FEAR OF CHILDBIRTH AMONG PREGNANT MOTHERS AT HOSPITAL USM, KELANTAN

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SCHOOL OF HEALTH SCIENCES
UNIVERSITI SAINS MALAYSIA

2023

FEAR OF CHILDBIRTH AMONG PREGNANT MOTHERS AT HOSPITAL USM, KELANTAN

by

ONG YI YI

Dissertation submitted in partial fulfilment of the requirements for the degree of Bachelor in Nursing (Honours)

July 2023

ACKNOWLEDGEMENT

First and foremost, I would like to express my heartfelt gratitude to my supervisor, Associate Professor Dr Soon Lean Keng and Dr Azlina Yusuf, for their supervision, advice and support, as well as for devoting their time while undertaking the final year project (FYP). Their invaluable advice and guidance helped me during this dissertation's research and writing. Besides, I would also like to thank all the lecturers involved for providing professional advice and mental support throughout the FYP. Your kind guidance and many constructive suggestions have greatly improved and enhanced the FYP. Furthermore, every lecturer's advisory role play is very much valued.

Next, I'd like to thank Dr Tan Beng Geok and Puan Hasni Embong for their assistance in validating my questionnaire. Furthermore, thank you to Pusat Pengajian Bahasa, Literasi dan Terjemahan Universiti Sains Malaysia, for translating the questionnaire from English to Bahasa Malaysia. Their assistance improved the validity of the questionnaire. Apart from that, I earnestly acknowledge the Director of Hospital USM for allowing this study to be conducted in the obstetrics clinic at Hospital USM.

Not to forget the support from my beloved parents and family members in providing mental and financial support throughout my study. In addition, I am fortunate to have my helpful roommate, Yeap Yisyen, for lending me a helping hand and cheering me up whenever I need assistance and encouragement.

Lastly, my appreciation also goes to those directly or indirectly involved in the FYP. This FYP is made possible with the support and encouragement of everyone.

Thank you.

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LIST OF ABBREVIATIONS

CFQ	-	Childbirth Fear Questionnaire
DSM-IV	-	Diagnostic and Statistical Manual of Mental Disorders, 4th edition
FOB	-	Fear of Birth
FOC	-	Fear of Childbirth
Hospital USM	-	Hospital Universiti Sains Malaysia
IPV	-	Intimate Partner Violence
MRCS	-	Maternal Request Caesarean Section
NOR	-	National Obstetrics Registry
O & G	-	Obstetrics and Gynaecology
SVD	-	Spontaneous Vaginal Delivery
PTSD	-	Post-Traumatic Stress Disorder
USM	-	Universiti Sains Malaysia
VBAC	-	Vaginal Birth after Caesarean Section
WHO	-	World Health Organisation

KETAKUTAN UNTUK BERSALIN DALAM KALANGAN IBU HAMIL DI HOSPITAL USM, KELANTAN

ABSTRAK

Ketakutan bersalin (FOC) boleh memberi kesan teruk kepada kesihatan mental wanita sepanjang kehamilan dan pengalaman kelahirannya. Walau bagaimanapun, sejauh mana bersalin mengubah trajektori FOC kurang diteliti di Malaysia. Kajian ini bertujuan untuk menentukan FOC dan faktor risiko dalam kohort ibu bersalin di hospital pengajar tertiar di Timur Laut Semenanjung Malaysia. Kajian keratan rentas telah dijalankan dalam kalangan 243 ibu bersalin yang direkruit melalui pendekatan persampelan bertujuan dari Februari 2023 hingga Mac 2023. Soal Selidik Ketakutan Bersalin (CFQ) dan data sosiodemografi digunakan untuk mengumpul data, dan nilai $p < 0.05$ telah dipertimbangkan signifikan secara statistik. Purata umur peserta ialah 31.23 tahun (SD = 4.980), dan purata umur kehamilan semasa enrolmen ialah 33.51 minggu (SD = 5.967). Empat puluh sembilan (20.2%) peserta melaporkan FOC rendah hingga ringan. Purata skor FOC ialah 2.34 (SD = 0.564), dan masing-masing 38.3% dan 11.1% melaporkan FOC sederhana hingga teruk. Ujian khi kuasa dua Pearson menunjukkan signifikan secara statistik dalam kumpulan umur dengan FOC ($p = 0.044$), manakala ujian Fisher mendedahkan bahawa gangguan FOC dikaitkan secara signifikan dengan umur ($p = 0.008$) dan pariti ($p = 0.019$). Hampir separuh daripada ibu bersalin didapati mempunyai FOC sederhana hingga teruk, dan dikaitkan dengan umur. Di samping itu, umur dan pariti dikenal pasti sebagai berkaitan dengan gangguan FOC. Oleh itu, pendidikan dan intervensi yang disesuaikan diperlukan dari penggubal dasar dan profesional penjagaan kesihatan untuk mengurangkan FOC dan kesan kepada kesihatan mental ibu.

FEAR OF CHILDBIRTH AMONG PREGNANT MOTHERS AT HOSPITAL USM, KELANTAN

ABSTRACT

Fear of childbirth (FOC) can severely impact a woman's mental health throughout pregnancy and her birth experience. However, the extent to which childbirth alters the trajectory of FOC is under researched in Malaysia. This study aimed to determine the FOC and risk factors in a cohort of birthing mothers at a tertiary teaching hospital in northeast peninsular Malaysia. A cross-sectional study was conducted among 243 birthing mothers recruited via a purposive sampling approach from February 2023 to March 2023. The Childbirth Fear Questionnaire (CFQ) and socio-demographic data were used to collect data, and a *p*-value < 0.05 was considered statistically significant. The mean age of the participants was 31.23 years (SD = 4.980), and the mean gestational age at enrolment was 33.51 weeks (SD = 5.967). Forty-nine (20.2%) participants reported low to mild FOC. The mean FOC score was 2.34 (SD = 0.564), and 38.3% and 11.1% reported moderate to severe FOC, respectively. Pearson's chi-square test showed statistical significance in the age group with FOC ($p = 0.044$), while Fisher's test revealed that FOC interference was significantly associated with age ($p = 0.008$) and parity ($p = 0.019$). Almost half of the birthing mothers were found to be moderate to severe FOC, respectively, and associated with age. In addition, age and parity were identified as associated with FOC interference. Therefore, tailored education and interventions are needed from healthcare policymakers and professionals to decrease childbirth fear and its mental health repercussions of mothers.

CHAPTER 1
INTRODUCTION

1.1 Introduction

Fear of childbirth (FOC), a psychological disorder specific to giving birth (Deng et al., 2021), is a combination of feelings ranging from joy and satisfaction to anxiety and horror (Wigert et al., 2020). FOC can have a significant impact on a woman's psychological well-being during her pregnancy as well as her birth experience (Slade et al., 2021). When the negative feelings take over and intensify, FOC might develop. Hence, poses a challenge to pregnant mothers to often request a Caesarean section as the most favourable delivery method (Serçekuş et al., 2020). This thesis presents a cross-sectional study determining the FOC level and association between FOC level and FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital Universiti Sains Malaysia (Hospital USM), Kelantan.

1.2 Background of the Study

Severe FOC causes anxiety and suffering during pregnancy, and it may interfere with maternal-infant bonding and the rate of maternal requests for Caesarean section (MRCS). According to Human Reproductive Health (2021), the upsurge in Caesarean sections was 21%. Parallel to the Human Reproductive Health (2021), the World Health Organization (WHO) forecast that Caesarean sections on maternal requests will dramatically rise to 29% by 2030. In addition, studies have shown that FOC is known to rise for MRCS (Suwanrath et al., 2021; Eide et al., 2019; Handelzalts et al., 2012; Fuglenes et al., 2011; Nieminen et al., 2009; Mahajan, 2007).

A study by Sutan (2018) in Kuala Lumpur, Malaysia, reported that 59.5% of pre-marital women preferred medical intervention delivery, whereas 40.5% preferred natural

childbirth. The National Obstetrics Registry (NOR) Malaysia reported a concern regarding increasing Caesarean section rates to 23% in 5 years, from 2011 to 2015 (Karalasingam et al., 2020), which is higher than World Health Organization (WHO) threshold. In clinical situations, obstetricians only discuss MRCS but leave the FOC unaddressed, while fearful pregnant mothers are left without appropriate attention (Bewley & Cockburn, 2002).

1.3 Problem Statement

FOC influences women's preferences over Caesarean section (Winter, 2018; Stoll et al., 2015; Størksen et al., 2015; Aksoy et al., 2014; Handelzalts et al., 2012; Nieminen et al., 2009). Furthermore, the birth of a newborn is commonly seen as one of the most spectacular moments of life and a psychological maturing process that arouses deep internal changes associated with childbirth fear (Dencker et al., 2019; Størksen et al., 2015; Toohill et al., 2014; Körükcü et al., 2010). However, the content of childbirth fear differs between countries due to different social-cultural contexts (Slade et al., 2021; Nilsson et al., 2018; Lukasse et al., 2014).

Professor Lazarus' hypothesis of fear adaptation (Lazarus & Folkman, 1984) was used to inform this study. According to Zar et al. (2001), the link between fear of childbirth and general fear theories was noted among 162 pregnant mothers. In gestational week 32, women in the low level of fear of childbirth group had lower trait fear than those in the moderate level. In contrast, nulliparous women had a higher level of fear but a lower level of trait fear than parous women. Their findings suggest that FOC comprises a considerable part of trait fear, with the risk of a vicious cycle. Therefore, this study was guided by fear adaptation to determine the FOC level and association between FOC level and FOC interference with socio-demographic and obstetrics characteristics among

pregnant mothers at Hospital USM, Kelantan.

1.4 Research Questions

Generating research questions is important as the research question gives focus, sets boundaries, and provides direction. For this research study, the following research questions serve as a direction to achieving the study's objectives:

i. What is the FOC level among pregnant mothers at Hospital USM, Kelantan?
ii. Is there any association between FOC level with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan?
iii. Is there any association between FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan?

1.5 Research Objectives

Research objectives describe concisely what the research intends to achieve.

1.5.1 General Objective

The general objective of this study is to determine the fear of childbirth (FOC) among pregnant mothers at Hospital USM, Kelantan.

1.5.2 Specific Objectives

i. To determine the FOC level among pregnant mothers at Hospital USM, Kelantan.
ii. To determine the association between FOC level with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan.
iii. To determine the association between FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan.

1.6 Research Hypotheses

A research hypothesis is a statement of expectation or prediction that research will test. Following are the alternative and null research hypotheses of this study:

Hypothesis 1 : There is a significant association between FOC level with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan. (H_A)

: There is no significant association between FOC level with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan. (H_0)

Hypothesis 2 : There is a significant association between FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan. (H_A)

There is no significant association between FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan. (H_0)

1.7 Significance of the Study

Studies have shown FOC to increase anxiety and panic during pregnancy (Dencker et al., 2019; Størksen et al., 2015; Toohill et al., 2014; Körükcü et al., 2010; Melender, 2002). Furthermore, high levels of childbirth fear in pregnant women have been linked to longer labour duration and higher labour pain intensity (Deng et al., 2021; Yukie Iizuka et al., 2018; Adams et al., 2012), as well as a higher likelihood of elective

Caesarean delivery (Nilsson et al., 2012) and an increase in anaesthesia usage *(*Poggi et al., 2018; Heinze & Sleigh, 2003). In addition, women with FOC are at substantial risk for post-traumatic stress disorders (PTSD), anxiety, depression and panic disorders (Zhou et al., 2021; Storksen et al., 2012; Körükcü et al., 2010).

It is known that every childbirth carries a risk for both mother and child. However, there is no clinical guideline to help this pregnant mother. Therefore, it is of utmost importance that special attention is required to determine FOC among pregnant mothers. According to Onchonga et al. (2020), identifying sources of FOC would be a greater help in managing childbirth fear and as an indicator for further assessment of the view of pregnancy and fear during actual labour and after labour (Takegata et al., 2015; Alehagen et al., 2006). Understanding FOC, FOC interference, and its association with socio-demographic and obstetrics characteristics can help healthcare professionals shape effective policies and interventions to alleviate childbirth fears and reduce Caesarean section rates.

1.8 Conceptual and Operational Definitions

The following conceptual and operational definitions specific to this research study are as follows:

Variable	Conceptual Definition	Operational Definition
Fear of childbirth (FOC)	The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) describes FOC as a spectrum of anxious thoughts and feelings about childbirth (Wijma et al., 1998).	FOC in this study is referred to the expectations of pregnant women's experience of and behaviour before and during childbirth and is measured using a 40-item score on 5 Likert-type scales ranging from 0 (no fear) to 4 (extreme fear) and measuring nine subscales (e.g., fear of loss of sexual pleasure/attractiveness) (Fairbrother et al., 2022). The minimum and maximum scores of the questionnaires are 0 and 160, with higher scores reflecting higher levels of fear (Johnson and Slade, 2002; Wijma et al., 1998). The level of fear was classified

		into four categories: low (0%-42.2%), mild (42.3%-60.9%), moderate (61.0%-79.7%) and severe (79.8%-100%) (Zhou et al., 2021).
Pregnant mothers	It means women who carry developing embryos or fetuses (Davis, 2021).	This study refers to mothers who are having a singleton pregnancy.
Fear of Childbirth Interference	Interference is words, attitudes, actions or situations that make or break the labour process and how pregnant mothers remember their births (Hull, 2020).	This study refers to how much fear of childbirth interferes with various aspects of life (e.g., interference with one's relationship with one's partner/spouse) and is measured using a 7-item on 5 Likert-type scale from 0 (no interference) to 4 (extreme interference) (Fairbrother et al., 2022). For the interference score, the FOC scores of all the interference items were added together, with a higher score reflecting a higher

		level of FOC interference. The level of interference was classified into three categories: low (0-9), moderate (10-20) and high (21-28) (El-Aziz et al., 2016).
Obstetrics characteristics	Obstetrics characteristics refer to the conditions during pre-conception, pregnancy, childbirth and immediately after delivery (Mattson & Smith, 2015).	This study refers to traits pregnant women have during pregnancy: current gestational age (week), parity and understanding of "mode of delivery".

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Chapter 2 details the literature review on articles and other sources relevant to the research being investigated. A combination of keywords used to search these articles includes childbirth in Malaysia, fear of childbirth (FOC), associated factors of childbirth fear, and interference and consequences of severe FOC. The final section of this chapter explains the study's conceptual framework underpinning the research study.

2.2 Childbirth and Childbirth in Malaysia

Childbirth, also known as parturition, is one of the pivotal processes every woman will go through to bring forth a child starting from pregnancy (PORTAL MyHEALTH, 2012). According to Nazario (2020), there are four types of childbirth options: unassisted vaginal delivery, assisted vaginal delivery, Caesarean section and vaginal birth after Caesarean section (VBAC). However, there are only two basic birth methods which are either vaginal delivery or Caesarean section. In addition, equipment used such as forceps or ventouse (vacuum cup) during vaginal delivery is just an additional backup if problems during delivery arise.

According to Omona (2021), spontaneous vaginal delivery (SVD) is a natural method of childbirth from the uterus through the vagina, also known as the "birth canal", that typically does not require much medical assistance such as the use of pain medication or other methods to initiate or speed up labour. It is the most common childbirth method that often occurs between weeks 37 and 42 of pregnancy. This method is unlike unassisted vaginal delivery recommended for low-risk pregnancies, and sometimes this procedure is performed in non-hospital settings such as birthing centres or simply at home without

healthcare professionals (Birthrights, 2022).

In contra to SVD and unassisted vaginal delivery, assisted vaginal delivery, also known as instrumental delivery, involves instruments such as forceps or ventouse during the baby's birth. It is performed when there are concerns with the baby's health or the mother is exhausted from pushing, causing the baby to not move from the vagina. Episiotomy, amniotomy and induced labour might be carried out occasionally, depending on the baby's health condition (National Health Service, 2020).

Caesarean section is the surgical delivery of a baby through a vertical or horizontal incision made in the mother's abdomen and uterus (Robertson & White, 2023; Bolla et al., 2010). This procedure can be done as elective or emergency if a risky condition happens that is thought will harm both mother and baby. General or regional anaesthesia will be given during a Caesarean section based on the mother's health status. This childbirth method is recommended for high-risk pregnancies and usually takes approximately 45 minutes for the operation (Parry, 2019).

Vaginal birth after Caesarean section (VBAC) is the vaginal delivery of a baby after a previous experience of Caesarean section. Women who had Caesarean section previously might have various reasons. Hence their chances of uterine rupture go up in future vaginal delivery due to the raised pressure of labour along the Caesarean scar (Baradaran, 2021). On the other hand, VBAC will result in fewer difficulties than a Caesarean section. At the same time, VBAC eligibility depends on numerous criteria, including the mother's health and the orientation of the incision formed in the previous Caesarean operation (Johnson, 2022).

In Malaysia, women can deliver at hospitals or private centres. Birth at alternative maternity centres, hypnobirthing, and water birthing is also unfolding. Ahmad Tajuddin et al. (2020) stated that Malaysia has a trend of mothers employing 'doulas' who are

trained and experts in childbirth for carrying their unassisted childbirth. A study by Ismail et al. (2021) stated that Malay support unassisted childbirth. Hence, a maternity centre equipped with medical facilities was set up in 2012 in Putrajaya, Malaysia, to meet the women's home birth desire.

In Hospital USM, 9397 babies were born in 2021, encompassing 2% of the babies born in Malaysia in 2021. Among 9397 babies, 6558 were born by spontaneous vaginal delivery (SVD), and 39 were born by assisted breech delivery. Three hundred thirty babies were born by instrumental vaginal delivery, with 33 babies born with the help of forceps, whereas 297 babies were born with the help of ventouse. The remaining 2470 babies were born by lower segment Caesarean section (LSCS) (Record Unit Hospital USM, 2022). Figure 2.1 illustrates the mode of delivery in Hospital USM from January to December 2021.

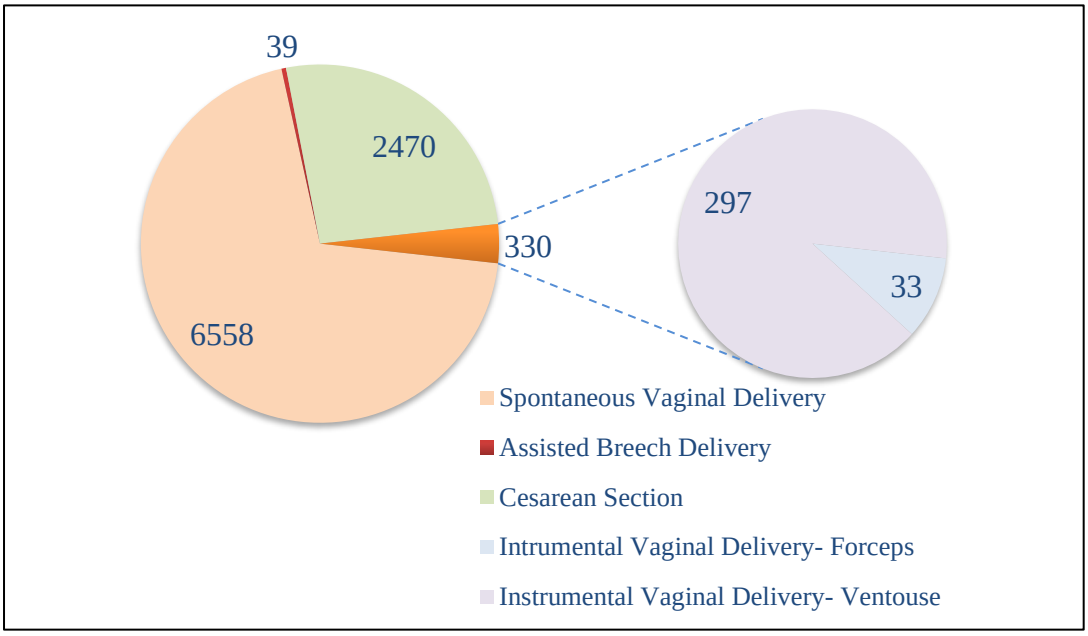

Figure 2.1 Mode of Delivery in Hospital USM from Jan to Dec 2021 (Source: Record Unit, Hospital USM)

2.3 Fear of Childbirth (FOC) among Pregnant Mothers

Fear of childbirth (FOC) is a common psychological phenomenon for pregnant mothers, ranging from 6.3% to 14.8% (Nilsson et al., 2018). Despite that, some experts believe this figure could reach 22% in mid-pregnancy and drop to 19% in late pregnancy (Hildingsson et al., 2017). Almost all women face childbirth fear once during their pregnancy, and it has been shown by Soltani et al. (2017) and Nasr et al. (2020) that more than half of pregnant mothers have childbirth fear.

A cross-sectional study by Gelaw et al. (2020) found that 24.5% of pregnant mothers had a severe degree of childbirth fear, 25.3% had a high degree of childbirth fear, and 39.8% had a moderate degree of fear. In comparison, 10.3% had low-degree childbirth fear out of 387 pregnant mothers in Southern Ethiopia (Gelaw et al., 2020). Moreover, an early study conducted between 1991 and 1999 involving more than 8000 pregnant women found that 50% feared their child's health, and 40% feared pain (Geissbuehler & Eberhard, 2002).

In a study of 388 women in a maternity hospital in rural Karnataka, 45.4% had a FOC. They lacked confidence in childbirth and feared labour pain and Caesarean section. According to the findings of this study, primigravidae have a greater degree of childbirth fear, with fewer live children being the main determinant after multilinear regression. In addition, this study indicated that FOC was associated with teenage pregnancy, nulliparity, primigravida status, and having no living child (Johnson et al., 2019). Studies in Ireland and Iran also show that FOC was more common in primigravida mothers (O'Connell et al., 2019; Soltani et al., 2017).

Furthermore, a systematic review and meta-analysis research found that women with lower education, single/divorced marital status, nulliparity and women in the second trimester of pregnancy experienced a higher prevalence of FOC. Women with an

education level at or lower than the diploma stage had a higher prevalence of fear (19%) than women with a university education (13%). Moreover, a 21% prevalence of fear was found in single/divorced women, while 15% in married or cohabitation women. Nulliparous women were said to have a higher prevalence of fear when compared with multiparous women, with 17% to 14%. In addition, women who were in their second trimester of pregnancy (23%) were said to have a higher prevalence of fear of childbirth than women who were in the third trimester of pregnancy (14%) (Sanjari et al., 2022).

However, studies also reported that multiparous women had more intense childbirth fear than nulliparous women (Ryding et al., 2012; Nieminen et al., 2009). They consigned that FOC might be due to traumatic birth experiences and acute pain during a previous birth. Personality traits also play a role in FOC. Ryding et al. (2007) concluded that pregnant women who were low in socialisation and high in psychasthenia had a more negative experience of current childbirth.

In addition, a study conducted in Sweden found a higher risk for FOC in black women than in white, Hispanic and other races. It stated that women with a low FOC reported the most positive birth experience (Elvander et al., 2013). Conversely, women with an intermediate and high level of childbirth fear had negative birth experiences and were more influenced by unplanned Caesarean section or instrumental vaginal delivery.

2.4 Associated Factors of Childbirth Fear among Pregnant Mothers

A cross-sectional study conducted in Guangzhou, China, found that younger Chinese women with lower educational levels, not satisfied with their husbands' support and with previous experience of miscarriage have a higher level of childbirth fear (Gao et al., 2015). Furthermore, an Australian study found that having a non-supportive partner and insufficient childbearing knowledge were related to FOC (Toohill et al., 2014).

Besides, a study found that physical intimate partner violence (IPV) increased the likelihood of childbirth dread (Moghaddam Hossieni et al., 2017).

However, a study by Korukcu et al. (2019) states that gestational week does not influence the level of childbirth fear, and there is a negative relationship between previous birth experience and childbirth fear. Therefore, the possible explanation might be that women with traumatic childbirth experiences might have lower childbirth fear, which contrasts with other studies. On top of that, it was found that childbirth fear correlates with pregnancy-related stress and depressive symptoms in Northwest China. In contrast, childbirth fear is inversely correlated with social support (Zhou et al., 2021).

For example, early studies have found that depression and anxiety are associated with FOC. Storksen et al. (2012) showed that anxiety or depression increased the FOC in pregnant mothers. An earlier study in Turkey also showed a positive correlation between anxiety and FOC (Körükcü et al., 2010). Stress, anxiety, depression and lack of social support were also related to childbirth fear. In contrast, no strong connection is found between age, civil status, educational level, ethnicity, BMI and childbirth fear (Dencker et al., 2019). In addition, Størksen et al. (2015) also state that women with a FOC might have poor mental health and social support.

In another cross-sectional study among 788 pregnant women, FOC was pronounced among 2.5% nulliparous and 4.5% multiparous women. Depression, advanced maternal age, and high or unspecified socioeconomic status were identified as factors contributing to FOC in nulliparous women. For multiparous women, depression, previous Caesarean section, and high or unspecified socioeconomic status were risk factors for fear of childbirth (Räisänen et al., 2014).

Mothers worrying about labour pain, fear of the unknown, and the safety of the mother and baby are the main reasons for FOC (Fenwick et al., 2015). In addition, a study

in Egypt shows that factors brought to FOC are fear of pain, episiotomy and lacerations associated with the high Caesarean rate by saying fear of vaginal birth, thought that it is a safer mode for baby, no influence on postpartum sexual life and pain associated with delivery (El-Aziz et al., 2016). Furthermore, a study by Demšar et al. (2018) indicates that fear of episiotomy, fear of having no control over the situation and fear of pain is the main contributor to childbirth fear.

Aside from that, a study in Iran found that FOC is no different in categories of socioeconomics and obstetrics variables, excluding family income. Psychological variables such as pregnancy desirability, dyspareunia, perceived health and physical activity predict childbirth fear in multiparous women. In contrast, the level of support from husband and pregnant women's attitudes towards present pregnancy predict childbirth fear in nulliparous women (Mortazavi & Agah, 2018). On the contrary, a study by Nasr et al. (2020) in Egypt found a statistically significant relationship between FOC, age group and educational level.

2.5 Interference and Consequences of Severe Fear of Childbirth

A study in Japan found that primiparas with severe FOC experience significantly longer duration and larger accumulated labour pain intensity between the onset of labour and 4 cm to 6 cm of cervical dilatation (Yukie Iizuka et al., 2018). A study by Adams et al. (2012) also proves that women with FOC undergo significantly longer labour duration than those without FOC. In addition, a study in Guangzhou, China, concluded that FOC is a potential predictor of labour pain intensity. The higher the level of childbirth fear, the stronger the labour pain intensity experienced (Deng et al., 2021).

Besides, it was known that severe FOC affects the mode of delivery. According to a survey done in America, 106 out of 752 American nulliparous young women prefer

Caesarean section as their method of childbirth, accounting for 14%. On the other hand, 27% of young women had an elevated FOC. This study concluded that young women with an elevated FOC were almost four times more likely to prefer Caesarean delivery (Stoll et al., 2015). Furthermore, a cohort study in a population found that FOC is particularly associated with elective Caesarean section because 87% of the studied women receive Caesarean section (Størksen et al., 2015). Handelzalts et al. (2012) also concluded that FOC is the only psychological variable leading to the pregnant woman requesting a Caesarean section.

On the contrary, a study conducted in British Columbia proves that severe FOC increases epidural anaesthesia use (Hall et al., 2012). Women with a FOC need more pain relief in labour. According to Poggi et al. (2018), epidural anaesthesia was independently related to FOC. In a study of 2206 women with intended vaginal delivery at Akershus University Hospital in Norway, 45% of women with a FOC requested epidural anaesthesia, whereas 27% without fear of childbirth requested epidural anaesthesia. More women fearing childbirth requested epidural anaesthesia (Adams et al., 2012). A study about personality and FOC between 2 antenatal groups of women found that women with FOC feel more anxious and short-tempered, and their socialisation ability is lower.

In contrast, women with an intense FOC had the characteristic of low socialisation and high psychasthenia (Ryding et al., 2007). Post-traumatic stress disorder (PTSD) can be one of the psychological consequences of FOC as negative experiences from previous childbirth. Women who suffer from nightmares after the delivery trauma avoid subsequent childbirth (Hofberg & Ward, 2003). PTSD and fear of childbirth can negatively affect women's relationships with their partners and baby (Fenaroli et al., 2019; Nicholls & Ayers, 2007).

2.6 Conceptual Framework for the Study

Pregnant women are concerned during labour for their baby's safety and well-being as they recall their experiences tainted by the thoughts of bad birth experiences, which have made them fearful of birth (Gelaw et al., 2020; Nasr et al., 2020). Fear in humans is a feeling induced by perceived danger or threat that may occur in response to a specific stimulus occurring in the present, anticipation or expectation of a future threat perceived as a risk to the body or life.

This study's theoretical foundation was based on Professor Lazarus' hypothesis of fear adaptation (Lazarus & Folkman, 1984). This hypothesis looks at how humans deal with fear. In addition, the theory also focuses on an individual's psychological response to fear (McEwen, 2014). Although the theory of fear has been derived from behavioural sciences, many nursing researchers have used it as a conceptual framework worldwide (Lazarus & Folkman, 1984; McEwen, 2014).

FOC in pregnant women revolves around concerns such as the child's well-being, discomfort, loss of control, medical interventions, and a deviant course of labour, and it is known to impact pregnant mothers. Therefore, it may be possible to link pregnant mothers' views of FOC using this framework. Figure 2.2 illustrates the conceptual framework guiding this study.

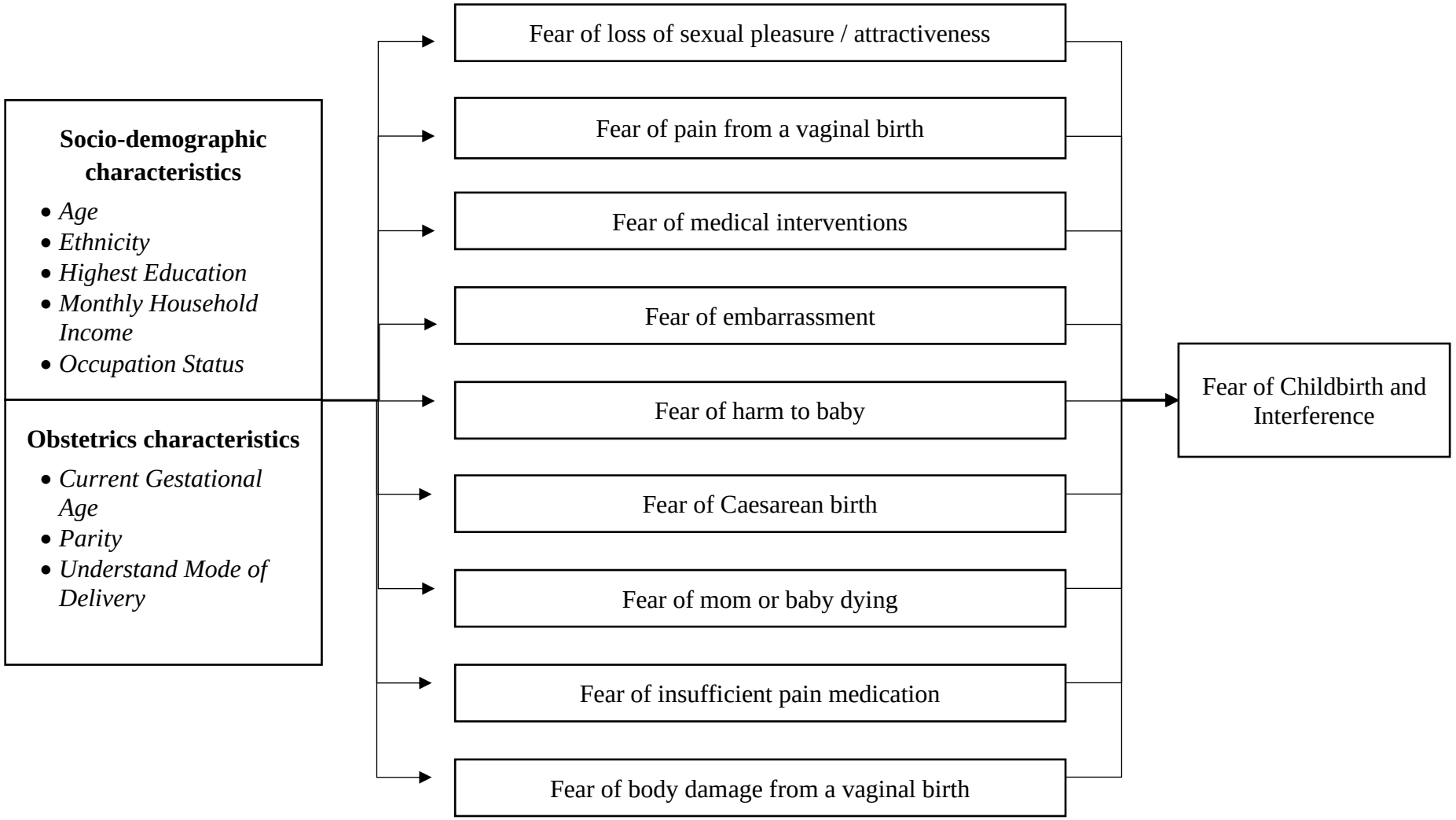

Figure 2.2 Conceptual Framework of the Study on Fear of Childbirth and Interference

CHAPTER 3
RESEARCH METHODOLOGY AND METHOD

3.1 Introduction

Fear of childbirth (FOC) is an extreme state of anxiety, distress and worry about childbirth. However, despite its common occurrence, FOC is inadequately understood and surveyed (Zhou et al., 2021). The present study aimed to determine the FOC level and the association between FOC level and FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan. First, the chapter explains the approach and rationale used to support the chosen research methodology. Choosing and understanding an appropriate research design is important for achieving the study's aims. Thus, the chapter begins by describing the cross-sectional design and a justification for this method. Second, the chapter discusses the study's setting and population, participant selection criteria, sampling design, sample size determination, instrumentation, ethical considerations and data collection methods. Finally, the statistical analyses are detailed in this chapter.

3.2 Research Design

A cross-sectional study design was utilised to determine the FOC level, the association between FOC level and FOC interference with socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan. The justification and rationale are the characteristics of the cross-sectional design of the observed data collected at a single point in time and are suitable for this study.

3.3 Study Setting and Population

The obstetrics clinic, Hospital USM, was the study setting for its recognition as a referral hospital for pregnant mothers in Kelantan. The target population of this study was pregnant mothers who attended the obstetrics clinic at Hospital USM.

3.4 Sampling Plan

Sampling is the process whereby the researcher selects a small section from a larger group of people known as the population (Turner, 2020). According to Morse (2016), the purpose of the sampling method is to maximise the research efficiency and validity. In addition, the sample that completes all aspects and is adequate in size has higher representativeness, allowing results to be generalised back to the targeted population.

3.4.1 Inclusion Criteria

Specific eligibility requirements for inclusion in this study stipulated that each participant must be:

- Antenatal women aged 18 to 49 years.
- Gestational age 12 weeks and above were recommended for antenatal follow-up visits for normal, healthy mothers and uncomplicated pregnancies. However, the first visit is most important and should be done as soon as possible (preferably before 12 weeks of amenorrhea) (PORTAL MyHEALTH, 2012).
- Intrauterine pregnancy with a single fetus

3.4.2 Exclusion Criteria

Participants would be excluded from the study if they:

- Have a known history of mental illness
- Have intellectual disability

- Have medical or obstetrical complications such as preeclampsia, gestational diabetes, placenta previa, or haemorrhage

3.4.3 Sample Size Estimation

Sample size estimation is the most crucial methodological part of a research study for drawing inferences about the population or generalising study results (Sharma et al., 2020).

Objective 1: Single proportion formula was utilised to determine the FOC level among pregnant mothers at Hospital USM.

On applying:

$$N = \left[\frac{z}{\Delta}\right]^2 p\,(1-p)$$

Whereby,

N = required sample size

z = value representing the desired confidence level (it is 1.96)

Δ = the desired level of precision, ± 5%

p = anticipated population proportion based on previous research

= 0.826 (Serçekuş et al., 2020)

Calculation:

$$N = \left[\frac{1.96}{0.05}\right]^2 0.826\,(1-0.826) = 221$$

$$N = 221 + 10\%$$

$$= 243$$

The minimal sample size was 221, and after considering a 10% dropout, the calculated sample size was 243.

Objective 2: Two proportions formulas were used to determine the association between FOC level and socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan.

On applying:

$$N = \frac{p_1(1-p_1) + p_2(1-p_2)}{(p_1-p_2)^2}\left(z_\alpha + z_\beta\right)^2$$

Whereby,

N = required sample size

p_1 = Primipara, 0.373 (Deng et al., 2021)

p_2 = Multipara, 0.627 (Deng et al., 2021)

z_α = value of the standard normal distribution curve cutting off probability alpha (α) in one tail for one-sided alternative or $\frac{\alpha}{2}$ in each tail for a two-sided alternative (z_α = 1.96)

z_β = power of the study, 80% (z_β = 0.84)

Calculation: $N = \frac{0.373\ (1-0.373)+0.627\ (1-0.627)}{(0.373-0.627)^2}\ (1.96 + 0.84)^2 = 57$

N = 57 + 10%

= 63

N = 63 x 2

= 126

The minimal sample size was 57, and after considering a 10% dropout, the calculated sample size was 63. Hence, 126 participants were needed per 2 groups.

Objective 3: Two proportion formulas were used to determine the association between FOC interference and socio-demographic and obstetrics characteristics among pregnant mothers at Hospital USM, Kelantan.

On applying:

$$N = \frac{p_1(1-p_1) + p_2(1-p_2)}{(p_1-p_2)^2}\left(z_\alpha + z_\beta\right)^2$$

Whereby,

N = required sample size

p_1 = Unemployed, 0.725 (Rosyidah, 2017)

p_2 = Employed, 0.275 (Rosyidah, 2017)

z_α = value of the standard normal distribution curve cutting off probability alpha (α) in one tail for one-sided alternative or $\frac{\alpha}{2}$ in each tail for a two-sided alternative (z_α = 1.96)

z_β = power of the study, 80% (z_β = 0.84)

Calculation: $N = \frac{0.725\,(1-0.725)+0.275\,(1-0.275)}{(0.725-0.275)^2}\,(1.96+0.84)^2 = 16$

N = 16 + 10%

= 18

N = 18 x 2

=36

The minimal sample size was 16, and after considering a 10% dropout, the calculated sample size was 18. Hence, 36 participants were needed per 2 groups.

Based on the above sample size calculation for all the objectives, the highest sample size of 243 was employed for this study. As a result, the sample can be regarded as a representative sample size for this study.

3.4.4 Sampling Method

Purposive sampling was used to recruit participants in this study. Purposive sampling is a non-probability sampling technique based on the population characteristics and the study's objective. This sampling is also known as judgmental, selective or subjective sampling, in which researchers rely on their judgment when choosing population members to participate in their survey (Cole, 2020). In addition, the advantage of purposive sampling is that a targeted sample with specific characteristics can be reached.

3.5 Research Instrument

The research instrument used in this study was a structured, self-administered questionnaire (Appendix A) 'The Childbirth Fear Questionnaire (CFQ): A New Measure

of Fear of Childbirth' by Fairbrother et al. (2021) with permission from the author (Appendix B).

3.5.1 Instrument

The questionnaires consist of Part I, Part II and Part III. Part I consists of socio-demographic and obstetrics characteristics. Part II consists of questions about childbirth fear among pregnant mothers at Hospital USM, Kelantan. Part III consists of questions covering multiple life domains to determine the degree of childbirth fear interference.

Part I: Socio-demographic and obstetric characteristics

Part I consists of closed-ended questions: age, ethnicity, highest education, monthly household income, occupation status, current gestational age (weeks), parity, and understanding the "mode of delivery" (spontaneous vaginal delivery, assisted vaginal delivery and caesarean section).

Part II: Fear of childbirth

Part II contains the "Childbirth Fear Questionnaire (CFQ)", adopted with permission from Fairbrother et al. (2021) to determine the FOC. The CFQ consists of 40 items from 9 subscales to determine the level of fear of childbirth. Using a 5-point Likert-type scale ranging from 0 to 4 (0 = no fear, 1 = a little bit fear, 2 = quite fear, 3 = very fear, 4 = extremely fear), the participants were asked about their views of childbirth-related fears (see Section 3.8.1 and Part II: Fear of Childbirth). The CFQ was valid and reliable, with Cronbach's alpha reliability coefficient of 0.94 for the overall scale and a range between 0.76 and 0.94 for the individual subscales (Fairbrother et al., 2021).

Part III: Fear of childbirth interference

Part III contains the additional 7-item Interference scale with items covering multiple life domains of FOC interference. For the Interference scale, participants were asked to rate, from 0 (no interference) to 4 (extreme interference), how much their FOC