FEAR OF CHILDBIRTH IN PREGNANT WOMEN: EXPLORING PREVALENCE AND BIRTH MODE PREFERENCE

A Doctoral Project
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Doctor of Nursing Practice

By

Gabriella Athena Vitale, B.S.

Washington, DC
July 21, 2022
FEAR OF CHILDBIRTH IN PREGNANT WOMEN: EXPLORING PREVALENCE AND BIRTH MODE PREFERENCE

Gabriella Athena Vitale, B.S.

Thesis Advisor: Cindy L. Farley, CNM, PhD, FACNM

ABSTRACT

Fear of childbirth (FOC) is a perinatal anxiety condition which exists along a diagnostic continuum. Mild FOC, on the lower end of the spectrum, is characterized by common labor-related fears while tokophobia, on the higher end of the spectrum, constitutes severe FOC and falls under the diagnostic category of Specific Phobia according to the DSM-5. Different levels of FOC can result in different levels of functional impairment that can impact maternal and fetal outcomes. FOC is prevalent among women of childbearing age internationally, estimated at 31% with moderate FOC and 11% with severe FOC. However, FOC remains largely understudied in the United States (U.S.). Clinically, this is a condition requiring increased provider awareness in order to ensure optimal maternal-fetal outcomes and general wellbeing for childbearing individuals. This doctoral project explored the prevalence of FOC among pregnant women in the U.S. using social media outlets. Associations between FOC and birth mode preference and demographic variables were examined. An online survey consisting of a demographic questionnaire, a birth mode preference questionnaire, and the English version of the 14-Item Italian W-DEQ Version A were administered to participants. High FOC was found in 47.8% of the sample ($M = 33.1$, $SD = 11.0$). Education was the only statistically significant demographic
variable in this study associated with FOC ($p = .022$). Those with less than an undergraduate degree had higher FOC scores than those with an undergraduate degree or higher. There was no statistically significant preference for birth mode depending on FOC scores. The findings of this DNP project suggest that FOC is common in the U.S. Given its potential effects on maternal-fetal outcomes, there is a need for clinicians to be able to recognize, assess, and treat individuals with FOC.
ACKNOWLEDGEMENTS

I am proud to dedicate the research and writing of this doctoral project to the many people who have helped me along this journey.

To my wonderful parents, thank you for your constant and unwavering support. You are, and will always be, my biggest cheerleaders in life. I am beyond lucky to have such a loving, warm, understanding, and patient support system! Much love- to the moon and back!

To my friends, thank you for grounding me along this journey. For providing me with laughter (which is the best medicine for a tired soul!), for making me take much needed breaks, and for sitting in silence with me when I needed serenity.

To my professors and mentors, thank you for your invaluable insight into clinical matters and into life matters. It has been an honor making acquaintance with the faculty at Georgetown University. I hope that we can continue to grow in our connections throughout my professional career!

Finally, to Dr. Farley, thank you for your patience! Your expertise as a mentor to me remains unmatched and I am so lucky to have formed this connection. I am hopeful for a future of continued collaboration and mentorship! Thank you, again!

To Dr. Stoll, thank you for your insight into this project and for your guidance in developing my survey. It has been an amazing treat to collaborate with you on my scholarly project and I hope we continue to work together in the future! Thank you, again!

Many thanks,

Gabby Vitale
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Significance of Problem</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Review of Literature</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Theoretical Framework</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Definitions</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Purpose Statement</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>PICOT Question</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Specific Measurable Aims</td>
<td>28</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Research Design</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Sample Population</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Data Collection Tools</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Scholarly Project Procedure</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Human Subject Review</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Data Analysis Plan</td>
<td>38</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Sample Characteristics</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Data Analysis</td>
<td>42</td>
</tr>
</tbody>
</table>
Chapter 4 .................................................................................................................. 49

Discussion of Findings ............................................................................................. 49

Practice Implications ............................................................................................... 57

Project Limitations .................................................................................................. 59

Project Strengths ...................................................................................................... 61

Recommendations for Future Research ................................................................. 62

Conclusion ................................................................................................................ 63

Appendix A ................................................................................................................. 65

Appendix B ................................................................................................................. 67

Appendix C ................................................................................................................. 68

Appendix D ................................................................................................................. 69

Appendix E ................................................................................................................. 76

Appendix F ................................................................................................................. 78

Appendix G ................................................................................................................. 79

Appendix H ................................................................................................................. 80

Appendix I ................................................................................................................. 83

Appendix J ................................................................................................................. 84

Appendix K ................................................................................................................. 85

References .................................................................................................................. 86
Chapter I

Introduction

Positive pregnancy and birthing experiences are essential for ensuring maternal physical and psychological well-being (Onchonga et al., 2020). However, because the labor, birth, and postpartum processes are unpredictable at the individual level, anxiety and fear can arise before, during, and after pregnancy (Roosevelt & Low, 2016). While minor anxiety can be normal in pregnancy and serves as a protective factor that drives women to seek help, some women, even those with low-risk pregnancies, can suffer from an extreme fear of childbirth (FOC) which can adversely impacts daily functioning (Jomeen et al., 2021; Lai et al., 2022; Roosevelt & Low, 2016).

A precise definition for FOC does not exist in clinical practice (Richens et al., 2017). While experts agree that FOC is considered a type of perinatal anxiety disorder, it remains distinctly separate from generalized anxiety and is delineated from other perinatal anxiety diagnoses (Jomeen et al., 2021). Furthermore, experts also agree that FOC exists along a diagnostic spectrum and is uniquely grounded within the context of each woman or birthing person (Richens et al., 2017; Roosevelt & Low, 2016). Mild FOC, on the lower end of the spectrum, is characterized by labor-related fears such as fear of pain, lack of support, loss of self-control, fear for one’s own health and for their baby, birth injuries, and vaginal tearing (Mortazavi & Agah, 2018; Richens et al., 2017). Tokophobia, on the higher end of the spectrum, falls under the diagnostic category of Specific Phobia according to the DSM-5 and under the diagnostic
category of a phobic anxiety disorder, according to the International Classification of Diseases-11 (ICD-11) (see Appendix A) (Fairbrother et al., 2022; Katzman et al., 2014; Roosevelt & Low, 2016; Substance Abuse and Mental Health Services Administration, 2016). It can be primary tokophobia, affecting nulliparous women, or secondary tokophobia, affecting women who have had a previous traumatic birth experience or postpartum depressive symptoms (Calderani et al., 2019; Mycroft & Taha, 2018). To differentiate mild FOC from tokophobia, women with tokophobia experience such significant distress regarding childbirth that they actively avoid pregnancy and childbirth, or endure it with extreme levels of anxiety that result in functional impairment (see Appendix A) (Katzman et al., 2014).

The existence and negative impacts of FOC are substantiated through a large body of scholarly publications and research studies (Richens et al., 2018; Slade et al., 2019). Moreover, over the past 30 years, the incidence of FOC has increased worldwide (O’Connell et al., 2017). While the exact reasons for this rise in prevalence are unknown, there has been a surge in research on FOC in recent decades which may be contributing to the growing awareness of this issue (Nilsson et al., 2018). Furthermore, as a result of increased international attention on perinatal mental health (PMH), women may now feel as though they can more freely report childbirth-related fears to their clinicians (Jomeen et al., 2021). Thus, this reveals that FOC has been an underlying public health issue that went relatively undetected until the subsequent increase in research demonstrated an international prevalence of the condition (Nilsson et al., 2018). Despite the international prevalence of FOC and the incidence of anxiety-disorders among pregnant women in the United States (U.S.), FOC remains understudied in the United
States. Thus, there is a significant knowledge gap which warrants additional research in order to estimate prevalence in the U.S. and to understand how this phenomenon affects U.S. women and birthing people (Runnals & Vrana, 2018).

In the U.S., the American College of Obstetrics and Gynecology (ACOG) has stated that anxiety-disorders are more prevalent among women, especially during the peripartum period (Gregory et al., 2020). According to the American College of Nurse-Midwives (ACNM), PMH disorders are the most common obstetric complication experienced during pregnancy (American College of Nurse-Midwives [ACNM], 2020). These disorders can lead to an increase in suicidal ideations and completed suicides within pregnant women, and is one of the leading causes of perinatal death (ACNM, 2020). The Nurse Practitioners in Women’s Health (NPWH) have not published any literature on FOC specifically. However, in 2017, NPWH published a toolkit with the intention of promoting the safe management of perinatal anxiety and depressive disorders among clinicians (Kelsey, 2017). NPWH also recognizes the importance of identifying and treating mental health disorders during the perinatal period due to negative sequelae that can have devastating effects upon women and their infants (Kelsey, 2017). All three of the professional organizations dedicated to women’s healthcare in the U.S. agree that PMH disorders are of significant clinical importance and therefore, an exploration into FOC and related-anxiety disorders is warranted in the United States.
Significance of the Problem

Worldwide, 18% to 31% of women have moderate levels of FOC, and 5% to 11% of women have severe levels of FOC (Hildingsson et al., 2018; Mortazavi & Agah, 2018; O’Connell et al., 2017). Globally, women experiencing any level of FOC varies widely, affecting an average of 12% of Scandinavian women, 23% of Australian women, and 25% of Asian women (O’Connell et al., 2017). Due to the wide variation in the FOC measurement tools used and in the definitions used to characterized FOC, comparing FOC prevalence among countries is a challenge (Huang et al., 2021). Currently, the accepted overall pooled prevalence of FOC in pregnant women internationally is calculated to be 14% (O’Connell et al., 2017). An important consideration with regards to calculating FOC prevalence though, is that an exact rate is difficult to determine due to substantial variation in cultures, beliefs, and healthcare systems between countries which affect the expectations people have regarding childbirth and the likelihood of women to express fears and anxieties (Lai et al., 2022). Thus, while these differences make it difficult to determine an exact percentage of affected pregnant women, it does not discount the fact that this is a public health problem existing on an international level that should be addressed in order to improve outcomes (Lai et al., 2022; Jomeen et al., 2021).

Childbirth fear in the U.S. is not widely studied despite a 40% risk of American women developing anxiety-disorders in their lifetime (Gregory et al., 2020; Runnals & Vrana, 2018). It has been reported that 20% of pregnant and postpartum women will develop one or more anxiety-related disorders, in stark contrast to the 6%-12% of women who develop a depressive
disorder in this same timeframe (Fairbrother et al., 2022). From limited data, FOC in pregnant U.S. women ranges from 7.7% to 52%, with an overall pooled prevalence of 11% (O’Connell et al., 2017; Roosevelt & Low, 2016; Runnals & Vrana, 2018). This is consistent with reported prevalence rates of 12% in Scandinavia and of 8% in the rest of Europe, justifying further research into this topic in the U.S. as a public health concern (Roosevelt & Low, 2016; Runnals & Vrana, 2018). Furthermore in the U.S., it has been shown that more young women of color report FOC than White young women (Stoll et al., 2015). In Canada, women who identified as Asian had the highest rates of FOC when compared to women of different races and ethnicities (Stoll et al., 2015). The reasons underlying these disparities are not known though, supporting the need for further investigation of FOC in the U.S. to help close gaps in care (Stoll et al., 2015).

**Impact on the Patient**

Childbirth fear can negatively affect pregnant women and their neonates. Of note, no research has been conducted on FOC or the potentially traumatic birthing experiences of trans and non-binary persons (Greenfield & Darwin, 2021). At present, Australia is the only country which regularly records and reports pregnancy data with regards to gender identity (Greenfield & Darwin, 2021). Thus, there is a dearth of available data on pregnancy and PMH complications in the trans and non-binary populations (Greenfield & Darwin, 2021). However, limited literature suggests that some trans and non-binary persons can suffer from dysphoria and disembodiment
during pregnancy, and that pregnancy-related body changes tend to be perceived as distressing in this population (Greenfield & Darwin, 2021). Moreover, while trans and non-binary persons may be at higher risk for PMH disorders, studies do not clearly delineate an association between increased vulnerability with PMH disorders and subsequent depression and anxiety disorders (Greenfield & Darwin, 2021). Therefore, due to the lack of existing literature, the patient impacts being presented in this scholarly project reflect data collected solely on cisgender pregnant women and apply to this population of birthing persons only.

Prenatally, individuals with high levels of FOC have increased levels of daily stress, prepartum depression, and sleep deprivation that can significantly impair daily functioning and can result in reduced working capacity and ultimately unemployment (Fairbrother et al., 2022; Henriksen et al., 2018; Nilsson et al., 2018). In turn, this contributes to increased serum cortisol levels, leading to decreased uterine blood flow, and harmful effects on both fetal and neonatal development (Striebich et al., 2018). Such adverse outcomes include preeclampsia, preterm birth, miscarriage, and low birth weight, along with differences in brain development and neonatal attention (Fairbrother et al., 2022). Women with FOC are more likely to have labor induction, to have pharmacologic augmentation, to have instrumental assistance or operative deliveries, to request elective cesarean section (CS) and to use epidural analgesia (Dencker et al., 2019; Mortazavi & Agah, 2018; Roosevelt & Low, 2016; Runnals & Vrana, 2018; Striebich et al., 2018). Often times, women cite these interventions as the reasons for negative birthing experiences (Onchonga et al., 2020). Women with more childbirth complications and with more negative birthing experiences are more likely to experience FOC in future pregnancies.
(Fairbrother et al., 2022). Consequently, new FOC either develops, or existing FOC is potentiated, affecting future pregnancies and creating a continuous cycle of anxiety for these women (Jomeen et al., 2021; Onchonga et al., 2020).

FOC can lead to the development of postpartum depression (PPD) and posttraumatic stress disorder (PTSD), and can contribute to ongoing anxiety (Zengin et al., 2020). The prevalence of PTSD in birthing persons who had traumatic childbirth experiences is 15.7%, while the prevalence is 4% in persons with a nontraumatic childbirth (Goutaudier et al., 2019). This is clinically relevant because individuals with FOC are more likely to require psychiatric care and psychotropic medications for these conditions (Dencker et al., 2019). Additionally, those with PTSD state their infants have difficult temperaments, negative reactivity, and poor emotional regulation, which can impair infant bonding for up to one year postpartum (Goutaudier et al., 2019; Striebich et al., 2018; Thiel et al., 2020). It is thought that the difficult temperaments, negative reactivity, and poor emotional regulation in the infants of mothers with PTSD are due to the development model of fetal programming, where sustained exposure to maternal cortisol adversely impacts neurodevelopment in-utero (Thiel et al., 2020). Important structures such as the amygdala, the prefrontal cortex, and the lateral temporal cortices are all altered from maternal cortisol and sustained changes in these structures are noted throughout childhood resulting in long-term emotional and behavioral issues (Theil et al., 2020).

With respect to anxiety, 8.2% of women with FOC during pregnancy report ongoing anxiety at 8 weeks postpartum (Poggi et al., 2018). Such ongoing symptoms include feelings of chaos in life, insomnia, and nightmares related to childbirth (Hosseini Tabaghdehi et al., 2020; Wigert et
al., 2020). Furthermore, 18% report FOC symptoms persisting up to 14 years after first childbirth (Möller et al., 2018). Thus, FOC impacts women and their children throughout the peripartum period and beyond (Khwepeya et al., 2018; Molgora et al., 2020).

**Impact on Family and Social Support Systems**

The adverse effects of FOC extend into familial and social relationships. Birthing persons with FOC report lower quality relationships with their partners during the transition period into parenthood (Molgora et al., 2020). Continued FOC in the postpartum period leads to a decrease in sexual interaction with partners and to a decreased libido in affected women (Lai et al., 2022). Notably, partner discord contributes to the development of maternal PPD and PTSD (Zengin et al., 2020). However, pregnant women with FOC in high quality relationships experience less emotional stress; thus, positive partner relationships mitigate the negative effects of FOC (Dencker et al., 2019; Molgora et al., 2020). Literature shows that having a diverse supportive social network is a protective factor against the development of negative sequelae from FOC (Goutaudier et al., 2019). Therefore, positive familial and social relationships are beneficial in reducing the negative impacts of FOC (Goutaudier et al., 2019).
**Impact on Health Care Systems**

Perinatally, childbirth fear results in increased use of healthcare systems (Niemenen et al. 2017; Runnals & Vrana, 2018). Prepartum women with FOC are more likely to visit their health care providers for prenatal pain, for preterm contractions, and for psychosocial care including psychotropic medications (Andersson et al., 2004; Niemenen et al., 2017). Additionally, FOC is associated with receiving more prenatal ultrasound examinations that are not clinically indicated (Andersson et al., 2004; Turkstra et al., 2017). Following birth, women with FOC have longer-than-average stays on the postpartum units (Niemenen et al., 2017). There is an increase in postpartum health care visits due to physical and psychosocial complications (Niemenen et al., 2017; Turkstra et al., 2017). Moreover, women with high levels of FOC are more likely to obsessively use contraception in the postpartum period and in the long-term (Jomeen et al., 2021; Koc et al., 2021). Most often, this takes the form of combining multiple contraceptive methods with the goal of finding a fool-proof method of pregnancy prevention that is sustainable (Jomeen et al., 2021; Koc et al., 2021; Thomas, 2019; Weinberg, 2020). Consequently, women with high FOC generate higher healthcare costs than women with low childbirth fear (Niemenen et al., 2017; Turkstra et al., 2017).

Data on the financial impacts of FOC on healthcare in the U.S. are not available. However, general anxiety-disorders in American women cost billions of dollars annually, with recent estimates citing PMH disorders as the leading cause of both medical and nonmedical costs, totaling around $18.1 billion annually (Gregory et al., 2020; O’Neil et al., 2021). Despite the
lack of detailed information in the U.S. on FOC and financial consequences, data are available from Australia and Sweden. In Sweden, management of FOC results in an extra 10% in pregnancy-related costs per woman (Niemenen et al., 2017). In Australia, the average cost of healthcare for women with FOC totaled the equivalent of $10,110, with the majority of the expense due to elective CS charges (Turkstra et al., 2017). Therefore, while reducing FOC can aid in reducing financial burdens on health care systems, widespread policy changes will need to be introduced in support of improved maternal mental healthcare in order to see significant reductions in healthcare spending (O’Neil et al., 2021; Turkstra et al., 2017).

**Impact on Quality and Safety of Health Care**

Fear of childbirth is associated with the significant increase in CS births being performed worldwide (Berhanu et al., 2022; Weeks et al., 2020). Secondary analysis of World Health Organization (WHO) data suggests that up to 31.2% of all births globally are now done via CS (Lai et al., 2022). Moreover, up to 9% of all CS births are considered CS on maternal request (CSMR), where a relative or absolute indication for the surgery is absent (Calderani et al., 2019; Stützer et al., 2017). In a recent study conducted by Lai et al. (2022), FOC was the only significant predictor for CSMR in nulliparous women. This is likely due to the idea that women with FOC request CS because they believe it guarantees maternal and fetal well-being during labor, and because it helps control the process by adding predictability and avoids the experience of labor pain, making it appear less frightening than vaginal birth (Stützer et al., 2017;
Handelzalts et al., 2017; Henriksen et al., 2020). These women also fear receiving poor quality intrapartum and postpartum care following vaginal birth due to varying levels of provider competency (Weeks et al., 2020). Therefore, women with FOC may seek out a skilled primary care provider (PCP) who will willingly perform CSMR (Koc et al., 2021). Another important factor contributing to higher CSMR rates among women with FOC is hearing negative vaginal birthing stories, but positive CS stories, from family, friends, and the media (Miller & Danoy-Monet, 2021; Nilsson et al. 2018). Thus, women come to equate surgical intervention with high quality maternity care; however, there are no maternal or fetal benefits to CSMR and there are both short-term and long-term known consequences and potential for harm (Ryding et al., 2016; Stützer et al., 2017; Takács et al., 2019; Weeks et al., 2020; WHO, 2015).

There is an international drive to reduce CSMR rates because of quality and safety risks (Stoll et al., 2015). In the U.S. in 2018, CS accounted for 31.9% of all births, with an overall maternal morbidity and mortality of 9.2% (American College of Obstetrics and Gynecology [ACOG], 2014; Martin et al., 2019). Currently, the WHO recommends that CS rates for countries stay below 15%, because rates above this range do not reduce mortality, expose women to post-operative complications, and result in increased financial costs on healthcare systems (Miller & Danoy-Monet, 2021; World Health Organization [WHO], 2015). Surgically, CSMR is associated with risks including bowel or bladder lacerations, infection, hemorrhage, and thromboembolic events (Takács et al., 2019). For the child, cesarean birth is linked to neonatal respiratory distress syndrome and increased NICU admission in the short-term, and to the development of asthma, obesity, type 1 diabetes, and autism during childhood (Takács et al.,
2019; Takegata et al., 2018). Additionally, women having pregnancies after a cesarean birth face an increased risk of placenta previa, placenta accreta, uterine rupture, and spontaneous abortion (Takács et al., 2019).

To date, there is no international consensus on whether FOC should be considered an indication for CS, despite the UK National Institute for Health and Care Excellence (NICE) endorsing guidelines which state that CSMR can be a treatment modality should antenatal mental health care be ineffective (Nath et al., 2020; Ryding et al., 2016). In contrast however, women with FOC in Norway requesting CS must be referred to the hospital and given information on CS because maternal request due to fear is not a sanctioned CS indication according to guidelines (Henriksen et al., 2018). Similar guidelines exist in the Netherlands where pregnant women with severe FOC requesting CS must receive extensive counseling and guidance by the PCP regarding birth mode planning and risks (Sluijs et al., 2020). Likewise, in Sweden, women reporting FOC will be referred to specialized counseling clinics with PCPs specially trained in perinatal mood disorders (Hildingsson et al., 2017). Thus, how FOC impacts quality and safety standards in healthcare by an increase in CSMR varies across countries and remains an area for continued review to inform WHO recommendations.

**Legal Implications of Fear of Childbirth**

The increase of CSMR births worldwide due to FOC has legal implications (Matinnia et al., 2018). Issues surrounding professional responsibility and financial consequences following
complications of vaginal birth, such as vaginal tearing, epidural-related complications, and neonatal injuries, are reasons commonly cited by providers for granting CSMR (Matinnia et al., 21018). Moreover, obstetricians face litigation more often than other health care providers in the U.S. (Yang et al., 2009). There is also a 21-year window initiating a lawsuit, allowing the child to make a claim into early adulthood. Childbirth is one of the most litigious areas of practice in the United States (Guidera et al., 2012). Thus, some providers perform CSMR in order to avoid increased malpractice rates and claims, despite the increased risk of maternal-neonatal surgical and post-surgical complications (Yang et al., 2009). However, claims are still made for surgical births; performing a CS does not guarantee legal immunity.

**Ethical Implications of Fear of Childbirth**

Childbirth fear has substantial ethical implications. It causes women to avoid pregnancy despite the desire for children, to terminate pregnancies, and to request sterilization (Calderani et al., 2019; Koc et al., 2021; Mycroft & Taha, 2018). Moreover, women may choose to bear less children than originally desired and to have longer interpregnancy intervals, leading to a reduction in fertility rates (Hosseini Tabaghdehi et al., 2020; Möller et al., 2018). Furthermore, self-harm and suicide rates may increase once women pass legal thresholds for medical or surgical abortions due to FOC (Mycroft & Taha, 2018). This is especially concerning as recent legislative changes are restricting access to safe abortion care across the U.S.

Both the American College of Nurse-Midwives (ACNM) and the Association of Women’s
Health, Obstetric and Neonatal Nurses (AWHONN) state that clinicians must use evidence-based practice to provide care that will help women attain, regain, and maintain health (Trego, 2020). Currently, the evidence supports early FOC diagnosis and timely referral for treatment in order to ensure optimal psychological outcomes (Mycroft & Taha, 2018). However, there are no standardized, national endorsed clinical guidelines in the U.S. on perinatal anxiety screening (Gregory et al., 2020). Thus, providers face ethical dilemmas trying to reconcile evidence-based recommendations with the lack of clinical guidelines (Trego, 2020).

Another ethical consideration is the right to autonomy regarding CSMR (Runnals & Vrana, 2018; Weeks et al., 2020). Through shared decision-making, women have agency to make informed decisions regarding birth preferences (Trego, 2020). While patient autonomy is a core value in healthcare, the literature reveals that women with FOC have exaggerated negative perceptions regarding vaginal birth (VB) and do not fully understand CS risks (Week et al., 2020). This is because many providers do not adequately address childbirth risks with women in a balanced manner, neglecting to discuss the many benefits of physiologic birth, over-emphasizing the dangers of VB, and under-emphasizing the sequelae associated with CS (Asher et al, 2013; Weeks et al., 2020). Ethically, this raises concerns regarding the validity of the informed consent for the surgery (Weeks et al., 2020). Furthermore, it raises serious questions regarding the process of informed choice in maternity care, as women and birthing people cannot make informed decisions without sufficient education (Trego et al., 2020; Weeks et al., 2020).
Review of Literature

Search Strategy and Results

Initial Literature Review

An online database search of OVID Medline and CINAHL was conducted between January 2021 and February 2021, and then again in May 2022. It aimed to evaluate the existing body of knowledge on the prevalence of FOC worldwide and to explore associations between birth mode preference and FOC. Both databases were searched using the keyword “fear of childbirth,” resulting in the common MeSH term of “fear.” However, this keyword mapped to the MeSH term “childbirth” in CINAHL and to the MeSH term “parturition” in OVID Medline. Thus, “fear” and “parturition” were the MeSH headings used in the OVID Medline search, while “fear” and “childbirth” were the MeSH headings used in the CINAHL search.

In OVID Medline, the MeSH headings “fear” and “parturition” were combined using the Boolean operator “AND,” resulting in 330 results. The results were then restricted to literature published after 2016 in the English language that used only female subjects. Consequently, 146 studies remained for final screening for relevancy to the PICOT question and project aims. A total of 130 studies were discarded from this search: 98 examined themes other than FOC prevalence, 34 did not pertain to FOC, and three were editorial comments. However, 16 studies were retained: nine on FOC prevalence (Deliktas & Kukulu, 2019; Henriksen et al., 2018;
Hildingsson et al., 2017; Khwepeya et al., 2018; Nilsson et al., 2018; O’Connell et al., 2017; Phunyammalee et al., 2019; Poggi et al., 2018; Richens et al., 2019), and seven on birth preference in women with FOC (Handelzalts et al., 2017; Möller et al., 2018; Ryding et al., 2016; Stoll et al., 2018; Stützer et al., 2017; Takács et al., 2019; Takegata et al., 2018). In total, six are cross-sectional studies (Handelzalts et al., 2017; Khwepeya et al., 2018; Möller et al., 2018; Phunyammalee et al., 2019; Poggi et al., 2018; Stoll et al., 2018), four are prospective cohort studies (Hildingsson et al., 2017; Richens et al., 2019; Ryding et al., 2016; Takács et al., 2019), two are systematic reviews and meta-analyses (Deliktas & Kukulu, 2019; O’Connell et al., 2017), two are retrospective cohort studies (Henriksen et al., 2018; Stützer et al., 2017), one is a systematic review without meta-analysis (Nilsson et al., 2018), and one is a descriptive qualitative study (Takegata et al., 2018).

In CINAHL, the MeSH headings “fear” and “childbirth” were combined using the Boolean operator “AND,” narrowing the results to 277 publications. The results were then restricted to literature published after 2016 in the English language that used only female subjects. A total of 95 results remained for final relevancy screening. Fifty studies were duplicates from the OVID Medline search; of these, 42 were studies previously discarded from the OVID Medline search, and eight were studies already retained for review (Deliktas & Kukulu, 2019; Handelzalts et al., 2017; Henriksen et al., 2018; Hildingsson et al., 2017; Poggi et al., 2018; Richens et al., 2019; Stoll et al., 2018; Takegata et al., 2018). Furthermore, another 43 studies from this search were discarded: 35 examined themes other than FOC prevalence, seven did not pertain to FOC, and
one was an infographic on FOC. Ultimately, two additional cross-sectional studies on FOC prevalence were retained (Mortazavi & Agah, 2018; Onchonga et al., 2020).

Secondary Literature Review

A second literature review was conducted in May 2022 because this scholarly project met significant delays due to the COVID-19 pandemic and its subsequent restrictions within healthcare facilities regarding extraneous research. More literature has been published on the topic of FOC, which warranted a second review for additional evidence relevant to this study’s aims. The subsequent literature review conducted again utilized the OVID Medline and CINAHL databases, along with the same MeSH headings, Boolean operator “AND,” and search terms. The only exception was an update in the limiter of publication date to 2017-current, instead of 2016-current; all other limiters of female gender and English language remained the same.

The review of CINAHL resulted in seven more studies; four more pertaining to FOC prevalence (Korkcu et al., 2019; Nath et al., 2020; Persson et al., 2020; Serçeküş et al., 2020) and three more pertaining to birth preference in women with FOC (Hildingsson, 2021; Ilska et al., 2021; Sluijs et al., 2019). Of the studies investigating FOC prevalence: two are cross-sectional studies (Korkcu et al., 2019; Persson et al., 2020), one is a descriptive-relational design
(Serçekuş et al., 2020), and one is longitudinal (Nath et al., 2020). With regards to the studies examining birth mode preference: one is a longitudinal cohort design (Hildingsson, 2021), one is a cross-sectional study (Ilska et al., 2021), and one is a prospective cohort study (Sluijs et al., 2019).

The review of OVID Medline resulted in seven more studies. Four are studies regarding FOC prevalence (Berhanu et al., 2022; Huang et al., 2021; Koc et. Al, 2021; Massae et al., 2021), and three are studies addressing birth mode preference in women with FOC (Miller & Danoy-Monet, 2021; Preis et al., 2018; Sluijs et al., 2020). All studies on FOC prevalence are cross-sectional in design (Berhanu et al., 2022; Huang et al., 2021; Koc et. Al, 2021; Massae et al., 2021). Of the studies examining birth mode preference, one is a secondary analysis of previous research studies (Preis et al., 2018), one is a 2-by-2 factorial experimental design (Miller & Danoy-Monet, 2021), and one is a prospective cohort study (Sluijs et al., 2020).

**Critical Appraisal of the Literature**

The 28 primary sources and four secondary sources retained from the database searches were appraised using the Let Evidence Guide Every New Decision (LEGEND) tools. These standardized tools evaluate bodies of evidence in order to answer specific PICOT questions. The correct LEGEND appraisal form is selected after considering study design and clinical question type. Then, validity, reliability, and applicability of each source can is determined, allowing the reviewer to assign an overall quality grade to the body of evidence using Table of Evidence
Levels chart. Afterwards, the Judging the Strength of a Recommendation and the Grading a Body of Evidence forms are used to assess the overall body of evidence and to provide the basis for overall clinical recommendations (Evidence Evaluation Tools & Resources (LEGEND), 2012).

**Conceptualization of Fear of Childbirth**

The 19 studies on FOC prevalence provide a homogenous conceptualization of the problem. The studies agree that FOC is multidimensional, encompassing psychological, emotional, and social factors. Furthermore, similar risk factors for FOC are cited including nulliparity, previous negative birth experiences, low self-esteem, and low levels of social support. Additionally, the sources consistently state that FOC is related more to labor fears such as irretractable pain and harm to the baby, than to the physiological state of pregnancy. In terms of the impact of FOC on women, the literature concurs that women are more likely to request CS, to suffer from PPD and PTSD, and to have altered infant bonding and care-taking behaviors. Lastly, the sources also agree that FOC is understudied internationally, warranting additional research on FOC prevalence (Berhanu et al., 2022; Deliktas & Kukulu, 2019; Henriksen et al., 2018; Hildingsson et al., 2017; Huang et al., 2021; Khwepeya et al., 2018; Koc et al., 2021; Korkcu et al., 2019; Massae et al., 2021; Mortazavi & Agah, 2018; Nath et al., 2020; Nilsson et al., 2018; O’Connell et al., 2017; Onchonga et al., 2020; Persson et al., 2020; Phunyammalee et al., 2019; Poggi et al., 2018; Richens et al., 2019; Serçekuş et al., 2020).
The 13 studies examining FOC and birth mode preference also provide a homogenous conceptualization of the problem. Collectively, they concur that CS rates are increasing, implicating FOC as a contributing cause. Furthermore, they agree that women view CS as a means of maintaining control and predictability during labor, and as a solution to the problem of FOC. Moreover, similar adverse outcomes of CSMR were cited, including increased maternal and neonatal morbidity and mortality rates. This literature also agrees that more research is needed on FOC, specifically with respect to CSMR (Handelzalts et al., 2017; Hildingsson, 2021; Ilska et al., 2021; Miller & Danoy-Monet, 2021; Möller et al., 2018; Pries et al., 2018; Ryding et al., 2016; Sluijs et al., 2020; Sluijs et al., 2019; Stoll et al., 2018; Stützer et al., 2017; Takács et al., 2019; Takegata et al., 2018).

Findings

Sixteen of the 19 studies on FOC prevalence are primary sources and the remaining three are secondary sources. All 16 primary sources found that individuals in their samples have FOC, supporting that FOC is an international health concern. Furthermore, its presence in low-income countries demonstrates that FOC is not limited to middle-to-high income western countries (Berhanu et al., 2022; Huang et al., 2021; Khwepeya et al., 2018; Massae et al., 2021; Onchonga et al., 2020; Phunyammalee et al., 2019). Specifically, high levels of FOC in Kenya, Ethiopia, Malawi, Thailand, Tanzania, and China are prevalent at 22.1%, 28.9%, 20%, 16.1%, 15.1%, and 67.1%, respectively. Three studies conducted in Turkey found rates of FOC ranging from 50.2%
(Korcku et al., 2019), to 82%-82.6% (Koc et al., 2021; Serçekuş et al., 2019). This aligns with the overall pooled prevalence of FOC of 14% calculated in the secondary sources, and also with the higher rates of 23% to 25% calculated for Australia and Asia (Deliktas & Kukulu, 2019; Nilsson et al., 2018; O’Connell et al., 2017).

Twelve of the 13 studies examining FOC and preferred birth mode are primary sources, while one is a secondary analysis of previously published research articles (Preis et al., 2018). Ten of the studies found that women with clinical FOC were significantly more likely to prefer CS, to request CS, and to deliver via CSMR or emergency CS (Handelzalts et al., 2017; Hildingsson, 2021; Ilska et al., 2021; Miller & Danoy-Monet, 2021; Möller et al., 2017; Ryding et al., 2016; Sluijs et al., 2020; Stoll et al., 2018; Stützer et al., 2017; Takács et al., 2019). One study focused on preference for birth location and found that women with FOC strongly preferred hospital birth as opposed to home birth, likely due to the availability of pain relief measures and emergency equipment (Sluijs et al., 2019). One study conducted in Japan did not find any correlation between FOC and preference for CS; however, the women did report causes of FOC that are consistent with the other sources, including labor pain, loss of control, injury during delivery, and lack of social support (Takegata et al., 2018). This study proposes that East Asian culture is a moderating variable because women believe that VB empowers motherhood and that postoperative pain prevents the ability to provide high-quality infant care (Takegata et al., 2018). Similarly, the secondary analysis of two independent studies conducted in Norway and in Israel also found that most women in general preferred VB and that they had the same causes of FOC (Preis et al., 2018). However, the Norwegian women who had clinical FOC
strongly preferred CS, while the Israeli women with FOC still preferred VB because childbirth is a natural process in their culture and CSMR can negatively impact fertility which is highly valued in the Jewish culture (Preis et al., 2018). This aligns with other findings suggesting that the known association between FOC and CS preference is deeply embedded in the woman’s culture (Preis et al., 2018). Clinically, this is significant because it suggests that cultural perceptions surrounding CS impact birth mode preference among women with FOC (Preis et al., 2018; Takegata et al., 2018).

**Methodological Rigor**

Of the 28 primary sources on FOC prevalence and birth mode preference, ten cross-sectional and two retrospective cohort studies were graded 3a, five prospective cohort studies and one 2-by-2 experimental design were graded 2a, and two descriptive-qualitative studies and two longitudinal studies were graded 4a. Thus, all 22 of these primary sources were appraised as higher-quality using the LEGEND tools, indicating that this body of evidence is strong. However, one cross-sectional study was graded 3b and one prospective cohort study was graded 2b, both due to small sample sizes (Poggi et al., 2018; Richens et al., 2019). Despite this, the vast majority of the primary sources are high-quality according to LEGEND. Thus, this literature can be used to formulate clinical recommendations. However, caution, must be taken when interpreting such recommendations with regards to their efficacy in moderating FOC; such
recommendations would require evaluation to affirm safety and efficacy once enacted (Evidence Evaluation Tools & Resources (LEGEND), 2012).

Of the four secondary sources, the one secondary analysis on birth mode preference was graded a 1a (Preis et al., 2018). Furthermore, the two systematic reviews and meta-analyses on FOC prevalence were also graded 1a. One systematic review on FOC prevalence, though, was graded 1b because it did not conduct original statistical analysis (Nilsson et al., 2018). Therefore, three of the secondary sources were higher-quality, while one was lower-quality. The use of low-quality findings to formulate clinical recommendations is restricted due to the variable quality of the body evidence regarding FOC prevalence and birth mode preference (Evidence Evaluation Tools & Resources (LEGEND), 2012).

**Strengths and Limitations**

All 32 sources provided clinically significant findings. This is a strength because the total body of evidence can be used to support this doctoral project’s PICOT question, purpose, and aims. Additionally, the literature samples women from a wide range of countries, increasing the generalizability of the findings (Melnyk & Fineout-Overholt, 2019). Moreover, the primary aims of each study are consistent. Of the 19 studies determining prevalence, FOC occurrence is the primary aim. Twelve of the 13 studies analyzing birth preference examined route of birth in women with FOC as the primary aim, while just one examined birth location preference. The
overall consistency in variables and conceptualization of the issues in the reviewed literature increases external validity (Melnyk & Fineout-Overholt, 2019).

The body of evidence has limitations. The primary sources investigating FOC prevalence did not use the same FOC measurement tool, restricting the ability to compare results (Melnyk & Fineout-Overholt, 2019). Furthermore, several studies were impacted by small sample sizes, high attrition rates, and population samples that were not demographically comparable to the general population within the country of study, limiting generalizability of the data (Melnyk & Fineout-Overholt, 2019). Moreover, the 28 primary sources included in this literature review are limited by study design. According to the hierarchy of research evidence, cross-sectional studies, retrospective cohort studies, prospective cohort studies, and qualitative studies are low-quality designs because they have high risk of bias and are less generalizable (Melnyk & Fineout-Overholt, 2019). As a result, confidence in significant findings is reduced, thereby limiting clinical usefulness (Melnyk & Fineout-Overholt, 2019). However, as this scholarly project is describing FOC and its correlates as a phenomenon in an online U.S. population, and not examining treatment interventions, these study designs are appropriate for this study’s aims.

**Theoretical Framework**

Childbirth fear is an anticipatory anxiety due to uncertainty surrounding pregnancy and birth (Khwepeya et al., 2018). It is characterized by episodic foresight in which pregnant women organize their current actions based on hypothetical future situations, so that they can prepare to
manage their labor and birth (Sluijs et al., 2020). Additionally, public narratives tend to highlight negative birthing experiences over positive experiences, causing more anticipatory fear in pregnant women (Miller & Danoy-Monet, 2021). As a result of this anxiety, women with FOC are more readily affected by negative birthing information and may attempt to seek out danger signs, thereby inflating the risks of pregnancy and inducing fear (Sluijs et al., 2019).

Given that FOC is predominantly a future-oriented anxiety, the uncertainty and anticipation model of anxiety (UAMA) was selected as the guiding framework (Grupe & Nitschke, 2013; Khwepeya et al., 2018). There are five processes unique to UAMA that contribute to the abnormal anticipatory processes and increased threat expectancies in people with anxiety (see Appendix B) (Grupe & Nitschke, 2013). Women with FOC have inflated perceptions of childbirth risks, contributing to skewed perceptions regarding adverse outcomes and to increased threat attention (Grupe & Nitschke, 2013; Weeks et al., 2020). Furthermore, women with FOC have difficulty in understanding the risk/benefit analysis and relative safety of childbirth choices in the prevailing model of short prenatal care visits, contributing to deficient safety learning that conditions FOC (Grupe & Nitschke, 2013; Phunyammalee et al., 2019). These cognitive biases which serve to further reinforce the existing anxiety can then cause women to engage in behavioral avoidance by avoiding pregnancy (Grupe & Nitschke, 2013; Phunyammalee et al., 2019; Sluijs et al., 2020). Consequently, this continues to cement FOC through heightened reactivity to falsely perceived threats, which cannot be assuaged through identification of any potential sources of safety (Grupe & Nitschke, 2013; Phunyammalee et al., 2019). Together, these five aspects contribute to the increased threat expectancies that define the anticipatory
anxiety experienced by women with FOC (Grupe & Nitschke, 2013; Phunyammalee et al., 2019).

Definitions

Theoretical & Conceptual Definitions

1. Fear of Childbirth (FOC): This is an anxiety disorder, distinctly separate from generalized anxiety, which exists along a diagnostic continuum in persons contemplating childbirth. The lower end of the spectrum is characterized by labor-related fears, while the higher end is defined as tokophobia (Richens et al., 2018; Roosevelt & Low, 2016).

2. Tokophobia: Severe FOC that interferes with daily functioning by significantly impairing a woman’s personal, social, and professional life (Sluijs et al., 2019; Wootton et al., 2020). It is categorized under Specific Phobias by the DSM-5 and under phobic anxiety disorders by the ICD-11 (Fairbrother et al., 2022). According to the DSM-5, the phobia must almost always incite immediate fear or anxiety that is not proportional to the actual danger posed by the specific situation, persist for \(\geq 6\) months, and be unexplainable by other panic-disorders (Substance Abuse and Mental Health Services Administration, 2016).

3. Birth mode preference: The preference for cesarean section or vaginal birth at the time of childbirth (Stützer et al., 2017). Cesarean section can be further characterized as cesarean
section on maternal request (CSMR), which is classified by ICD-10 codes in the U.S. as “encounter for cesarean delivery without indication” (Möller et al., 2017).

4. Uncertainty and Anticipation Model of Anxiety (UAMA): Alteration in the five key processes of disrupted expected value calculation, increased threat attention and hypervigilance, deficient safety learning, behavioral and cognitive avoidance, and heightened reactivity to threat uncertainty, along with alterations in associated core brain circuitry is ultimately responsible for maladaptive cognitive, behavioral and affective responses to uncertainty in highly anxious individuals (Grupe & Nitschke, 2013).

**Operational Definitions**

1. FOC was measured by the English version of the Italian Wijma Delivery Expectancy/Experience Questionnaire Version A (W-DEQ-A): A validated 14-item questionnaire derived from the original W-DEQ scale used internationally to measure FOC. Version A measures FOC before birth. A score on this questionnaire of ≥35 indicates the presence of clinically significant FOC (Fenaroli & Saita, 2013).

**Purpose Statement**

The purposes of this doctoral project are to explore FOC prevalence in pregnant women in the U.S. using social media sites, to determine if the women with FOC demonstrate a significant
preference regarding birth mode, and to explore if any demographic variables are significantly associated with FOC in the women.

**PICOT Question**

The PICOT format generates clinical questions and guides clinicians in the systematic search of a desired topic (Melnyk & Fineout-Overholt, 2019). The components include: (P) population of interest, (I) intervention/issue of interest, (C) comparison group, (O) outcome expected, and (T) time for outcome evaluation (Melnyk & Fineout-Overholt, 2019). The PICOT question being addressed in this doctoral project is: What is the prevalence of fear of childbirth (O) and its associated factors (C) in pregnant women in the U.S. (P) surveyed through social media (I), during spring 2022 (T)?

**Specific Measurable Aims**

The clinical questions that will guide this doctoral project are:

1. In the U.S., how prevalent is FOC in pregnant women taking the designated survey through social media platforms between February 2022 and April 2022?
2. Do the women with high FOC demonstrate a significant preference regarding birth mode compared to those with no, low, or moderate, FOC?
3. Are there any associations between demographic variables and FOC in this population?
Chapter 2

This chapter addresses the methodology relevant to this doctoral project including research design, sample population, data collection tools, study procedures, human subjects review, data analysis plan. The methods employed in this project are being used to explore the prevalence of FOC within the target population, to determine if women with FOC have a preferred birth mode, and to discern if associations exist between FOC and demographic variables. Thus, the methodology was designed in order to address the specific measurable aims of this project: (1) In the U.S., how prevalent is FOC in pregnant women taking the survey online via social media platforms; (2) Do people with FOC demonstrate a significant preference regarding birth mode compared to those with no, low, or moderate FOC; and (3) Which demographic variables within this population that are significantly associated with FOC?

Research Design

This doctoral project used an exploratory, descriptive study design in order to address research/practice-based clinical inquiries (Moran et al., 2020). The purpose of this scholarly paper was to determine prevalence of FOC in the study population and to understand if FOC is correlated with preferred birth mode and with demographic variables. This was a systematic investigation of FOC which contributed to the current generalizable knowledge that exists on
clinical FOC within the U.S., which further defines the practice-based inquiry design (Moran et al., 2020).

This project was nonexperimental (Moran et al., 2020; Muacevic et al., 2020). It described the prevalence of FOC at a single point-in-time (Moran et al., 2020; Muacevic et al., 2020). Therefore, it was observational and followed a cross-sectional study design (Moran et al., 2020; Muacevic et al., 2020). This doctoral project used a validated FOC measurement survey, a birth mode preference survey, and a demographic survey in order to determine prevalence and significant associations. Numerical data was extracted and presented, further categorizing this project as quantitative (Moran et al., 2020; Muacevic et al., 2020).

Sample Population

The survey study was conducted via online dispersal on various social media platforms approved by Georgetown University’s Institutional Review Board (GU IRB). These platforms included Facebook, Instagram, and Twitter. Women and birthing persons in the U.S. who were pregnant during the time of data collection were included in this convenience sample population for this study.

Inclusion Criteria

Women and pregnant persons could participate if they were ≥ 18 years-of-age, were
currently pregnant, and were fluent in English. Pregnant people of any parity and gravidity, and of any gestational age, were also eligible to participate. Furthermore, women were not excluded based on past and/or current medical history, past and/or current medication usage, and past and/or current pregnancy complications, and past birth methods.

**Sample Size Calculation**

Using the computer software application, G*Power 3.1.9.7, a sample size of \( n = 159 \) women was required for a power 0.80 with a medium effect size (\( f = 0.25 \)) and alpha of 0.05 (see Appendix C). This was based on the premise that one-way ANOVA calculations would be used to analyze the data collected in this doctoral project.

**Data Collection Tools**

An informed consent was obtained from each participant before the beginning of the online survey (see Appendix D). In total, the entire survey consisted of three separate sections designed to measure different aspects relevant to this study’s aims. Instructions on how to answer the questions were provided before each section of the survey. The survey was designed to assess prevalence of FOC, as well as to determine any significant associations between FOC and demographic variables and birth mode preference. The informed consent, instructions, and entire survey were provided in the English language.
Demographic Questionnaire

The questions in the demographics survey were developed in coordination with faculty at the Birth Place Lab at the University of British Columbia (University of British Columbia, 2021). Participants were not asked to provide personal identifying information in this survey. These questions assessed various attributes, or inherent characteristics and qualities, within the target population (Robinson & Firth Leonard, 2018). Information collected in this section was used to compare groups to determine if specific attributes are associated with FOC (see Appendix D).

Birth Mode Preference Questionnaire

The questions included in the birth mode preference survey was adapted from a previous study with permission from the primary investigator (Stoll et al., 2018). These three thought-based questions were asked with the intention of assessing participant preference for birth mode and birth location (Robinson & Firth Leonard, 2018; Stoll et al., 2018). Two questions assessed family history of CS birth and location of birth, and both were categorial. The third question used a Likert-type scale to assess birth mode preference. Previous research has demonstrated that women with FOC were more likely to plan hospital births and to prefer CS births (Stoll et al., 2018). Information collected in this section was used to compare participants with high compared to low FOC prefer certain birth modes and locations (see Appendix D).
Fear of Childbirth Assessment

Worldwide, the assessment tool that has been used and translated into other languages most frequently to measure antenatal FOC is the Wijma Delivery Expectancy Questionnaire-Version A (W-DEQ-A) (Lai et al., 2022; Roosevelt & Low, 2016). It is considered the gold standard for measuring FOC and uses a self-report of the woman’s perception regarding their future childbirth to measure multiple dimensions including fear, lack of positive anticipation, isolation, and riskiness (Pallant et al., 2016; Roosevelt & Low, 2016). Furthermore, the creators of the W-DEQ-A found the reliability of this tool to be high in both nulliparous and multiparous women, thereby justifying the use of this scale in both of these pregnant populations (Wijma et al., 1998).

Originally, the scale consists of 33 self-report questions which are based on a six-point Likert scale (Roosevelt & Low, 2016). It has a minimum score of 0 and a maximum score of 165; higher scores correlate to higher levels of FOC, with scores ≥85 indicating clinical FOC and scores ≥ 100 indicating severe FOC (Lai et al., 2022; Molgora et al., 2018; Wijma et al., 1998). Using the cut-off of ≥85 to diagnose FOC has demonstrated a sensitivity of 100% and a specificity of 93.85%, giving credence to its credibility as an effective screening tool (Fairbrother et al., 2022). Despite its widespread use internationally, the original W-DEQ-A has been criticized for its length, thereby reducing its utility for routine testing in the clinic setting (Pallant et al., 2016).

In this doctoral project, the English version of the 14-Item Italian W-DEQ-A was used to assess FOC among pregnant women (see Appendix D). Permission to use this tool and its
corresponding scoring system was obtained from the creator of the tool (see Appendix E). The Italian version consists of 14 of the original 33 questions and has been validated with a Cronbach’s alpha of 0.86 and a composite reliability index of 0.93 (Fenaroli & Saita, 2013). It has a minimum score of 0 and a maximum score of 70; women who score ≥ 35 on this scale are considered to have clinical FOC (Molgora et al., 2020). This scale focuses on assessing FOC by using three of the four original dimensions: fear, negative feelings, and lack of confidence (Fenaroli & Saita, 2013). These three factors were shown to measure more than just simple FOC in women and were found to be a good reflection of women’s expectations before childbirth (Fenaroli & Saita, 2013). Thus, this is a reliable tool that can accurately be used to determine prevalence of FOC within the sample population (see Appendix D).

Scholarly Project Procedure

This project proposal was reviewed by GU IRB to assure human rights were respected during this project. Following approval from GU IRB (see Appendix F), a copy of the approved study-protocol, of the recruitment flier (see Appendix G), and of the three data collection surveys (see Appendix D) were made available upon request. The data collection survey was made available to participants in English in an online Qualtrics survey. The English link to the online versions was included on the recruitment flier in the form of a QR code that could be scanned and accessed through the participant’s personal smartphone or mobile device. The primary investigator was available throughout the length of the data collection process for any questions.
or concerns raised by participants.

The data collected were stored in a protected manner. Qualtrics stores participant data in a secure password-protected database, thereby ensuring privacy and limited access. All physical paper-copies of surveys were collected and stored in a locked file cabinet. All paper-copies were destroyed appropriately following conclusion of the scholarly project. Data were accessible to members of the project team and to the statistician.

Informed consent was presented on the first page of the online Qualtrics survey (see Appendix D). This informed consent provided a brief overview of the project aims and a brief description of confidentiality to the participants. Additionally, participants were made aware that they may ask questions regarding the project and survey at any time during the process. They were able to withdraw at any time during the study without consequence. In order to withdraw, participants simply stopped responding to the survey. Furthermore, participants understood that they were eligible to enter for a chance to win a $200.00 gift card to Amazon, on a voluntary basis, upon completion of the survey. The informed consent on the Qualtrics survey link consisted of “Yes, I do consent” and “No, I do NOT consent.” If they consented to the survey, they clicked on the forward arrow to proceed through the survey. Upon successful completion of the online survey, the participant viewed a screen thanking them for their input and providing them with contact details for the researcher should they have additional questions or concerns. Data from the online Qualtrics survey were entered into an Excel spreadsheet developed by the team statistician upon closure of the survey. This spreadsheet was password-protected. No identifying data were present on the Excel spreadsheet. Only the project researchers and the
statistician had access to the data.

**Human Subject Review**

The GU IRB reviewed this scholarly project to assure human rights were respected during this research (see Appendix F). Additionally, as a GU IRB requirement, all of the researchers involved in this program have completed the Collaborative Institutional Training Initiative (CITI) Human Resources Curriculum program. GU IRB approval was sufficient for online survey dispersal on the social media sites; no other IRB approval was needed in this study.

Qualtrics is General Data Protection Regulation and California Consumer Privacy Act compliant. Furthermore, they are ISO 27001 certified and FedRAMP authorized, meeting the certification standards put-forth by the U.S. Government. They ensure data encryption in transit and its Data Centers are audited with SSAE-16 methods to ensure security. Furthermore, Qualtrics does feature a 24-hour continuous security operations center and routinely uses independent third-party security reviewers and penetration testing. Data from the participants was stored in password-protected databases. Moreover, the data was stored on a password-protected laptop in a password-protected Excel spreadsheet file where only the researchers and statistician had access to the files and passwords. This electronic data will be destroyed 12 months after the completion of the survey.
Data Analysis Plan

Data analysis was done using the SPSS 28 software developed by International Business Machines (IBM) corporation. Descriptive statistics were performed on the demographic and birth mode preference data that are nominal and dichotomous level variables; this included calculating frequencies and percentages (Sylvia & Terhaar, 2018). Continuous variables within the demographic data underwent analysis for normality (Sylvia & Terhaar, 2018). Basic descriptive statistics for these data included range, means, and standard deviations (Sylvia & Terhaar, 2018). The Italian W-DEQ-A produced data that provided a mean score for FOC; it also provided frequency data (Sylvia & Terhaar, 2018). Thus, parametric statistical testing can be used on the FOC data as opposed to nonparametric statistical testing (Sylvia & Terhaar, 2018). As such, a one-way analysis of variance (ANOVA) was used to determine if the means between at least three independent groups were statistically different (Sylvia & Terhaar, 2018). Independent t-tests were used to determine if the means between two independent groups were statistically different (Sylvia & Terhaar, 2018). Further statistical analysis and testing was guided by the team statistician.
Chapter 3

Internationally, the research conducted on clinical FOC is plagued with significant heterogeneity in terms of FOC definitions, study designs, survey tools used, and populations sampled (Deliktas et al., 2019; Hildingsson et al., 2021; Hildingsson et al., 2017; Koc et al., 2021). This study contributes to the evidence regarding the prevalence of FOC by describing a U.S. sample of demographic variables, FOC, and birth mode preference with FOC in pregnant women (Hildingsson et al., 2017; Ilska et al., 2021).

Sample Characteristics

Sample Demographics

A total of 90 pregnant women completed the entire online Qualtrics survey on FOC consisting of the demographic questionnaire, the birth mode preference questionnaire, and the English version of the 14-Item Italian W-DEQ-A. The average age of the sample was 30 years-old and the average gestational age was 21.5 weeks. The majority of the sample identified as Non-Hispanic White (84.4%), straight/heterosexual (85.6%), and married (74.4%). For 32.2% of women, this was their first pregnancy; for another 32.2%, this was their second pregnancy, while 22.2% reported this as their third pregnancy. A majority of the sample (57.8%) reported that they had not attended childbirth education classes and/or did not plan on attending childbirth classes.
during their pregnancy. Education level within the sample varied, with 15.6% stating they have a high school degree, 20% stating they have a 1- or 2-year college degree, 34.4% stating they have an undergraduate college degree, 20% stating they have a Master’s degree, and 10% stating they have a Doctoral degree. See Appendix H for additional sample characteristics.

Physical Health Issues in Pregnancy, Experiences in Previous Pregnancies, and Mood Disorders

Women in the sample were able to select either one, none, or multiple options with regards to physical health issues affecting the current pregnancy. The majority of women (58.9%, \( n = 53 \)) replied that their current pregnancy was not afflicted by any physical health problem. Of those who had a health problem, the most common answer (\( n = 13 \)) was “Other Medical Problems,” while 8 reported gestational diabetes, 8 reported UTIs, 5 reported issues with “My Health,” 3 reported breech positioning of baby, 1 reported high blood pressure, and 1 reported concern with growth of baby. However, the majority of women (58.9%, \( n = 53 \)) replied that their current pregnancy was not afflicted by any physical health problem (see Appendix H).

The questions regarding previous birthing experiences reflect multiparas who endured traumatic or negative events in past pregnancies; these women could select multiple options regarding support, trust, and self-confidence, or could leave them blank if unaffected in prior pregnancies. A total of 61 women in the sample reported having a previous pregnancy. Of these 61 women, 29.5% stated they previously distrusted medical staff, 24.6% stated they previously
lacked self-confidence in the birthing process, and 16.4% stated they previously felt as though they lacked social support. Furthermore, 21.3% reported prior severe labor pain, 37.7% reported prior vaginal tearing, and 23% reported a prior emergency CS (see Appendix H).

Forty-five women (50%) in the total sample indicated they have ever been diagnosed with a mood disorder, including anxiety, depression, or phobias. Of these women, 43 (95.6%) received treatment. Seventeen women (27.9%) indicated they had either PPD or postpartum anxiety diagnosis, and 12 of these women (70.6%) received medical treatment for the diagnosis including medication or psychotherapy (see Appendix I).

**Birth Mode Preference Results**

In this sample, the majority of respondents (64.4%) reported a family history of CS. Furthermore, the majority (95.6%, n = 86) stated they planned to give birth in the hospital. However, responses varied with regards to preferred birth mode. Exactly 50% (n = 45) of the sample strongly preferred VB; however, 18.9% had slight preference for VB, and 14.4% ad no preference at all between VB or CS. Combined, 16.7% of the women sampled indicated they either had strong or slight preference for CS.

**Fear of Childbirth Results**

The Cronbach’s alpha was 0.79 for the English version of the 14-Item Italian W-DEQ-A
used in this scholarly project. This is a measure used to assess the reliability of a tool; that is, the ability of the tool to consistently measure its intended concepts. It is expressed as a value between 0 and 1; the higher the alpha, the more the test items are interrelated, meaning they are likely measuring the same intended underlying concepts (Tavakol & Dennick, 2011). In order to be considered an acceptable measurement tool, values should fall between 0.65 and 0.8; thus, the W-DEQ-A used in this sample was acceptable (Goforth, 2016).

The W-DEQ-A scores range from 0-70, with higher scores indicating greater FOC. A score of ≥35 on this scale indicates clinical FOC in the pregnant woman. The mean score for this sample was 33.1 (SD = 11.0), ranging from 6 to 66. Almost half of the sample (47.8%) scored ≥35 on the W-DEQ-A (see Appendices K and L).

Data Analysis

Sample Characteristics and W-DEQ-A Scores

Pearson correlations were used to assess any significant relationships between interval level demographic variables and mean W-DEQ-A score (M = 33.1) in the sample. Age was not related to W-DEQ-A scores, r = -.07 (p = .49). Gestational age had a small negative correlation with W-DEQ-A scores, r = -.21 (p = .052). Those who were taking childbirth classes were combined into one group with those who planned on taking classes, and were compared against those who do not plan on taking classes. Those with no child birth classes had higher scores (M = 34.6, SD
than those who attended or plan to attend child birth classes ($M = 31.0, SD = 8.4$), but the difference did not reach statistical significance, $t(88) = 1.58, p = 0.59, d = 0.34$).

With regards to education, pregnant women with at least an undergraduate degree were grouped together. All other respondents with less than an undergraduate degree were grouped together. Women with less than an undergraduate degree had significantly higher W-DEQ-A scores ($M = 36.6, SD = 10.7$) than those with at least an undergraduate degree [($M = 31.1, SD = 10.8$), $t(88) = 2.33, p = .022$]. Education had a medium effect size ($d = .51$).

Marital status did not have enough variation to result in any meaningful comparisons, as only 2 respondents were divorced, and only 1 respondent was single. The mean W-DEQ-A score for married women was 33.0 ($SD = 11.5$) and was 33.9 ($SD = 9.5$) for partnered women. After excluding the 3 respondents who were either divorced or single, there was no significant difference in FOC between married women and those living with a partner [$t(85) = -0.31, p = .76, d = 0.08$]. Similar issues of lack of heterogeneity were present with sexual orientation and race/ethnicity, therefore statistical tests of differences in scores by sexual orientation and race/ethnicity could not be reliably computed. The majority of the sample identified as heterosexual; thus, all those who identified as “non-heterosexual” were grouped together for comparison. There was no difference in W-DEQ-A scores by sexual orientation [$t(88) = -0.16, p = .871, d = 0.05$]. The majority of the sample identified as Non-Hispanic whites; thus, all other races/ethnicities were combined into one group for statistical analysis. Non-Hispanic whites had lower scores ($M = 32.4, SD = 10.3$) than others ($M = 36.6, SD = 14.3$), but the difference was not statistically significant [$t(88) = 1.30, p = .198, d = .38$]. There were very few respondents with
three or more pregnancies, therefore they were grouped together for comparison with those who were pregnant for the first time, the second time, and the third time. Those with three or more previous pregnancies had higher scores ($M = 36.3$, $SD = 15.3$) than those with zero, one, or two previous pregnancies ($M = 33.2$, 32.4, and 32.1, $SD = 7.8$, 13.1, and 8.9, respectively), although the differences were not statistically significant, $F(3, 86) = 0.42$, $p = .738$, $\eta^2 = 0.014$. Further analysis of parity involved grouping those with $\geq 2$ pregnancies into one group and those who were pregnant for the first time into one group. It was expected that nulliparous women would have greater FOC than multiparous women; thus, the one-sided $p$-value was examined. There was no significant difference between nulliparous ($M = 33.2$, $SD = 7.8$) and multiparous ($M = 33.0$, $SD = 12.3$), $t(88) = 0.06$, $p = .478$, $d = 0.01$.

Two questions in the survey were designed to assess the impact of previous negative birthing experiences on FOC scores (see Appendix D). Specifically, one question addressed a lack of birthing support with previous pregnancies, a lack of trust in doctors/nurses at hospital during previous labors and births, and/or a lack of self-confidence in previous birthing abilities. The women who indicated any of the previous experiences in this question were grouped together, and their mean FOC score was compared against the mean FOC score of the women who did not select an option; there was no significant difference. The second question assessed factors that can cause traumatic births; specifically, it asked about severe labor pain, even with an epidural, vaginal tearing or episiotomy during labor, and/or unplanned or emergency c-section birth. Again, women could choose more than one response, and all women who indicated at least one option were grouped together for comparison. There was no statistical significance when
compared to the women who did not answer the question. However, the mean FOC score of those with previous severe pain during labor ($n = 13$) was 34.4 ($SD = 8.4$), while the mean score of those who did not have pain ($n = 44$) was 32.5 ($SD = 11.7$). Thus, multiparous women with previous severe labor pain have FOC scores that are higher than those without severe pain and closer to clinical FOC. Though, the difference was not significant, $t(55) = 0.56, p = .291, d = 0.18$.

This scholarly project had two questions aimed at addressing a history of having any diagnosed mood disorders and being treated for these diagnosed mood disorders (see Appendix D). It was expected that women with a positive history of diagnosis and of treatment would have higher FOC scores; therefore, the one-sided $p$-value was assessed. No significant difference in FOC scores was noted when the mean scores of those who had a previous diagnosis of a mood disorder ($M = 33.5, SD = 8.7$) were compared to those who did not have any prior history ($M = 32.7, SD = 13.0$), $t(88) = 0.33, p = .370, d = 0.07$). Nor was there a significant difference between those who indicated they had been treated for a mood disorder ($M = 33.4, SD = 8.7$) and those who had not ($M = 32.8, SD = 13.1$), $t(88) = 0.26, p = .399, d = 0.05$. This study examined whether a history of PPD and/or mood disorders, along with treatment for these mood disorders, had an impact upon FOC scores. The one-sided $p$-value was examined for analyses as it was expected that those with a positive answer for either question would have a higher FOC score. Again, no significant differences in FOC scores were noted when the mean scores of those who answered positively to the questions were compared to those who did not have any prior history or treatment. The mean score for those with a history of PPD was 35.5 ($SD = 6.7$) and those
without such a history was 32.2 ($SD = 12.9$). Although the difference was not statistically significant, $t(63) = 1.38, p = .086, d = 0.28$, the mean for those with a history of PPD was in the clinical FOC range whereas those without was not. Similarly, those who had been diagnosed and treated for PPD or postpartum anxiety had average scores in the clinical FOC range ($M = 36.1, SD = 7.1$) while those diagnosed but not treated did not ($M = 34.0, SD = 8.3$), although the differences were not statistically significant, $t(42) = 0.84, p = .204, d = 0.27$.

**Birth Mode Preference and W-DEQ-A Scores**

Family history of CS was assessed. It was thought that having a history of CS in families would lead to higher FOC in pregnant women. There was no significant difference in FOC scores in those with a history of CS when compared to those who do not have a family history of CS ($M = 32.0, SD = 10.6$) when compared to those who do not have a family history of CS ($M = 35.1, SD = 13.8$), $t(78) = 1.10, p = .276, d = 0.28$). In fact, those with no family history of CS appeared to have somewhat higher scores. With regards to birth place, 95.6% of the sample stated they preferred a hospital birth. It was thought that those preferring a hospital-based birth would have higher levels of FOC as compared to those choosing alternative locations for birth. There was no difference in FOC scores based on preferred location of birth, $t(2.02) = 0.01$, one-sided $p = 0.497, d = 0.01$. The mean score of those who preferred hospitals was 33.1 ($SD = 10.4$) compared with 33.0 ($SD = 28.6$) for those who preferred other venues. The majority of the sample preferred VB to CS. Therefore, those who chose strong preference and slight preference
for VB were grouped together, those who chose strong preference and slight preference for CS were grouped together, and those with no preference were the third comparison group. The mean FOC score for the CS group was 35.2 (SD = 9.8), the mean FOC score for the VB group was 33.1 (SD = 12.0), and the mean FOC score for the no preference group was 30.62 (SD = 6.2). The means were not statistically different from each other; thus, birth mode preference was also not significant in this study, despite the CS group having high FOC, $F(2, 87) = 0.60, p = .552, \eta^2 = 0.014$.

**W-DEQ-A Subscale Analysis**

The previously reported Cronbach’s alpha for the 14 item W-DEQ-A survey indicates that the items are adequately correlated and consistently measured the concept of FOC in pregnant individuals in this study. The creators of the shortened Italian W-DEQ-A utilized in this study intentionally chose certain questions from the original W-DEQ-A. These questions can be categorized into two different groups, those which indicate positive feelings towards pregnancy and those which indicate negative feelings towards pregnancy. Furthermore, the questions can be grouped into three groups which measure three distinctly different dimensions unique to FOC: fear, negative feelings, and lack of trust. In this scholarly project, however, comparing the total sample’s mean FOC score to the demographic variables and to birth mode preferences resulted in only one statistically significant finding- an association with education. Therefore, dividing the 14-items into their designated subscales would likely also yield insignificant findings. Thus,
statistical analyses were not conducted on these subscales in this study.
Chapter 4

Discussion of Findings

Identifying women with a FOC anxiety disorder is a challenge universally due to the lack of a standardized definition and to differences in the tools used to screen, and consequently, diagnose the perinatal mental health condition (Richens et al., 2019). The primary aims of this doctoral project were to explore the prevalence of FOC, as well as to elucidate any correlations that may exist between demographic variables and birth mode preference. The Cronbach’s alpha (0.789) in this study demonstrates that the survey tool had good internal consistency. This is comparable to the Cronbach’s alpha that was calculated in the original study (0.86) which proposed this limited W-DEQ-A tool as a satisfactory means of measuring FOC in pregnant women (Fenaroli & Saita, 2013). Thus, the concept of FOC was measured consistently among the respondents for this project.

The demographic and birth mode preference questionnaires in this study were developed in accordance with previous literature which demonstrated significant associations between certain variables and clinical FOC in pregnancy. Both questionnaires were developed with the insight of the team’s content expert. Despite the adequate internal consistency of the W-DEQ-A used, and the development of questionnaires consistent with the existing knowledge, this study did not yield statistically significant findings.
Discussion of Fear of Childbirth Prevalence

The prevalence of FOC in this sample was 47.8%, with a mean score of 33.1 (SD = 11.0). The authors of the Italian 14-question W-DEQ-A assigned a cut-off of ≥ 35 for making a diagnosis of FOC that is analogous with the cut-off of ≥ 85 on the original W-DEQ-A (Fenaroli & Saita, 2013). The prevalence of FOC found in this study is consistent with the 40% risk of American women developing anxiety-disorders in their lifetime (Gregory et al., 2020; Runnals & Vrana, 2018). This prevalence rate is within the estimated range of FOC of 7.7% to 52% for women in the U.S; though, this is estimate is derived from limited data (O’Connell et al., 2017; Roosevelt & Low, 2016; Runnals & Vrana, 2018). In contrast however, the pooled prevalence of FOC in the U.S. was estimated to be around 11%; thus, the 47.8% prevalence in this sample is much higher (O’Connell et al., 2017) (see Appendix K). This suggests heterogeneity within the data which has been identified previously (Deliktas et al., 2019).

While the prevalence rate in this study was higher than the estimated pooled prevalence, it is consistent with higher rates found in other countries. Research conducted in Turkey indicates that FOC is present in 50.2% to 82.6% of pregnant women (Korcku et al., 2019, Koc et al., 2021; Serçekuş et al., 2019). Research in China suggests that 67.1% of pregnant women may have clinical FOC (Huang et al., 2021). However, other countries with limited data suggest lower rates of FOC within their pregnant women. The necessary sample size (n = 159; see Appendix C) was not achieved in this study. Thus, having adequate power in this study by achieving a larger sample size may have resulted in a different prevalence rate (O’Connell et al., 2017).
In this study however, the mean FOC score was only 1.9 points lower than the value needed to indicate FOC using this measurement tool. The average score of 33.1 may be of clinical significance because it suggests that childbirth fear in the U.S. could be more common than previously thought in perinatal healthcare. Additionally, a prevalence of 47.8% may be clinically significant because it indicates that almost half of the sample had significant FOC which requires further evaluation by perinatal mental health professionals. Altogether, these findings imply that FOC is a widespread and that PCPs need to assess for and be able to identify it in order to optimize maternal-fetal outcomes.

**Discussion of Demographic Variables and Fear of Childbirth**

While most of the demographic variables assessed were not statistically significant in this study, educational level was statistically significant ($p = 0.022$). Those with less than an undergraduate degree had higher FOC scores than those with at least an undergraduate degree. This is consistent with other literature which has found similar associations between lower educational levels and illiteracy and subsequent higher FOC in pregnant women (Henriksen et al., 2018; Hildingsson et al., 2021; Khwepeya et al., 2018; Massae et al., 2021; Onchonga et al., 2020). Conversely, other literature has found no association between education and FOC scores (Dencker et al., 2019; Koc et al., 202; Mortazavi et al., 2018; Phunyammalee et al., 2019; Serçekuş et al., 2020). A possible explanation for higher FOC in pregnant women who are less educated is that they are not able to comprehend childbirth information as well as those who
have more education and are literate (Khwepeya et al., 2018).

Two variables were close to achieving statistical significance in this sample: attending childbirth education classes ($p = .059$) and gestational age ($p = .052$). This aligns with existing research which reports conflicting evidence supporting the association between FOC and these two variables. One study found that not attending childbirth education classes is a predictor for having more FOC (Onchonga et al., 2020), while another study did not find any statistically significant correlation between the two (Richens et al., 2018). However, this same study did reveal that women who wanted to attend, but not actively attending, have higher FOC compared to those who were not planning on attending classes and to those who were undecided (Richens et al., 2018). In this study, pregnant women without childbirth preparation classes had higher FOC scores than those who had already attended classes or planned on attending classes later in the gestation. This may be attributed to that idea that women who have attended classes, or who are planning to attend classes, are equipped with knowledge about the entire birthing process thus reducing overall anxiety (Onchonga et al., 2020).

As stated previously, gestational age is another variable with incongruent results reported in the existing body of knowledge. This study found that there is a small negative correlation between gestational age and FOC scores though not statistically significant; thus, as pregnancy progresses, women become less fearful. This is in accordance with other literature which has found the same result. One study in particular reported that FOC in their sample decreased from 11% to 6% over the time of the pregnancy (Sluijs et al., 2019), while another found that FOC decreased from 64% in the second trimester to only 36% in the third trimester (Berhanu et al.,
In contrast though, several studies found that as women progressed through the pregnancy, they became more fearful (Huang et al., 2021; Richen et al., 2018). Moreover, most of the literature has reported that gestational age is not related to FOC (Henriksen et al., 2018; Koc et al., 2021; Korukcu et al., 2019; Mortazavi et al., 2018; Onchonga et al., 2020). It is proposed that measuring FOC at only one time point can result in missed data in trends over the pregnancy, thus resulting in insignificant correlations between gestational age and FOC (Richen et al., 2018).

This scholarly project did not find any association between FOC and maternal age, marital status, parity, sexual orientation, race/ethnicity, and family history of CS. Similar to the other variables previously discussed, there is widespread disagreement on relationships of these demographic variables and FOC in the literature. Age is particularly divisive as studies have found that women of advanced maternal age (≥ 30-35 years-old) are more likely to have FOC and that women ≤ 20 years-old are also more likely to have higher fear scores (Huang et al., 2021; Koc et al., 2021; Korukcu et al., 2019; Massae et al., 2021). Thus, women on the extremes of reproductive age may suffer from higher FOC. Older pregnant women may hear about more potential complications and may have had previous traumatic childbirth experiences leading to increases in FOC (Massae et al., 2021), while younger women may be taught from an early age that having children is a dangerous and painful process leading to more childbirth anxiety (Korkcu et al., 2019). However, these possible explanations need to be tested in further studies.

Parity is another variable which is largely inconclusive in the literature. This scholarly project found no correlation with regards to FOC. However, some studies have found that
multiparous women are likely to have greater FOC scores, likely to due to having prior negative birthing experiences, low social support, and lower quality professional healthcare (Deliktas et al., 2019; Ilska et al., 2021). Other literature has found that primiparous women and nulliparous women have higher levels of FOC when compared to multiparous women (Onchonga et al., 2020; Sluijs et al., 2020), while other literature reports no association (Phunyammalee et al., 2019). Thus, this is a demographic variable which warrants further exploration as these patterns need to be elucidated for PCPs caring for birthing persons.

The questions in this study which addressed various health problems affecting current pregnancy and previously negative birth experiences were also not significantly related to FOC scores. This was not expected, as most of the literature identified a previous history of traumatic birth as a significant predictor, if not the strongest predictor, of FOC in current pregnancies (Berhanu et al., 2022; Dencker et al., 2019; Henriksen et al., 2018; Khwepeya et al., 2018; Massae et al., 2021; Poggi et al., 2018). In this sample, almost 30% of the women who have been pregnant before reported a distrust in medical staff, and almost 25% reported a lack in self-confidence. Furthermore, around 20% reported prior severe labor pain, 38% reported prior vaginal tearing, and 23% reported a prior emergency CS. While not significant statistically, it is consistent with the current literature. One study reported that women with previous complications including prolonged labor, excessive labor pain, excessive bleeding, previous vaginal lacerations, and previous CS were seven times more likely to have FOC in subsequent pregnancies (Berhanu et al., 2022). This was attributed to the idea that women fear similar situations arising in the current pregnancy (Serçekuş et al., 2020). Furthermore, perineal damage
is proposed to be a possible reason why women with FOC prefer CSMR because they believe CS is the safest way to avoid further tissue damage (Khwepeya et al., 2018). Moreover, women who plan on having epidural anesthesia exhibit higher FOC (Poggi et al., 2018), and those who have experienced induction and epidural anesthesia also had higher FOC than those who did not have these childbirth experiences (Hildingsoon et al., 2021). In addition, women who receive poor support from their healthcare team members tend to have lower self-confidence in their birthing abilities, contributing to higher FOC (Massae et al., 2021). Thus, prior negative and/or traumatic birthing experiences have been found to be a strong predictor of FOC, warranting future research.

Current literature has found associations between mood disorders, both present and previous, and FOC in pregnant women. This doctoral project however, did not find any statistically significant associations between the two in the sample. Half of the sample ($n = 45$), reported a history of a previously diagnosed mental health disorder outside of pregnancy, which is important as it demonstrates considerable prevalence which PCPs need to consider in practice. The existing research indicates that women with FOC have more stress, more current or previous anxiety and/or depressive disorders, and more incidents of abusive experiences in childhood (Dencker et al., 2019; Hildingsson et al., 2018; Ilska et al., 2021; Nath et al., 2020; Poggi et al., 2018). The literature also highlights unique considerations for providers regarding FOC and mood disorders. Specifically, pregnant women who older in age, who are single in partner status, who are nulliparous, who are lower in educational achievement, and who have had negative prior obstetrical experiences are more likely to have FOC and depressive symptoms complicating their
pregnancies (Massae et al., 2021). Thus, adequate screening for FOC during pregnancy is important, given that women who had high FOC during pregnancy are more likely to have higher PPD scores warranting treatment, are more likely to have lower self-rated mental health in general, and are more likely to exhibit more low-to-moderate depressive signs and symptoms (Hildingsson et al., 2018). Therefore, the association between mental health disorders and FOC cannot be ignored by providers, even though this study did not elucidate any statistically significant findings.

**Discussion of Birth Mode Preference and Fear of Childbirth**

CSMR rates have been increasing globally, against recommendations from the WHO, and FOC has been widely implicated as a cause for this increase in CS rates (Massae et al., 2021; Miller & Danoy-Monet, 2021). This study did not find any statistically significant associations between birth mode preference, or birth location preference, and FOC scores. The majority of the sample indicated they planned on giving birth in the hospital and preferred VB to CS birth. However, the mean FOC score in women who preferred CS was higher than those with no preference, and higher than those who preferred VB birth ($M = 35.2$, $M = 30.62$, $M = 33.1$, respectively).

Interestingly, women with no preference at all for birth mode had the lowest scores of all women in the study. This association between no preference and lower FOC scores is in contrast to one study which found that women with no preference did have higher FOC during pregnancy.
In addition, women who prefer CS having higher FOC scores is consistent with the literature reviewed (Berhanu et al., 2022; Handelzalts et al., 2017; Henriksen et al., 2018; Ilska et al., 2021; Miller & Danoy-Monet, 2021; Preis et al., 2018; Poggi et al., 2018; Ryding et al., 2016; Serçekuş et al., 2020; Sluijs et al., 2020; Stoll et al., 2018; Stützer et al., 2017; Takács 2019). Potential reasons for this link are that women are afraid of their baby being injured or dying during labor and are afraid of having perineal lacerations and episiotomies, viewing CS as the gentler way of giving birth (Stützer et al., 2017; Takegata, 2018). Despite FOC being indicated as a significant factor for CS requests, some studies have found that it is not statistically related to FOC (Onchonga et al., 2020; Phunyammalee et al., 2019; Takegata et al., 2018). This doctoral project also found that birth mode preference is not statistically significant; though, childbirth fear remains higher in the group preferring CS birth.

**Practice Implications**

Childbirth fear in healthcare has not been widely studied or addressed in the U.S. culture. Internationally, there is an extensive body of knowledge regarding FOC and its various implications regarding prenatal care and general health care trends, personal health, and community health. While women in the U.S. have a 40% lifetime risk of developing any anxiety disorder, perinatal mental health remains under-addressed and under-diagnosed in clinical care (Ilska et al., 2021). In this sample, exactly 50% of the pregnant women in this study sample stated they have a history of mood disorder diagnoses, with the majority (70.6%) also receiving
either medication therapy or psychotherapy for treatment. This indicates the need for clinicians to address FOC, and other perinatal mood disorders during pregnancy, in order to improve maternal-fetal outcomes.

An individual’s preferences for birth mode can develop before their first pregnancy, likely due to the influence of various social and cultural factors, as well as from hearing negative or positive birthing stories on social media (Miller & Danoy-Monet, 2021; Sluijs et al., 2019). Given that the WHO recommend a CS rate of between 10%-15% for approved indications as optimal for any country, it is imperative that FOC is explored by clinicians and acknowledged as a causative agent for increases CSMR rates globally (Miller & Danoy-Monet, 2021). Studies have found that women with FOC are two times more likely to have an acute CS, and four times more likely to have elective CS (Takács et al., 2019). While the majority of women in this study preferred VB to CS, 16.7% still stated they preferred a CS birth. Thus, educational interventions should be aimed at women before becoming pregnant who prefer CS as a potential way to decrease FOC and CSMR rates (Miller & Danoy-Monet, 2021). Additionally, once there is a pregnancy, providers are in a unique position to approach the woman with FOC who prefers CS and to create a therapeutic relationship in which coping strategies for the birth can be discussed openly and referrals for perinatal mental health specialists can be initiated (Handelzalts et al., 2017). It is important to decrease the CSMR rates internationally as the risks of elective CS greatly outweigh the benefits of the procedure (Miller & Danoy-Monet, 2021).
Project Limitations

There were identified limitations to this doctoral project. Most prominently, the sample size to achieve powder was not reached. Studies conducted on FOC with limited sample size state that the ability to draw possibly significant conclusions between groups is affected by type B-errors; thus, larger sample sizes would allow for closer examination of these types of errors (Sluijs et al., 2020). The generalizability of the results is also limited due to sample size and cannot be considered representative of the entire U.S. population (Korukcu et al., 2019). Furthermore, this study was inherently limited by its study design. Cross-sectional designs measure the intended variables at one time-point only and can show correlations. They are not able to demonstrate cause-and-effect relationships between variables (Khwepeya et al., 2018). It was also conducted over social media and participants were not recruited in-person, thus constituting a convenience sample. Use of social media generally results in lower recruitment numbers with predominately younger populations participating in the research. It also is inherently biased against those who cannot access the internet to take the survey (Khatri et al., 2015). Therefore, generalizability of the results is limited due to sample size and sampling methodology and cannot be considered representative of the entire U.S. population (Korukcu et al., 2019).

The use of the W-DEQ-A to screen for childbirth fear is a study weakness as well. While it is considered the gold standard, it has been highly criticized by leading researchers on FOC. It is designed specifically for vaginal birth, it is long in length, it may have limited cultural
transferability, and it is only meant for screening purposes and not diagnosing (Hildingsson et al., 2021; Miller & Danoy-Monet, 2021; Massae et al., 2021). Furthermore, the W-DEQ-A does not capture fear related to things such as fear of staff abandonment, medical intervention, loss of autonomy and control, mistreatment, and obstetrical violence during the birthing process which can contribute to FOC (Nilsson et al., 2018). Another critique when using only the W-DEQ-A is that anxiety was not distinctly measured on an anxiety scale. FOC and anxiety are closely related; thus, some women may be anxious but not have FOC. Additionally, other psychiatric comorbidities like depression were also not measured in this study (Hildingsson et al., 2021).

Finally with regards to the W-DEQ-A, it was self-administered which can cause confusion with interpretation and survey fatigue in the participants. Using a trained interviewer to administer the questionnaire in future studies would be one way to avoid any confusion affecting the results in this project (Massae et al. 2021).

Another limitation is that FOC was only assessed at one point during pregnancy. Thus, differences in FOC scores and birth mode preferences may have changed over time, as observed in prior research, and may have been overlooked (Ryding et al., 2016; Sluijs et al., 2020). This study also did not ask where participants were receiving their prenatal care. Private versus public healthcare settings and healthcare staff may contribute to childbirth fear levels during pregnancy; thus the results of this study cannot be generalized to either setting (Berhanu et al., 2022). Other weaknesses include sampling English-speaking pregnant women only in the U.S. and having high homogeneity with regards to race/ethnicity, sexual orientation, and marital status (Stoll et
al., 2018). This limits the ability to generalize results to the larger population of pregnant women in the U.S.

**Project Strengths**

This doctoral project did have strengths in methodology. Despite criticisms, using the W-DEQ-A is considered a strength. It is the gold-standard screening tool for FOC internationally and has been translated into many different languages with acceptable results (Sluijs et al., 2019). Using a cross-sectional design was the ideal way to conduct this study because this design is to be used when surveying a population in order to assess disease prevalence in clinical samples (Setia, 2016). Furthermore, disseminating the survey on social media is also a strength because it can help diversify the sample in terms of geographical location, though location was not asked in this study (Henriksen et al., 2018).

This study did not limit participants based on gestational age, which allowed for the possibility to identify correlations throughout the pregnancy (Massae et al., 2021). The survey also included women with high-risk pregnancy conditions and assessed any correlations between health problems and FOC. However, this study did not find significant correlations of these variables.
Recommendations for Future Research

Clinical fear of childbirth is a topic gaining much attention with regards to perinatal mood disorders. As such, there are many new avenues to explore on the possible associations between FOC and demographics, birth mode preference, and other clinical areas. Future research can address whether having an unplanned pregnancy versus a planned pregnancy is related to higher FOC, as one study found a significant relationship between the two variables (Ilska et al., 2021). Another demographic variable to assess is employment status, as women who are unemployed may be at higher risk of FOC during pregnancy (Khwepeya et al., 2018).

Another rapidly expanding area within FOC research is investigating the presence of postpartum FOC. This doctoral project did not assess postpartum FOC scores; however, other literature demonstrates that FOC is present in the postpartum period and may have negative implications on women and birthing people through the lifespan. Women with high FOC during mid-pregnancy and postpartum are likely to report their physical and emotional health as poor in the postpartum, warranting future research (Hildingsson et al., 2021; Sluijs et al., 2019).

This study did not assess prolonged labor or history of miscarriages as potential causes of FOC as they are also indicative of negative/traumatic perinatal experiences. Literature has found that there may be a significant association between these variables and higher FOC scores in pregnancy (Berhanu et al., 2022; Serçekuş et al., 2020). This study also did not explore social support or self-efficacy in the current pregnancy. In prior research, low social support from the partner, from the family, from the society, and from the health care professionals has been
significantly related to high FOC during pregnancy (Berhanu et al., 2022). Self-efficacy is important because individuals with low confidence can lead to the belief that they are not able to give birth and cannot cope with the process, thus leading to the development of FOC (Huang et al., 2021). Therefore, these specific areas should be included in future studies on childbirth fear.

**Conclusions**

Current literature on FOC in the U.S. is very limited. This study contributed to data on the prevalence of FOC in the U.S. and its associations with various demographic variables and birth mode preferences. In this sample \( (n = 90) \), 47.8% of women scored \( \geq 35 \) \((M = 33.1, SD = 11.0)\) on the W-DEQ-A which indicated high levels of FOC. Educational level was the only statistically significant predictor of FOC in this sample. However, attending childbirth education classes and gestational age were close in achieving statistical significance. This study found no statistical significance between birth mode preference, or birth location preference, and clinical FOC scores. This doctoral project found that higher levels of education may be protective against the development of FOC during pregnancy. Additionally, attending prenatal education classes may reduce the likelihood of having FOC. Furthermore, as pregnancies progress, women may become less fearful of childbirth. These results benefit the existing body the knowledge because almost half of the sample is fearful of childbirth. This draws attention to the need for continued research into the topic, specifically with regards to exploring interventions that may be potential treatments for women with FOC, and to the need for increased provider awareness on perinatal
mood disorders and FOC during pregnancy.
Appendix A

Table A1

**DSM-5 Criteria for Diagnosis of Specific Phobia**

- Marked fear or anxiety about a specific object or situation (e.g., flying, seeing blood)
- The phobic object or situation almost always provokes immediate fear or anxiety and is actively avoided or endured with marked fear or anxiety
- The fear or anxiety is out of proportion to the actual danger posed by the specific object or situation
- The fear, anxiety, or avoidance is persistent, typically ≥6 months
- There is marked distress or functional impairment

*Note.* The diagnostic criteria for diagnosing Specific Phobia according to the DSM-5. Adapted from “Canadian clinical practice guidelines for the management of anxiety, posttraumatic stress and obsessive-compulsive disorders” by Katzman et al., 2014, *BMC Psychiatry, 14 Suppl 1 (Suppl 1), S1* (https://bmcpsychiatry.biomedcentral.com/articles/10.1186/1471-244X-14-S1-S1#Sec35).
Table A2

ICD-11 Criteria for Diagnosis of Specific Phobia

Diagnostic Requirements

Essential (Required) Features:

- Marked and excessive fear or anxiety that consistently occurs upon exposure or anticipation of exposure to one or more specific objects or situations (e.g., proximity to certain kinds of animals, heights, enclosed spaces, sight of blood or injury) that is out of proportion to the actual danger posed by the specific object or situation.
- The phobic object or situation is actively avoided or else endured with intense fear or anxiety.
- A pattern of fear, anxiety, or avoidance related to specific objects or situations is not transient, that is, it persists for an extended period of time (e.g., at least several months).
- The symptoms are not better accounted for by another mental disorder (e.g., Social Anxiety Disorder, a primary psychotic disorder).
- The symptoms result in significant distress about experiencing persistent anxiety symptoms or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning. If functioning is maintained, it is only through significant additional effort.

Additional Clinical Features:

- Specific Phobia encompasses fears of a broad and heterogeneous group of phobic stimuli. The most common are for particular animals (animal phobia), heights (acrophobia), enclosed spaces (claustrophobia), sight of blood or injury (blood-injury phobia), flying, driving, storms, darkness, and medical/dental procedures. Individuals’ reactions to phobic stimuli can range from feelings of disgust and revulsion (often occurring in animal phobias or blood-injury phobias), anticipation of danger or harm (common across most types of Specific phobia), and physical symptoms such as fainting (most common in response to blood or injury).
- The majority of individuals diagnosed with Specific Phobia report fear of multiple objects or situations. A single diagnosis of Specific Phobia is assigned regardless of the number of feared objects or situations. Unlike most phobic stimuli, which upon presentation or anticipation typically result in significant physiological arousal, individuals who fear the sight of blood, invasive medical procedures, or injury, may experience a vasovagal response that can result in a fainting spell.
- Some individuals with Specific Phobia may report a history of having observed another person (e.g., caregiver) react with fear or anxiety when confronted by an object or situation, resulting in vicarious learning of a fear response to the object or situation. Others may have had direct negative experience with an object or situation (e.g., having been bitten by a dog). However, previous negative experiences (direct or vicarious) are not necessary for the development of the disorder.
- Some individuals report that their fear or anxiety for an object or situation is not excessive. As such, clinicians must consider whether the reported fear, anxiety, or avoidance behavior is disproportionate to the reasonable risk of harm, taking into consideration both accepted cultural norms as well as the specific environmental conditions that the individual is normally subjected to (e.g., fear of darkness may be justified in a neighborhood where assaults are common at night).

Appendix B

Figure B1

The Uncertainty and Anticipation Model of Anxiety

Note. The five processes of the UAMA model that lead to increased threat expectancies are shown and include disrupted expected value calculation; increased threat attention and hypervigilance; deficient safety learning; behavioral and cognitive avoidance; and heightened reactivity to threat uncertainty. Adapted from “Uncertainty and anticipation in anxiety: An integrated neurobiological and psychological perspective,” by D.W. Grupe and J.B. Nitschke, 2013, Nature reviews. Neuroscience, 14(7), p. 497 (https://doi.org/10.1038/nrn3524).
Appendix C

Figure C1

G*Power Analysis Sample Size Calculation

| F tests – ANOVA: Fixed effects, omnibus, one-way |
| Analysis:             | A priori: Compute required sample size |
| Input:                | Effect size f = 0.25 |
| α err prob            | = 0.05 |
| Power (1-β err prob)  | = 0.80 |
| Number of groups      | = 3 |
| Output:               | Noncentrality parameter λ = 9.9375000 |
| Critical F            | = 3.0540042 |
| Numerator df          | = 2 |
| Denominator df        | = 156 |
| Total sample size     | = 159 |
| Actual power          | = 0.8048873 |
Appendix D

Figure D1

*English Informed Consent on Qualtrics*

Q1. Dear Participant:

You are being asked to participate in a research study titled “Fear of Childbirth in Pregnant Women: Exploring Prevalence and Birth Mode Preference in the Public Health Care Clinic Setting.” The purpose of this study is to understand emotions and preferences for your upcoming birth. Please do not complete this survey if you are not currently pregnant.

In this study, you will be asked to complete an online survey. This survey will be available in the English language. Please click on the survey link and complete the entire survey only if you are fluent in English.

Your participation in this study is voluntary at all times. You may choose to participate in this study at any point in your pregnancy. However, you may only participate once and complete one survey. You can withdraw participation at any point during the survey process.

Please answer the questions honestly and to the best of your ability. The survey should take approximately 20-30 minutes to complete.

All responses are anonymous. The data is stored in secured systems with encryption to ensure secure transit of data. The researchers will only have access to the results and will not have access to personal information.

While you will not receive any direct benefit from this study, the data being collected will support future research into emotions around childbirth. Upon completion, you are eligible to enter for a chance to win a $200.00 gift card to Amazon. If you have any questions regarding the survey or this research topic, please contact the investigator, Gabriella Vitale, via email at gv182@gmail.com or Georgetown University’s IRB office via email at irboard@georgetown.edu or via phone at (202) 687-0100.

Clicking “Next” on this survey means that you voluntarily agree to participate in this study. No signatures are required.

- [ ] Yes, I Consent
- [ ] No, I Do NOT Consent
Figure D2

*English Fear of Childbirth Survey: Demographic Questionnaire, Birth Mode Preference Questionnaire, and Childbirth Expectation Questionnaire*

**Demographic Questionnaire**

You will now have a series of demographics questions to answer. Your responses will remain anonymous. You can ask questions at any time. Please only circle one answer unless otherwise specified by “Check all that apply.”

1. How old are you (in years)? _____________
2. How many weeks pregnant are you? ______________
3. What is your race or ethnicity?
   o Non-Hispanic white
   o Non-Hispanic black
   o Hispanic or Latinx
   o Asian
   o Other (Please specify) _____________
4. My current gender identity is best described as (Check all that apply):
   o Female
   o Trans male/trans man
   o Gender queer
   o Gender Non-conforming or non-binary
   o Prefer not to answer
   o Other (Please specify) _____________
5. My current sexual orientation is:
   o Straight/heterosexual
   o Bisexual
   o Lesbian
   o Asexual
   o Questioning
   o Prefer not to answer
   o Other (Please specify) _____________
6. What language do you speak primarily?
   - English
   - Spanish
   - Other (Please specify) ________________

5. How many years of school did you complete?
   - Did not finish high school
   - High school degree
   - 1 or 2 year college degree
   - University undergraduate degree
   - Master’s degree
   - Doctoral degree

6. What is your marital status?
   - Married
   - Living with partner
   - Single
   - Divorced or Separated
   - Widowed

7. Is this your first pregnancy?
   - Yes
   - No

8. If this is not your first pregnancy, how many other times have you been pregnant? (If this is your first pregnancy, skip this question).
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6 or more

9. Have you attended, or are currently attending, childbirth education classes?
   - Yes
   - No
   - Not currently, but plan to take them later in my pregnancy

10. Are you experiencing any of the following during this pregnancy? (Please check all that apply)
    - No health problems
    - High blood pressure
    - Gestational diabetes
    - Urinary tract infections and/or vaginal infections requiring antibiotics
    - Breech baby
    - Problems with baby’s growth (Please specify) ________________
    - Problems with baby’s health (Please specify) ____________________
    - Problems with my health (Please specify) ________________________
o Other medical or pregnancy problem (Please specify) __________________

11. If this is not your first pregnancy, have you experienced any of the following with your previous pregnancies? (Check all that apply)
   o Lack of family and/or social support with previous pregnancies
   o Lack of trust in doctors/nurses at hospital during previous labors & births
   o Lack of self-confidence in your birthing abilities

12. If this is not your first pregnancy, have you had any of the following traumatic birthing experiences with your previous pregnancies? (Check all that apply)
   o Severe labor pain, even with an epidural
   o Vaginal tearing or episiotomy during labor
   o Unplanned or emergency c-section birth

13. Have you ever been diagnosed with a mood disorder including: anxiety, depression, or phobias?
   o Yes
   o No

14. Have you ever been medically treated for a mood disorder including: antianxiety medications, antidepressant medications, and/or psychotherapy?
   o Yes
   o No

15. If this is not your first pregnancy, have you ever been diagnosed with postpartum depression or postpartum anxiety?
   o Yes
   o No

16. If you have been diagnosed with postpartum depression or postpartum anxiety, did you receive medical treatment including: antianxiety medications, antidepressant medications, and/or psychotherapy?
   o Yes
   o No

**Birth Mode Preference Questionnaire**

You will now have a series of questions asking about how you want to give birth to your baby. Your responses will remain anonymous. You can ask questions at any time.

1. Has anyone in your family had a cesarean section (“c-section”) birth?
   a. Yes
   b. No
   c. Unsure

2. Where do you plan on giving birth?
   a. Hospital
   b. Home
   c. Birth center OUTSIDE of a hospital (not associated with a hospital)
d. Unsure at this time

3. We know that your provider might have recommended a birth mode for you; but, how would you like to give birth to your baby?
   a. Strong preference for c-section birth
   b. Slight preference for c-section birth
   c. No preference either way
   d. Slight preference for vaginal birth
   e. Strong preference for vaginal birth

**Childbirth Expectation Questionnaire**

You will now answer a series of questions on childbirth expectations. Your responses will remain anonymous. You can ask questions at any time.

These questions are asked on a 0 to 5 scale. See below for description:
   0= none at all
   1= strongly disagree
   2= disagree
   3= neutral
   4= agree
   5= strongly agree
### Wijma Delivery Expectancy Questionnaire (WDEQ-A) 14-item version

**How do you think your labour and delivery will turn out as a whole?**

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
<th>Scale</th>
<th>Not at all</th>
<th>Not at all</th>
<th>Not at all</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do you think your labour and delivery will turn out as a whole?</td>
<td>Extremely frightful</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely afraid</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely weak</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely safe</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely tense</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely glad</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely proud</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. How do you think you will feel in general during the labour and delivery?</td>
<td>Extremely happy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**How do you think you will feel during the labour and the delivery?**

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
<th>Scale</th>
<th>Not at all</th>
<th>Not at all</th>
<th>Not at all</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. How do you think you will feel during the labour and the delivery?</td>
<td>Extreme panic</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. How do you think you will feel during the labour and the delivery?</td>
<td>Extreme self-confidence</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. How do you think you will feel during the labour and the delivery?</td>
<td>Extreme trust</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>12. Extreme pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What do you think will happen when labour is most intense?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I will behave extremely badly</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I will totally lose control of myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY! YOUR RESPONSES ARE ANONYMOUS.

PLEASE FEEL FREE TO CONTACT GABRIELLA VITALE IF YOU HAVE MORE QUESTIONS ABOUT THIS SURVEY STUDY. E-mail: gv182@georgetown.edu.

YOU CAN CHOOSE TO ENTER YOUR NAME INTO A RAFFLE FOR A CHANCE TO WIN A $100.00 GIFT CARD TO FOODLION™. ASK YOUR NURSE/PROVIDER FOR INSTRUCTIONS ON HOW TO ENTER INTO THIS RAFFLE.
Appendix E

Figure E1

Permission letter to use the English version of the 14-Item Italian W-DEQ Version A form

Gabriella Vitale
235 Woodlands Way
Unit 12
Calabash, N.C., 28467

5 May 2021

Dr. Sara Molgora
Catholic University of the Sacred Heart
1 Largo Agostino Gemelli
Milano, Italy, 20123

Dear Dr. Molgora,

My name is Gabriella Vitale and I am a Doctor of Nursing Practice (DNP) student at Georgetown University located in Washington, D.C., in the United States. I am doing my scholarly project on the prevalence of clinical fear of childbirth (FOC) within my community in the state of North Carolina. Previously, on 22 February 2021, you had given me permission to use your 14-item version of the Wijma Delivery Expectancy/Experience Questionnaire Version A to assess prevalence within my community. I plan on making this scale available electronically in the form of an online survey. I also plan on using your English translations that you provided to me, verbatim. I will not be changing any of the English translations when administering the tool to my population.
I am currently asking you to sign this letter of approval and to return this back to me electronically via e-mail as soon as possible if you grant me permission to continue to proceed with using your scale for my scholarly project. Thank you.

Gabriella Vitale
Doctor of Nursing Practice Student
Georgetown University
3700 O St NW
Washington, D.C., 20057
Appendix F

Figure F1

Letter of Approval and Exemption from Georgetown IRB

GEORGETOWN UNIVERSITY

EXEMPTION

February 1, 2022

Gabriella Vitale

gv183@georgetown.edu

Dear Gabriella Vitale:

On 2/1/2022, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>MOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Fear of Childbirth in Pregnant Women: Exploring Prevalence and Birth Mode Preference in the Public Healthcare Setting</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Gabriella Vitale</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>MOD00095914</td>
</tr>
<tr>
<td>Review Type:</td>
<td>Non-Committee</td>
</tr>
<tr>
<td>Review Level:</td>
<td>Exempt</td>
</tr>
<tr>
<td>Review Category:</td>
<td>(2)(1): Tests, surveys, interviews, or observation (non-identifiable)</td>
</tr>
<tr>
<td>Funding:</td>
<td>None: No Funding</td>
</tr>
<tr>
<td>Documents Reviewed:</td>
<td>Gabrielle GU-IRP-203_Jan 2022.docx</td>
</tr>
<tr>
<td></td>
<td>Attachment 3: Facebook and Instagram</td>
</tr>
<tr>
<td></td>
<td>Post_English.docx</td>
</tr>
<tr>
<td></td>
<td>Attachment 5: Consent Online_English.docx</td>
</tr>
<tr>
<td></td>
<td>Attachment 6: Recruitment Flier_English.docx</td>
</tr>
</tbody>
</table>

The IRB granted continued exemption in light of the following modifications —
Recruitment of participants has been inadequate at the current implementation site related to COVID-19 and staffing issues. We would like to expand recruitment of participants online via social media sites including Facebook, Instagram, and Twitter. I have created 1 separate accounts on each social media site. We will still be using the same online survey via my Qualtrics link. It will now only be used in the English language; the option for Spanish has been removed from my study. This link and survey has already been uploaded and approved for my previous study protocol. No paper copies of the survey will be used in this modification. Thus, informed consent for the online survey will remain as implied consent. Written consent will not need to be obtained anymore, as we
Appendix G

Figure G1

*English version of the recruitment flier*
Appendix H

Table H1

Participant Characteristics ($n = 90$)

<table>
<thead>
<tr>
<th></th>
<th>$M \ (SD)$</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>30.3 (4.1)</td>
<td>20-40</td>
</tr>
<tr>
<td>Weeks Pregnant</td>
<td>21.5 (10.4)</td>
<td>2-40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>76</td>
<td>84.4</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>9</td>
<td>10.0</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>Native</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sexual Orientation</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight/Heterosexual</td>
<td>77</td>
<td>85.6</td>
</tr>
<tr>
<td>Bisexual</td>
<td>11</td>
<td>12.2</td>
</tr>
<tr>
<td>Asexual</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Degree</td>
<td>14</td>
<td>15.6</td>
</tr>
<tr>
<td>1- or 2-Year College Degree</td>
<td>18</td>
<td>20.0</td>
</tr>
<tr>
<td>University Undergraduate Degree</td>
<td>31</td>
<td>34.4</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>18</td>
<td>20.0</td>
</tr>
<tr>
<td>Doctoral Degree</td>
<td>9</td>
<td>10.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>67</td>
<td>74.4</td>
</tr>
<tr>
<td>Living with Partner</td>
<td>20</td>
<td>22.2</td>
</tr>
<tr>
<td>Single</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Divorced or Separated</td>
<td>2</td>
<td>2.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Pregnancy</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>29</td>
<td>32.2</td>
</tr>
<tr>
<td>Second</td>
<td>29</td>
<td>32.2</td>
</tr>
<tr>
<td>Third</td>
<td>20</td>
<td>22.2</td>
</tr>
<tr>
<td>Fourth</td>
<td>5</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Fifth  2  2.2
Sixth  3  3.3
Seventh  2  2.2

**Attended or Currently Attending Childbirth Education Classes**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>25</td>
<td>27.8</td>
</tr>
<tr>
<td>No</td>
<td>52</td>
<td>57.8</td>
</tr>
<tr>
<td>Not currently, but plan to</td>
<td>13</td>
<td>14.4</td>
</tr>
</tbody>
</table>

**Table H2**

**Health Issues in Current Pregnancy**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Blood Pressure</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Gestational Diabetes</td>
<td>8</td>
<td>8.9</td>
</tr>
<tr>
<td>UTI/VI</td>
<td>8</td>
<td>8.9</td>
</tr>
<tr>
<td>Breech</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>Baby Growth</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Baby Health</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>My Health</td>
<td>5</td>
<td>5.6</td>
</tr>
<tr>
<td>Other Medical Problems</td>
<td>13</td>
<td>14.4</td>
</tr>
<tr>
<td>No Medical Problems</td>
<td>53</td>
<td>58.9</td>
</tr>
</tbody>
</table>

**Note:** Women were able to indicate one answer option, multiple options, or no options, as pertinent to their current pregnancy.

**Table H3**

**Experiences in Previous Pregnancies (n = 61)**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Support</td>
<td>10</td>
<td>16.4</td>
</tr>
<tr>
<td>Lack of Trust</td>
<td>18</td>
<td>29.5</td>
</tr>
<tr>
<td>Lack of Self-Confidence</td>
<td>15</td>
<td>24.6</td>
</tr>
<tr>
<td>Severe Pain</td>
<td>13</td>
<td>21.3</td>
</tr>
<tr>
<td>Vaginal Tearing</td>
<td>23</td>
<td>37.7</td>
</tr>
<tr>
<td>Emergency C-Section</td>
<td>14</td>
<td>23.0</td>
</tr>
<tr>
<td>Postpartum Depression or Anxiety</td>
<td>17</td>
<td>27.9</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated for Postpartum Depression or Anxiety, if Diagnosed (n = 17)</td>
<td>12</td>
<td>70.6</td>
</tr>
</tbody>
</table>

**Note:** Women eligible to answer the questions regarding prior childbirth experiences were those who are multiparous (n = 61). Women were able to indicate one answer option, multiple options, or no options, as pertinent.
Figure H1

Participant Responses in “My Health” Category of Health Issues in Current Pregnancy

- Extreme prolonged sinus congestion
- Macrosomia
- Nausea, headaches, back pain
- Obesity, BMI > 40
- T1DM, hypothyroidism
- Vertigo; labile blood pressures

Figure H2

Participant Responses in “Other Medical Problems” Category of Health Issues in Current Pregnancy

- Factor V Leiden
- High Risk
- Hx of premature babies and miscarriages
- Hydronephrosis in baby’s right kidney
- Hyperemesis gravidarum (2 people)
- Marginal cord insertion
- Monitoring size of baby’s heart; one ventricle smaller than normal
- Resolved chorionic hemorrhage
- T1DM x 27 years; 2 PTBs prior
- Tachycardia
- Uterine, bladder, rectal prolapse
- Velamentous cord insertion
Appendix I

Table II

Planned Location for Birth (n = 90)

<table>
<thead>
<tr>
<th>Where Do you Plan on Giving Birth?</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>86</td>
<td>95.6</td>
</tr>
<tr>
<td>Birth Center outside of a hospital</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Figure 1

Preferred Birth Mode (n = 90)
Appendix J

Table J1

*Descriptive Statistics for the 14 W-DEQ-A items (n = 90)*

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>W-DEQ-A: Q1 Frightful</td>
<td>3.00</td>
<td>1.30</td>
</tr>
<tr>
<td>W-DEQ-A: Q2 Afraid</td>
<td>2.93</td>
<td>1.40</td>
</tr>
<tr>
<td>W-DEQ-A: Q3 Weak</td>
<td>3.09</td>
<td>1.31</td>
</tr>
<tr>
<td>W-DEQ-A: Q4 Safe</td>
<td>2.79</td>
<td>1.67</td>
</tr>
<tr>
<td>W-DEQ-A: Q5 Tense</td>
<td>2.98</td>
<td>1.37</td>
</tr>
<tr>
<td>W-DEQ-A: Q6 Glad</td>
<td>2.73</td>
<td>1.61</td>
</tr>
<tr>
<td>W-DEQ-A: Q7 Proud</td>
<td>2.66</td>
<td>1.86</td>
</tr>
<tr>
<td>W-DEQ-A: Q8 Happy</td>
<td>2.91</td>
<td>1.73</td>
</tr>
<tr>
<td>W-DEQ-A: Q9 Panic</td>
<td>2.88</td>
<td>1.46</td>
</tr>
<tr>
<td>W-DEQ-A: Q10 Self Confidence</td>
<td>2.73</td>
<td>1.24</td>
</tr>
<tr>
<td>W-DEQ-A: Q11 Trust</td>
<td>2.68</td>
<td>1.38</td>
</tr>
<tr>
<td>W-DEQ-A: Q12 Pain</td>
<td>2.79</td>
<td>1.50</td>
</tr>
<tr>
<td>W-DEQ-A: Q13 I will behave extremely badly</td>
<td>2.88</td>
<td>1.67</td>
</tr>
<tr>
<td>W-DEQ-A: Q14 I will totally lose control of myself</td>
<td>2.86</td>
<td>1.70</td>
</tr>
<tr>
<td>Mean W-DEQ-A Score</td>
<td>33.1</td>
<td>11.7</td>
</tr>
</tbody>
</table>
Appendix K

Table K1

Prevalence’s of Childbirth Fear by Selected Country

<table>
<thead>
<tr>
<th>First author, year of publication</th>
<th>Prevalence</th>
<th>Country total</th>
<th>Average country prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lukasse 2014</td>
<td>142 out of 958 (14.8%)</td>
<td>Sweden</td>
<td>579 out of 4041 (14.3%)</td>
</tr>
<tr>
<td>Nieminen 2009</td>
<td>254 out of 1635 (15.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Söderqvist 2004</td>
<td>127 out of 942 (13.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zat 2002</td>
<td>56 out of 500 (11%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adams 2012</td>
<td>165 out of 2206 (7.5%)</td>
<td>Norway</td>
<td>443 out of 4557 (9.3%)</td>
</tr>
<tr>
<td>Lukasse 2014</td>
<td>278 out of 2351 (11.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeppesen 2014</td>
<td>207 out of 2310 (9.0%)</td>
<td>Denmark</td>
<td>322 out of 3562 (9.0%)</td>
</tr>
<tr>
<td>Lukasse 2014</td>
<td>115 out of 1252 (9.2%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jokč-Begić 2014</td>
<td>23 out of 200 (11.5%)</td>
<td>Croatia</td>
<td></td>
</tr>
<tr>
<td>Lukasse 2014</td>
<td>32 out of 285 (11.6%)</td>
<td>Belgium</td>
<td>65 out of 582 (11.3%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Iceland</td>
<td>49 out of 585 (8.4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Estonia</td>
<td>133 out of 896 (14.8%)</td>
</tr>
</tbody>
</table>

*Calculation performed by reviewer authors

References


of the Wijma delivery expectancy/experience questionnaire based on clinical presentation.


[https://doi.org/10.1016/j.jpsychores.2018.11.012](https://doi.org/10.1016/j.jpsychores.2018.11.012)


[https://doi.org/10.1177/1043659618823905](https://doi.org/10.1177/1043659618823905)


Fairbrother, N., Albert, A., Collardeau, F., & Keeney, C. (2022, April 12). The Childbirth Fear Questionnaire and the Wijma Delivery Expectancy Questionnaire as screening tools for specific phobia, fear of childbirth. *International Journal of Environmental Research and Public Health, 19*(8), 4647. [https://doi.org/10.3390/ijerph19084647](https://doi.org/10.3390/ijerph19084647)


Hildingsson I. The trajectory of fear of birth during and after pregnancy in women living in a rural area far from the hospital and its labour ward. *Rural and Remote Health 2021; 21: 6974.* [https://doi.org/10.22605/RRH6974](https://doi.org/10.22605/RRH6974)


Korukcu, O., Bulut, O., & Kukulu, K. (2019, June). From experiences to expectations: A quantitative study on the fear of childbirth among multigravida women. *Archives of*


Ortega-Cejas, C.M., Roldán-Merino, J., Lluch-Canut, T., Castrillo-Pérez, M.I., Vicente-Hernández, M.M., Jimenez-Barragan, M., Biurrun-Garrido, A., Farres-Tarafa, M., Casas, I.,


[https://doi.org/10.1016/j.jogn.2015.10.005](https://doi.org/10.1016/j.jogn.2015.10.005)


https://icd.who.int/browse11/l-m/en#http://id.who.int/icd/entity/239513569


