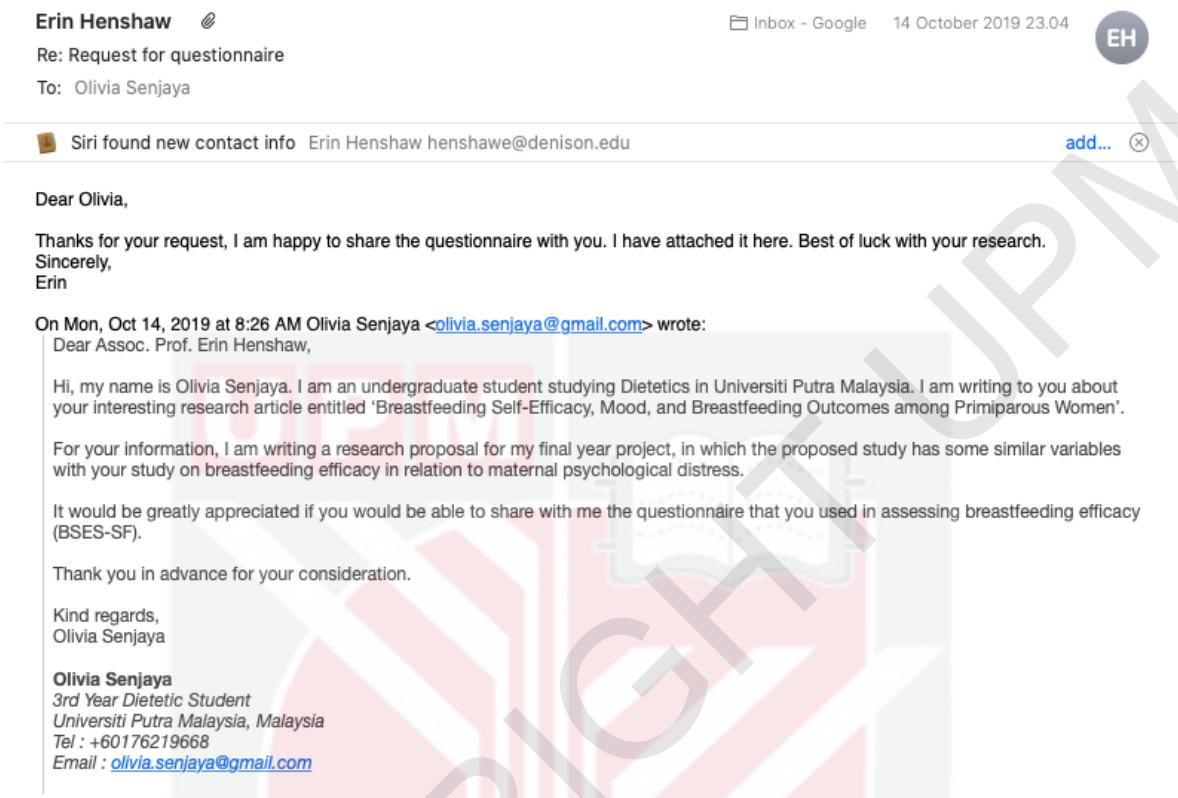
Cindy-Lee Dennis, PhD, FCAHS
Professor in Nursing and Medicine, Dept. of Psychiatry, University of Toronto;
Women's Health Research Chair, Li Ka Shing Knowledge Institute, St. Michael's Hospital;
Fellow, Canadian Academy of Health Sciences

University of Toronto
155 College St
Toronto, Ontario
Canada M5T 1P8
Tel: (416) 946-8608
www.cindyleedennis.ca

Mothering Transitions RESEARCH

Appendix C

Approval from Authors (Research Instrument)



Erin Henshaw

Inbox - Google 14 October 2019 23.04

EH

Re: Request for questionnaire

To: Olivia Senjaya

Siri found new contact info Erin Henshaw henshawe@denison.edu add...

Dear Olivia,

Thanks for your request, I am happy to share the questionnaire with you. I have attached it here. Best of luck with your research.
Sincerely,
Erin

On Mon, Oct 14, 2019 at 8:26 AM Olivia Senjaya <olivia.senjaya@gmail.com> wrote:

> Dear Assoc. Prof. Erin Henshaw,
>
> Hi, my name is Olivia Senjaya. I am an undergraduate student studying Dietetics in Universiti Putra Malaysia. I am writing to you about your interesting research article entitled 'Breastfeeding Self-Efficacy, Mood, and Breastfeeding Outcomes among Primiparous Women'.
>
> For your information, I am writing a research proposal for my final year project, in which the proposed study has some similar variables with your study on breastfeeding efficacy in relation to maternal psychological distress.
>
> It would be greatly appreciated if you would be able to share with me the questionnaire that you used in assessing breastfeeding efficacy (BSES-SF).
>
> Thank you in advance for your consideration.
>
> Kind regards,
> Olivia Senjaya
>
> **Olivia Senjaya**
> *3rd Year Dietetic Student*
> *Universiti Putra Malaysia, Malaysia*
> *Tel : +60176219668*
> *Email : olivia.senjaya@gmail.com*

Appendix C

Approval from Authors (Research Instrument)

Ng Chong Guan

Inbox - Google 16 October 2019 23.41

NG

Re: Request for Questionnaire

To: Olivia Senjaya

Good luck

On Wednesday, 16 October 2019, 09:06:47 GMT+8, Olivia Senjaya <olivia.senjaya@gmail.com> wrote:

Dear Prof. Ng Chong Guan,

Hi, my name is Olivia Senjaya. I am an undergraduate student studying Dietetics in Universiti Putra Malaysia. I am writing to you about your validation study of the Malay version of the Multidimensional Scale of Perceived Social Support (MSPSS-M) among a group of psychiatric patients.

For your information, I am writing a research proposal for my final year project, in which the proposed study will assess social support in relation to maternal psychological distress among Malaysian mother in Wilayah Persekutuan, Malaysia.

It would be greatly appreciated if you would be able to share with me the Malay version of the Multidimensional Scale of Perceived Social Support (MSPSS-M).

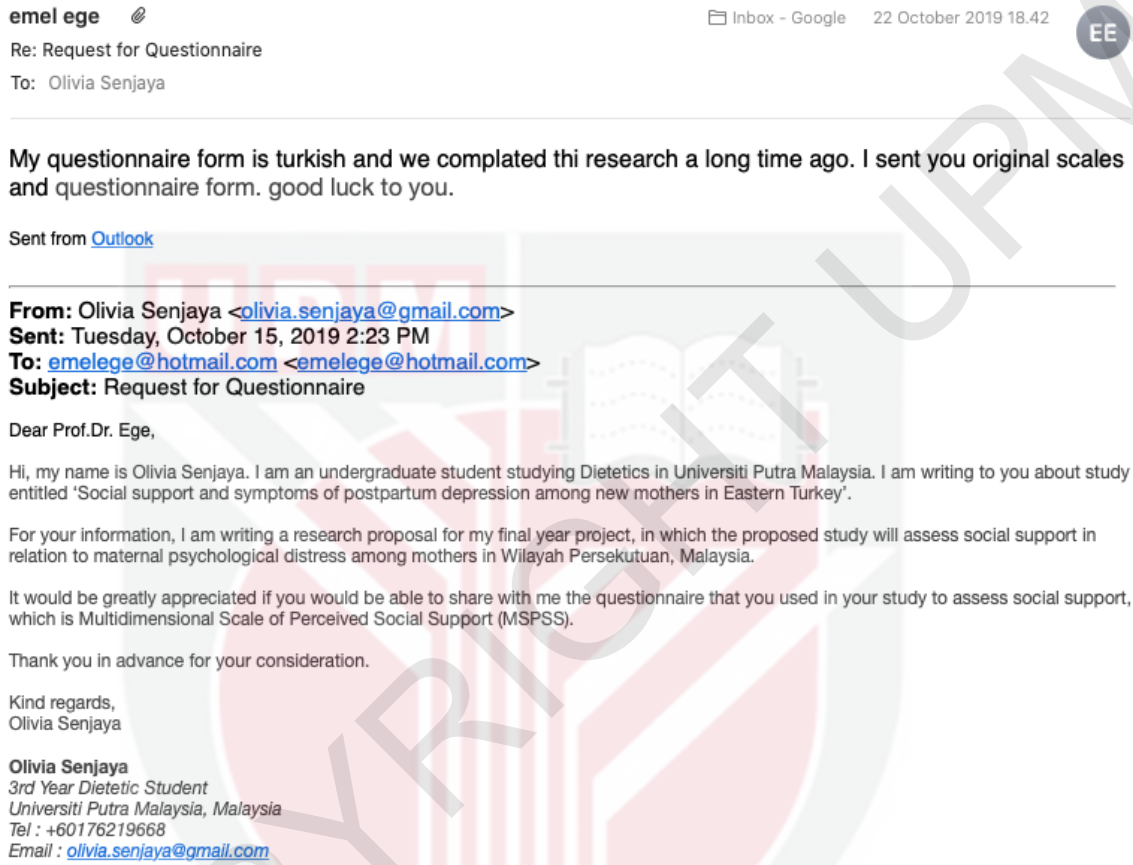
Thank you in advance for your consideration.

Kind regards,
Olivia Senjaya

Olivia Senjaya
3rd Year Dietetic Student
Universiti Putra Malaysia, Malaysia
Tel : +60176219668
Email : olivia.senjaya@gmail.com

Appendix C

Approval from Authors (Research Instrument)



emel ege

Inbox - Google 22 October 2019 18.42

EE

Re: Request for Questionnaire

To: Olivia Senjaya

My questionnaire form is turkish and we complated thi research a long time ago. I sent you original scales and questionnaire form. good luck to you.

Sent from Outlook

From: Olivia Senjaya <olivia.senjaya@gmail.com>
Sent: Tuesday, October 15, 2019 2:23 PM
To: emelege@hotmail.com <emelege@hotmail.com>
Subject: Request for Questionnaire

Dear Prof.Dr. Ege,

Hi, my name is Olivia Senjaya. I am an undergraduate student studying Dietetics in Universiti Putra Malaysia. I am writing to you about study entitled 'Social support and symptoms of postpartum depression among new mothers in Eastern Turkey'.

For your information, I am writing a research proposal for my final year project, in which the proposed study will assess social support in relation to maternal psychological distress among mothers in Wilayah Persekutuan, Malaysia.

It would be greatly appreciated if you would be able to share with me the questionnaire that you used in your study to assess social support, which is Multidimensional Scale of Perceived Social Support (MSPSS).

Thank you in advance for your consideration.

Kind regards,
Olivia Senjaya

Olivia Senjaya
3rd Year Dietetic Student
Universiti Putra Malaysia, Malaysia
Tel : +60176219668
Email : olivia.senjaya@gmail.com

Appendix D

Respondent's Information Sheet and Consent Form

Study ID:

PARTICIPANT INFORMATION SHEET AND INFORMED CONSENT FORM

(for adult subjects)

1. **Title of study**: Behavioral, Sociological, and Biological Factors in Relation with Maternal Psychological State Among Mother-Infant Dyads in Wilayah Persekutuan Hospitals.

2. **Name of investigator:** Dr. Nurul Husna Mohd Shukri, Assoc. Prof. Dr. Zurina Zainudin, Dr. Farah Inaz Syed Abdullah, Dr. Maslina Mohamed, Olivia Senjaya, Buganna A/P S Saravana Kumar, Mawarni Binti Abdullah, Nuruljannah Binti Mohamad Nasri

   Name of institution: Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

3. **Name of sponsor**: None (self-funded)

4. **Introduction:**

   It is important that you understand why the research is being done and what it will involve. 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 would like 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.

   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 and may also refuse the access of your child's medical record. 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.

5. What is the purpose of the study?

The purpose of this study is to identify behavioral, sociological, and biological factors related to maternal psychological stress among mothers of hospitalized infants in Hospital Kuala Lumpur and Hospital Putrajaya. This research is necessary to improve the understanding of mother-infant factors during the postnatal period.

This research will be conducted for duration of 12 months (01/01/2020 until 31/12/2020). The expected number of participants is 240 individuals.

6. What are my responsibilities when taking part in this study?

It is important that you answer all of the questions asked by the study staff honestly and completely which will take about 30 minutes of your time. You will be given a survey form to be answered. This form contains 10 sections which will enquire about:

A) Obstetric characteristic
B) Breastfeeding practice and Breastfeeding Challenges
C) Breastfeeding Self-Efficacy
D) Maternity Care
E) Social support
F) Postpartum Stress
G) Postpartum Anxiety
H) Postpartum depression
I) Sociodemographic characteristics
J) Infant Factors

Study team will also access your child's medical records in Part *J) Infant Factors* for the following information:

1. Infant birth weight
2. Infant gestational week at birth

3. Infant medical check-up and medical history
4. Birth and current anthropometric date (weight, length, head circumference)

7. What are the potential risks and side effects of being in this study?

Participation to this study will not affect your child's treatment, and the risk is minimal. You are free to decline to answer any of the questions that you feel uncomfortable with.

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

There may or may not be any benefits to you. Information obtained from this study will help understand the psychological state of mothers during the postnatal period and factors associated.

A list of contact numbers of local government health clinics, counselling clinics and breastfeeding support groups/private body or NGO will be provided, in case you have any questions or you need further information about yours or your infant's health, or if you need additional support for breastfeeding or parenting or stress management.

You will not be paid for your participation. However, a piece of face mask will be given as a token of appreciation for your participation in the study.

9. Who is funding the research?

No one is sponsoring this research. There is no payment for joining this study, hence you will not have to pay for any study procedure. However, the standard medical care is not waived.

10. Will my medical information be kept private?

All your information obtained in this study will be kept and handled in a confidential manner, in accordance with applicable laws and/or regulations. Individuals involved in this study, qualified monitors and auditors, and governmental or regulatory authorities may inspect the study data, where appropriate and necessary. The information obtained from you and your baby will be identified only by a study number assigned to you. All records will be kept securely for 5 years and destroyed after the period of storage.

The findings of this study will not be provided individually to you. However, the findings are planned to be published with permission from relevant authorities. Thus, published data will be available to public. When publishing or presenting the study results, your identity will not be revealed without your expressed consent.

11. Who should I call if I have questions?

If you have any questions about the study or if you want information about this study, please contact the study investigators:

i) Olivia Senjaya
Telephone number: 0176219668
Email: olivia.senjaya@gmail.com

ii) Buganna S Saravana Kumar
Telephone number: 0169808596
Email: bugannasaravana@gmail.com

iii) Dr. Nurul Husna M Shukri
Office number: 03-86092963
Email: n_husna@upm.edu.my

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 03-3362 8407/8205/8888.

INFORMED CONSENT FORM

Title of Study: Behavioral, Sociological, and Biological Factors in Relation with Maternal Psychological State Among Mother-Infant Dyads in Wilayah Persekutuan Hospitals.

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 am not taking part in any other research study at this time. I understand the risks and benefits, and I freely give my informed consent to participate under the conditions stated. I understand that I must follow the study doctor's (investigator's) instructions related to my participation in the study.
- I understand that study staff, qualified monitors and auditors, the sponsor or its affiliates, 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 will receive a copy of this subject information/informed consent form signed and dated to bring home.
- I **agree / disagree** for my family doctor to be informed of my participation in this study.

Signature …….	Signature …….
(Respondent)	**(Investigator)**
Name :……..	Name :……..
I/C No:……..	I/C No:……..
Date :……...	Date :……..

Signature …….

(Witness)

Name :……..

List and Contact Information of:

A) Maternal and Child Clinic

- Klinik Ibu & Anak
  Taman Pantai Indah
  No.7, Jln 2/122F, Taman
  Panati Indah,
  Jln Pantai Dlm, Bangsar, Kuala
  Lumpur
  Tel : 03-2282 5107

- Klinik Kesihatan Putrajaya
  Presint 9
  1, Jalan P9e, Presint 9,
  62250 Putrajaya,
  Wilayah Persekutuan
  Putrajaya
  Tel : 03-8888 3057

- Klinik Ibu & Anak
  Cheras Makmur
  No 16 & 18 Jln 2/96 A, Taman
  Cheras Makmur,
  56100 Kuala Lumpur
  Tel : 03-9130 4796

- Klinik Kesihatan Putrajaya
  Presint 18
  Jalan P18c 1, Presint 18,
  62150 Putrajaya
  Wilayah Persekutuan Putrajaya
  Tel :03-8881 0062

B) LPPKN (Maternal and Child Health Issue)

- Lembaga Penduduk Dan
  Pembangunan Keluarga
  Negara Kuala Lumpur
  Bangunan LPPKN, NO 12B,
  Jalan Raja Laut, Chow Kit,
  50350 Kuala Lumpur,
  Wilayah Persekutuan Kuala
  Lumpur
  Tel : 03-26920611
  Faks : 03-26937250

- Lembaga Penduduk Dan
  Pembangunan Keluarga Negara
  Putrajaya
  Tingkat no 55, 4, Persiaran
  Perdana,
  Presint 3, 62100 Putrajaya,
  Wilayah Persekutuan Putrajaya
  Tel : 03-83231731

- Klinik Nur Sejahtera Jalan
  Raja Laut
  Tingkat Bawah, No.12B,
  Bangunan LPPKN, Jalan Raja
  Laut,

- Klinik Nur Sejahtera Putrajaya
  KPWKM, Aras 4, No. 55,
  Persiaran Perdana, Presint 4,
  62100 Putrajaya

50350 Kuala Lumpur
Tel :03- 2613 7555/3002
Faks: 03-26929675

Tel : 03-83231731/2
Faks : 03-83231736

C) Mental Health Support

- Jabatan Kaunseling HKL
  Tel : 03-26155970
  Faks : 03-26155971
  Email:
  kaunseling.hkl@moh.gov.my

- Pusat Kesihatan Mental Komuniti (MENTARI) Presint 11
  Jalan P11j, Presint 11, 62000
  Putrajaya, Wilayah Persekutuan
  Putrajaya
  Tel : 03-88811232

D) Breastfeeding Support

- **Susu Ibu**
  Tel : 03-89254614
  Email : info@susuibu.com
  Website : www.susuibu.com

- **World Alliance for Breastfeeding Action**
  Tel: 04-658 4816
  Email: secr@waba.po.my
  Website: www.waba.org.br

- **Breastfeeding Advisory Association of Malaysia**
  7A, Jalan Kolam Air
  Kampung Klang
  Gate Baru 53100 Kuala
  Lumpur
  Tel: 03-4053 872
  Fax: 03-4053 873
  Email:pppim@hotmail.com

- **Persatuan Pembimbing Penyusuan Ibu Malaysia**
  13g, Jalan Medan PB2,
  Pusat Bandar Baru Bangi,
  43650 Bandar Baru Bangi,
  Selangor, Malaysia.
  Tel: 0389254614
  Email:info@malaysianbpfc.org
  Website:www.malaysianbfpc.org

- **Ibu Breastfeeding Support Group**
  Website: www.ibufamily.org

- **Persatuan Penasihat & Pakar Laktasi Malaysia (PPPLM)**
  Fax: 03-4053 873
  Contact: 03-4053 873

Appendix D

Risalah Maklumat Peserta dan Borang Persetujuan atau Keizinan Peserta

Study ID:

RISALAH MAKLUMAT PESERTA DAN

BORANG PERSETUJUAN atau KEIZINAN PESERTA

(untuk subjek dewasa)

12. **Tajuk penyelidikan**: Hubungan antara Faktor Tingkah Laku, Sosiologi dan Biologi dengan Status Psikologi Ibu dalam Kalangan Pasangan Ibu-Bayi di Hospital Wilayah Persekutuan.

13. **Nama penyelidik:** Dr. Nurul Husna Mohd Shukri, Prof. Madya. Dr. Zurina Zainudin, Dr. Farah Inaz Syed Abdullah, Dr. Maslina Mohamed,Olivia Senjaya, Buganna A/P S Saravana Kumar, Mawarni Binti Abdullah, Nuruljannah Binti Mohamad Nasri

    Nama institusi : Fakulti Perubatan dan Sains Kesihatan , Universiti Putra Malaysia

14. **Nama penaja**: Tiada (ditanggung sendiri)

15. **Pengenalan:**

    Risalah ini menjelaskan hal-hal berkenaan penyelidikan tersebut dengan lebih mendalam dan terperinci. Amat penting anda memahami mengapa penyelidikan ini dilakukan dan apa yang dilakukan dalam penyelidikan ini. Sila ambil masa yang secukupnya untuk membaca dan mempertimbangkan dengan teliti penerangan yang diberi sebelum anda bersetuju untuk menyertai penyelidikan ini. Jika ada sebarang kemusykilan ataupun maklumat lanjut yang anda ingin tahu, anda boleh bertanya dengan mana-mana kakitangan yang terlibat dalam penyelidikan ini. Setelah

anda berpuas hati bahawa anda memahami penyelidikan ini, dan anda berminat untuk turut serta, anda dikehendaki untuk menandatangani Borang Persetujuan atau Keizinan Peserta, pada muka surat akhir risalah ini.

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 dan juga akses kepada rekod perubatan anak anda. Anda juga boleh menarik diri daripada penyelidikan ini pada bila-bila masa sahaja. 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 dari penyelidikan ini, tindakan anda tidak akan menjejaskan segala hak dan keistimewaan perubatan kesihatan yang selayaknya anda terima.

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

16. Apakah tujuan penyelidikan ini dilakukan?

Tujuan penyelidikan ini dilakukan adalah untuk mengenal pasti faktor perilaku, sosiologi dan biologi yang mempengaruhi status psikologi ibu dalam kalangan pasangan ibu-bayi di Hospital Kuala Lumpur dan Hospital Putrajaya. Penyelidikan ini diperlukan kerana dapat memberikan pemahaman yang lebih lanjut berkenaan dengan cabaran dan masalah yang dihadapi oleh ibu selepas melahirkan anak.

Penyelidikan ini akan berlangsung selama 12 bulan (01/01/2020 sehingga 31/12/2020). Dijangka bahawa 240 individu akan mengambil bahagian dalam kajian ini.

17. Apakah tanggungjawab saya sewaktu menyertai penyelidikan ini?

Amat penting anda menjawab kesemua soalan yang dikemukakan oleh kakitangan penyelidikan dengan jujur dan lengkap yang akan mengambil masa selama lebih kurang 30 minit.

Anda akan diberi borang soal selidik untuk dijawab. Borang ini mempunyai 10 bahagian, yang meliputi topik berikut :

A) Ciri-ciri obstetrik
B) Amalan penyusuan
C) Efikasi diri untuk menyusu ibu
D) Penjagaan ibu lepas bersalin semasa berpantang di rumah
E) Sokongan sosial
F) Tekanan selepas bersalin

G) Kebimbangan selepas bersalin

H) Kemurungan selepas bersalin

I) Sosiodemografi Ibu

J) Faktor bayi

Penyelidik juga memerlukan maklumat yang berikut pada bahagian J) Faktor bayi daripada rekod perubatan anak anda:

a. Berat bayi lahir
b. Minggu kehamilan semasa persalinan
c. Rekod perubatan bayi
d. Data antropometri bayi semasa dan masa lahir (berat badan,tinggi,lilitan kepala)

18. Apakah risiko dan kesan-kesan sampingan menyertai penyelidikan ini?

Risiko untuk penyertaan penyelidikan ini yang adalah minima dan tidak akan menjejaskan rawatan anak anda. Anda berhak untuk tidak menjawab jika rasa tidak selesa dengan mana-mana soalan kajian.

19. Apakah manfaatnya saya menyertai kajian ini?

Penyelidikan ini mungkin akan mendatangkan manfaat ataupun langsung tiada memberi apa-apa manfaat kepada anda. Segala maklumat yang diperolehi daripada penyelidikan ini akan dapat membantu dalam membantu memahami status psikologi ibu selepas bersalin dan faktor yang berhubungkait dengannya.

Anda akan diberikan senarai nombor telefon klinik kesihatan kerajaan dan kumpulan sokongan susu ibu / badan swasta atau NGO sekiranya anda mempunyai sebarang pertanyaan atau memerlukan maklumat lanjut berkenaan kesihatan anda atau bayi anda, atau sekiranya anda memerlukan sokongan tambahan untuk penyusuan atau isu keibubapaan atau pengurusan stress.

Penyertaan anda tidak dikenakan sebarang bayaran. Bagi menghargai penyertaan anda dalam kajian ini, kami akan memberikan sekeping masker wajah (*face mask*) sebagai token penghargaan atas penyertaan anda dalam kajian ini.

20. Siapakah yang membiayai penyelidikan ini?

Kajian ini tidak ditaja oleh mana-mana pihak. Tiada bayaran akan dikenakan untuk prosedur kajian ini, tetapi kos perubatan yang telah ditetapkan oleh pihak hospital adalah tidak dikecualikan.

21. Adakah maklumat 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. Pihak-pihak tertentu seperti individu yang terlibat dalam penyelidikan ini, juruaudit dan jurupantau yang terlatih, pihak berkuasa kerajaan atau undang-undang, boleh memeriksa maklumat atau data kajian jika diperlukan. Maklumat yang diambil dari anda dan bayi anda akan direkod menggunakan kod nombor. Semua data yang telah direkodkan akan disimpan dengan selamat dalam tempoh 5 tahun dan akan dihapuskan selepas melebihi tempoh ini.

Hasil kajian ini tidak akan diberikan secara individu kepada anda. Sebaliknya, data daripada hasil kajian ini akan diterbitkan kepada umum dengan kebenaran pihak tertentu. Sekiranya hasil penyelidikan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu.

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

Anda boleh menghubungi penyelidik, sekiranya anda mempunyai sebarang pertanyaan mengenai penyelidikan ini atau anda mahukan maklumat tentang hasil kajian.

i) Olivia Senjaya
No telefon: 0176219668
Email: olivia.senjaya@gmail.com

ii) Buganna S Saravana Kumar
No telefon: 0169808596
Email: bugannasaravana@gmail.com

iii) Dr. Nurul Husna M Shukri
No telefon: 03-86092963
Email: n_husna@upm.edu.my

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anda sebagai penyerta dalam penyelidikan ini, sila hubungi: Setiausaha, Jawatankuasa Etika & Penyelidikan Perubatan, Kementerian Kesihatan Malaysia, melalui talian telefon 03-3362 8407/8205/8888.

BORANG PERSETUJUAN/ KEIZINAN PESERTA

Tajuk Penyelidikan: Hubungan antara Faktor Perilaku, Sosiologi dan Biologi dengan Status Psikologi Ibu dalam Kalangan Pasangan Ibu-Bayi di Hospital Wilayah Persekutuan.

Dengan menandatangani di bawah, saya mengesahkan bahawa:

- Saya telah diberi maklumat tentang penyelidikan di atas secara lisan dan bertulis and saya telah membaca dan memahami segala maklumat yang diberikan dalam risalah ini.
- Saya telah diberikan masa yang secukupnya untuk 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 harus memberi sebarang alasan dan ianya sama sekali tidak akan menjejaskan rawatan perubatan saya pada masa akan datang. Saya juga memahami tentang risiko dan manfaat penyelidikan ini dan saya secara sukarela memberi persetujuan untuk menyertai penyelidikan ini di bawah syarat-syarat yang telah dinyatakan di atas. Saya faham saya harus mematuhi nasihat dan arahan yang berkaitan dengan penyertaan saya dalam penyelidikan ini daripada doktor penyelidikan (penyelidik).
- Saya faham bahawa kakitangan penyelidikan, pemantau dan juruaudit terlatih , pihak penaja atau gabungannya, dan pihak berkuasa kerajaan atau undang-undang, mempunyai akses 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 keluarga saya diberitahu tentang penyertaan saya dalam penyelidikan ini.

Tandatangan…….	Tandatangan…….
(Subjek)	**(Penyilidik)**
Nama :……	Nama :…….

No K/P :…… No K/P :……..

Tarikh :…… Tarikh :…….

Tandatangan……..…….

(Saksi tidak berpihak)

Nama:…….

Senarai Informasi

A) Klinik Kesihatan Ibu Anak

- Klinik Ibu & Anak
  Taman Pantai Indah
  No.7, Jln 2/122F, Taman Panati Indah,
  Jln Pantai Dlm, Bangsar, Kuala Lumpur
  Tel : 03-2282 5107
- Klinik Kesihatan Putrajaya Presint 9
  1, Jalan P9e, Presint 9,
  62250 Putrajaya,
  Wilayah Persekutuan Putrajaya
  Tel : 03-8888 3057
- Klinik Ibu & Anak
  Cheras Makmur
  No 16 & 18 Jln 2/96 A, Taman Cheras Makmur,
  56100 Kuala Lumpur
  Tel : 03-9130 4796
- Klinik Kesihatan Putrajaya Presint 18
  Jalan P18c 1, Presint 18,
  62150 Putrajaya
  Wilayah Persekutuan Putrajaya
  Tel :03-8881 0062

B) LPPKN (Isu Kesihatan Wanita dan Anak)

- Lembaga Penduduk Dan Pembangunan Keluarga Negara Kuala Lumpur
- Lembaga Penduduk Dan Pembangunan Keluarga Negara Putrajaya

Bangunan LPPKN, NO 12B,
Jalan Raja Laut, Chow Kit,
50350 Kuala Lumpur,
Wilayah Persekutuan Kuala Lumpur
Tel : 03-26920611
Faks : 03-26937250

Tingkat no 55, 4, Persiaran Perdana,
Presint 3, 62100 Putrajaya,
Wilayah Persekutuan Putrajaya
Tel : 03-83231731

- Klinik Nur Sejahtera Jalan Raja Laut
  Tingkat Bawah, No.12B,
  Bangunan LPPKN, Jalan Raja Laut,
  50350 Kuala Lumpur
  Tel :03- 2613 7555/3002
  Faks: 03-26929675

- Klinik Nur Sejahtera Putrajaya
  KPWKM, Aras 4, No. 55,
  Persiaran Perdana, Presint 4,
  62100 Putrajaya
  Tel : 03-83231731/2
  Faks : 03-83231736

C) Sokongan Kesihatan Mental

- Jabatan Kaunseling HKL
  Tel : 03-26155970
  Faks : 03-26155971
  Email:
  kaunseling.hkl@moh.gov.my

- Pusat Kesihatan Mental Komuniti (MENTARI)
  Presint 11
  Jalan P11j, Presint 11,
  62000 Putrajaya, Wilayah Persekutuan Putrajaya
  Tel : 03-88811232

D) Sokongan Penyusuan Susu Ibu

- **Susu Ibu**
  Tel : 03-89254614
  Email : info@susuibu.com
  Website : www.susuibu.com

- **World Alliance for Breastfeeding Action**
  Tel: 04-658 4816
  Email: secr@waba.po.my
  Website: www.waba.org.br

- **Breastfeeding Advisory Association of Malaysia**
  7A, Jalan Kolam Air
  Kampung Klang

- **Persatuan Pembimbing Penyusuan Ibu Malaysia**
  13g, Jalan Medan PB2,
  Pusat Bandar Baru Bangi,

Gate Baru 53100 Kuala Lumpur
Tel: 03-4053 872
Fax: 03-4053 873
Email:pppim@hotmail.com

43650 Bandar Baru Bangi, Selangor, Malaysia.
Tel: 0389254614
Email:info@malaysianbpfc.org
Website:www.malaysianbfpc.org

- **Ibu Breastfeeding Support Group**
  Website: www.ibufamily.org

- **Persatuan Penasihat & Pakar Laktasi Malaysia (PPPLM)**
  Fax: 03-4053 873
  Contact: 03-4053 873

Appendix E

Questionnaires

Study ID:

UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

SELF-ADMINISTERED QUESTIONNAIRE

Behavioral, Sociological, and Biological Factors in Relation with Maternal Psychological State Among Mother-Infant Dyads in Wilayah Persekutuan Hospitals.

Questionnaire to Mothers

Researchers : Dr. Nurul Husna Mohd Shukri, Assoc. Prof. Dr. Zurina Zainudin, Dr. Farah Inaz Syed Abdullah, Dr. Maslina Mohamed, Olivia Senjaya, Buganna A/P S Saravana Kumar, Mawarni Abdullah, Nuruljannah Mohamad Nasri

Supervisors : Dr. Nurul Husna M Shukri & Dr. Zurina Zainudin, UPM

Date: _ _ (dd)/ _ _(mm)/ _ _(yy)

For you information, the purpose of this study is to identify behavioral, sociological, and biological factors related to maternal psychological stress among mothers of hospitalised infants in Hospital Kuala Lumpur and Hospital Putrajaya. Your data will be only used for academic purpose and your details will be confidential. Please answer the questions honestly according to your condition.

Part A : Obstetric Characteristic

Fill in the blank or tick the boxes for the questions below.

No	Statement	Options
A1	Number of children	_____ children
A2	Pregnancy weight gain	_____ kg
A3	Was this an expected pregnancy?	□ Yes □ No
A4	How was your baby delivered?	□ Vaginally (not induced) □ Vaginally (induced) □ Cesarean (planned) □ Cesarean (unplanned / emergency)
A5	Who was with you during labour?	□ Baby's father □ Your mother/father/siblings □ Friends/close relatives □ None (medical staff only)

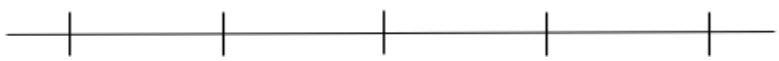
		□ Others : _____
A6	How soon after birth was your baby placed directly on your body (skin-to-skin contact)?	□ Directly after birth □ 15-30 minutes after birth □ More than 30 minutes after birth □ More than 1 hour after birth
A7	How soon after the delivery did you try to breastfed your baby?	□ Directly after birth □ In less than 30 minutes □ Within 30-60 minutes □ More than 60 minutes (1 hour)

Part B : Breastfeeding Practice

Fill in the blank or tick the boxes for the questions below

i) Around after birth

No	Statement	Options
B1	Have you obtained information about breastfeeding, your diet, or breast pumps **from any of the following people**? *Tick to all that apply*	□ Doctor or physician assistant □ Nurse □ Nutritionist or dietician □ Relatives or friends □ Others: _____
B2	Have you obtained information about breastfeeding, your diet, or breast pumps **from any of the following sources**?	□ Birthing or baby care class □ Books or videos □ Newspapers or magazines □ Television or radio □ Internet sources □ Others: _____

<table>
<tr><td></td><td>Tick to all that apply</td><td></td></tr>
<tr><td>B3</td><td>While you were in the hospital or birth centre, did your baby stay in your room day and night, except bathing or other treatments?</td><td>☐ Yes, all the time
☐ Yes, some nights but not all
☐ No</td></tr>
<tr><td>B4</td><td>Around birth, was your baby fed water, formula or sugar water at any time?</td><td><table><tr><td></td><td>Yes</td><td>No</td><td>Don’t know</td></tr><tr><td>Water</td><td></td><td></td><td></td></tr><tr><td>Formula milk</td><td></td><td></td><td></td></tr><tr><td>Sugar water</td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>B5</td><td>How long did it take for your milk to come in for the first time?</td><td>☐ 1 day or less
☐ 2 days
☐ 3 days
☐ 4 days
☐ More than 4 days</td></tr>
<tr><td>B6</td><td>During the first few days after your baby was born, did you feed him or her …</td><td>☐ Whenever baby cried or seemed hungry
☐ On a schedule or routine
☐ Sometimes when baby cries or seemed to be hungry or sometimes on a schedule or routine</td></tr>
<tr><td>B7</td><td>About how long does an average breastfeeding last?</td><td>☐ _____ minutes</td></tr>
<tr><td>B8</td><td colspan="2">How do you feel about the experience of having breastfed your baby?
 
1 2 3 4 5
Not pleased Neutral Pleased</td></tr>
</table>

B9	Did you have any pain while breastfeeding at any time in the first 2 weeks?	☐ Yes ☐ No

B10 Using the scale 1 to 10, rate your pain level while breastfeeding your baby based on the following time line after birth :

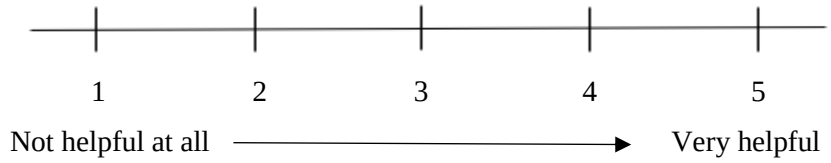
Scale	Not painful ----------> Extremely painful									
Level of pain	1	2	3	4	5	6	7	8	9	10
First day										
First week										
Second week										

B11 Did you have any of the following problems breastfeeding your baby during first 2 weeks of breastfeeding?

Tick to all that apply :

- ☐ I had no problems
- ☐ Baby had trouble sucking latching
- ☐ Baby choked
- ☐ Baby wouldn't wake up to nurse regularly enough
- ☐ Baby was not interested in nursing
- ☐ Baby got distracted
- ☐ Baby nursed too often
- ☐ It took too long for my milk to come in
- ☐ I had trouble getting the milk flow to start
- ☐ Baby didn't get enough weight or lost too much weight
- ☐ I didn't have enough milk
- ☐ Nipples were sore, cracked, or bleeding
- ☐ Breasts were overfull (engorged)
- ☐ I had a yeast infection of the breast
- ☐ I had a clogged milk duct
- ☐ Breasts were infected or abscessed
- ☐ Breasts leaked too much
- ☐ I had some other problem : _____

B12	Did you **ask for help** with these problems from a health professional (doctor/nurse/lactation counsellor) ?	☐ Yes ☐ No
B13	Did you **get any help** with these problems from a health professional ?	☐ Yes ☐ No **(Go to Question B15)**

B14	Did the help received help to solve or reduce the problem?  	
B15	Did any of the following people **encourage you to stop breastfeeding**? *Tick to all that apply*	☐ The baby's father ☐ Your mother ☐ Your mother-in-law ☐ Your grandmother ☐ Another family member ☐ Doctor or other health professional ☐ Your employer ☐ No one

ii) Current infant feeding practice

B16	Are you still breastfeeding your baby?	☐ Yes ☐ No
B17	When have you started introducing other fluid beside breast milk to your baby? *(if apply)*	☐ _____ Weeks **OR** _____ Months
B18	**When and how often** did your baby was fed each food that is listed below? For example : _____ x (times) per day OR Every _____ mins/hour	

	Food items / Age category	Average feedings per day		
		≤ 1 month	1-4 months	> 4 months
a)	Breast milk			
b)	Infant formula			
c)	Cow's milk			
d)	Other fluid: soy milk, rice milk, goat milk			
e)	Plain water			
f)	Solid food: porridge, cereal, puree			

Part C : Breastfeeding Self-Efficacy

Below are the statements that explain breastfeeding. Circle the number in scale that best describes for each statement. **There is no right or wrong answer for statements below.**

1	2	3	4	5
Not at all confident	**Not confident**	**Confident at times**	**Confident**	**Very confident**

No	**STATEMENT**	**Not at all Confident** ⟶ **Very Confident**

C1	I can always determine that my baby is getting enough milk.	1	2	3	4	5
C2	I can always successfully cope with breastfeeding like I have with other challenging tasks.	1	2	3	4	5
C3	I can always breastfeed my baby without using formula as a supplement.	1	2	3	4	5
C4	I can always ensure that my baby is properly latched for the whole feeding.	1	2	3	4	5
C5	I can always manage the breastfeeding situation to my satisfaction.	1	2	3	4	5
C6	I can always manage to breastfeed even if my baby is crying	1	2	3	4	5
C7	I can always keep wanting to breastfeed.	1	2	3	4	5
C8	I can always comfortably breastfeed with my family members present.	1	2	3	4	5
C9	I can always be satisfied with my breastfeeding experience.	1	2	3	4	5
C10	I can always deal with the fact that breastfeeding can be time-consuming.	1	2	3	4	5
C11	I can always finish feeding my baby on one breast before switching to the other breast.	1	2	3	4	5
No	**STATEMENT**	**Not at all Confident** →				**Very Confident**
C12	I can always continue to breastfeeding my baby for every feeding.	1	2	3	4	5
C13	I can always manage to keep up with my baby's breastfeeding demands.	1	2	3	4	5
C14	I can always tell when my baby is finished breastfeeding.	1	2	3	4	5

Part D : Maternity Care

Fill in the blank or tick the boxes for the questions below.

No	Statement	Options
D1	Where did you practice traditional postpartum (confinement) care? *Tick to all that apply*	□ My house / my family's house □ At a confinement house / center □ At spa / beauty center □ At traditional medicine unit as a complementary service from hospital □ Others: _____

D2	Why did you practice traditional postpartum (confinement) care? *Tick to all that apply*	☐ My own choice ☐ As advised by my family / mother / husband ☐ As advised by doctors / nurses ☐ As advised by my friends ☐ Because it is my traditional cultural practice ☐ Others: _____
D3	What are the care that you received during confinement period? *Tick to all that apply*	☐ Usage of herbs on the face and body ☐ Usage of *bengkung/barut* ☐ Herbal drinks ☐ Herbal or roots steam / sauna *(bertangas)* ☐ Massage *(urut)* ☐ Hot compress (*Bertungku / bertuam)* ☐ Others: _____
D4	Throughout confinement period, how many times did you received massage *(urut)*?	☐ _____ times *(for example : 2 times)*
D5	When did you first received massage *(urut)*?	☐ _____ week after birth (*for example : 2nd week after birth)*
D6	How frequent was the treatment given?	☐ _____ times per week **OR** _____ times throughout confinement period
D7	Who among these people **help you the** most in traditional postpartum (confinement) care?	☐ Traditional care practitioner ☐ My mother / husband / family ☐ I do it on my own with or without advise from traditional care practitioner ☐ Others: _____
D8	What benefits did you get from doing traditional postpartum (confinement) care? *Tick to all that apply*	☐ I recover from birth / labour pain at a faster rate ☐ I can do my daily routine better ☐ I become more calm ☐ My bleeding stopped early ☐ My wound healed at a faster rate ☐ Aid in breastfeeding ☐ Others: _____

D9	In a scale of 1 to 5, how do you feel about the overall traditional postpartum (confinement) care?  1 2 3 4 5 I don't like it Neutral I like it

Have you changed your food intake **during confinement period**? Tick (/) in the provided column and specify the type of food in the last column.

Food Category		No change	Eat more than usual	Eat less than usual	Completely avoid	Please specify the food
D10	**Milk** (e.g. fresh milk, goat's milk)					
D11	**Dairy product** (e.g. cheese, butter, yogurt)					
D12	**Red meat** (e.g. beef, lamb)					
D13	**Poultry** (chicken/others)					
D14	**Egg**					
D15	**Fish**					
D16	**Other seafood** (e.g. shrimp, squid, clams)					
D17	**Dried Fish / Seafood** (e.g. anchovies, salted fish, dried squid)					
D18	**Nuts & peanuts**					
D19	**Fruits**					
D20	**Vegetables**					
D21	**Vitamin or mineral supplements**					
D22	**Herbal drink or supplements**					
D23	**Alcoholic beverages**					
D24	**Others :** _____					

Part E: Social Support

Circle the following numbers according to the scale bellow based on how you feel about each statement.

1	2	3	4	5	6	7
Very strongly disagree	**Strongly disagree**	**Mildly disagree**	**Neutral**	**Mildly agree**	**Strongly agree**	**Very strongly agree**

No	STATEMENT	SCALE						
E1	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
E2	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
E3	My family really tries to help me.	1	2	3	4	5	6	7
E4	I get the emotional help and support I need from my family	1	2	3	4	5	6	7
E5	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
E6	My friends really try to help me.	1	2	3	4	5	6	7
E7	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
E8	I can talk about my problems with my family.	1	2	3	4	5	6	7
E9	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
E10	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
E11	My family is willing to help me make decisions.	1	2	3	4	5	6	7
E12	I can talk about my problems with my friends.	1	2	3	4	5	6	7

Part F : Postpartum Stress

The questions in this scale ask you about your feelings and thoughts during **THE LAST ONE MONTH** (up till today). In each case, please indicate your response by circling the number in the corresponding space representing **HOW OFTEN** you felt or thought a certain way.

0	1	2	3	4
Never	**Almost Never**	**Sometimes**	**Fairly Often**	**Very often**

No.	Feelings / Thoughts	Scale				
F1	In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
F2	In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
F3	In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
F4	In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
F5	In the last month, how often have you felt that things were going your way?	0	1	2	3	4
F6	In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
F7	In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
F8	In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
F9	In the last month, how often have you been angered because of things that were outside your control?	0	1	2	3	4
F10	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Part G : Postpartum Anxiety

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the **past month, including today**, by circling the number in the corresponding space in the column next to each symptom.

0	1	2	3
Not at all	**Mildly**	**Moderately**	**Severely**

No.	Symptoms / conditions / feelings	Scale			
G1	Numbness or tingling	0	1	2	3
G2	Feeling Hot	0	1	2	3
G3	Wobbling in legs	0	1	2	3
G4	Unable to relax	0	1	2	3
G5	Fear or worst happening	0	1	2	3
G6	Dizzy or lightheaded	0	1	2	3
G7	Heart pounding or racing	0	1	2	3
G8	Unsteady	0	1	2	3
G9	Terrified or afraid	0	1	2	3
G10	Nervous	0	1	2	3
G11	Feeling of choking	0	1	2	3
G12	Hands trembling	0	1	2	3
G13	Shaky or unsteady	0	1	2	3
G14	Fear of losing control	0	1	2	3
G15	Difficulty in breathing	0	1	2	3
G16	Fear of dying	0	1	2	3
G17	Scared	0	1	2	3
G18	Indigestion	0	1	2	3
G19	Faint or lightheaded	0	1	2	3
G20	Face flushed	0	1	2	3
G21	Hot or cold sweats	0	1	2	3

H : Postpartum Depression

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.

In the past 7 days:

H1	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
H2	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
H3	I have blamed myself unnecessarily when things went wrong □ Yes, most of the time □ Yes, some of the time □ Not very often □ No, never
H4	I have been anxious or worried for no good reason □ No, not at all □ Hardly ever □ Yes, sometimes □ Yes, very often
H5	I have felt scared or panicky for no very good reason □ Yes, quite a lot □ Yes, sometimes □ No, not much □ No, not at all
H6	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
H7	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
H8	I have felt sad or miserable □ Yes, most of the time □ Yes, quite often □ Not very often □ No, not at all
H9	I have been so unhappy that I have been crying □ Yes, most of the time □ Yes, quite often □ Only occasionally □ No, never
H10	The thought of harming myself has occurred to me □ Yes, quite often □ Sometimes □ Hardly ever □ Never

Part I : Sociodemographic Characteristic of Mothers

Fill in the blank or tick the boxes for the questions below

No	Statement	Options
I1	Age	_____ years old
I2	Ethnicity	□ Malay □ Chinese □ Indian □ Bumiputera □ Others : _____
I3	Marital status	□ Single □ Single but living with partner □ Married □ Separated or divorced □ Widow
I4	Highest education level	□ No formal education □ Primary school □ Secondary school / Certificate □ Pre-University / Diploma □ Bachelor Degree □ Postgraduate
I5	Occupation	□ Public sector □ Private sector □ Self-employed □ Housewife □ Unemployed
I6	Household income	□ < RM 3800 □ RM 3801 – 8300 □ RM 8301 – 12000 □ > RM 12000

Part J : Infant Factors

Fill in the blank or tick the boxes for the questions below.

i) Infant Health Status

No	Statement	Options
J1	Since the time your baby was discharged from the hospital after the birth, has he or she been hospitalized for any reason or has your baby been taken to a hospital for any outpatient procedure or surgery?	□ Yes □ No → **(Go to question J3)**
J2	How many nights was your baby in the hospital for the most recent problem?	□ _____ nights *Write **0** if your baby did not stay overnight
J3	My baby is free from any serious, long-term medical problems/conditions	□ Yes □ No → _____ (Please explain briefly)
J4	Has your baby had jaundice at any time after birth?	□ Yes → **(Go to question J5)** □ No
J5	How was the jaundice treated? *Tick to all that apply*	□ I fed formula in addition to breastfeeding □ I stopped breastfeeding for a while □ I stopped breastfeeding completely □ My baby was placed under a lamp (phototherapy) □ Others: _____

-Thank you-

To be filled by researcher

ii) Infant Characteristics

No	Statement	Options
J6	Gender	□ Male □ Female
J7	Date of Birth Today's date: _____	□ ___ / ___ / _____
J8	Gestational week at birth	□ _____ weeks
J9	Baby's condition at birth	□ Preterm / premature □ G6PD □ Jaundice □ Fetal distress □ Meconium stained liquor □ Prolonged / Premature ruptured of membrane □ Others: _____
J10	Apgar Score	□ _____ (1 min) □ _____ (5 min) □ _____ (__ min)

No	Measurement	Birth	1 Month	Latest Age : _____
	Date :			
J11	Infant's weight (kg)			
J12	Infant's length (cm)			
J13	Infant's head circumference (cm)			

Appendix E

Borang Soal Selidik

Study ID:

BORANG SOAL SELIDIK

Hubungan antara Faktor Perilaku, Sosiologi dan Biologi dengan Status Psikologi Ibu dalam Kalangan Pasangan Ibu-Bayi di Hospital Wilayah Persekutuan.

Soal Selidik untuk Ibu

Penyelidik: Dr. Nurul Husna Mohd Shukri, Prof. Madya. Dr. Zurina Zainudin, Dr. Farah Inaz Syed Abdullah, Dr. Maslina Mohamed, Olivia Senjaya, Buganna A/P S Saravana Kumar, Mawarni Abdullah, Nuruljannah Mohamad Nasri

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Tarikh: _ _ (dd)/ _ _(mm)/ _ _(yy)

Untuk pengetahuan anda, kajian ini bertujuan untuk mengenal pasti faktor perilaku, sosiologi dan bilogi yang mempengaruhi status psikologi ibu dalam kalangan pasangan ibu-bayi di Hospital Kuala Lumpur dan Hospital Putrajaya. Maklumat Anda adalah sulit dan hanya akan digunakan untuk tujuan penyelidikan dan akademik sahaja. Mohon jawab semua soalan secara jujur.

Bahagian A : Ciri-ciri Obstetrik

Sila isi tempat kosong atau tandakan pada kotak yang disediakan untuk soalan berikut.

No	Pernyataan	Pilihan
A1	Bilangan anak	_____ anak
A2	Jumlah berat badan ibu yang bertambah semasa mengandung	_____ kg
A3	Adakah kehamilan ini dirancang?	☐ Ya ☐ Tidak
A4	Bagaimanakah bayi anda dilahirkan?	☐ Kelahiran normal (tiada *induced*) ☐ Kelahiran normal (*induced*) ☐ Pembedahan *caesarean* (dirancang awal) ☐ Pembedahan *caesarean* (tidak dirancang / kecemasan)
A5	Siapakah yang bersama anda semasa bersalin?	☐ Bapa bayi ☐ Ibu/bapa/adik-beradik anda ☐ Kawan rapat/saudara terdekat ☐ Tiada sesiapa kecuali kakitangan perubatan ☐ Lain-lain: _____
A6	Sepantas manakah bayi anda diletakkan pada badan anda (bersentuhan kulit) sejurus selepas anda melahirkan bayi anda?	☐ Sejurus selepas kelahiran ☐ 15 ke 30 minit selepas kelahiran ☐ Lebih daripada 30 minit selepas kelahiran ☐ Lebih daripada 1 jam selepas kelahiran
A7	Sejurus manakah anda mula atau cuba menyusu bayi anda selepas bersalin (untuk kali pertama)?	☐ Sejurus selepas kelahiran ☐ Kurang daripada 30 minit ☐ Dalam jangkamasa 30-60 minit ☐ Lebih daripada 60 minit (1 jam)

Bahagian B : Amalan Penyusuan

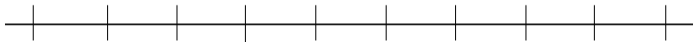
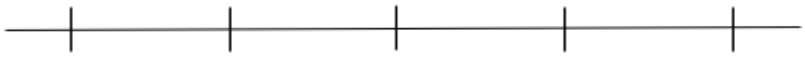
Sila isi tempat kosong atau tandakan pada kotak yang disediakan berikut

iii) Dalam tempoh selepas bersalin

<table>
<tr><th>No</th><th>Pernyataan</th><th>Pilihan</th></tr>
<tr><td>B1</td><td>Pernahkah anda mendapati maklumat tentang penyusuan susu ibu, makanan ibu selepas bersalin, pam susu ibu daripada pihak berikut?
Tandakan semua yang berkenaan</td><td>☐ Doktor atau Pegawai Perubatan
☐ Jururawat
☐ Pegawai pemakanan atau pegawai dietetik
☐ Saudara-mara atau rakan
☐ Lain-lain: _____</td></tr>
<tr><td>B2</td><td>Pernahkah anda mendapat maklumat tentang penyusuan susu ibu, makanan ibu selepas bersalin, pam susu badan daripada sumber berikut?
Tandakan semua yang berkenaan</td><td>☐ Kelas bersalin / penjagaan bayi
☐ Buku atau video
☐ Surat khabar atau majalah
☐ Televisyen atau radio
☐ Sumber dari internet
☐ Lain-lain: _____</td></tr>
<tr><td>B3</td><td>Apabila anda berada di hospital, adakah anda tinggal bersama bayi anda pada siang sehingga malam kecuali semasa mandi atau rawatan lain ?</td><td>☐ Ya , bersama saya sepenuhnya
☐ Ya, tetapi bukan setiap malam
☐ Tidak</td></tr>
<tr><td>B4</td><td>Dalam tempoh selepas bersalin, adakah bayi anda diberi air, susu formula, atau air gula ?</td><td>
<table>
<tr><th></th><th>Ya</th><th>Tidak</th><th>Tidak tahu</th></tr>
<tr><td>Air</td><td></td><td></td><td></td></tr>
<tr><td>Susu formula</td><td></td><td></td><td></td></tr>
<tr><td>Air gula</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

B5	Berapa lamakah ia mengambil masa untuk anda menghasilkan susu badan pada kali pertama?	□ 1 hari atau kurang □ 2 hari □ 3 hari □ 4 hari □ Lebih daripada 4 hari
B6	Dalam beberapa hari selepas bersalin, anda menyusu bayi . . .	□ Setiap kali bayi menangis ataupun kelihatan lapar □ Mengikut rutin □ Kadangkala semasa bayi menangis atau kelihatan kelaparan atau mengikut rutin
B7	Kebiasaannya, berapa lamakah masa yang diambil dalam satu sesi penyusuan?	□ _____ minit
B8	Bagaimanakah perasaan anda menyusu bayi anda?  1 2 3 4 5 Tidak suka Neutral Sangat suka	
B9	Adakah anda berasa sakit semasa menyusu dalam tempoh 2 minggu pertama?	□ Ya □ Tidak
B10	Menggunakan skala 1 hingga 10 , tandakan tahap kesakitan yang anda alami semasa menyusu dalam tempoh selepas bersalin:	

Skala	Tidak sakit ----------> Sakit paling tinggi									
Tahap kesakitan	1	2	3	4	5	6	7	8	9	10
Hari pertama										
Minggu pertama										

	Minggu kedua 	
B11	Pernakah anda mengalami masalah berikut semasa menyusu bayi anda dalam tempoh 2 minggu pertama? *Sila tandakan semua yang berkenaan:* ☐ Saya tidak ada masalah ☐ Bayi sukar untuk menghisap susu ibu ☐ Bayi tersedak ☐ Bayi tidak bangun untuk menyusu seperti biasa ☐ Bayi tidak berminat untuk menyusu ☐ Bayi tidak dapat menumpukan perhatian ☐ Bayi menyusu terlalu kerap ☐ Saya mengambil masa yang lama untuk megeluarkan susu ☐ Saya mengalami masalah untuk mengeluarkan susu ☐ Berat bayi tidak meningkat seperti biasa atau mengalami penurunan berat badan ☐ Saya tidak menghasilkan susu yang cukup ☐ Puting luka, mengelupas, atau berdarah ☐ Payudara terlebih penuh dengan susu ☐ Saya mengalami jangkitan yis pada payudara ☐ Saluran susu saya tersumbat ☐ Payudara bernanah ☐ Mengeluarkan susu terlebih banyak ☐ Saya ada masalah lain : _____	
B12	Berdasarkan masalah di atas, pernahkah anda **meminta bantuan** daripada pakar kesihatan (doktor/jururawat/laktasi kaunselor)?	☐ Ya ☐ Tidak
B13	Berdasarkan masalah di atas, pernahkah anda **menerima bantuan** daripada pakar kesihatan (doktor/jururawat/laktasi kaunselor)?	☐ Ya ☐ Tidak **(Ke soalan B15)**
B14	Adakah bantuan yang diterima membantu menyelesaikan atau mengurangkan masalah tersebut?  1 2 3 4 5 Tidak membantu ⟶ Sangat membantu	

B15	Adakah antara pihak berikut **sarankan anda berhenti menyusu**? *Tandakan semua yang berkenaan*	□ Bapa bayi □ Ibu saya □ Ibu mertua saya □ Nenek saya □ Saudara-mara □ Doktor atau pegawai kesihatan lain □ Majikan saya □ Tiada sesiapa

iv) Amalan semasa pemakanan/penyusuan bayi

B16	Adakah anda masih menyusu bayi anda?	□ Ya □ Tidak
B17	Bilakah anda mula memberi cecair selain susu ibu kepada bayi anda? *(sekiranya brekenaan)*	□ _____ Minggu **ATAU** _____ Bulan

B18 **Bilakah dan apakah kekerapan** makanan berikut diberi kepada bayi anda?

Contoh : _____ x (kali) per hari

ATAU

setiap _____ menit/jam

	Makanan / Umur	Kekerapan makan diberi dalam satu hari		
		≤ 1 bulan	1-4 bulan	> 4bulan
a)	Susu ibu			
b)	Susu formula			
c)	Susu lembu			
d)	Cecair lain: Susu soya, susu beras, susu kambing			
e)	Air kosong			
f)	Makanan pepejal: Bubur,bijiran, puri			

Bahagian C : Efikasi diri untuk menyusu ibu

Berikut adalah pernyataan yang menerang aktiviti penyusuan. Bulatkan nombor yang puan rasakan terbaik bagi menerangkan kepercayaan diri puan terhadap setiap pernyataan. **Tiada jawapan yang betul ataupun salah untuk setiap pernyataan.**

1	2	3	4	5
Langsung tidak yakin	**Tidak yakin**	**Kadang kala yakin**	**Yakin**	**Sangat yakin**

No	PERNYATAAN	Lansung Tidak Yakin ⟶ Sangat Yakin				
C1	Saya rasa saya akan sentiasa dapat memastikan bayi saya mendapat susu secukupnya.	1	2	3	4	5
C2	Saya rasa saya akan sentiasa mampu menyusui bayi saya, sama seperti saya melakukan tugasan mencabar yang lain.	1	2	3	4	5
C3	Saya rasa saya akan sentiasa dapat menyusui bayi saya tanpa perlu menambahkan susu formula.	1	2	3	4	5
C4	Saya rasa saya akan sentiasa dapat memastikan bayi saya boleh menyusu dengan cara yang betul, sepanjang tempoh penyusuan.	1	2	3	4	5

C5	Saya rasa saya akan sentiasa boleh menguruskan penyusuan susu ibu hingga mencapai kepuasan hati saya.	1	2	3	4	5
C6	Saya rasa saya akan sentiasa boleh menyusukan, walaupun semasa bayi saya menangis.	1	2	3	4	5
C7	Saya rasa saya akan sentiasa mahu menyusui bayi saya.	1	2	3	4	5
C8	Saya rasa saya akan sentiasa selesa menyusui bayi saya, walaupun dengan kehadiran ataupun di hadapan ahli keluarga yang lain.	1	2	3	4	5
C9	Saya rasa saya akan sentiasa berpuashati dengan pengalaman penyusuan saya.	1	2	3	4	5
C10	Saya rasa saya akan sentiasa boleh menerima hakikat bahawa proses penyusuan susu ibu akan mengambil masa yang lebih lama.	1	2	3	4	5
No	**PERNYATAAN**	**Lansung Tidak Yakin** →				**Sangat Yakin**
C11	Saya rasa saya akan sentiasa boleh menyusukan dengan sepenuhnya pada payudara yang sama, sebelum beralih ke payudara yang kedua.	1	2	3	4	5
C12	Saya rasa saya akan sentiasa boleh terus menyusui bayi saya tanpa halangan, pada setiap kali sesi penyusuan.	1	2	3	4	5
C13	Saya rasa saya akan sentiasa boleh menguruskan penyusuan pada setiap kali bayi saya minta disusukan.	1	2	3	4	5
C14	Saya rasa saya akan sentiasa dapat mengenal pasti bila waktunya bayi saya selesai dan puas menyusu	1	2	3	4	5

Bahagian D : Penjagaan ibu lepas bersalin semasa berpantang di rumah

Sila isi tempat kosong atau tandakan pada kotak yang disediakan untuk soalan berikut.

No	Pernyataan	Pilihan
D1	Di manakah anda mendapatkan rawatan tradisional selepas bersalin? *Tandakan semua yang berkenaan*	□ Rumah saya / keluarga □ Di rumah pengamal tradisional □ Di SPA / pusat kecantikan □ Di unit Perubatan Tradisional yang disediakan oleh hospital □ Lain-lain: _____
D2	Mengapakah anda mendapatkan rawatan tradisional selepas bersalin? *Tandakan semua yang berkenaan*	□ Keinginan sendiri □ Saranan keluarga / ibu / suami □ Saranan 144octor /jururawat □ Saranan rakan-rakan atau orang yang dikenali □ Kerana ia adalah amalan tradisional □ Lain-lain: _____
D3	Apakah jenis rawatan tradisional yang digunakan? *Tandakan semua yang berkenaan*	□ Pemakaian ramuan herba di wajah dan tubuh badan □ Pemakaian bengkung/barut □ Pengambilan ramuan herba/jamu □ Mengenakan wap / sauna ramuan herba atau akar kayu (bertangas) □ Urut □ Bertungku/bertuam □ Lain-lain: _____

D4	Sepanjang tempoh berpantang, berapa kali anda mendapatkan rawatan urut?	□ _____ kali *(sebagai contoh : 2 kali)*
D5	Bilakah rawatan urut **pertama** selepas bersalin dilakukan?	□ _____ minggu selepas bersalin *(sebagai contoh: 2 minggu selepas bersalin)*
D6	Berapakah kekerapan rawatan tersebut diberikan?	□ _____ kali per minggu **ATAU** _____ kali selama tempoh berpantang
D7	Siapakah **yang selalunya membantu** anda dalam menjalani rawatan tradisional selepas bersalin?	□ Pengamal tradisional □ Ibu / Suami atau keluarga saya □ Saya sendiri dengan/tanpa tunjuk ajar pengamal tradisional □ Lain-lain: _____
D8	Apa manfaat yang anda perolehi setelah menjalani rawatan tradisional selepas bersalin? *Tandakan semua yang berkenaan*	□ Kesakitan tubuh badan yang saya alami setelah melahirkan anak lebih cepat pulih □ Lebih cergas melakukan tugas rutin □ Saya lebih tenang □ Darah nifas saya lebih cepat berhenti □ Luka jahit cepat sembuh □ Membantu penyusuan susu ibu □ Lain-lain: _____
D9	Dalam skala 1 hingga 5, secara keseluruhannya, apakah perasaan anda terhadap amalan rawatan tradisional selepas bersalin?  1 2 3 4 5 Tidak suka Neutral Sangat suka	

Selama tempoh berpantang, adakah anda telah mengubah pemakanan anda? Tandakan (/) di dalam ruang yang tersedia.

	Kategori makanan	**Tiada perubahan**	**Makan lebih**	**Makan kurang**	**Dielakkan sepenuhnya**	**Sila nyatakan jenis makanan**
D10	**Susu** (susu segar / susu kambing)					

D11	**Produk Tenusu** (keju /mentega/ lainnya)					
D12	**Daging merah**(lembu / kambing/ lainnya)					
D13	**Ayam / Itik**					
D14	**Telur**					
D15	**Ikan**					
D16	**Makanan laut lainnya** (udang,kerang,sotong,etc)					
D17	**Ikan / Makanan Laut Kering** (ikan bilis, ikan masin, sotong kering, etc)					
D18	**Kekacang**					
D19	**Buah-buahan**					
D20	**Sayur-sayuran**					
D21	**Suplemen vitamin atau mineral**					
D22	**Minuman herba atau suplemen herba**					
D23	**Minuman beralkohol**					
D24	**Lain-lain :** _____					

Bahagian E: Sokongan sosial

Bulatkan nombor mengikut skala di bawah berdasarkan perasaan anda terhadap pernyataan-pernyataan berikut.

1	2	3	4	5	6	7
Tersangat tidak setuju	**Sangat tidak setuju**	**Tidak setuju**	**Berkecuali**	**Setuju**	**Sangat setuju**	**Tersangat setuju**

No	PERNYATAAN	SKALA						
E1	Ada seseorang yang istimewa bersama saya bila saya dalam keadaan yang memerlukan.	1	2	3	4	5	6	7
E2	Ada seseorang yang istimewa untuk saya berkongsi kegembiraan dan kesedihan.	1	2	3	4	5	6	7
E3	Keluarga saya cuba sedaya-upaya untuk menolong saya.	1	2	3	4	5	6	7
E4	Saya mendapat pertolongan dan sokongan emosi yang saya perlukan daripada keluarga.	1	2	3	4	5	6	7
E5	Saya mempunyai seseorang yang istimewa yang benar-benar membuat saya selesa.	1	2	3	4	5	6	7
E6	Kawan-kawan saya cuba sedaya-upaya untuk menolong saya.	1	2	3	4	5	6	7
E7	Saya boleh berharap kepada kawan-kawan saya apabila sesuatu hal yang tidak baik berlaku.	1	2	3	4	5	6	7
E8	Saya boleh bercerita tentang masalah saya dengan keluarga.	1	2	3	4	5	6	7
E9	Saya mempunyai kawan-kawan yang saya boleh berkongsi kegembiraan dan kesedihan.	1	2	3	4	5	6	7
E10	Ada seseorang yang istimewa dalam hidup saya yang mengambil berat tentang perasaan saya.	1	2	3	4	5	6	7
E11	Keluarga saya bersedia untuk menolong saya membuat keputusan.	1	2	3	4	5	6	7
E12	Saya boleh bercerita tentang masalah saya dengan kawan- kawan saya.	1	2	3	4	5	6	7

Bahagian F : Tekanan/Stress selepas bersalin

Soalan ini bertanyakan tentang perasaan dan fikiran anda **sepanjang masa 1 bulan yang lepas**. Sila baca setiap simptom dan dengan menggunakan skala yang diberi anggarkan sekerap mana anda terganggu dengan situasi berikut semenjak **1 bulan lepas termasuk hari ini**.

0	1	2	3	4
Tidak pernah	**Hampir tidak pernah**	**Kadang-kadang**	**Hampir selalu**	**Sangat selalu**

No.	Simptom kerisauan/ situasi/ perasaan	Skala				
F1	Dalam tempoh sebulan ini, berapa kerap anda kecewa disebabkan sesuatu itu berlaku tanpa anda jangka?	0	1	2	3	4
F2	Dalam tempoh sebulan ini, berapa kerap anda merasakan bahawa anda tidak boleh mengawal sesuatu perkara yang penting dalam hidup anda?	0	1	2	3	4
F3	Dalam tempoh sebulan ini, berapa kerap anda berasa gementar dan tertekan?	0	1	2	3	4
F4	Dalam tempoh sebulan ini, berapa kerap anda berasa yakin dengan kebolehan anda untuk mengurus masalah peribadi anda?	0	1	2	3	4
F5	Dalam tempoh sebulan ini, berapa kerap anda berasa bahawa perkara yang berlaku mengikut apa yang anda rancangkan?	0	1	2	3	4
F6	Dalam tempoh sebulan ini, berapa kerap anda dapati bahawa anda tidak boleh mengawal perasaan dengan semua perkara yang telah anda lakukan?	0	1	2	3	4
F7	Dalam tempoh sebulan ini, berapa kerap anda telah dapat mengawal ketidak selesaan dalam hidup anda?	0	1	2	3	4
F8	Dalam tempoh sebulan ini, berapa kerap anda berasa bahawa anda berjaya mengatasi semua masalah?	0	1	2	3	4
F9	Dalam tempoh sebulan ini, berapa kerap anda telah marah disebabkan perkara yang berlaku di luar kawalan anda?	0	1	2	3	4
F10	Dalam tempoh sebulan ini, berapa kerap anda berasa kesusahan yang melampau sehingga anda tidak dapat mengatasinya?	0	1	2	3	4

Bahagian G : Kebimbangan Selepas Bersalin

Senarai di bawah adalah pelbagai simptom kerisauan seseorang. Sila baca setiap simptom dan dengan menggunakan skala yang diberi anggarkan sebanyak mana anda terganggu dengan situasi berikut semenjak **beberapa minggu lepas termasuk hari ini**

0	1	2	3
Tak ada Langsung	**Sedikit sahaja**	**Sederhana**	**Sangat teruk**

No.	Simptom kerisauan/situasi/perasaan	Skala			
G1	Kebas atau rasa mencucuk	0	1	2	3
G2	Rasa panas	0	1	2	3
G3	Jalan terhuyung-hayang	0	1	2	3
G4	Sukar untuk bertenang	0	1	2	3
G5	Takut perkara amat buruk akan berlaku	0	1	2	3
G6	Bingung atau sedikit pening	0	1	2	3
G7	Hati berdebar-debar atau berdegup kencang	0	1	2	3
G8	Tak tetap	0	1	2	3
G9	Sangat takut	0	1	2	3
G10	Gelisah	0	1	2	3
G11	Rasa tercekik	0	1	2	3
G12	Tangan menggeletar	0	1	2	3
G13	Gementar	0	1	2	3
G14	Takut hilang kawalan	0	1	2	3
G15	Sukar untuk bernafas	0	1	2	3
G16	Takut mati	0	1	2	3
G17	Gentar	0	1	2	3
G18	Ketakcernaan dan ketidakselesaan	0	1	2	3
G19	Pengsan atau pitam	0	1	2	3
G20	Muka merah dan padam	0	1	2	3
G21	Berpeluh bukan kerana panas	0	1	2	3

Bahagian H : Kemurungan selepas bersalin

Kami ingin mengetahui perasaan anda dan keadaan anda pada **7 hari kebelakangan ini**. Sila bulatkan jawapan yang paling tepat menggambarkan keadaan diri anda.

Dalam 7 hari yang lalu:

H1	Saya berupaya untuk ketawa dan melihat kelucuan sesuatu perkara itu. □ Sebanyak mungkin □ Kurang daripada biasa □ Jarang sekali pada masa ini □ Tiada langsung
H2	Saya telah dapat melihat ke hadapan dengan perasaan gembira terhadap perkara yang bakal berlaku. □ Sebanyak mungkin seperti biasanya □ Kurang dari yang pernah saya biasa buat □ Jarang sekali pada masa ini □ Tidak pernah langsung
H3	Saya telah menyalahkan diri sendiri secara tidak sepatutnya apabila terjadi sesuatu yang buruk. □ Ya, kebanyakannya □ Ya, kadangkala □ Tidak, jarang sekali □ Tidak, tidak pernah
H4	Saya telah merasa bimbang dan runsing tanpa sebab-sebab yang munasabah. □ Tidak, tidak pernah □ Ya, jarang sekali □ Ya, kadangkala □ Ya, seringkali
H5	Saya telah merasa takut ataupun gugup tanpa sebab yang munasabah. □ Ya, kerapkali □ Ya, kadangkala □ Tidak, jarang sekali □ Tidak, tidak pernah
H6	Perkara-perkara telah membebankan fikiran saya. □ Ya, kebanyakan masa saya sama sekali tidak dapat mengatasinya □ Ya, kadangkala saya tidak dapat mengatasinya sebaik biasa □ Tidak, kebanyakan masa saya mampu mengatasi sebaik mungkin □ Tidak, saya telah dapat mengatasinya sebaik mungkin
H7	Saya telah merasa sungguh sedih sehingga saya mengalami kesukaran untuk tidur. □ Ya, kebanyakan masa □ Ya, kadangkala □ Tidak, jarang sekali

	☐ Tidak, tidak pernah
H8	Saya telah merasa sedih atau dukacita. ☐ Ya, kebanyakan masa ☐ Ya, agak kerap ☐ Tidak berapa kerap ☐ Tidak, tidak pernah
H9	Saya telah merasa begitu sedih sehingga saya menangis. ☐ Ya, kebanyakan masa ☐ Ya, agak kerap ☐ Cuma sekali sekala ☐ Tidak, tidak pernah
H10	Perasaan untuk mencederakan diri sendiri pernah terlintas di fikiran saya. ☐ Ya, kebanyakan masa ☐ Ya, agak kerap ☐ Cuma sekali sekala ☐ Tidak, tidak pernah

Bahagian I : Sosiodemografi Ibu

Sila isi tempat kosong atau tandakan pada kotak yang disediakan untuk soalan berikut.

No	Pernyataan	Pilihan
I1	Umur	_____ tahun
I2	Bangsa	□ Melayu □ Cina □ India □ Bumiputera □ Lain-lain: _____
I3	Status perkahwinan	□ Bujang □ Bujang, tetapi tinggal bersama pasangan □ Berkahwin □ Berpisah atau bercerai □ Balu
I4	Peringkat pengajian tinggi	□ Tiada pendidikan formal □ Sekolah rendah □ Sekolah menengah / Sijil □ Pra-Universiti / Diploma □ Bacelor Degree (Universiti) □ Postgrad (Siswazah)
I5	Pekerjaan	□ Sektor kerajaan □ Sektor swasta □ Bekerja Sendiri □ Suri rumah tangga □ Tidak bekerja
I6	Jumlah pendapatan isi rumah	□ < RM 3800 □ RM 3801 – 8300 □ RM 8301 – 12000 □ > RM 12000

Bahagian J : Faktor bayi

Sila isi tempat kosong atau tandakan pada kotak yang disediakan untuk soalan berikut.

iii) Status Kesihatan Bayi

No	Pernyataan	Pilihan
J1	Pernahkah bayi anda diwadkan atau dibawa ke hospital untuk prosedur pesakit luar atau pembedahan selepas pulang dari hospital selepas ibu bersalin ?	□ Ya □ Tidak → **(Ke soalan J3)**
J2	Berapa malamkah bayi anda telah diwadkan pada kali yang paling terkini?	□ _____ malam *tulis **0** jika bayi tidak diwadkan
J3	Bayi saya bebas daripada masalah kesihatan yang serius yang berjangka masa panjang	□ Ya □ Tidak → _____ (Mohon nyatakan masalah kesihatan bayi)
J4	Pernakah bayi anda dapati sakit kuning atau jaundis sejak kelahiran?	□ Ya → **(Ke soalan J5)** □ Tidak
J5	Apakah cara digunakan sebagai rawatan jaundis? *Tandakan semua yang berkenaan*	□ Susu formula diberi selain saya menyusu □ Saya berhenti menyusu ibu sebentar masa □ Saya berhenti dan tidak menyusu ibu lagi □ Bayi saya telah diletakkan di bawah lampu (fototerapi) □ Lain-lain: _____

-Terima Kasih-

To be filled by researcher

iv) Infant Characteristics

No	Statement	Options
J6	Gender	□ Male □ Female
J7	Date of Birth Today's date: _____	□ ___ / ___ / _____
J8	Gestational week at birth	□ _____ weeks
J9	Baby's condition at birth	□ Preterm / premature □ G6PD □ Jaundice □ Fetal distress □ Meconium stained liquor □ Prolonged / Premature ruptured of membrane □ Others: _____
J10	Apgar Score	□ _____ (1 min) □ _____ (5 min) □ _____ (__ min)

No	Measurement	Birth	1 Month	Latest Age : _____
	Date :			
J11	Infant's weight (kg)			
J12	Infant's length (cm)			
J13	Infant's head circumference (cm)			