THE RELATIONSHIP OF POSTNATAL DEPRESSION AND SELF ESTEEM WITH POSTPARTUM BONDING AMONG MALAY WOMEN IN KOTA BHARU

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LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURES

USM	Universiti Sains Malaysia
HUSM	Hospital Universiti Sains Malaysia
EPDS	Edinburgh Postnatal Depression Scale
PBQ	Postpartum Bonding Questionnaire
RSES	Rosenberg Self-esteem Scale

ABSTRAK

Pengenalan: Penyakit kemurungan selepas bersalin sangat biasa dijumpai di kalangan wanita yang baru melahirkan. Kadarnya berbeza mengikut lokaliti geografi, dengan purata kadar tertinggi dilihat pada minggu-minggu awal pasca kelahiran. Tardapat kajian mendapati kesan negatif penyakit ini terhadap hubungan antara ibu dan bayi.

Objektif: Kajian ini bertujuan untuk menilai kadar kemurungan selepas bersalin di kalangan wanita Malayu di Kota Bharu dan faktor-faktor yang berkait dengannya. Ia juga bertujuan untuk melihat perkaitan antara kemurungan selepas bersalin dan hubungan antara ibu dan bayi yang baru dilahirkan.

Kaedah: Kajian rentas ini melibatkan 276 ibu yang menghadiri temujanji di klinik-klinik kesihatan di sekitar Kota Bharu sekitar sebulan selepas melahirkan bayi mereka. Para peserta diberikan borang kaji selidik tentang diri mereka, borang Edinburgh Postnatal Depression Scale (EPDS) versi Melayu dan borang Postpartum Bonding Questionnaire (PBQ) versi Melayu. Data kemudiannya dianalisa.

Keputusan: Kadar kemurungan selepas bersalin didapati sebanyak 5.1 peratus. Kajian ini juga mendapati hubungkait antara kemurungan selepas bersalin dan hubungan antara ibu dan bayi. Ibu yang melahirkan melalui kaedah pembedahan dan yang mengalami stress juga didapati lebih cenderung untuk mendapat kemurungan selepas bersalin.

Kesimpulan: Kajian ini mengesahkan dapatan kajian terdahulu tentang hubungan antara kemurungan selepas bersalin dengan hubungan dengan bayi. Ibu-ibu yang didapati mempunyai risiko kemurungan ini perlu dikesan dan seterusnya dirawat seawal yang mungkin.

ABSTRACT

Background: Postnatal depression is the commonest postpartum mood disorders, and is associated with significant morbidities and mortalities. The prevalence varies with geographical regions, but observed to be highest during the early weeks after childbirth. Studies have observed the negative effect of postnatal depression on postpartum bonding.

Objective: The aim of the study is to determine the prevalence of postnatal depression among Malay women in Kota Bharu and its associated factors as well as to investigate the relationship between postnatal depression and postpartum bonding.

Methodology: A cross-sectional study was conducted among 276 mothers attending their first postpartum check-up at 6 health clinics in Kota Bharu. Participants were given questionnaires of sociodemographic profile, the Malay version Edinburgh Postnatal Depression Scale (EPDS) and the Malay version of Postpartum Bonding Questionnaire (PBQ). Data was analysed using correlation and multiple regression analysis.

Result: The prevalence of postnatal depression is 5.1 percent. The study also found positive correlation between postnatal depression and postpartum bonding ($r=0.364$, p-value=<0.001). Multiple regression analysis showed that mode of delivery (Caesarean section) and perceived stress as predictors for postnatal depression.

Conclusion: This study confirmed the result of previous studies on the inverse relationship between postnatal depression and postpartum bonding. Realizing how detrimental the effect of impaired bonding can be, mothers with the risks of developing postnatal depression should be screened and managed appropriately, at the earliest time possible.

CHAPTER 1: INTRODUCTION

1.1 Postnatal depression and postpartum bonding

Depression is a common mental illness worldwide, with possible serious consequences including suicide if left untreated. Major depressive disorder is characterized by a period of at least two weeks of low mood or loss of interest together with other depressive symptoms (1). Women, during their postnatal period are known to have higher risk of developing serious depression. Postnatal depression is defined as an episode of non-psychotic depression according to standardized diagnostic criteria with onset within 1 year of childbirth (2). Postnatal depression is the commonest among the three postpartum mood disorders (blues, depression and psychosis), with prevalence of up to 26 percent depending on the geographical regions (3).

The development of postnatal depression is proposed to be multifactorial, however researchers have identified lack of social support, marital conflict, prior history of depression, lack of breastfeeding and recent stressful life events to be among of the factors (4). Additionally, unemployment, low level of education, undesired pregnancy and caesarean delivery were also reported as factors associated with increased risk of developing postnatal depression (4,5).

Postnatal depression is known to have tremendous consequences specifically on the mother-infant relationship, child growth and development as well as on the child's behaviour. Mother-infant relationship has been studied as early as in 1980 by John Bowlby (2). The two most important concepts to understand the nature of this relationship are attachment and bonding. Attachment denotes the tie from the infant to his/her caregiver; an affectional bond that is persistent and not transitory in nature (6). Conversely, bonding denotes the tie from the caregiver to the infant and is described as a

unique and specific relationship between the two people (7). This mutual relationship engage both a maternal behavioural system for provision of care and a behavioural system in the infant that elicits parental care (8). Brockington further proposed that the development of this relationship is observed to be the most significant process after birth (9). This relationship is also important as it resulted in healthy behavioural, cognitive, social and interpersonal functioning, and is crucial to establish a secure base from which a young infant or child can begin to explore the outside world (2).

Impaired bonding is described by a lack of "maternal feeling", together with feelings of irritability, hostility, aggressive impulses, or rejection toward the infant (10). The long term detrimental consequences of impaired bonding on children's development have been discussed by many. These include learning and memory impairment, increased risk of developing mood disorder later in life and defect in language and emotional development (11,12).

Puerperium is known to be the time of particular vulnerability for women-many exhibit symptoms of emotional distress during this period. As puerperium was also suggested to be the 'critical period' during which contact with the baby might enhance a mother's relationship and bond with her baby (7)(13), any disturbances that resulted in the emotional perturbation and renders the mothers to be 'emotionally absent' during this period will therefore greatly affect this bonding process. One of the examples is affective illnesses like depression, which is known to negatively influence mother–infant interactions (14). Depressed mothers are observed to express more negative feelings towards their children than non-depressed mothers and depressed mothers are often described as being passive, withdrawn, unresponsive or intrusive towards their baby (15).

Realizing how detrimental the effect of postnatal depression on maternal bonding can be, many studies have focused in this area with the aim to ascertain the relationship between these two. Generally the studies found that postnatal depression is inversely correlated with postpartum bonding. One of the studies noted that the effect was most pronounced at 6 weeks, indicating that bonding at 6 weeks is most sensitive to maternal depressive symptoms (16). This observation also raised the issue of a 'sensitive period' and a 'window of opportunity' for mother-infant bonding in the first months of life (16). Another study while observing the same finding, also noted that mothers with postnatal depressive symptoms had more vulnerable situation; more amongst this group were poor, had low education, were exposed to violence and reported poor relationships with their partners (17), while another study proposed that low self-esteem and negative thought can be confounding factors in the relationship, as they can also independently resulted in impaired bonding (18).

1.2 Justification of study

To date there were no local studies investigating the link between postnatal depression and postpartum bonding. This is crucial as there might be local or cultural factors that may contribute in explaining the relationship. Furthermore, there is no study yet looking at the link between psychological factors such as self-esteem and postpartum bonding. This is also important as discussed in one of the studies that such factors can give confounding effect on the association of depressive symptoms and postpartum bonding. As many of the causative factors that can contribute to impair postpartum bonding such as maternal health and psychological factors are reversible, the result of this

study is hoped to help in better understand the association and give insight on how to plan for any interventions in the future.

1.3 Objectives

1.3.1 General Objectives

This study intends to investigate the association of posnatal depression, self-esteem and postpartum bonding among Malay women in Kota Bharu, Kelantan

1.3.2 Specific objectives

1. To determine the prevalence of Postnatal Depression in Malay population
2. To determine factors associated with Postnatal Depression
3. To investigate the association of Postnatal Depression, Self-Esteem and Postpartum Bonding

    3(a). To investigate the association between postnatal depression and postpartum bonding

    3(b). To investigate the association between self-esteem and postpartum bonding

References

1. Association AP. Diagnostic and Statistical Manual of Manual of Mental Disorders DSM 5. 2013.

2. Stewart DE, Robertson E, Dennis Ci-L, Grace SL, Wellington T. Postpartum Depression: Literature Review of Risk factors and Interventions. 2003.

3. Shorey S, Yin C, Chee I, Debby E, Huak Y, Wai W, et al. Prevalence and incidence of postpartum depression among healthy mothers : A systematic review and meta-analysis. J Psychiatr Res [Internet]. 2018;104(August):235–48. Available from: https://doi.org/10.1016/j.jpsychires.2018.08.001

4. Seif R, Nasr A, Altharwi K, Derbah MS, Gharibo SO, Fallatah SA, et al. Prevalence and predictors of postpartum depression in Riyadh , Saudi Arabia : A cross sectional study. PLoS One. 2020;1–13.

5. Xie R-H, Lei J, Wang S, Xie H, Walker M, Wen SW. Cesarean Section and Postpartum Depression in a Cohort of Chinese Women with a High. J Women's Heal. 2011;20(12).

6. Ainsworth MD, Blehar MC, Waters E WS. Patterns of attachment. A psychological study of the strange situation. Erlbaum, Hilldale; 1978.

7. Klaus MH, Kennell JH KP. Bonding: building the foundations of secure attachment and independence. Addison Wesley, New York; 1995.

8. Sullivan R, Perry R, Sloan A, Kleinhaus K, Burtchen N. Infant Bonding and Attachment t o t h e C a re g i v e r : I n s i g h t s f ro m B a s i c and Clinical Science Attachment Premature infants Odor Sensitive period. 2011;38:643–55.

9. Brockington IF, Fraser C, Wilson D. Original contribution The Postpartum

Bonding Questionnaire : a validation. Arch Womens Ment Health. 2006;9:233–42.

10. Brockington IF, Oates J, George S, Turner D, Vostanis P, Sullivan M, et al. Original contribution A Screening Questionnaire for mother-infant bonding disorders. 2001;133–40.

11. Teicher MH. Wounds That Time Won't Heal: The Neurobiology of Child Abuse. Cerebrumxa. 2000;2.

12. Winston R, Chicot R. The importance of early bonding on the long-term mental health and resilience of children. 2016;1472(April):11–4.

13. Kennell JH, Klaus MH. Mother-Infant Bonding : Weighing the Evidence. 1984;282:275–82.

14. Reck C, Hunt A, Fuchs T, Weiss R, Noon A, Moehler E, Downing G, Tronick EZ MC. Interactive regulation of affect in postpartum depressed mothers and their infants: an overview. Psychopathology. 2004;37(6):272–80.

15. FIeld T. Postpartum depression effects on early interactions, parenting, and safety practices: a review. Infant Behav Dev. 2010;33(1):1–6.

16. Moehler E, Brunner R, Wiebel A, Reck C, Resch F. Maternal depressive symptoms in the postnatal period are associated with long-term impairment of mother – child bonding. Arch Women's Ment. 2006;9:273–8.

17. Edhborg M, Nasreen H. Impact of postpartum depressive and anxiety symptoms on mothers ' emotional tie to their infants 2 – 3 months postpartum : a population-based study from rural Bangladesh. 2011;(May).

18. Dubber S, Reck C, Müller M, Gawlik S. Postpartum bonding: the role of

perinatal depression, anxiety and maternal–fetal bonding during pregnancy. Arch Womens Ment Health. 2015;18(2):187–95.

19. Brody S. The Concepts of Attachment and Bonding. J Am Psychoanal Assoc. 1981;29(4):815–29.

20. Carter CS KE. The nurobiology of social affliation and pair bonding. In: Hormones, brain and behaviour. 2002. p. 299–337.

21. BD P. Childhood experience and the expression of genetic potential: what childhood neglect tells us about nature and nuture. Brain Mind. 2002;3:79–100.

22. Wittkowski A, Wieck A, Mann S. An evaluation of two bonding questionnaires : A comparison of the Mother- to-Infant Bonding Scale with the Postpartum Bonding Questionnaire in a sample of primiparous mothers Original contribution An evaluation of two bonding questionnaires : a comparison of the Mother-to-Infant Bonding Scale with the Postpartum Bonding Questionnaire in a sample of primiparous mothers. 2015;(February 2007).

23. Taylor A, Atkins R, Kumar R, Adams D, Glover V. Original contribution A new Mother-to-Infant Bonding Scale : links with early maternal mood. 2005;45–51.

24. Edhborg M, Lundh W. Original contribution Some early indicators for depressive symptoms and bonding 2 months postpartum – a study of new mothers and fathers. 2005;221–31.

25. Reck C, Zietlow A, Müller M, Dubber S. Perceived parenting stress in the course of postpartum depression : the buffering effect of maternal bonding. Arch Womens Ment Health. 2016;19:473–82.

26. Kadir AA, Nordin R Bin. Validation of the Malay Version of Edinburgh

Postnatal Depression Scale for Postnatal Women in Kelantan , Malaysia. Asia Pac Fam Med. 2004;3(December 2015):9–18.

27. Ghahremani S, Ghahremani S, Rakhshanizadeh F, Ghazanfarpour M. Factorial Structures of Postpartum Bonding Questionnaire (PBQ): A Factorial Structures of Postpartum Bonding Questionnaire (PBQ): A Systematic Review. Int J Pedaitrics. 2019;7(January):9295–303.

28. Bussel JCH Van, Spitz B. Three self-report questionnaires of the early mother-to-infant bond : reliability and validity of the Dutch version of the MPAS , PBQ and MIBS. Arch Womens Ment Health. 2010;13:373–84.

29. Depression [Internet]. World Health Organization. 2020 [cited 2020 Dec 23]. Available from: https://www.who.int/news-room/fact-sheets/detail/depression

30. Dadi AF, Miller ER, Mwanri L. Postnatal depression and its association with adverse infant health outcomes in low- and middle-income countries : a systematic review and meta-analysis. Biomed Cent. 2020;20(416):1–15.

31. Abdollahi F, Zarghami M, Md Zain A, Shariff Ghazali S, Lye MS. Predictors and incidence of post-partum depression: A longitudinal cohort study. J Obstet Gynaecol Res. 2014;40(12):2192–200.

32. Ahmad NA, Silim UA, Rosman A, Mohamed M, Chan YY, Kasim NM, et al. Postnatal depression and intimate partner violence : a nationwide clinic- based cross-sectional study in Malaysia. Br Med J. 2018;8(e020649).

33. Norhayati MN, Hazlina NHN, Asrenee AR, Emilin WMAW. Magnitude and risk factors for postpartum symptoms : A literature review Magnitude and risk factors for postpartum symptoms : A literature review. J Affect Disord [Internet].

2014;175(December):34–52. Available from: http://dx.doi.org/10.1016/j.jad.2014.12.041

34. Azidah AK, Shaiful BI, Rush N, Jamil MY. Postnatal Depression and Socio-Cultural Practices Among Postnatal Mothers in Kota Bahru , Kelantan , Malaysia. 2006;61(1):76–83.

35. National Health and Morbidity Survey 2016: Maternal and Child Health. 2016.

36. Mohamad Yusuff AS. Breastfeeding and postnatal depression in Sabah, Malaysia. Curtin University; 2013.

37. Roshaidai S, Arifin M, Cheyne H, Maxwell M. Review of the prevalence of postnatal depression across cultures. AIMS Public Heal. 2018;5(July):260–95.

38. Moameri H, Ostadghaderi M, Khatooni E, Doosti-irani A. Association of postpartum depression and cesarean section : A systematic review and meta-analysis. Clin Epidemiol Glob Heal [Internet]. 2019;7(3):471–80. Available from: https://doi.org/10.1016/j.cegh.2019.02.009

39. Xu H, Ding Y, Ma Y, Xin X, Zhang D. Cesarean section and risk of postpartum depression : A meta-analysis. J Psychosom Res [Internet]. 2017;97(January):118–26. Available from: http://dx.doi.org/10.1016/j.jpsychores.2017.04.016

40. Uvnäs-moberg K, Ekström-bergström A, Berg M, Buckley S, Pajalic Z. Maternal plasma levels of oxytocin during physiological childbirth – a systematic review with implications for uterine contractions and central actions of oxytocin. Biomed Cent. 2019;9:1–17.

41. Desborough JP. The stress response to trauma and surgery. Br J Anaesth.

2000;85:109–17.

42. Ghaedrahmati M, Kazemi A, Bahrami M. Postpartum depression risk factors: a narrative review. J Educ Health Promot. 2017;6(60).

43. Scheyer K, Jr GGU. Altered stress patterns and increased risk for postpartum depression among low-income pregnant women. Arch Womens Ment Health. 2016;19(2):317–28.

44. Alhasanat D, Fry-McComish J, Yarandi HN. Risk For Postpartum Depression Among Immigrant Arabic Women in the United States: A Feasibility Study. J Midwifery Women's Heal. 2017;00:1–7.

45. Ohoka H, Koide T, Goto S, Murase S, Kanai A, Aleksic B, et al. Effects of maternal depressive symptomatology duringpregnancy and the postpartum period oninfant–mother attachment. Psychiatry Clin Neurosci. 2014;68(631–639).

46. Ohara M, Okada T, Kubota C, Nakamura Y, Shiino T, Alaksic B, et al. Relationship between maternal depression and bondingfailure: A prospective cohort study of pregn ant women. Psychiatry Clin Neurosci. 2017;71:733–41.

47. Ohara M, Okada T, Aleksic B, Morikawa M, Kubota C. Social support helps protect against perinatal bonding failure and depression among mothers : a prospective cohort study. Sci Rep [Internet]. 2017;7(9546):1–8. Available from: http://dx.doi.org/10.1038/s41598-017-08768-3

48. Afolabi O, Bunce L, Lusher J, Banbury S, Afolabi O, Bunce L, et al. Postnatal depression , maternal – infant bonding and social support : a cross-cultural comparison of Nigerian and British mothers Postnatal depression , maternal – infant bonding and social support : a. J Ment Heal. 2020;29(4):424–30.

49. Id JM, Townsend ML, Id JSH. A systemic review of maternal wellbeing and its relationship with maternal fetal attachment and early postpartum bonding. PLoS One. 2019;14(July).

50. Cohn JF, Matias R, Tronick EZ, Connell D, Lyons-Ruth D. Face-to-face interactions of depressed mothers and their infants. Dev Psychol. 1990;26:15–23.

51. Murray L, Fiori-cowley A, Hooper R, Cooper P, Murray L, Fiori-cowley A, et al. The Impact of Postnatal Depression and Associated Adversity on Early Mother-Infant Interactions and Later Infant Outcome. Soc Res Child Dev. 2016;67(5):2512–26.

CHAPTER 2: STUDY PROTOCOL

2.1 Introduction and Study Background

The two social adaptation concepts in infancy that have been discussed immensely by experts in the field are attachment and bonding. Attachment denotes the tie from the infant to his/her caregiver; an affectional bond that is persistent and not transitory in nature (6). Conversely, bonding denotes the tie from the caregiver to the infant and is described as a unique and specific relationship between the two people (7). This mutual relationship engage both a maternal behavioural system for provision of care and a behavioural system in the infant that elicits parental care (8). Brockington further proposed that the development of this relationship is observed to be the most significant process after birth (10)

In their attempt to further understand the concept of bonding, Klaus and Kennell observed a cohort of infants who suffered from birth complications and neonatal illnesses requiring them to be separated from their mothers (19). Many of these infants developed failure to thrive. Klaus and Kennell suggested that this is due to the lack of bonding between the infants and their mothers resulting from the separation. Therefore they viewed that close sensory contact with the mother's body as soon after delivery as possible might promote the emotional bond necessary for the mother's satisfaction and her care of the infant, and for optimal development of the infant (7). This opinion is also supported by Carter and Keverne, as they proposed that biologically, maternal bonding functions to secure the nurturing, protection and thus the survival of the child (20).

Impaired bonding is described by a lack of “maternal feeling”, together with feelings of irritability, hostility, aggressive impulses, or rejection toward the infant (10). The long term detrimental consequences of impaired bonding on children’s development had been

discussed by many. Teicher reported that children who suffered neglect in their early years have increased risk for depression, anxiety disorders as well as learning and memory impairment (11). He also described that diminished maternal attention is associated with a lifelong decrease in production of the hormone oxytocin; a critical factor in affiliative love and maintaining monogamous relationships (11). In the same way, longitudinal studies have reported that a child's ability to form and maintain healthy relationships throughout life may be significantly impaired by having an insecure attachment to a primary caregiver (21). Also there were documented case studies of 'feral' children who have survived with minimal human contact- they were observed to show severe lack of language and emotional development in the absence of love, language and attention among them (12).

Puerperium is known to be the time of particular vulnerability for women-many exhibit symptoms of emotional distress during this period. As puerperium was also suggested to be the 'critical period' during which contact with the baby might enhance a mother's relationship and bond with her baby (7),(13), any disturbances that resulted in the emotional perturbation and renders the mothers to be 'emotionally absent' during this period will therefore greatly affect this bonding process. One of the examples is affective illnesses like depression, which is known to negatively influence mother–infant interactions. Depressed mothers are observed to express more negative feelings towards their children than non-depressed mothers (14) and depressed mothers are often described as being passive, withdrawn, unresponsive or intrusive towards their baby(15).

2.2 Literature Review

It is not surprising therefore that many researches have focused on studying postpartum bonding particularly in the context of postnatal depression. Traditionally

assessment of bonding involved observational methods but these are time consuming and not suited for screening in clinical practice (22). More recently screening tools to detect bonding problems in obstetric and primary care services have been developed. The Postpartum Bonding Questionnaire (PBQ) are the most widely used assessment tool compared to the more recent Mother-to-Infant Bonding Scale (MIBS). PBQ is a 25 items self-rated questionnaire developed by Brockington in 2001 and has been translated to many languages worldwide, while MIBS devised by Taylor in 2005 is an 8 items rating scale asking the mother one-word descriptors of possible emotions towards her new child (10),(23). A comparison study done to examine the psychometric properties of these two questionnaires found that both generally have good validity and reliability (22) and are suitable for use with the general population.

There were several longitudinal studies investigating the link between postnatal depression and postpartum bonding. In 2004 Edhborg studied correlation between the early postpartum circumstances factors namely previous depressive symptoms, negative life events during the year before delivery, mode of delivery, breastfeeding, parental blues, bonding and the parents' perception of their child's temperament with postpartum depressive symptoms. The study was conducted at Hospital Maternity Clinic in Stockholm. 106 postpartum mothers and their partners were assessed at two points of time; Day 7 and 2 months postpartum. Edhborg found that at one week period, impaired bonding showed negative relation to the EPDS score (↑ PBQ score ↓ EPDS score), while at 2 months the relation is positive (↑ PBQ score ↑ EPDS score). He argued that early problems in bonding are often caused by circumstances surrounding births, while at two months period they are more likely to be caused by the depressed parents themselves (24). He also found that non-depressed fathers could diminish the negative consequences of maternal depressive symptoms for an infant. Thus having a good partner's support could

also influence and buffer the negative effect of maternal depression on the maternal bonding (24). Lastly Edhborg suggests that breastfeeding can promote maternal bonding as he observed that fathers scored higher on PBQ at two months period compared to the mothers (24).

In 2006 Moehler conducted a similar study where he recruited 101 voluntary participants from four major local obstetric units in German. The aim is to see if even subclinical levels of Postnatal Depression are associated with impaired maternal bonding. Maternal general psychopathology, depressive symptoms and postpartum bonding was measured at two weeks, 6 weeks, four months and fourteen months postnatal age using Symptom Checklist (SCL-90R), Edinburgh Postnatal Depression Scale (EPDS) and PBQ respectively. This study found that maternal depressive symptoms at 2 weeks, 4 weeks and 4 months postpartum were strongly associated with the child's bonding- the effect was most pronounced at 6 weeks, indicating that bonding at 6 weeks is most sensitive to maternal depressive symptoms. This observation also raised the issue of a 'sensitive period' and a 'window of opportunity' for mother-infant bonding in the first months of life. There was also no concurrent effect of maternal depressive symptoms on maternal bonding at 14 months- Moehler suggests that this could be due to the fact that an already firmly established mother–child bond in the second year of life is much more resistant towards an influence of maternal mental state. However the observation that depressive symptoms in the early postnatal period influence maternal bonding almost a year later help significantly to the understanding of developmental impairments seen up to 8 years after maternal depression (16).

In 2011 Edhborg conducted another study with one of the objectives is to investigate the impact of depressive symptoms on maternal bonding to the infant 2–3 months postpartum. This is a community-based longitudinal cohort study carried out in rural

Bangladesh. 672 participants were assessed using EPDS, State Anxiety Inventory (SAI) and PBQ at 2-3 months postpartum. Edhborg found out that maternal depressive symptoms 2–3 months postpartum showed a negative impact on the mother's emotional bonding to the infant. However they also observed that compared with the non-depressed mothers, mothers with depressive symptoms postpartum had a more vulnerable situation; more amongst this group were poor, had low education, were exposed to violence and reported poor relationships with their partners. They also observed that the mean values of PBQ total score in non-depressed Bangladeshi women were higher than that reported by Reck et al. (2004) in German non-depressed women. There are a couple of demographic factors that have contributed to this differences. First is that women in Edhborg's study were much poorer compared to in Reck's study. Secondly, the number of stillborn and child deaths within 48 h after birth were also higher than in high-income countries. Therefore the delayed and low bonding at 2–3 months postpartum could be due to the mothers' vulnerable and difficult economic situation and perhaps a fear to bond to the infant before it is relatively certain that the infant will survive. Interestingly, Edhborg found that maternal anxiety symptoms were positively associated to the mother's emotional bonding to the infant 2–3 months postpartum (17).

Another study that specifically looked at the relationship of both maternal depression and anxiety with emotional bonding was conducted by Dubber et al in 2014. Samples were recruited at the Heidelberg University Women's Hospital and were as part of the Heidelberg Peripartum Study between January 2007 and January 2010. This longitudinal study used EPDS, State-Trait Anxiety Inventory (STAI), Maternal Fetal Attachment Scale (MFAS) and PBQ at two time points; at 32 weeks gestation and 3 months postpartum. Dubber found two factors significantly correlated with postpartum bonding; maternal fetal bonding and maternal depressive symptoms. Interestingly this study also

observed a negative correlations between high levels of maternal education and postnatal anxiety with the mother's emotional bonding in the postpartum period. However one of the limitations described by the author is the possibility of confounding effects on the association of depressive symptoms and postpartum bonding, such as low self-esteem and negative thoughts among the depressed mothers (18). This is because it is known that depressed mothers often rate themselves as worse parents than they really are due to symptoms of low self-esteem and negative thoughts.

In 2016 Reck conducted a study to investigate the link between maternal bonding and parenting stress in the course of postpartum depression. 32 healthy controls and 31 mothers with postpartum depression were asked to complete the PBQ and Parenting Stress Index (PSI) during acute depression and remission. The study conclude that acute depression contributes to parental stress and postpartum bonding (25).

2.3 Research Gap

The significant impact of postnatal depression on postpartum bonding has been demonstrated by a number of studies as discussed above. However, as to date there were no local studies investigating the link between postnatal depression and postpartum bonding. This is crucial as there might be local or cultural factors that may contribute in explaining the relationship. Furthermore, there is no study yet looking at the link between psychological factors such as self-esteem and postpartum bonding. This is also important as discussed in one of the studies that such factors can give confounding effect on the association of depressive symptoms and postpartum bonding.

2.4 Rationale of Study

Many of the causative factors that can contribute to impaired postpartum bonding such as maternal health and psychological factors are reversible. Therefore, studying the link between these factors will help us to better understand the association and give us insight on how to plan for any interventions in the future.

2.5 Research Title and Objectives

2.5.1 Research Title

The Relationship of Postnatal Depression and Self Esteem with Postpartum Bonding among Malay Women in Kota Bharu

2.5.2 General Objectives

This study intends to investigate the association of Postnatal Depression, Self-Esteem and Postpartum Bonding

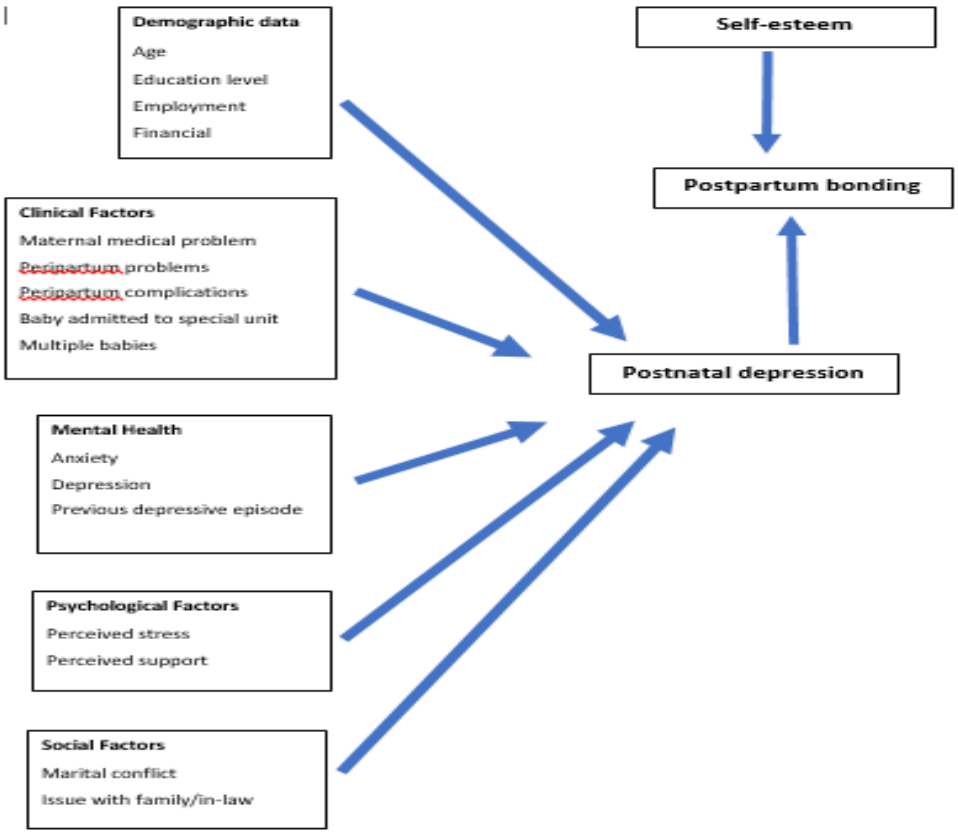
2.5.3 Specific Objectives

1. To determine the prevalence of Postnatal Depression in Malay population
2. To determine factors associated with Postnatal Depression
3. To investigate the association of Postnatal Depression, Self-Esteem and Postpartum Bonding

    3(a). To investigate the association between postnatal depression and postpartum bonding

    3(b). To investigate the association between self-esteem and postpartum bonding

2.6 Conceptual Framework



2.7 Methodology

2.7.1 Study Design

This is a cross-sectional study among postpartum Malay Women in Kelantan, specifically in Kota Bharu.

2.7.2 Study Period

This study starts in November 2019 until May 2021 in which the duration will cover the overall timeline for this research, starting from the project initiation until final thesis submission. The timeline will be presented using Gantt chart as presented below.

2.7.3 Study Location