

Running head: FEAR OF BIRTH

PREVALENCE AND RISK FACTORS FOR FEAR OF BIRTH IN PREGNANT WOMEN
IN THE UNITED STATES

by

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DISSERTATION

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ABSTRACT

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IN THE UNITED STATES

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The University of Texas at Arlington, 2018

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Fear of birth is an extreme state of anxiety from phobia about childbirth. It causes severe distress and anxiety. Women experiencing this distress may decide to avoid pregnancy, terminate pregnancy, or elect cesarean delivery without medical necessity. Prevalence of fear of birth in the United States has been reported in only three studies and has ranged from 27% to 52%, but the populations studied were healthy, college-aged, women who were not pregnant and were nulliparous. In other countries, the average prevalence rate of fear of birth in nulliparous and multiparous women at various points during pregnancy was 23%. Researchers from other countries have found that mental illness, lack of support, nulliparity, history of abuse, previous negative birth experience, media, and self-efficacy were the most common risk factors for fear of birth in these countries. No studies were found in which researchers from the United States examined these risk factors for fear of birth.

A descriptive correlational design was used to determine prevalence of and risk factors for fear of birth in the United States in pregnant nulliparous and multiparous women. Participants recruited on pregnancy Facebook pages responded to an anonymous online survey used to measure demographics and risk factors for fear of birth. The prevalence of fear of birth for the 137 pregnant nulliparous and multiparous women from the United States who completed

the survey was 39.4%. Parity, social support, and maternal confidence were significantly associated with fear of birth ($p < .05$). Parity and social support were significant predictors of fear of birth ($R^2 = 21.9\%$ and adjusted $R^2 = 11.9\%$). Future research in the United States is needed to support the findings for this study using different recruitment settings and different measurement methods to support the findings about the factors associated with fear of birth.

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CHAPTER 1

INTRODUCTION

During pregnancy, most women have some degree of fear or anxiety about childbirth (Nilsson & Lundgren, 2009). For some women, the fear is extreme and persistent, causing severe distress. The distress can be disabling and interrupt daily life. Based on the woman's perception of the upcoming birth, the fear can be irrational, disproportionate to the actual threat, and overshadow the pregnancy (Wijma, Wijma, & Zar, 1998). This is known as fear of birth (American Psychiatric Association [APA], 2017; Nilsson & Lundgren, 2009). Chapter one includes a discussion of the background and significance of fear of birth. The chapter also includes discussion of the theoretical framework that supports the study. Propositions, study purpose, research questions, and assumptions are also presented.

Significance

Magnitude

Fear of birth was first studied by researchers from Sweden in the early 1980s (Areskog, Uddenberg, & Kjessler, 1981). Fear of birth has been widely studied in the Scandinavian countries and in Australia, Turkey, China, the Netherlands, and Canada beginning in the late 1990s (Rouhe et al., 2015; Ternstrom, Hildingsson, Haines, & Rubertsson, 2016; Toohill, Fenwick, Gamble, & Creedy, 2014). Researchers from these countries have reported that approximately 23% of pregnant women suffer from fear of birth (Elvander, Cnattingius, & Kjeruf, 2013; Haines, Pallant, Karlstrom, & Hildingsson, 2011; Hall et al., 2009). In each of these studies, fear of birth was measured during women's pregnancies. Samples included both nulliparous and multiparous pregnant women, and sample sizes ranged from 371 to 3005 (Elvander et al., 2013; Rouhe et al., 2015).

Three studies were found in which researchers examined the prevalence of fear of birth in the United States. Researchers from the United States have found that 27% to 52% of women experience fear of birth (Greathouse, 2016; Lowe, 2000; Stoll, Edmonds, & Hall, 2015). In these studies, the samples included college-aged women who were not pregnant, nulliparous women who were not pregnant, and pregnant women who were enrolled in a childbirth class. These samples are very specific and different from each other. The samples are also different from the samples in studies conducted in other countries. This makes it difficult to compare the magnitude of fear of birth in the United States to the magnitude in other countries.

Impact

Fear of birth can affect women, their infants, the father of the baby, and society. There are a variety of ways fear of birth can affect women, which include both psychological and physiological symptoms (APA, 2017; Nilsson, Bondas, & Lundgren, 2010). Psychological symptoms include insomnia, emotional distress, avoidance behaviors, isolation, and difficulty focusing on daily activities. Physiological symptoms include increased cortisol levels, increased heart rate, elevated blood pressure, and fatigue. Fear of birth has been associated with emergency and elective cesarean deliveries, as well as prolonged labor and preterm birth (Nieminem et al., 2015; Rouhe et al., 2012; Storksen, Garthus-Niegel, Adams, Vangen, & Eberhard-Gran, 2015). Higher rates of postpartum depression and negative birth experiences frequently characterize women with fear of birth (Salomonsson, Wijma, & Alehagen, 2010; Wijma et al., 1998).

Emotional distress and anxiety that women feel during pregnancy can also have an effect on the father of the baby. Women with fear of birth can have strained relationships with the fathers of their child (Widarsson, Engstrom, Tyden, Lundberg, & Marmstal Hammar, 2015). Researchers have found that fathers of the baby also feel disconnected emotionally and

physically from the mothers of their baby who experience fear of birth (Salomonsson et al., 2010).

Fear of birth has been associated with consequences for fetuses in utero and for infants after birth. Increased cortisol levels in expectant mothers can increase the cortisol level of their fetus, which has been linked to respiratory problems for the infants and Attention Deficit Hyperactivity Disorder (ADHD) during childhood (Beijers, Jansen, Riksen-Walrave, & Weerth, 2010; Van den Bergh, Mulder, Mennes, & Glover, 2005).

Fear of birth affects healthcare and society primarily because of extra costs related to cesarean deliveries, newborn care, and emergency visits (Martin, Kirmeyer, Osterman, & Shepherd, 2009). Researchers have found that fear of birth has been significantly associated with cesarean deliveries (Stoll, Hall, Janssen, & Carty, 2014). In the United States, 35% of 3,978,497 births were cesarean deliveries (Centers for Disease Control & Prevention [CDC], 2017). Cesarean sections not only increase the risks for women experience complications during and after deliveries, they also require extra costs (Martin et al., 2009; Rouhe et al., 2015). In 2010, average total payments for cesarean sections in the United States were 50% higher than payments for vaginal births (Corry, Delbanco, & Miller, 2013).

Background

Researchers have used several different terms to describe fear of birth, which can lead to confusion if trying to compare research findings. These terms include fear of birth, severe fear of birth, fear of childbirth, tokophobia, childbirth fear, and childbirth anxiety (Greathouse, 2016; Salomonsson et al., 2010; Toohill, Fenwick, Gamble, & Creedy, 2014). They all refer to the same problem: fear of childbirth. For the purposes of this study, the term fear of birth will be used to describe the experience of severe fear, anxiety, and distress about pregnancy and

childbirth that interferes with daily activities and the childbirth experience (APA, 2017; Nilsson & Lundgren, 2009).

Both nulliparous and multiparous women may experience fear of birth related to the physical pain during labor and potential harm to their body, injury to the child, and loss of control during delivery (Fenwick, Toohill, Creedy, Smith, & Gamble, 2015; Fisher, Hawk, & Fenwick, 2006; Gao, Liu, Fu, & Xie, 2015). Greathouse (2016) examined predictor variables in her study of nulliparous women in the United States who were not pregnant; however, she used the content of the 33 questions on the Wijma Delivery Expectancy/Experience Questionnaire version A (WDEQ-A) to represent different risk factors for fear of birth. Greathouse grouped questions together to represent themes of risk factors for fear of birth. The WDEQ-A is not multi-factorial and is meant to only measure fear of birth, so her results are not comparable or consistent with other researchers examining risk factors for fear of birth. She also found no sociodemographic variables to be statistically significant risk factors for fear of birth in nulliparous women not currently pregnant (Greathouse, 2016).

Researchers from other countries have found several risk factors in women with fear of birth, including mental illness, parity, lack of social support, previous negative birth experience, history of abuse, lack of maternal confidence, and the sources women use to get information about their pregnancy (Rouhe, Salmela-Aro, Gissler, Halmesmaki, & Saisto, 2011; Storksen et al., 2015). Anxiety and depression are the most common factors associated with fear of birth. Nerum, Halvorsen, Sorlie, and Oian (2006) found that in a sample of 86 pregnant women, 90% of the women who reported fear of birth also had pre-existing anxiety and/or depression.

Researchers in other countries have tested interventions to help support women with fear of birth. These interventions have included midwife-led counseling, psychoeducational group therapy, traditional cognitive behavioral therapy, prenatal yoga, and eye movement

desensitization and reprocessing. Women who participated in these interventions reported a decrease in fear of birth and a higher confidence in their ability to perform childbirth (Baas, Stramrood, Dijkman, Jong, & van Pampus, 2017; Fenwick et al., 2013; Newham, Wittkowski, Hurley, Aplin, & Westwood, 2014; Neiminen et al., 2015; Rouhe et al., 2012). Because of the paucity of research conducted on fear of birth in the United States, no studies were found in which researchers tested interventions for fear of birth in the United States.

Gaps in Knowledge

Three studies on fear of birth in the United States were found in the literature. All three study samples were different from each other and very specific. The researchers found prevalence rates to be 27% (Stoll et al., 2015), 34% (Greathouse, 2016), and 52% (Lowe, 2000). None of the samples included the population of both nulliparous and multiparous pregnant women as was common in studies from other countries. Although the prevalence of fear of birth in young non-pregnant nulliparous women and healthy nulliparous women from a childbirth class is known, they cannot be compared to the prevalence of fear of birth in studies conducted in other countries because of the different populations. It is unknown if the prevalence of fear of birth in the United States is similar to the prevalence in other countries because of the different populations studied.

Although Greathouse (2016) examined sociodemographic factors in non-pregnant nulliparous women in the United States, they cannot be compared to studies of risk factors for fear of birth in other countries due to the different populations studied. Researchers in the United States have not studied the risk factors for fear of birth that have been found in other countries. In order to better identify women with fear of birth, researchers and providers need to understand the risk factors for fear of birth. Interventions for fear of birth cannot be tested or implemented unless women with fear of birth in the United States are identified. Knowledge of

the prevalence of fear of birth and its risk factors in the United States is needed in order to better identify and provide treatment for pregnant women in the United States with fear of birth.

Framework

The theoretical framework supporting this study was Bandura's (1977) Self-Efficacy Theory. Self-efficacy theory was developed by Bandura (1986) as part of the larger Social Cognitive Theory. Reciprocal determinism is a component of social cognitive theory. In reciprocal determinism, personal/cognitive factors, environment, and behavior all interact with one another (Bandura, 1986). According to Bandura, human functioning is a result of the interaction of personal/cognitive factors, environment, and behavior. Reciprocal determinism does not mean that the interaction of personal/cognitive factors, environment, and behavior will always produce a positive outcome. The outcome of the interaction may be negative as well. Reciprocal determinism simply means that personal/cognitive factors, environment, and behavior influence one another (Phipps et al., 2013).

Bandura (1977) proposed that self-efficacy, individuals' beliefs in their ability to perform a behavior, is a fundamental part of cognition. Based on his studies of individuals with phobias and avoidance behaviors, Bandura (1977) found that performance accomplishments, such as past experiences, were the strongest source of self-efficacy and that self-efficacy predicted behavior. In self-efficacy theory (Bandura, 1986), personal judgements about self-efficacy are derived from four principal sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states. Self-efficacy theory can be used to explain how an individual will perform a given behavior (Bandura, 1986). Key constructs and concepts of self-efficacy theory and their relationships are illustrated in Figure 1.

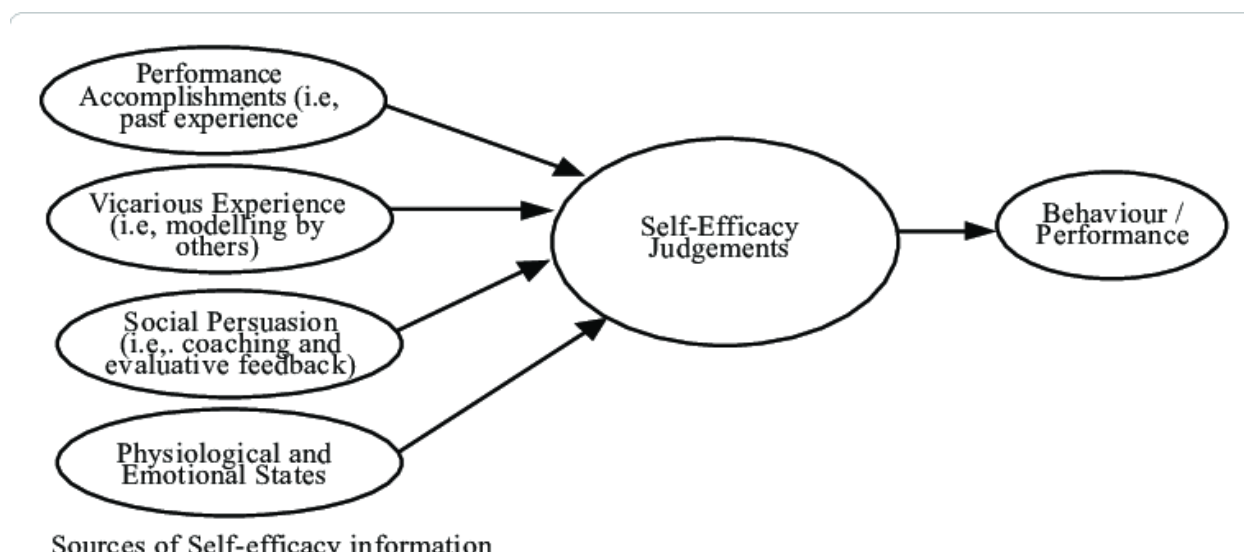


Figure 1. Self-Efficacy Theory (Bandura, 1977)

Behavior

Behavior is defined as emotional and physical actions that individuals perform in order to adjust to their environment or to survive and succeed in their environment (Bandura, 1986).

Behavior is a major outcome in self-efficacy theory. Individuals tend to avoid tasks when their personal judgement of self-efficacy is low (they do not expect to be successful), but they tend to undertake tasks when their self-efficacy is high (they expect to be successful).

Self-Efficacy Judgements

Self-efficacy judgements are individuals' beliefs about their capability to successfully reach a goal or perform a behavior (Bandura, 1986). Bandura explained that self-efficacy judgments include both self-efficacy expectations and outcome expectations. Self-efficacy expectations are beliefs individuals have about their ability to perform a behavior (Bandura, 1986). Outcome expectations are beliefs that, if a behavior is performed, this behavior will result in a specific outcome. If individuals believe that a given behavior will benefit them, they are more likely to believe that they can perform that behavior (Bandura, 1995).

Bandura also emphasized that self-efficacy expectations and outcome expectations are two separate concepts. Individuals may believe that they can perform a given behavior, but if they do not believe that it will change an outcome, they are less likely to perform the behavior. Likewise, individuals may believe that a certain behavior will result in a desired outcome, but they may not believe they can perform the behavior (Bandura, 1995)

Self-efficacy and outcome expectations are based on four sources of information: performance accomplishments, vicarious experience, social persuasion, and physiological and emotional states (Bandura, 1977). These four sources help determine individuals' beliefs in their ability to perform a given behavior. Bandura (1977) described performance accomplishments as the most significant source of self-efficacy.

Performance Accomplishments

Performance accomplishments are defined as past experiences that may influence the ability of individuals to perform a given behavior (Bandura, 1977). Repetition of a behavior may increase individuals' confidence in their ability to perform that behavior, but this may not always increase self-efficacy (Bandura, 1995). Individuals' previous successful performance of a behavior may have a negative effect on their future performance of that behavior if the behavior previously led to negative outcomes. They thus may have high self-efficacy expectations but low outcome expectations (Bandura, 1995).

Vicarious Experience

Vicarious experience is observation of others performing a behavior that an individual wants to perform. Bandura (1977) proposed that observing individuals performing behaviors influences self-efficacy of the individuals who are observing the performance. Vicarious experiences do not always positively influence self-efficacy. Individuals can develop high or low self-efficacy vicariously through observing others' performance. Observing someone succeed may increase their self-efficacy but observing someone fail may decrease their self-efficacy (Bandura, 1989).

Social Persuasion

Social persuasion is also known as verbal persuasion. Social persuasion is the encouragement or discouragement that individuals receive from others about their ability to perform a given behavior. Social persuasion may come from any individual. The level of credibility may vary depending on who is giving the encouragement or discouragement. The more credibility individuals have, the greater their influence (Bandura, 1982). Individuals having less credibility usually have less influence on others.

Physiological and Emotional States

Self-efficacy is least influenced by the source of information known as physiological and emotional states. This source of information is defined as individuals' judgements about their own physical and emotional arousal state (Bandura, 1982). Individuals experience physical and emotional sensations from their body, and how they perceive those sensations or arousal states can either increase or decrease their judgements of self-efficacy. Fear, anxiety, agitation, increased heart rate, sweating, and pain are types of physiological and emotional states experienced by individuals (Bandura, 1995). These would most likely decrease individuals' self-efficacy because of the negative feedback individuals perceive. Arousal from fear can cause

individuals to believe that a behavior or activity is dangerous, and therefore, they avoid the behavior or activity. When individuals are in pain, they are less likely to believe that they can perform a behavior (Bandura, 1995).

Application to Study

Self-efficacy theory was a good fit to support this study of fear of birth. The purpose of this study was to examine prevalence and risk factors for fear of birth in pregnant women in the United States. Many of the concepts in the theory were operationalized as variables in the proposed study. The conceptual and operational definitions of the variables are presented in Chapter 3. A diagram which illustrates the relationships of the concepts of self-efficacy theory and the variables in this study which operationalized those concepts is presented in Figure 2.

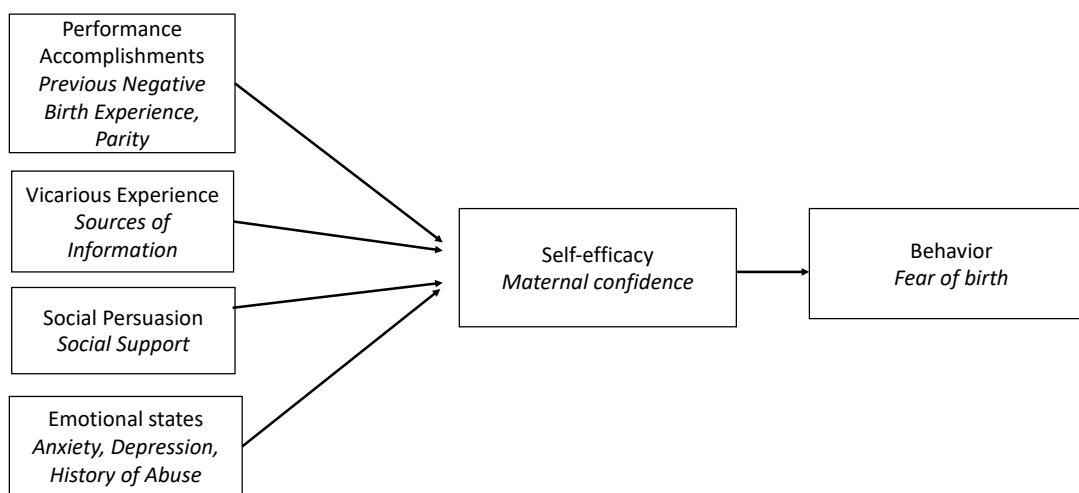


Figure 2. Proposed concepts from Self-Efficacy Theory with study variables

For the study on fear of birth, behavior was operationalized as the extreme state of anxiety which is known as fear of birth (Salomonsson et al., 2013). Fear of birth was determined by women's cognitive appraisal of pregnancy and birth. If pregnancy and birth were appraised

as dangerous or life-threatening, fear is the response (Lazarus & Folkman, 1984). These fears can be associated with previous personal experiences, expectations, and hearing about other women's negative childbirth experiences (Fenwick, Toohill, Creedy et al., 2015; Fisher et al., 2006).

Self-efficacy was operationalized in this study as maternal confidence. Women with low childbirth self-efficacy (low maternal confidence) have been found to be more likely to experience distress and anxiousness related to fear of birth (Lowe, 1993). Both trait anxiety (personality characteristic of consistently responding to stress with anxiety) and state anxiety (episodic arousal in response to stressful situations) have been found to be significant predictors of fear of birth in pregnant women (Gao et al., 2015).

For the study on fear of birth, performance accomplishments were operationalized as previous negative birth experiences and parity. Previous negative birth experience has been found to be a risk factor for fear of birth in multiparous pregnant women in other countries (Lukasse et al., 2010; Nilsson & Lundgren, 2009). These women are more likely to have formed negative perceptions about future pregnancy and childbirth and decreased confidence in their ability to perform childbirth. Multiparous women's perceptions about pregnancy and childbirth primarily come from their past accomplishments during pregnancy and childbirth (Fenwick, Toohill, Creedy et al., 2015). Nulliparous women's perceptions about childbirth may be influenced by their not having had previous childbirth experiences of their own (Elvander et al., 2013).

Vicarious experience were operationalized as sources of information used to learn about pregnancy and childbirth. Sources of information that pregnant women use to learn about pregnancy and childbirth may include the internet, applications on smart phones, television,

family, friends, and pregnancy classes. These sources of information may influence women's confidence in their ability to perform childbirth. The influences can be positive and negative.

Social persuasion was operationalized as social support. Having family or friends to provide encouragement to women during labor can increase their confidence in their ability to perform childbirth. Some women do not have anyone in their social environment that can provide encouragement during their pregnancy and childbirth. Lack of social support has been associated with decreased maternal confidence and increased risk for fear of birth (Elvander et al., 2013; Storksen et al., 2015).

Emotional states were operationalized as anxiety, depression, and history of abuse. Women with anxiety, depression, or history of abuse may have a negative emotional arousal towards pregnancy and childbirth. Childbirth can increase anxiety and depression in women who already experience anxiety and depression. Both anxiety and depression have been found to be significant predictors of fear of birth (Eberhard-Gran et al., 2008; Hall et al., 2009). Previous history of abuse has been found to be associated with higher likelihood of fear of birth (Eberhard-Gran et al., 2008; Lukasse et al., 2010). The abuse may have occurred anytime from childhood through adulthood and includes physical, emotional, and sexual abuse. Effects from trauma experienced after abuse can last for several years, if not a lifetime (Lukasse et al., 2014). Consequences of abuse include changes in individuals' neurobiology and stress hormones, which can lead to hyperarousal of the stress response system to new stressors (Hornor, 2010; Leeners et al., 2016), thus having a negative influence on confidence in childbirth and pregnancy and fear of birth.

Propositions

Based on the conceptual framework and the literature review, the following were the propositions for this study:

1. Performance accomplishments may be associated with self-efficacy and a given behavior.
2. Vicarious experience may be associated with self-efficacy and a given behavior.
3. Social persuasion may be associated with self-efficacy and a given behavior.
4. Emotional state may be associated with self-efficacy and a given behavior.
5. Self-efficacy may be positively or negatively associated with a given behavior.

Purpose of Study

The purposes of this study were to describe the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States and to determine if anxiety, depression, social support, parity, previous negative experience, history of abuse, maternal confidence, and sources of childbirth information are associated with fear of birth in pregnant nulliparous and multiparous women in the United States.

Research Questions

The research questions for the study were the following:

1. What is the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States?
2. Are anxiety, depression, social support, parity, previous negative experience, history of abuse, maternal confidence, and cultural factors associated with fear of birth in pregnant nulliparous and multiparous women in the United States?

Assumptions

The assumptions that guided this study were the following:

1. Pregnant women will be willing to complete the questionnaires with honesty.
2. Women who use the internet experience fear of birth the same as women who do not use the internet.

Summary

This chapter included an overview of information to support the need to conduct a research study on the prevalence and risk factors for fear of birth in pregnant women in the United States. The background and significance of fear of birth were discussed. The research framework, propositions, study purpose, research questions, and assumptions of the study were also included.

CHAPTER 2

CRITICAL REVIEW OF RELEVANT LITERATURE

This chapter includes a discussion of the significance of fear of birth, including its magnitude and impact, and a description of the population of women with fear of birth. A background discussion includes the history of fear of birth research, description of fear of birth, factors associated with fear of birth, and interventions that have been tested to treat fear of birth. This chapter concludes with a discussion of what is known and not known about the problem of fear of birth and childbirth in the United States and the need for further research.

Magnitude of Fear of Birth

Prevalence of fear of birth has been studied mostly by researchers in the Scandinavian countries, as well as Australia, Turkey, China, the Netherlands, and Canada (Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014). Although estimates of rates vary by study, 22.3% to 24.9% of women in these countries have reported experiencing fear of birth (Elvander et al., 2013; Haines et al., 2011). Sample size in these studies ranged from 371 to 3005 and included women who were nulliparous (have never experienced childbirth) and multiparous (have previously experienced childbirth) and who were currently pregnant (Elvander et al., 2013; Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014).

Limited research is available on fear of birth in the United States. In the few studies conducted in the United States, researchers found that 27% to 52% of American women experience fear of birth (Greathouse, 2016; Lowe, 2000; Stoll et al., 2015). These studies had very specific populations of interest, which may not accurately represent the population of women with fear of birth in the United States. None of the researchers in the United States used samples comparable to those used in studies done in other countries on fear of birth.

Lowe (2000) conducted her study using a sample of healthy pregnant nulliparous women during their third trimester who were already attending childbirth education classes. This excluded a large part of the population of pregnant women who were not attending childbirth classes and multiparous women. The sample in Greathouse's (2016) study consisted of only nulliparous women, including no previous miscarriage or abortion, who were not pregnant. The prevalence of fear of birth in this study may also not be an accurate representation of women with fear of birth in the United States because it did not include women who were pregnant at the time of the study or who had experienced childbirth. In other countries, the prevalence of fear of birth is primarily determined from both nulliparous and multiparous women currently pregnant (Elvander et al., 2013; Haines et al., 2011). Stoll et al. (2015) studied fear of birth in college-aged (18 – 24) nulliparous women who were not pregnant at the time of the study. Like Greathouse's (2016) study, this sample excluded pregnant nulliparous and multiparous women. In the literature search, no studies were found on the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States.

Most research about fear of birth has taken place in public hospitals, antenatal clinics, and birthing centers, usually during women's second trimester of pregnancy (Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014). Researchers have found that the age range of most women with fear of birth is 25 to 35 years. Research data on relationship status, socioeconomic status, and education level for women with fear of birth have varied. Some researchers found that women with low socioeconomic status experience fear of birth more often, and other researchers found higher prevalence of fear of birth in well educated women with a high socioeconomic status (Elvander et al., 2013; Fenwick, Gamble, Nathan, Bayes, & Hauck, 2009; Nilsson et al., 2010; Storksens, Eberhard-Gran, Garthus-Niegel, & Eskild, 2012; Ternstrom et al., 2016).

Impact of Fear of Birth

Impact on Women

Fear of birth affects women in a variety of ways. According to the APA (2017), fear of birth can manifest through physical and psychological symptoms. Physical symptoms of fear of birth include increased heart rate, elevated blood pressure, and fatigue. Psychological symptoms of fear of birth include feelings of loneliness, nightmares, insomnia, avoidance behaviors, difficulty concentrating, panic attacks, and prolonged crying. Women with fear of birth experience significant disruptions in social and work activities with fear of birth (APA, 2017; Nilsson et al., 2010). The symptoms can be severe enough to interfere with routine daily life (Hall et al., 2009).

Women with fear of birth are more at risk for complications during labor than women without fear of birth (OR 1.43 [1.13 – 1.80], 95% CI), even in women with healthy pregnancies (Laursen, Johansen, & Hedegaard, 2009). Fear can elevate levels of the stress hormones adrenaline and noradrenaline (Johnson & Slade, 2003). Adrenaline has the opposite effect of oxytocin, the naturally produced hormone that stimulates contractions. During childbirth, these stress hormones can prolong labor by slowing contractions, which can lead to further complications, including emergency cesarean deliveries (Jespersen, Hegaard, Schroll, Rosthøj, & Kjærgaard, 2014; Johnson & Slade, 2003). Raisanen et al. (2014) found that the rate of emergency cesarean section was higher in women with fear of birth compared to those without (45% vs. 19% nulliparous; 37.2% vs. 11.9% multiparous).

According to Jespersen et al. (2014), women having emergency cesarean sections are at higher risk for further complications. These complications of emergency cesarean deliveries include postpartum preeclampsia, hemorrhage, infections, and thromboembolism (Jespersen et al., 2014). Complications add additional stress for women who are already experiencing

emotional and mental stress from fear of birth by increasing the discomfort and physical pain women experience post-delivery (Jespersen et al., 2014; Rouhe et al., 2015).

Women with complicated deliveries are significantly more likely to report negative birth experience compared to women with normal deliveries (34% vs. 4%, $p < .05$; Nystedt, Högberg, & Lundman, 2005). In a qualitative study that included women with fear of birth and previous negative birth experience, Nilsson et al. (2010) found that women who perceived childbirth to be a negative experience were less likely to have more children. In a quantitative descriptive study, women who had previous birth experiences that were “less than positive” experienced significantly higher levels of fear of birth during their subsequent pregnancies compared to those who had previous positive birth experiences ($p < .003$; Haines et al., 2011).

Impact on Father of the Baby

Women with fear of birth can have strained relationships with the fathers of their child (Widarsson et al., 2015). Avoidance behaviors, loneliness, isolation, and other behaviors that are common in women with fear of birth cause women to distance themselves from their partner, both physically and emotionally (Salomonsson et al., 2010). In a qualitative study of fathers' experiences during pregnancy and childbirth, Widarsson et al. (2015) found that partners felt stress and helplessness when trying to help expectant mothers with fear of birth, which increased the tension on their relationships, and that they did not always know how to support women with fear of birth. Fathers of the baby felt as if they were constantly “paddling upstream” when trying to figure out how to best care for women with fear of birth (Widarsson et al., 2015).

Impact on Baby

Symptoms of fear of birth, including maternal anxiety and emotional distress, have been linked to increases in fetal heart rates and decreases in fetal motility in utero (Van der Bergh et al., 2005). Fear of birth also affects infants after birth (Nilsson et al., 2010). Researchers

studying the effect of prenatal anxiety and stress on infants' health measured cortisol levels in maternal saliva during pregnancy and found that anxiety and stress increased the mothers' cortisol levels (Beijers et al., 2010). These increased cortisol levels in mothers were associated with increased cortisol levels in their fetuses. Cortisol regulates infants' maturation of lymphocytes and inflammatory responses (Beijers et al., 2010). Beijers et al. (2010) found that increased cortisol levels in infants were significant predictors ($p < .001$) of general illnesses (10.7%), respiratory infections (9.3%), skin problems (8.9%), and increased use of antibiotics (7.6%).

Prenatal anxiety is also linked to childhood asthma. In a population-based study, high levels of maternal prenatal anxiety, measured at 32 weeks gestation, were significantly associated with higher probability of childhood asthma (OR 1.64 [1.25-2.17], 95% CI), measured at age seven (Cookson, Granell, Joinson, Ben-Shlomo, & Henderson, 2009). Anxiety and emotional distress during a mother's pregnancy also increases the likelihood of ADHD symptoms and anxiety during childhood (Van den Bergh et al., 2005). To examine the relationship between maternal prenatal anxiety and childhood disorders, Van den Bergh and Marcoen (2004) measured prenatal anxiety throughout pregnancy in 72 women. When the children of the mothers who participated in the study during prenatal care were 8 to 9 years old, the researchers found that prenatal maternal anxiety was a significant predictor of ADHD (22%, $p < .001$) and anxiety (9%, $p < .05$) during childhood.

Fear of birth can negatively influence mother-baby bonding (Areskog, Uddenberg, & Kjessler, 1983). Areskog et al. (1983) found that 66% ($n = 61$) of nulliparous women with fear of birth and 45% ($n = 29$) of multiparous women with fear of birth felt uncomfortable when caring for the infant. Symptoms of fear of birth such as avoidance behaviors, insomnia, and isolation can make mother-baby bonding difficult or strained (Nilsson et al., 2010; Salomonsson

et al., 2010). Difficult mother-baby bonding is significantly associated with decreased ability to breastfeed ($p < .001$), which also affects childhood development (Areskog et al., 1983; Nilsson et al., 2010).

Impact on Healthcare and Society

Fear of birth affects healthcare and society because of extra costs and resources used. Costs come from cesarean deliveries, newborn care, and emergency visits (Martin et al., 2009). Resources needed are primarily healthcare professionals to provide more care for women with fear of birth (Rouhe et al., 2015).

Fear of birth is recognized as a significant reason for women undergoing emergency cesarean delivery and elective cesarean delivery (Stoll et al., 2014). Researchers from Norway found that 32% of women with fear of birth elect to have cesarean deliveries compared to 7.9% of women without fear of birth who elect to have cesarean deliveries (Storksen et al., 2015). Cesarean delivery is chosen by women who fear pain during labor, physical damage to their bodies, and harm to their baby during vaginal delivery (Haines et al., 2011). Women undergoing cesarean deliveries run a much higher risk of complications, such as uterine ruptures, anemia, problems from surgical incision site, and complications with future pregnancies (Jespersen et al., 2014; Rouhe et al., 2015), all of which contribute to increased cost and use of resources.

In the United States, 3,978,497 women give birth annually. In 2016, 35% of deliveries in the United States were cesarean sections (CDC, 2017). From 1990 to 2006, there was a 20% increase in cesarean section deliveries the United States (1,272,503). Elective and emergency cesarean deliveries cost more than spontaneous vaginal deliveries (CDC, 2017). In 2010, average total payments for cesarean sections in the United States were 50% higher than payments for vaginal births. Money is spent for healthcare professionals, anesthesiology, facilities, laboratory, and pharmacy needs for women who have cesarean deliveries (Rouhe et al.,

2015). For those with commercial insurance, the average total cost for maternal care with cesarean section deliveries in the United States was \$27,866 compared to \$18,239 for vaginal deliveries. Medicaid payments for cesarean section deliveries were \$13,590 compared to \$9,131 for vaginal births (CDC, 2017). These data illustrate the increased cost that may be linked to increased frequency of cesarean sections in women with fear of birth.

The greater rate of cesarean births among women with fear of birth is also a concern because, according to the National Center for Health Statistics in the CDC (2017), in 2009, 35% of women who had cesarean deliveries had preterm infants. Preterm birth is the number one cause of infant death (World Health Organization [WHO], 2015). The number of preterm infants born in the United States rose by 19% from 1990 to 2006 (6.8% in 1990 to 8.11% in 2006). In 2016, the prevalence of preterm births rose again to 9.85% (CDC, 2017). Preterm infants have longer hospital stays, are more likely to be admitted to the NICU, incur higher medical costs, and are more likely to die within the first year of life. The cost of newborn care in the United States ranges from \$5,809 (vaginal) to \$11,193 (cesarean). For newborns in the NICU, cost of care ranges from \$32,116 to \$46,847 (CDC, 2017).

More resources and time from healthcare professionals are needed when treating women with fear of birth compared to those without fear of birth (Nilsson & Lundgren, 2009).

Midwives have reported that they spend extra time with pregnant women with fear of birth during prenatal appointments identifying, educating, and discussing feelings about childbirth (Salomonsson et al., 2010).

Healthcare professionals in Sweden reported feeling that they had a lack of knowledge to provide support necessary for women with fear of birth (Salomonsson et al., 2010). Healthcare professionals felt as if they needed extra training and education to care for patients with fear of birth (Fenwick et al., 2013). In two other studies conducted in Finland and Australia, researchers

found that to implement midwife-led counseling interventions for women with fear of birth, the midwives required extra training and education on how to support women with fear of birth (Fenwick et al., 2015; Nerum et al., 2006; Toohill, Fenwick, Gamble, Creedy, Buist et al., 2014). They also found that providing therapy for women with fear of birth was emotionally and mentally draining for midwives (Fenwick et al., 2013; Fenwick, Toohill, Creedy et al., 2015; Nerum et al., 2006).

Background of Fear of Birth

History of Fear of Birth Research

Researchers from Sweden first examined fear birth in the early 1980s (Areskog et al., 1981). The first study of fear of birth was conducted by Areskog et al. in 1981. The focus of the study was on women's feelings about their upcoming delivery in late pregnancy (34 weeks gestation). Twenty-three percent of women ($n = 32$) reported moderate to severe fear regarding their upcoming delivery. Areskog et al. (1983) continued their research on fear of birth by examining the relationship between antenatal fear of birth and perceived experience of delivery in nulliparous and multiparous women. They found that nulliparous women with prenatal fear of birth had an increased risk for negative birth experiences and attachment issues with their infants ($p < .05$; Areskog et al., 1983). Multiparous women with prenatal fear of birth experienced discomfort when handling the infant ($p < .05$) and discontent with breast-feeding ($p < .01$).

For over a decade, fear of birth was only studied by Scandinavian researchers. In the 1990s, researchers from Western countries became interested in examining maternal request for cesarean deliveries (Bewley & Cockburn, 2002). Because of the rise in the number of cesarean deliveries at that time, researchers from Western countries began exploring the relationship between fear of birth and cesarean delivery (Bewley & Cockburn, 2002; Wijma et al., 1998; WHO, 2010).

Researchers have used a variety of terms to describe fear of birth, which can lead to confusion if trying to compare research findings. These terms include fear of birth, severe fear of birth, fear of childbirth, tokophobia, childbirth fear, severe childbirth anxiety, and severe maternal anxiety (Greathouse, 2016; Salomonsson, 2012; Toohill, Fenwick, Gamble, & Creedy, 2014). They all refer to the same problem: fear of childbirth. For the purposes of this study, the term fear of birth will be used to describe the experience of severe fear, anxiety, and distress about pregnancy and childbirth that interferes with daily activities and the childbirth experience (APA, 2013; Nilsson & Lundgren, 2009).

Description of Fear of Birth

During pregnancy, it is common for most women to have some degree of fear or anxiety about childbirth (Nilsson & Lundgren, 2009). For some women, the fear is extreme and persistent, causing severe distress and anxiety. The fear is usually irrational, disproportionate to the actual threat, and overshadows the pregnancy. Despite desiring to have children, women experiencing this distress may decide to avoid pregnancy, avoid childbirth by terminating pregnancy, or elect to have cesarean delivery without medical necessity. This is referred to as fear of birth (APA, 2013; Nilsson & Lundgren, 2009).

Fear of birth is an extreme state of anxiety from phobia about childbirth (Salomonsson et al., 2013). Fear of birth is determined by women's cognitions of pregnancy and birth. Beck (2004) uses the term "in the eye of the beholder" to describe women's appraisals of childbirth. If pregnancy and birth are appraised as dangerous or life-threatening, fear is the emotional reaction (Lazarus & Folkman, 1984). Fear of birth involves fear of any aspect of pregnancy and/or childbirth. These fears can come from personal experiences, expectations, and hearing horror stories from other women's childbirth experiences (Fenwick, Toohill, Creedy et al., 2015; Fisher et al., 2006).

Fear of birth includes fear of psychological and physical changes and previous childbirth experiences. Psychological fears include fear of the unknown, loss of control, powerlessness, loneliness, feeling exposed, one's own competence during childbirth, incapability of caring for an infant, unfamiliar maternity staff during childbirth, and lack of support (Fenwick, Toohill, Creedy et al., 2015; Fisher et al., 2006; Gao et al., 2015; Greathouse, 2016; Nilsson & Lundgren, 2009).

Physical changes/experiences feared by women with fear of birth include pain during labor, weight gain, injury to or death of the infant, physical damage to genitalia after vaginal delivery, lack of sexual desire after pregnancy, complications, and even death during labor (Fenwick, Toohill, Creedy et al., 2015; Fisher et al., 2006; Gao et al., 2015; Greathouse, 2016). Fear of pain and fear of damage to the body during vaginal delivery are the two main reasons women elect cesarean section (Nieminem et al., 2015; Rouhe et al., 2012; Storksen et al., 2015). These fears in women are associated with feelings of shame, suffering, and helplessness (Fenwick et al., 2009). Stoll et al. (2014) studied 3680 college-aged students in Canada and found that 66.7% of female students were worried about the impact of pregnancy and birth on their sexual desire. Worry over sexual functioning and body image in these students was significantly associated with body changes during pregnancy and the postpartum period ($r = .50$, $p < .001$; Stoll et al., 2014).

Risk/Associated Factors of Fear of Birth

Mental Illness. Women with mental illness are more vulnerable to fear of birth (Gao et al., 2015; Hall et al., 2009; Rubertsson, Hellstrom, Cross, & Sydsjo, 2014). Researchers found that fear of birth is twice as likely in women with psychiatric diagnoses compared with those not diagnosed with mental illness (44% vs. 22.1%, $p < 0.005$; Andersson et al., 2003; Rouhe et al., 2011). Rouhe et al. (2011) also found that during pregnancy, women with fear of birth required

psychiatric inpatient and outpatient care and used psychotropic medications significantly more than women without fear of birth. Women with fear of birth required psychiatric care more often than women without fear of birth (54.0% vs. 33.6%, $p < .001$), and in both groups, the most common psychiatric disorders were mood and anxiety disorders (Rouhe et al., 2011). In a sample of 72 women with prenatal anxiety and depression, 33% experienced fear of birth (Storksen et al., 2015). In another study, 90% of the 86 women who reported severe fear of birth had pre-existing anxiety or depression (Nerum et al., 2006).

Anxiety. Estimates of prevalence of anxiety during pregnancy range from 11.8% to 21% (Nordeng, Hansen, Garthus-Niegel, & Eberhard-Gran, 2012; Storksen et al., 2012). Anxiety has been found to be a significant predictor of fear of birth ($\beta = .494$, $p < .001$; Hall et al., 2009). Women with anxiety are almost five times more likely to experience fear of birth than those without anxiety (OR 4.8, CI 95%; Laursen, Hedegaard, & Johansen, 2008). Significant hormonal fluctuations of estrogen and progesterone that occur with pregnancy increase the risk for women to develop anxiety or worsen existing anxiety (Altshuler, Hendrick, & Cohen, 2000; Bak, 2003). Increased cortisol levels from psychological stress in women during pregnancy can also increase women's risk for developing or worsening anxiety ($r(52) = -.28$, $p < .05$; Pluess, Bolten, Pirke, & Hellhammer, 2010).

Most of the risk factors for anxiety during pregnancy are similar to risk factors for fear of birth. These include feelings of lack of control, financial problems, unwanted pregnancies, strain on role and relationships, and previous negative birth experiences (Akiki, Avison, Speechley, & Campbell, 2016). Symptoms of fear of birth are also similar to symptoms of anxiety. They include excessive apprehension, emotional distress, and avoidance of certain situations (APA, 2013). Researchers describe two types of anxiety in women during pregnancy: trait anxiety and

state anxiety. Both trait anxiety and state anxiety have been found to be significant predictors ($\beta = .27$ and $.24$ respectively, $p < .001$) of fear of birth in pregnant women (Gao et al., 2015).

Trait anxiety. Trait anxiety is described as a personality characteristic of individuals who consistently respond to stress with anxiety (APA, 2017). It is a relatively stable disposition of individuals' anxiety levels (Gao et al., 2015; Huizink et al., 2014). In a sample of 353 Chinese women, Gao et al. (2015) found that higher levels of trait anxiety were directly associated with higher levels of fear of birth ($r = .494$, $p < .001$) and that it was a significant predictor of fear of birth ($\beta = .27$, $p < .001$). In a sample of 140 pregnant women from Iran, at 38 weeks gestation, 56% ($n = 78$) experienced antenatal trait anxiety, and antenatal trait anxiety was positively associated with fear of birth ($r = .31$, $p < .001$; Alipour, Lamyia, & Hajizadeh, 2011). Based on their review of literature about fear of birth, Klabbers et al. (2010) concluded that higher levels of trait anxiety are associated with depression, perceived stress, and negative life events in women during pregnancy.

State anxiety. State anxiety is described as individuals' arousal to stressful situations at a given time that is not persistent (APA, 2017). State anxiety refers to subjective feelings of worry, nervousness, and tension that come and go depending on the situation (Gao et al., 2015; Huizink et al., 2014; Klabbers et al., 2016). Psychological and physical stressors during pregnancy can increase women's state anxiety (Akiki et al., 2016). Hall et al. (2009) examined the relationships between fear of birth and state anxiety, sleep deprivation, and fatigue and found that state anxiety was not only significantly associated with fear of birth ($r = .54$, $p < .001$), it was the only variable to independently predict fear of birth ($\beta = .494$, $p < .001$, $n = 624$).

Depression. Estimates of prevalence of depression during pregnancy range from 5% to 30% (Altshuler et al., 2000; Pereira et al., 2011). Women suffering from depression during pregnancy are more than twice as likely to experience fear of birth as women who are not

depressed (OR 2.70 [2.23 – 3.26], 95% CI, $n = 30,480$; Laursen et al., 2008). Eberhard-Gran et al. (2008) found that depression during pregnancy was the strongest predictor of fear of birth compared to sexual abuse, duration of labor, and mode of delivery (OR 11.9 [2.7 – 53.0], 95% CI, $p < 0.05$). Depression during pregnancy is more common in women with a history of depression, but it can also begin during pregnancy (Altshuler et al., 2000). Symptoms of depression are similar to some of the symptoms experienced by women with fear of birth. They include increased crying, lack of energy, inability to concentrate, isolation, and feelings of shame (APA, 2013).

Lack of Social Support. There is a significant relationship between lack of social support and fear of birth (OR 3.8 [1.9 – 7.6], 95% CI, $p < .001$; Storksen et al., 2015). Elvander et al. (2013) found that in a sample of 611 women who reported high levels of fear of birth, 51% did not have social support. During significant events, such as pregnancy, support is vital. Emotional support is needed because of the hormonal changes that increase stress and anxiety in women during pregnancy. Support can enhance women's well-being and reduce levels of stress (Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Fenwick, Toohill, Creedy, et al., 2015).

Several qualitative studies have been conducted to explore the relationship between fear of birth and lack of social support (Collins et al., 1993; Fenwick, Toohill, Gamble et al., 2015). A common theme found in these studies was that women with fear of birth felt lack of support from partners, family, and healthcare professionals (Fenwick, Toohill, Creedy et al., 2015; Fisher et al., 2006; Gao et al., 2015). In Fenwick, Toohill, Creedy et al.'s (2015) study, women with fear of birth either did not know the father of baby, or the father of the baby was not involved in pregnancy and childbirth. The fathers did not attend prenatal appointments and were not present during birth. Women also experienced added stress and financial strain when their partners did not provide any financial support (Fenwick, Toohill, Creedy et al., 2015; Salomonsson et al.,

2010). Other common themes found in studies of women who experienced fear of birth were that there was lack of support from healthcare professionals, the women were not included in decisions about their childbirth, health care professionals were incompetent regarding childbirth, and that there was lack of privacy from healthcare professionals (Fenwick, Toohill, Creedy, et al., 2015, Greathouse, 2016).

Parity. Fear of birth is significantly more common in nulliparous women than multiparous women (14.7% vs. 7.3%, $p < .001$; Joki -Begi, Igi, & Naki Radoš, 2014). Nulliparity includes women who are currently pregnant for the first time and women who have never been pregnant. In a sample of 1410 pregnant women, Toohill et al. (2014) found that 31.5% of pregnant nulliparous women reported fear of birth during the second trimester compared to 18% of pregnant multiparous women. First time mothers do not know what to expect during childbirth so may fear the worst. They may lack self-confidence and self-efficacy (Elvander et al., 2013). Nulliparous women may doubt their capabilities during pregnancy and motherhood (Fenwick, Toohill, Creedy et al., 2015). They base their expectations and attitudes on their vicarious experiences with women who have had previous positive or negative birth experiences (Elvander et al., 2013).

Previous Negative Experience. Previous negative birth experience is the main reason for fear of birth in multiparous women (Lukasse et al., 2010; Nilsson & Lundgren, 2009). Negative birth experiences are determined by women's perceptions of previous birth experiences and outcomes regarding their own treatment or the babies' health (Nilsson et al., 2010). Twenty eight percent of mothers with a negative birth experience reported fear of birth in subsequent pregnancies (Storksén et al., 2015). Sjögren and Thomassen (1997) found that in a sample of 100 multiparous women, 41% feared death after previous negative birth experiences with complicated deliveries. In a qualitative study, Nilsson et al. (2010) found that women with fear

of birth who decided to postpone or avoid further pregnancies were more likely to have experienced previous negative birth experiences.

Having an emergency cesarean section is the most common factor associated with negative birth experiences (Fisher et al., 2006; Storksens et al., 2015; Waldenstrom, Hildingsson, & Ryding, 2006). Waldenstrom et al. (2006) found that in a sample of 97 women, almost 45% of women who underwent an emergency cesarean section perceived the birth experience as negative (Waldenstrom et al., 2006).

Negative birth experiences also may be associated with women's perceptions of the way that hospital staff treated them during childbirth. Results of a qualitative study support that women may feel as though their body was treated like an object during vaginal examinations, that hospital staff did not include them in important decisions about the birth, and that their needs and desires were ignored (Fenwick, Toohill, Creedy et al., 2015).

History of Abuse. Lukasse et al. (2014) conducted a prevalence study of abuse in six different European countries (Belgium, Iceland, Denmark, Estonia, Norway, and Sweden) and found that out of a sample of 7174 pregnant women, 49.2% had a history of emotional, physical, or sexual abuse. Abuse can occur anytime from childhood through adulthood and includes physical, emotional, and sexual abuse. Fear of birth is more common in women with a history of abuse (Eberhard-Gran et al., 2008; Leeners, Gorres, Block, Hengartner, 2016; Lukasse et al., 2010). Prevalence of abuse in women with fear of birth has been found to range from 33% ($n = 12$; Eberhard et al., 2008) to 63% ($n = 86$; Nerum et al., 2016). Lukasse et al. (2010) found that a history of any type of childhood abuse was a significant risk factor for fear of birth in pregnant nulliparous and multiparous women (OR 2.00 [1.30-3.08], 95%, CI). History of emotional abuse was the strongest abuse-type risk factor for fear of birth. Leeners et al. (2016) found that fear of

birth was more severe in women with a history of childhood sexual abuse compared to those with no history of childhood sexual abuse (24.7% vs. 5.3%, $p < .01$; Leeners et al., 2016).

Effects from trauma experienced after abuse can last for several years, if not a lifetime (Lukasse et al., 2014). Survivors of abuse share common symptoms. Psychological effects include poor coping skills, low self-esteem, lack of trust, loss of identity, difficulty interacting with others, and increased vulnerability to stress (Hornor, 2010; Leeners et al., 2016). Physical effects include changes in individuals' neurobiology and stress hormones, which can lead to hyperactivity of the stress response system to new stressors (Hornor, 2010; Leeners et al., 2016). Psychological and physical consequences of abuse add to the anxiety and stress women feel during pregnancy (Leeners et al., 2016)

Pregnancy can trigger traumatic memories in women with a history of abuse. In a sample of 85 women with a history of childhood abuse, 41.2% reported that memories of abuse reappeared and created distress during pregnancy (Leeners et al., 2016). For 9.7% of those women, memories arose for the first time since childhood. Vaginal exams and nakedness consciously and unconsciously remind women of the perpetrator and the pain experienced during the abuse. Having to rely on health providers to care for them and make important health related decisions cause women to remember the loss of control and helplessness felt during the abuse (Leeners et al., 2016).

Sources of Information. Women's attitudes and perceptions of childbirth are shaped by exposure to media (Greathouse, 2016; Stoll et al, 2014). Women watch reality shows, search the internet, read blogs, and use social media to educate themselves about childbirth (Morris & McInerney, 2010). These sources often portray the worst-case scenario, over dramatize childbirth, lead to false expectations, and evoke fear in women (Greathouse, 2016; Stoll et al., 2014).

In a sample of 1813 Canadian women, Stoll and Hall (2013) found that media was a significant predictor of fear of birth (OR 1.49 [1.17-1.91], 95% CI; $\beta = .40$, $p = .001$). They also found that fear of birth scores were highest in women who had seen birth on television or the internet compared to women who had seen birth in the hospital or at home. In another study, Stoll et al. (2014) found that in a sample of 3680 college-aged Canadian women, 38.5% used the media alone to determine their attitudes towards childbirth. In the same study, women whose perception of childbirth was based on media reported significantly higher levels of fear of birth than those who did not base their attitudes toward childbirth on the media (19.02 vs. 17.77, $t = -6.57$, $p < .001$; Stoll et al., 2014).

Self-Efficacy. Women with low childbirth self-efficacy are more likely to experience distress and anxiousness related to fear of birth (Lowe, 1993). Two main sources of self-efficacy related to childbirth are enactive attainment (previous personal experiences) and vicarious experiences (other women's experiences). Because nulliparous women have no personal experience with childbirth, they are more likely to have low self-efficacy related to pregnancy and childbirth than multiparous women (Lowe, 2000). Nulliparous women do not know what to expect and fear the unknown, pain, injury to the baby, and complications from vaginal deliveries (Fenwick et al., 2015).

In Stoll et al.'s (2014) study of 3680 college-aged women, 56.6% of nulliparous women relied on family member's experiences and 41.6% of nulliparous women relied on friends' experiences to shape their own beliefs and attitudes on their ability to perform childbirth and increase their fear of birth. In a qualitative study, Salomonsson et al. (2010) found that multiparous women who have had multiple miscarriages or traumatic births are more likely to have low self-efficacy in their ability to give birth and higher levels of fear of birth than those multiparous women who had no complications during pregnancy and childbirth.

Interventions

Midwife-led Counseling. Women with fear of birth need support before, during, and after childbirth. These patients require more time from the midwife or provider. Researchers in Australia and Norway developed one-on-one counseling interventions led by midwives to reduce fear of birth in women (Fenwick et al., 2013; Nerum et al., 2006). Both the psychoeducational therapy counseling intervention and the crisis-oriented counseling intervention were individually tailored based on each woman's needs. In both studies midwives providing the counseling received extra education and training on maternal mental health and methods to treat women

with fear of birth (Fenwick et al., 2015; Nerum et al., 2006; Toohill, Fenwick, Gamble, Creedy, Buist et al., 2014).

Fenwick et al. (2013) developed the Birth Emotions and Looking to Improve Expectant Fear (BELIEF) intervention, a telephone psychoeducational therapy provided by midwives that focuses on expectations of birth, expression of feelings associated with fear of birth, and psychological wellbeing of women with fear of birth. In their protocol, two 1-hour counseling sessions took place over the telephone. Midwives were available daily for questions and concerns of individuals undergoing therapy (Fenwick et al., 2013). Toohill, Fenwick, Gamble, Creedy, Buist et al. (2014) tested the BELIEF intervention in a randomized controlled trial with 339 pregnant women with fear of birth. Women with fear of birth were assigned to either the BELIEF intervention group ($n = 170$) or the control group ($n = 169$). The researchers found significant differences in postintervention scores between groups for fear of birth (mean decrease in scores 19.52 vs. 9.28, $p < 0.001$) and childbirth self-efficacy (mean increase in scores 61.10 vs. 19.70, $p = 0.002$; Toohill, Fenwick, Gamble, Creedy, Buist et al., 2014).

For the crisis-oriented counseling intervention, Nerum et al.'s (2006) goal was to change delivery preferences from cesarean sections to vaginal deliveries in women with severe fear of birth. Eighty-six women with fear of birth who had requested a cesarean section received in person individual crisis-oriented counseling. Each woman developed a birth plan during the counseling sessions with her midwife. After the intervention, 86% of women with fear of birth planned for a vaginal delivery rather than their initial choice of cesarean section ($p < .006$). The researchers did not report directly if women experienced decreased fear of birth after the intervention, but they equated decreased fear of birth with decreased cesarean section deliveries (Nerum et al., 2006).

Group Therapy. Psychoeducational group therapy interventions for women with fear of birth have been developed by researchers from Finland and Australia, with aims to reduce levels of fear of birth, decrease the number of cesarean deliveries elected without medical indication, improve self-efficacy, and promote positive motherhood (Byrne et al., 2014; Rouhe et al., 2012; Salmela-Aro et al., 2012). Therapy sessions in these studies were led by psychologists and included discussions on fear of birth, childbirth, parenting education, and mental exercises to reduce fear of birth (Byrne et al., 2014; Rouhe et al., 2012; Salmela-Aro et al., 2012).

Rouhe et al. (2012) conducted a randomized controlled study in which the goal of the intervention was to decrease fear of birth and improve obstetric outcomes in a group of women from Finland. Women in the intervention group ($n = 131$) received six sessions of educational group therapy and mindfulness exercises, which were led by the same psychologist each session. The women in the control group ($n = 240$) resumed normal prenatal care and were referred to specialized obstetric teams for fear of birth if desired (Rouhe et al., 2012). After six psychoeducational sessions during pregnancy, Rouhe et al. (2012) found significant differences in the number of elective cesarean sections (22.9% vs. 32.5%, $p < 0.05$), emergency cesarean sections (12.2% vs. 19.6%, $p < .05$), and spontaneous vaginal deliveries (63.4% vs. 47.5%, $p = .005$) in the intervention group compared to women in the control group. Rouhe et al. (2012) equated decreased cesarean section deliveries with decreased fear of birth.

Salmela-Aro et al. (2011) used the data set from Rouhe et al.'s (2012) study but examined the effect of the psychoeducational group therapy intervention on childbirth preparedness, positive parenting, and levels of fear of birth in the same sample of pregnant women with severe fear of birth (WDEQ-A ≥ 100). They found that mean preparedness scores increased in both the intervention and the control group, but the increase was steeper in the intervention group (3.67 to 4.36 vs. 3.70 to 4.18, $p < .05$). They also used latent growth curve

modeling to test the associations between preparedness and positive motherhood three months after childbirth and found that preparedness indirectly predicted positive parenthood (unstandardized path estimate for indirect effect = 0.11, standard error = 0.048, $p < 0.05$).

Salmela-Aro et al. (2012) did not further report on the fear of birth changes that were previously found by Rouhe et al. (2012) in this same sample.

Byrne et al. (2014) conducted a pilot study with 18 women in Australia based upon the Mindfulness Based Childbirth Education (MBCE) intervention. The MBCE included an empowerment model of education and mindfulness exercises. The goals of the intervention were to improve self-efficacy, empowerment, and mindfulness and to decrease fear of birth. After eight consecutive weeks of group therapy, the researchers found significant improvement in mean self-efficacy (171.69 to 224.54, $p < .001$) and decrease in mean fear of birth (61.42 to 38.92, $p < .001$). In the qualitative data collected after birth, women reported that they were more active participants and decision makers during childbirth and that the mindfulness skills learned were beneficial throughout pregnancy and after birth (Byrne et al., 2014).

Cognitive Behavioral Therapy. Cognitive behavioral therapy has been well-established as a beneficial treatment for multiple psychiatric disorders, including anxiety, depression, and PTSD (Butler, Chapman, Forman, & Beck, 2006). Because fear of birth has similar characteristics to anxiety, depression, and PTSD, it is believed that cognitive behavioral therapy can be effective for treating fear of birth. Researchers from Sweden tested an Internet-Based Cognitive Behavioral Therapy (IBCT) intervention intended to reduce women's levels of fear of birth in a sample of 28 pregnant women (Nieminen, Andersson, Wijma, Ryding, & Wijma, 2016; Nieminen et al., 2015). Therapists provided online therapy for eight weeks, which consisted of women actively participating in cognitive reorganizing, psychoeducation, breathing exercises, and childbirth imagery. Levels of fear of birth, as measured using the WDEQ-A, significantly

decreased as therapy progressed ($\bar{x} = 120$ before vs. $\bar{x} = 81.6$ after, $p < .0001$; Nieminen et al., 2016). After the eight weeks, women had access to the modules if they chose to go back and review the content. Out of the 15 women who continued to review the modules, 53% reported no longer experiencing fear of birth. Nieminen et al. (2015) also found rich data from the women interviewed post intervention. Before therapy, women expressed fear of uncertainty, fear of pain, and doubts about outcomes of birth, but after therapy, women's expectations were more realistic. Coping by avoidance was changed to coping with active strategies. Women's perceptions of lack of presence from partners and hospital staff changed as well. Women felt that their partners actively participated in the birthing process and reported that the medical staff was helpful (Nieminen et al., 2015).

Eye Movement Desensitization and Reprocessing (EMDR). Eye Movement Desensitization Reprocessing (EMDR) is a psychotherapy treatment in which healthcare professionals guide patients through emotionally troubling material (Baas et al., 2017; Tang, Yang, Yen, & Liu, 2015). During EMDR, patients discuss their distressing thoughts and previous traumatic memories while healthcare professional guide patients through lateral eye movements (Baas et al., 2017). Patients usually have three 90-minute sessions. Researchers have found that with EMDR, the healing process from fear and trauma takes less time than it takes using conventional therapy techniques (Baas et al., 2017). Disadvantages of EMDR are that it is expensive and not usually covered by insurance.

Studies on EMDR for fear of birth are scarce, but EMDR has been used to treat anxiety disorders and PTSD (Baas et al., 2017; Tang et al., 2015). In a sample of 83 adolescents, Tang et al. (2015) found that mean anxiety scores decreased significantly more in the adolescents who received EMDR compared to those who received usual treatment (decreases of 69.78 to 30.61 compared with 48.02 to 41.88, $p = .03$). Researchers from the Netherlands have developed a

protocol for a randomized controlled pilot study to examine the effect of EMDR on postpartum PTSD and fear of birth, but the results of the study have not yet been published (Baas et al., 2017).

Prenatal Yoga. Yoga is an exercise that focuses on breathing, mind-body connections, and relaxation techniques. It is becoming a more common prenatal practice for women. Prenatal yoga is aimed at emphasizing postures, exercises, and breathing techniques that can help relieve pain during different stages of labor (Newham et al., 2014). No research was found specifically on the effectiveness of yoga to decrease fear of birth, but researchers have examined the effect of yoga on pregnancy-specific anxiety (Newham et al., 2014) and on childbirth self-efficacy (Sun, Hung, Chang, & Kuo, 2010), both of which are concepts similar to fear of birth.

Newham et al. (2014) conducted a randomized controlled trial to test the effect of an eight-week, hour long prenatal yoga class on pregnancy-specific anxiety. Interestingly, they used the W-DEQ-A, an instrument developed to measure fear of birth, to measure pregnancy-specific anxiety. Both those who received the yoga intervention and those who received usual care had significant decreases in pregnancy-specific anxiety as measured using the WDEQ-A ($p < .001$ vs. $p = .04$), but those who participated in the yoga class had a greater decrease in W-DEQ-A scores (from 74 to 61 compared with 77 to 69), with participation in the yoga group being the only significant predictor of change in WDEQ scores ($\beta = -9.59$ [-18.25 to -0.43], 95% CI, $p = .014$).

Sun, Hung, Chang, and Kuo (2010) tested the effect of 12 to 14 weeks of twice weekly prenatal yoga on childbirth self-efficacy in 45 nulliparous pregnant women when compared with 43 nulliparous pregnant women who continued normal prenatal care in Taiwan. Those who participated in the yoga intervention had a significant increase in childbirth self-efficacy expectations (102.19 vs. 79.40, $p < .001$) and outcome expectations compared to the control

group (113.33 vs. 88.42, $p = .002$; Sun et al., 2010). This is noteworthy because researchers have found that women with childbirth self-efficacy are less likely to experience fear of birth (Byrne et al., 2014; Rouhe et al., 2012).

Research Problem

From the literature review, three studies were found on the prevalence of fear of birth in the United States. Researchers reported the prevalence of fear of birth to be 27% (Stoll et al., 2015), 34% (Greathouse, 2016), and 52% (Lowe, 2000). In those studies, the populations studied were exclusively nulliparous American women who were not currently pregnant, young nulliparous American women, and healthy nulliparous pregnant women who were recruited from a childbirth class that they were already attending. In other countries, the prevalence rates of fear of birth have averaged approximately 23% and were measured in nulliparous and multiparous women at various points during pregnancy.

Although Greathouse (2014) explored predictors of fear of birth in pregnant nulliparous American women, she found no socio-economic characteristics that were predictive of fear of birth in these women, but she did not examine the risk factors that researchers from other countries have found to be predictive of fear of birth. No other studies were found in which researchers from the United States examined risk factors for fear of birth. Researchers from other countries, such as the Scandinavian countries, as well as Australia, Turkey, China, the Netherlands, and Canada, have examined risk factors for fear of birth in nulliparous and multiparous pregnant women. They have found that mental illness, lack of support, nulliparity, history of abuse, previous negative birth experience, media, and self-efficacy were the most common risk factors for fear of birth in these countries. These researchers have recommended further cross-cultural research to determine if the risk factors are similar in other cultures (Fenwick et al., 2009; Haines et al., 2011; Ternstrom et al., 2016).

Researchers outside the United States have found that women with fear of birth need support before, during, and after childbirth. Treatment for fear of birth can reduce anxiety, decrease complicated vaginal births, decrease length of labor, and improve the overall childbirth experience (Baas et al., 2017; Salomonsson et al., 2010). In Sweden, women are routinely screened and treated for fear of birth by multidisciplinary teams, consisting of nurses, midwives, psychologists, psychiatrists, and sometimes physicians (Fenwick, Toohill, Creedy, et al., 2015).

In other countries, cognitive behavioral therapy, group therapy, and individual counseling, have been found to be useful in treating women with fear of birth. EMDR and yoga are currently being studied as treatments for women with fear of birth. Although several treatment options have been developed, there is currently no gold standard treatment or criterion to treat women with fear of birth. No intervention studies in the United States were found in the literature review.

The first step to treating women with fear of birth is to identify women who suffer from fear of birth. Identification needs to take place early during prenatal care in order to provide treatment before childbirth. To provide appropriate care for women with fear of birth, it is necessary to know who and how many women are suffering from fear of birth. Because none of the studies on fear of birth in the United States have populations similar to those studied in other countries, it is difficult to compare prevalence rates or risk factors for fear of birth in the United States to prevalence rates or risk factors for fear of birth in other countries. The prevalence of fear of birth in nulliparous and multiparous pregnant women and the risk factors for fear of birth in the United States are unknown. The purposes of this study will be to determine the prevalence of fear of birth in the United States for nulliparous and multiparous pregnant women and to examine whether the risk factors, including pre-existing anxiety, depression, lack of support,

parity, previous negative birth experience, history of abuse, and sources of information, are similar to other countries.

Summary

This chapter included a discussion of the significance of fear of birth, including its magnitude and impact, and a description of the population of women with fear of birth. The chapter also included a background discussion, which included the history of the term fear of birth, description of fear of birth, instruments to measure fear of birth, factors associated with fear of birth, and interventions that have been tested to treat fear of birth. This chapter concluded with a discussion of what is known and unknown about fear of birth in the United States which supported the need for a study of prevalence and risk factors for fear of birth in pregnant nulliparous and multiparous women in the United States.

CHAPTER 3

METHODS AND PROCEDURES

This chapter includes a description of the methods and procedures that were used in this study. The purpose of this study was to describe the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States and explore whether anxiety, depression, social support, parity, history of abuse, previous negative experience, maternal confidence, and cultural factors are associated with fear of birth. The chapter includes descriptions of the design, sample, setting, and measurement methods that were used in this study. It also includes a discussion of the procedures and data analysis. The chapter concludes with a discussion of ethical considerations and delimitations of the study.

Research Design

A descriptive correlational research design was used for this study, with the WDEQ-A, Childbirth Self-Efficacy Inventory (CBSEI; Appendix A) and a sociodemographic survey (Appendix B) as the measurement tools. With a descriptive correlational design, the researcher was able to describe the prevalence of fear of birth and examine interrelationships among fear of birth and associated factors (Grove, Burns, & Gray, 2013). This design was appropriate because researchers from other countries have examined the prevalence of and predictor variables associated with fear of birth in pregnant women using descriptive correlational methods (Akiki, Avison, Speechly, & Campbell, 2016; Fenwick et al., 2015; Gao, Liu, Fu, & Xie, 2015), but no studies were found in which researchers in the United States examined prevalence of fear of birth and factors associated with fear of birth using a descriptive correlational design.

The advantage of a descriptive correlational design is that it allows the researcher to quantify associations among variables simultaneously (Gliner, Morgan, & Leech, 2009). The design is cross-sectional. Cross-sectional studies are less expensive and take less time to conduct

than longitudinal studies. Data are gathered at a single point in time, so there is no requirement for follow-up and less opportunity for attrition; however, the design has limitations. The design prevents the calculation of incidence because the design lacks a series of events; additionally, rare predictors and causal relationships cannot be assessed well (Gliner et al., 2009).

Sample

Sample Criteria

The target population for this study was women aged 18 and older who were currently pregnant and living in the United States. The accessible population was women aged 18 and older who were currently pregnant and living in the United States and who had access to the internet. The study sample consisted of participants who responded to computer-based surveys, which were available on the internet. Participants were eligible for inclusion in the sample if they were women who were at least 18 years of age, currently pregnant, living in the United States, and had access to the internet.

Sample Size

Effect size, power, and alpha level are the three parameters needed to calculate a priori determination of sample size for correlational research using multiple linear regression (Grove & CIPHER, 2017). The effect size in this study was based on the effect size found by researchers in another study with significant findings. Gao et al. (2015) examined the association of fear of birth with state-trait anxiety, childbirth self-efficacy, age, educational level, social support, and previous miscarriage in a sample of 353 pregnant Chinese women, and they found that state-anxiety, trait-anxiety, age, and previous miscarriage explained 28% of the variance of fear of birth scores.

In this study, the researcher used the same large effect size found by Gao et al. (2015) to estimate the sample size. The researcher estimated that anxiety/depression, social support,

parity, history of abuse, previous negative experience, maternal confidence, and cultural factors explained 28% ($R^2 = 0.28$) of the variance of fear of birth scores in pregnant nulliparous and multiparous women. In a multiple linear regression model, $R^2 = 0.28$ is considered a large effect size. G* Power 3.1 is the software used to perform the power analysis for sample size estimation for a study in which the data will be analyzed using multiple linear regression (Faul, Erdfelder, Lang, & Buchner, 2009). In order to calculate power analysis for a multiple linear regression, R^2 had to be converted into an f^2 value (Grove & Ciper, 2017). With significance set at $\alpha = 0.05$, power set at 0.90 and R^2 of 0.28 converted to $f^2 = 0.38$, and 15 predictor variables, the power analysis resulted in a sample size of 75 (Appendix C). In the first six days of recruitment, 116 participants accessed and completed the surveys. The researcher kept the survey open for two weeks in order to get enough participants to account for missing data.

Sampling Method

A nonprobability convenience sampling method was used to obtain participants for this study. Convenience sampling is the most common sampling method used by researchers conducting nursing studies (Grove & Ciper, 2017). External validity is influenced by sampling techniques and quality of sample. External validity reflects how well the study sample represents the target population, the adequacy of the sampling technique, and the response rate (Gliner et al., 2009). The utilization of a convenience sample limits validity and introduces sampling bias. One goal of using online methods for sample recruitment was to produce a more heterogeneous sample than might be possible in a clinic-based sample. The sample obtained may thus represent a broader spectrum of the population of pregnant women in the United States.

The researcher sought permission from administrators of Facebook groups to post information with a link to the study for potential participants on their Facebook pages (Appendix D). Participants were specifically recruited from the Facebook groups Pregnancy Countdown

and Pregnancy Support Group. A member of Pregnancy Countdown saw the information about the study on the Pregnancy Countdown Facebook group and shared the link with another Facebook group called DFW VBAC/Cesarean Support.

Participants in this study needed to have access to the internet, become aware of the survey on one of the aforementioned Facebook Pages, access the information about it, and make a decision to respond. According to a recent survey by the Pew Research Center (2012), 82% of American adults use the internet and 66% have a high speed internet connection at home. The internet usage gap between White non-Hispanics and Black non-Hispanics was 9% and between White non-Hispanics and White Hispanics was 7%. In that survey on internet usage, a 26% gap was found between low and middle-income wage earners, and a 30% gap between those without a high school diploma and those with a college education. Using the internet to recruit this study sample had the potential to enhance external validity, because the sample might be more representative of the specific population of interest with the specific condition of interest (Gliner et al., 2009). The findings could thus be generalized to others within the same age range and with the same condition. In this sample type, there is no guarantee that it would include a true demographic representation of this specific population.

Setting

The setting for this study was the location in which the participants chose to complete an online survey. This setting could be anywhere that internet access was available, and participants could use smart phones, tablets, or computers to access and complete the survey. Qualtrics was the computer software used by the researcher to format online versions of the WDEQ-A, CBSEI, and the sociodemographic questionnaires included in the survey. The online version of the survey was most compatible with smartphones and computers.

Measurement Methods

Variables

One outcome variable and eight associated variables were measured in this study: fear of birth (outcome variable), anxiety, depression, social support, history of abuse, parity, self-efficacy, and cultural factors (associated variables). Conceptual and operational definitions of each of the variables are included in Table 2. These variables were chosen based on the concepts frequently included in previous studies of fear of birth and also because they reflect the concepts in Bandura's (1977) Self-Efficacy Theory, which provided the framework for this study.

Table 1. *Conceptual and Operational Definitions of Study Variables*

Study Variable	Conceptual Definition	Operational Definition
Fear of birth	Behavior which is an extreme state of anxiety from phobia about childbirth (Salomonsson et al., 2013).	Total scores ≥ 85 on the 33-item WDEQ-A (Wijma et al., 1996)
Maternal confidence	Self-efficacy expectations and outcome expectations that a woman has regarding her own ability in childbirth (Lowe, 2000).	Total scores on the Childbirth Self-Efficacy Expectations (0 – 300) and Childbirth Outcome Expectations (0 – 300; CBSEI; Lowe, 1993).
Parity	Performance accomplishments reflecting the number of pregnancies a woman has had. Includes miscarriages and abortions. This may range from no previous experiences of their own (nulliparous) to one or more pregnancy experiences (multiparous; Fenwick et al., 2014).	Question #4 on the Socio-Demographic Questionnaire: number of pregnancies, including the current pregnancy.
Anxiety	Emotional state from excessive apprehension, emotional distress, and avoidance of certain situations, prior to current pregnancy (APA, 2013).	Question #7 on the Socio-Demographic Questionnaire: Likert scale 0 – 10 with 0= no anxiety and 10 = extremely severe anxiety.
Depression	Emotional state related to increased crying, lack of energy, inability to concentrate, isolation, and feelings of shame, prior to current pregnancy (APA, 2013).	Question #8 on the Socio-Demographic Questionnaire: Likert scale 0 – 10 with 0= no depression and 10 = extremely severe depression.
Sources of information	The sources of vicarious experiences that influence women's judgments	5 items on Socio-Demographic Questionnaire

	about pregnancy and childbirth (Stoll et al., 2014).	(Question #10, 11, 12, 13, 14). No (code as 0) Yes (code as 1)
Social support	Social persuasion received verbally, emotionally, and mentally from family, friends, colleagues, or other significant others (Fenwick et al., 2015).	Question # 15 on Socio-Demographic Questionnaire: Likert scale 0 -10 with 0 = no support and 10 = a lot of support.
History of abuse	Emotional states during pregnancy and/or childbirth from past physical, mental, or emotional violence (Leeners et al., 2016).	3 items on the Socio-Demographic Questionnaire (Question #17, 18, 19) No (code as 0) Yes (code as 1)
Previous negative experience	Performance accomplishments from perceptions of prior birth events and outcomes regarding women's treatment or infant's health (Nilsson et al., 2010)	Question # 16 on Socio-Demographic Questionnaire: Likert scale 0 -10 with 0 = negative and 10 = positive.

Wijma Delivery Expectancy Questionnaire (WDEQ)

Fear of birth was measured using the WDEQ-A, a questionnaire that was developed in Sweden in the 1990s to measure fear of birth (Appendix A). Permission to use the English version of the WDEQ was granted by the original authors with the caveat that the WDEQ could not be modified or adapted for this study (Appendix F). There are two versions of the WDEQ. The WDEQ-A is intended to measure fear of birth during pregnancy, and the WDEQ-B is intended to measure women's experience after the birthing experience (Wijma et al., 1998). For this study, the researcher used version A.

The WDEQ-A consists of 33 items that are scored on a 6-point Likert scale (Wijma et al., 1998). The maximum score for each question is 5, and the minimum score is 0. Items 2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27, and 31 of the WDEQ-A were reversed for scoring of the instrument because on these items lower scores were associated with negative cognitions and

emotions and higher scores were associated with positive cognitions and emotions. The items were reversed to make lower scores on all individual items reflect positive cognitions and emotions and higher scores on all individual items reflect negative cognitions and emotions. Total scores can range from 0 to 165. Low total scores reflect less fear of birth and higher total scores reflect more fear of birth (Wijma et al., 1998).

To determine the optimal score to identify women with fear of birth on the WDEQ-A, Zar, Wijma, and Wijma (2001) used a Receiver Operating Characteristic (ROC) curve and likelihood ratios to determine the cut-off score. They found that a cut-off score of 75 would include 13% of false positives, but a cut-off score of 90 would miss 20% of women with fear of birth. Using the ROC curve and likelihood ratios, the authors determined that 85 is the most accurate cut-off score to identify women with fear of birth. A score of ≥ 85 was used in the initial psychometric study of the WDEQ and by multiple researchers to indicate fear of birth (Klabbers et al., 2016; Korukcu, Kukulcu, & Firat, 2012; Pallant et al., 2016; Wijma et al., 1998).

The WDEQ-A contains questions regarding thoughts and emotions on how women perceive their upcoming labor and birth will be. Questions one and two are about how women think the labor and delivery process will turn out. For questions 3 through 18, women are asked how they think they will feel in general during labor and delivery. Question 19 through 27 assess women's perceptions of how women will feel during labor and delivery. For questions 28 through 33, women are asked how they think they will feel the minute the baby is born (Wijma et al., 1998). Each item of the instrument measures at the ordinal level, but when summed, it yields a sum score at the interval level of measurement (Garthus-Niegel et al., 2011; Johnson & Slade, 2002; Pallant et al., 2016).

Wijma et al. (1998) administered the WDEQ-A to 196 pregnant women at 32 gestation weeks. The WDEQ-A, administered to these women during pregnancy at 32 gestation weeks,

had a split-half reliability of 1.00 and a Cronbach's alpha of .93. The WDEQ-B had split-half reliabilities of .95 (two hours after delivery, $n = 166$) and .96 (five weeks after delivery, $n = 175$), and Cronbach's alphas of 0.93 (two hours after delivery) and 0.94 (five weeks after delivery; Wijma et al., 1998). The tool thus has strong reliability.

Korukcu et al. (2012) established construct validity of the WDEQ by calculating the correlation between scores on the Beck Anxiety Inventory (BAI), Depression Anxiety Stress Scale (DASS), and the Brief Measure of Worry Severity (BMWS) in nulliparous and multiparous women. All scales were found to be positively correlated ($p < .01$) with the WDEQ scores. The BMWS had the weakest correlation with the WDEQ ($r = .219, p < .01$), and the correlation between the WDEQ and BAI ($r = .439, p < .01$) was the strongest. A moderate correlation was found between the WDEQ and DASS ($r = .429, p < .01$; Korukcu et al., 2012). Based on these calculations, the WDEQ is a valid tool for measuring fear of birth.

Childbirth Self-Efficacy Inventory (CBSEI)

Maternal confidence was measured using the CBSEI (Lowe, 1993). Permission to use the tool was granted by the author (Appendix G). The CBSEI is a 62-item self-report instrument developed by Lowe in 1991 after she conducted postpartum interviews with both nulliparous and multiparous women (Lowe, 1993). The CBSEI is used to measure self-efficacy for childbirth, before birth occurs (Appendix B). It is intended for use during pregnant women's third trimester of pregnancy to estimate maternal confidence in childbirth. Lowe (1993) used Bandura's (1982) self-efficacy theory as the framework for the CBSEI. She found that women's confidence in their ability to cope with labor is consistent with the self-efficacy theory.

The CBSEI has four subscales, measuring self-efficacy expectations (E-AL) and outcome expectations (O-AL) for active labor and self-efficacy expectations (E-SS) and outcome expectations (O-SS) for the second stage of birth (Lowe, 1993). The self-efficacy expectations

scales and the outcome expectations scales consist of 15-items. Each question contains a 10-item Likert scale response. The maximum score for each question is 10, and the minimum score for each question is 1. Total Childbirth Self-Efficacy Expectancy (CBSEI-I) is computed by summing the E-AL and E-SS scale scores, and total Childbirth Outcome Expectancy (CBSEI-II) is computed by summing the O-AL and O-SS scale score. Higher scores indicate higher degree of childbirth self-efficacy (Lowe, 1993). The instrument has been translated into Chinese, Persian, Spanish, Thai, and Swedish (Carlsson, Ziegert, & Nissen, 2014; Ip, Chan, & Chien, 2005; Khorsandi et al., 2008; Tanglakmankhong, Perrin, & Lowe, 2011).

In Lowe's (1993) initial study of 204 pregnant women, the CBSEI had high internal consistency ($\alpha = .86 - .95$). The Swedish version ($n = 406$) and the Chinese version ($n = 148$) of the CBSEI also had high internal consistency for the total self-efficacy expectations scales ($\alpha = .92 - .96$) and total outcome expectations scales ($\alpha = .93 - .95$; Carlsson et al., 2014; Ip et al., 2005). Content validity was established by an expert panel in Sweden evaluating the instrument in relation to the self-efficacy theory and finding enough content to measure self-efficacy expectations and outcome expectations (Carlsson et al., 2014). Face validity was also established by a second expert panel in Sweden, who concluded that all words were relevant, and no words were inappropriate.

Socio-Demographic Questionnaire

Socio-demographic variables were measured using a socio-demographic questionnaire developed by the researcher (Appendix C). Data from the socio-demographic questionnaire were used to describe the sample and to ascertain whether factors associated with fear of birth in other countries were also associated with fear of birth in the United States. The researcher developed the socio-demographic questionnaire based on variables from the studies about fear of birth that were discussed in the literature review. Studies with similar socio-demographic

variables should make it easier for the researcher to compare the results of this study with other studies on fear of birth. In addition to the demographic variables of age and race, the predictor variables of anxiety, depression, social support, history of abuse, parity, and other socio-cultural cultural factors were measured using this instrument.

Procedure

Sampling Procedures

For the electronic recruitment of participants, administrators of the Facebook groups were sent letters via email asking if information about the study could be posted on their pages (Appendix D). After the key contacts agreed to post the survey-link, the researcher was allowed to post the participant information in which the survey link was embedded for potential participants to access if they chose (Appendix E).

The researcher recruited participants by posting the participant information with the embedded survey link on the Pregnancy Countdown and the Pregnancy Support Group Facebook pages. The participant information included a description of the study, with the purpose, and a link to the actual survey. The researcher received likes and comments on the Facebook pages on which the information was posted. A member of the Pregnancy Countdown shared the post to DFW VBAC/Cesarean Support on Facebook. Other members of Pregnancy Countdown and Pregnancy Support Group shared the link to the study information post with other pregnant Facebook friends. The researcher logged on daily to refresh the post so that members of the Facebook group would see it at the top of their newsfeed.

Data Collection

Data were collected using an electronic version of the survey which included the WDEQ-A, the CBSEI, and the socio-demographic questionnaires that were formatted for Qualitrics. The data collection process was followed according to the data collection flow chart (Figure 1). After

the participant information and survey links had been posted and potential participants read the electronic message about the study, they were able to access the survey link and read the consent form. Clicking to continue was equated with consent to participate in the research under the described terms and conditions. If they declined, closing the browser terminated the survey. The study was set up so that if participants wanted to stop and return to complete the study, they could do so. No personal identifiers were collected, and responses were not linked to the computer address, therefore, data collection was anonymous.

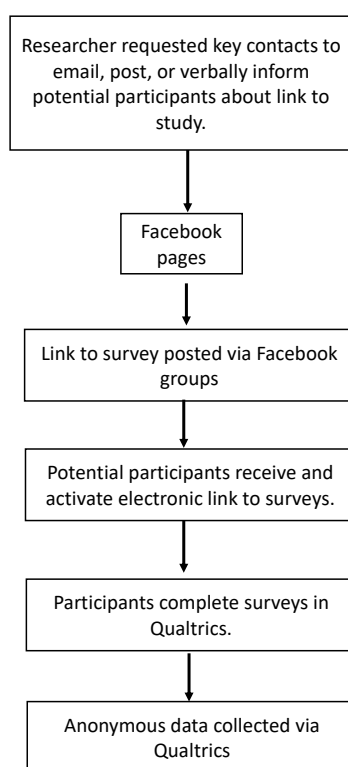


Figure 3 Data collection flowchart

Informed Consent

Informed consent was obtained when participants chose to participate in the study. The consent form (Appendix H) was on the page following the information page about the study (Appendix D) accessed from the survey link. Participants had the opportunity to electronically acknowledge the consent form by clicking the agree button and then the continue button. The

consent stated that participants were allowed to stop the survey at any time. The participants were also instructed to contact their health care professional if answering the questions about anxiety/depression and history of abuse caused emotional or physical distress.

Ethical Considerations

Review Process

The researcher received approval to conduct the study from the Institutional Review Board (IRB) of the University of Texas at Arlington prior to any study activities or data collection (Appendix I). Names of participants and source of data were not identified in the study, which minimized the risk of breach of confidentiality. The risk of loss of confidentiality was minimal because there was not requirement for written documentation of consent for this study. The opportunity to participate in the study was available to all potential participants who had access to the internet and met the sampling criteria.

Risk/Benefit Ratio

The risk benefit ratio for this study was minimal. Because there were no personal identifiers in the online survey for this study, participants had minimal risk of breach of confidentiality. Potential risks and benefits were clearly stated in the consent along with the primary investigator's contact information which was available to participants for additional questions or comments. The study posed no risks for physical harm. Participants were informed that there was a minimal risk for emotional discomfort when answering some questions on the survey, but if any of the questions caused discomfort, they were free to skip those questions or stop answering the questions and withdraw from the study at any time. They were also informed that they should contact their healthcare provider if they experienced distress.

Although it was unlikely that participants would benefit directly from participating in the study, they may have felt the satisfaction of knowing that they were contributing to the body of

knowledge about fear of birth during pregnancy. Because of this intrinsic motivation, participants may have believed that their contribution was worthy. The population of pregnant women may benefit from the findings of this study because healthcare providers will have additional information about the prevalence of and risk factors for fear of birth. Healthcare providers may be able to use this information to increase their knowledge of fear of birth. The researcher will share research findings through scholarly activities including published articles and presentations.

Data Analysis

Prior to statistical analysis, data were assessed for missing data pieces and identifiable inconsistencies. Two participants did not include their state of residence. The data from these participants were omitted, because the sampling criteria only included women living in the United States, and it was unknown if the participants were from the United States. Several participants ($n = 102$) completed the demographic information but omitted over half of their answers to the WDEQ-A, CBSEI-I, or CBSEI-II. These data were omitted. Four participants marked the same answer to every question on the survey. Their data were omitted as well. This decreased the sample from 244 to 137.

Statistical analysis was completed using the Statistical Package of Social Science 20 (SPSS). The researcher reassessed the reliability and validity of the WDEQ and the CBSEI after the study using Cronbach's alpha and Kuder Richardson (KR-20). The sample was then described, and the research questions were answered.

Description of the Sample

Descriptive statistics were used to analyze socio-demographics and study variables to describe the sample for comparison to the population. Frequencies and percentages were calculated for demographic variables measured at the nominal level: race and relationship status.

Frequency, percent, mode, median, range, mean, and standard deviation were calculated for demographic variables measured at the interval or ratio level: age, income, gestation, and employment hours.

Descriptive statistics were also calculated to examine outcome and predictor variables: fear of birth (outcome variable), anxiety, depression, social support, history of abuse, parity, maternal confidence, and sources of information (predictor variables). Study variables measured at the nominal level were measured using frequencies and percentages: sources of information and history of abuse. Study variables measured at the interval/ratio level were described according to range of scores, means, standard deviations, and skew.

Research Questions

Question 1: What is the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States?

For the first research question, descriptive statistics were appropriate to find the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States. Frequency distributions and percentages were calculated to determine the prevalence of fear of birth in pregnant nulliparous and multiparous women.

Question 2: Are anxiety, depression, social support, parity, previous negative experience, history of abuse, maternal confidence, and cultural factors associated with fear of birth in pregnant nulliparous and multiparous women in the United States?

For the second research question, statistics for a correlational design were used to examine associations of anxiety, depression, social support, history of abuse, parity, self-efficacy, and cultural factors with fear of birth. Chi square (χ^2) was calculated to determine associations for nominal level study variables: sources of information and history of abuse. Spearman rank order (ρ) was calculated to determine associations for ordinal level study

variables: social support, anxiety, depression, and previous birth experience. Pearson's correlation (r) was calculated to determine associations for interval and ratio level study variables: maternal confidence, parity, fear of birth. For the study variables that were significantly associated with fear of birth, multiple linear regression was calculated to determine predictor variables for the outcome variable: fear of birth.

Multiple linear regression was calculated to examine associations between the eight potential predictors and fear of birth. Multiple linear regression is appropriate when the dependent variable is continuous and there is more than one predictor variable (Grove & Ciper, 2017). Multiple linear regression depends on the assumptions of interval or ratio level of measurement for outcome variables, normal distribution, linearity, and reliability of instrument (Grove & Ciper, 2017).

Delimitations

In this study, the sample consisted of women who had access to the internet and were familiar with Facebook, and those who were likely to use the internet for support and education regarding pregnancy and childbirth. The sample may have excluded women who did not want to learn about pregnancy and childbirth on the internet or who did not feel the need to use the internet as their source of education. The researcher assumed that participants were honest when answering the survey and that they met the sampling criteria to be included in the study.

Summary

This chapter included a description of the methods and procedures that were used in this study. The research design, sample, setting, and measurement methods that were used in this study were described. The chapter also included a discussion of the procedures and data analysis and concluded with a discussion of ethical considerations and delimitations of the study.

CHAPTER 4

FINDINGS

The findings of this descriptive, correlational study are presented in this chapter. The results include information regarding the prevalence of fear of birth in pregnant women in the United States and factors associated with fear of birth. Sample characteristics are presented followed by data to answer the two research questions.

Study Results

Sample Description

Study participants included a convenience sample of 137 pregnant women living in the United States. Participants resided in 32 different states across the United States, and 43.1% ($n = 59$) of women reported living in Texas. The sample of pregnant women was 83.2% White and mostly married (75.9%). Ages ranged from 18 to 43, and the mean age was 30 ($\bar{x} = 29.52$, $SD = 5.013$) years of age. Gestation ranged from five weeks to 41 weeks pregnant, and the mean was 27 ($SD = 9.47$) weeks pregnant, which is equal to the mean being the third trimester. A large percentage (40.9%) of participants were unemployed, and 17.5% reported no personal source of income. The mean number of hours worked per week for women who were employed was 21 ($SD = .226$). The mean annual income was \$37,000 ($SD = 2.621$). Further description of the sample is presented in Table 2 and Table 3.

Table 2. *Descriptive Statistics of Demographic Variables Measured at the Nominal Level (n = 137)*

Variable	Response	n (%)
State of current residence	Arkansas	3(2.2)
	California	5(3.6)
	Colorado	2(1.5)
	Connecticut	1(.7)
	Florida	3(2.2)
	Georgia	3(2.2)
	Idaho	2(1.5)
	Illinois	3(2.2)
	Indiana	3(2.2)
	Iowa	1(.7)
	Kansas	1(.7)
	Louisiana	4(2.9)
	Maryland	1(.7)
	Michigan	3(2.2)
	Minnesota	1(.7)
	Mississippi	1(.7)
	Missouri	1(.7)
	Montana	1(.7)
	Nevada	2(1.5)
	New Jersey	2(1.5)
	New Mexico	2(1.5)
	New York	6(4.4)
	North Carolina	4(2.9)
	Ohio	6(4.4)
	Oklahoma	6(4.4)
	Pennsylvania	3(2.2)
	Tennessee	1(.7)
	Texas	59 (43.1)
	Virginia	1(.7)
	Washington	2(1.5)
West Virginia	4	
Wisconsin	1(.7)	
Race	White (code as 0)	114 (83.2)
	Hispanic (code as 1)	4 (2.9)
	Black (code as 2)	8 (5.8)
	Native American/Pacific Islander (code as 3)	2 (1.5)
	Asian (code as 4)	5 (3.6)
	Other (code as 5)	4 (2.9)
Relationship status	Single (code as 0)	9 (6.6)
	Married (code as 1)	104 (75.9)
	With a partner (code as 2)	24 (17.5)

Table 3. *Descriptive Statistics of Demographic Variables Measured at the Interval/Ratio Level (n = 137)*

Demographic Variable	Mode	Median	Range	Mean (SD)	Skewness
Woman's age	29	30.00	18 - 43	29.52 (5.013)	-.042
Woman's Income (To the nearest \$10,000)	0	\$16,000	\$0 - \$210,000	\$36,926.00 (\$51,099.671)	2.621
Woman's Employment (Hours per week)	0	20	0 - 60	21 (20.532)	.226
Gestation (Numbers of weeks pregnant)	35	29	1 - 41	27.09 (9.479)	-.894

Description of Study Variables

Nulliparous ($n = 47$, 34.3%) and multiparous ($n = 90$, 65.7%) women were represented in the sample. Internet (94.9%) and smart phone (94.9%) were the most common sources that women used to gather information about pregnancy and childbirth. Women reported having experienced sexual abuse ($n = 39$, 28.5%), emotional abuse ($n = 82$, 59.9%), and physical abuse ($n = 40$, 29.2%). Anxiety, depression, social support, and previous birth experience were measured using a Likert scale of zero to 10. A 10 represented highest amount and a zero meant none. The average anxiety level was 5.36, the average depression level was 4.39, the average level of social support was 8.99, and the average rating of previous birth experience was 4.60. Further description of these variables is presented in Table 4 and Table 5

Maternal confidence was measured using the CBSEI-I (efficacy expectations) and CBSEI-II (outcome expectations). Cronbach's alpha for the CBSEI-I was .95, and the Cronbach's alpha for the CBSEI-II was .976, indicating excellent reliability. Total scores on the CBSEI-I ranged from 46 to 300, with higher numbers indicating higher levels of self-efficacy during active labor ($\bar{x} = 208.91$, $SD = 48.226$). Total scores on the CBSEI-II ranged from 30 to 300, with higher numbers indicating higher outcome expectancy during active labor ($\bar{x} = 218.28$, $SD = 61.866$).

Fear of birth was measured using the WDEQ-A. Cronbach's alpha for the total score on the WDEQ-A indicated excellent reliability ($\alpha = .915$). The mean score on the WDEQ-A was 80.63, with scores ranging from 52 – 121. The cut off score for fear of birth was total scores greater than or equal to 85. The variable was coded zero for scores below 85 and one for scores greater than or equal to 85. The number of participants who scored greater than or equal to 85 was 54 (39.4%). Further description of the study variables is presented in Table 4 and Table 5.

Table 4. *Descriptive Statistics of Study Variables Measured at Nominal/Ordinal Level (n = 137)*

Sources of information	Response	n (%)
Internet	No (coded as 0)	7 (5.1)
	Yes (coded as 1)	130 (94.9)
Smart phone	No (coded as 0)	7 (5.1)
	Yes (coded as 1)	130 (94.9)
Television	No (coded as 0)	102 (74.5)
	Yes (coded as 1)	35 (25.5)
Friends and family	No (coded as 0)	20 (14.6)
	Yes (coded as 1)	117 (85.4)
Pregnancy classes	No (coded as 0)	98 (71.5)
	Yes (coded as 1)	39 (28.5)

Abuse	Response	n (%)
Sexual abuse	No (coded as 0)	98 (71.5)
	Yes (coded as 1)	39 (28.5)
Emotional abuse	No (coded as 0)	55 (40.1)
	Yes (coded as 1)	82 (59.9)
Physical abuse	No (coded as 0)	97 (70.8)
	Yes (coded as 1)	40 (29.2)

Table 5. *Descriptive Statistics of Study Variables Measured at the Interval/Ratio Level (n = 137)*

Variable	n	Mean	Range of Scores	SD	Skewness
Fear of birth (WDEQ-A)	137	80.63	52 - 121	11.382	.246
Maternal confidence (Efficacy expectations, CBSEI-I)	137	208.91	46 - 300	48.226	-.470
Maternal confidence (Outcome expectations, CBSEI-II)	137	218.28	30 – 300	61.866	-.868

Parity (Number of pregnancies)	137	2.34	1 - 9	1.545	1.825
	47 (34.3)				
	≥ 2 90 (65.7)				
Anxiety	137	5.36	0 - 10	2.639	.105
Depression	137	4.39	0 - 10	2.959	.420
Social support	137	8.99	0 - 10	2.062	-1.074
Previous birth experience	137	4.60	0 - 10	3.774	.486

Table 6. *Fear of Birth Scores*

		<i>n</i> (%)
Fear of Birth (WDEQ-A)	< 85	83 (60.6)
	≥ 85	54 (39.4)

Table 7. *Internal Reliability Values for Instruments*

Instrument	Cronbach's alpha
Wijma Delivery Expectancy Questionnaire (WDEQ-A)	.915
Childbirth Self-Efficacy Inventory (CBSEI)	.969
CBSEI-I	.95
CBSEI-II	.976

Research Questions

Research Question #1

What is the prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States?

Frequency distributions and percentages were calculated to determine the prevalence of fear of birth in pregnant nulliparous and multiparous women. The prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States was 39.4% ($n = 54$).

Research Question #2

Are anxiety, depression, social support, parity, previous negative experience, history of abuse, maternal confidence, and sources of childbirth information associated with fear of birth in pregnant nulliparous and multiparous women in the United States?

Statistics for a correlational design were used to examine associations of anxiety, depression, social support, history of abuse, parity, self-efficacy, and cultural factors with fear of birth. To determine correlations, the level of significance was set at .05. A Pearson chi square (χ^2) test was calculated to determine associations between nominal variables, sources of information and history of abuse with fear of birth. Sources of information, which included internet, smartphone, television, family and friends, and social support, and history of sexual, emotional, and physical abuse were not significantly associated with fear of birth.

Spearman rank order (ρ) test was calculated to determine if social support, anxiety, depression, and previous birth experience were associated with fear of birth. Social support was significantly inversely associated with fear of birth ($r = -.237, p = .005$). Higher levels of social support were associated with lower fear of birth. Anxiety, depression, and previous birth experience were not significantly associated with fear of birth.

Pearson's correlation (r) test was calculated to determine if maternal confidence and parity were associated with fear of birth. Parity was significantly inversely associated with fear of birth ($r = -.09, p = .03$). Lower parity was associated with higher fear of birth. Maternal confidence (scores on CBSEI-I and CBSEI-II) was also significantly inversely associated with fear of birth ($r = -.101, p = .04$; $r = -.160, p = .04$). Lower maternal confidence was associated with higher fear of birth.

Multiple regression was performed with study variables (anxiety, depression, social support, parity, history of abuse, previous negative birth experience, sources of information) as the predictor variables and fear of birth as the outcome variable. The predictor variables were entered simultaneously. Collinearity diagnostics indicated no multicollinearity, and visual examination of the scatterplot of the residuals showed no heteroscedasticity. Social support and parity significantly predicted fear of birth ($R^2 = 21.9\%$ and adjusted $R^2 = 11.9\%$). Lower levels

of social support significantly predicted higher fear scores on the WDEQ-A ($\beta = -.23, p = .013$).

Nulliparity also significantly predicted higher fear scores on the WDEQ-A ($\beta = -.15, p = .044$).

Further description of the multiple regression model and associations is in Table 8 and Table 9.

Table 8. *Multiple Regression Model for Study Variables*

	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
Internet	8.696	6.403	.175	.177
Smart phone	-6.048	6.362	-.122	.344
Sexual abuse	3.841	2.483	.154	.125
Emotional abuse	3.132	2.557	.139	.223
Family and friends	2.838	2.953	.092	.338
Television	2.292	2.265	.089	.314
Social support	-1.272	.503	-.230	.013
Pregnancy classes	-1.207	2.181	-.049	.581
Parity	-1.077	.750	-.150	.044
Physical abuse	.405	2.458	.017	.870
Previous birth experience	.223	.309	.076	.471
Depression	-.123	.483	-.033	.800
CBSEI-II	-.034	.026	-.189	.193
Anxiety	-.022	.525	-.005	.966
CBSEI-I	.002	.033	.009	.952

$R = .453, R^2 = .103, p \leq .05$

Table 9. Descriptive statistics of primary variables and associations among them

Variable (n = 133)	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
WDEQ **	80.94 (11.11)	1.00															
Anxiety***	5.29 (2.63)	-.075	1.00														
Depression ***	4.37 (2.97)	-.037	.713	1.00													
Internet	1.05 (.22)	.156	.154	.176	1.00												
Smartphone	1.05 (.22)	.016	.141	.107	.698	1.00											
Television	1.75 (.43)	.170	-.130	-.058	.135	.135	1.00										
Family and friends	1.15 (.359)	.173	.026	.161	.278	.183	.096	1.00									
Pregnancy classes	1.72 (.45)	-.017	.125	.151	.071	.071	-.124	.167	1.00								
Social support ***	9.00 (2.01)	-.218*	-.097	-.268	.000	.034	.009	-.315	-.075	1.00							
Previous birth experience ***	4.66 (3.79)	.046	-.046	.065	.039	.182	.064	.255	.220	-.087	1.00						
Emotional abuse	1.41 (.49)	.211	-.178	-.289	.217	.148	.120	-.005	.035	.183	.123	1.00					
Sexual abuse	1.73 (.45)	.208	-.218	-.256	.068	.144	.199	-.075	-.114	.093	.107	.469	1.00				
Physical abuse	1.71 (.46)	.126	-.276	-.305	.078	.152	.127	-.052	-.068	.058	.052	.499	.202	1.00			
CBSEI-I **	208.91 (48.23)	-.101*	.036	.068	.028	.155	.121	-.020	-.048	-.007	.150	.024	.081	.020	1.00		
CBSEI-II **	218.28 (61.87)	-.160*	.091	.048	.077	.193	-.010	-.076	-.120	.066	.049	.074	.141	.018	.793	1.00	
Parity **	2.35 (1.55)	-.09*	-.133	-.042	-.054	.142	-.004	.217	.088	-.063	.519	.009	-.025	-.034	-.106	-.102	1.00

* $p < .05$, ** Pearson product, ***Spearman rank order

Summary

This chapter included a presentation of the findings of this descriptive, correlational study. Sample characteristics were described. Findings regarding prevalence of fear of birth the associations between source of information, parity, abuse, depression, anxiety, social support and maternal confidence and fear of birth were presented.

CHAPTER 5

DISCUSSION

This chapter includes a discussion of the findings of the study. The findings of this study are compared with other similar research studies and linked to the theoretical framework. Implications for nursing practice and recommendations for future research are presented.

Representativeness of Sample

The convenience sample in this study consisted of English-speaking nulliparous and multiparous pregnant women living in the United States with at least a 6th grade reading level. The sample, other than it being English-speaking, was similar to the samples of studies previously described in the literature review on fear of birth in Scandinavian countries, Australia, Turkey, China, the Netherlands, and Canada. The sample size of 137 participants was smaller than samples from these studies which ranged in size from 371 to 3005 (Elvander et al., 2013; Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014). The three other studies on fear of birth from the United States had samples that were very specific and not comparable to those in other studies or the current study (Greathouse, 2016; Lowe, 2000; Stoll et al., 2015).

The setting for this study was different from the previous studies on fear of birth. The sample was recruited entirely using a survey accessed online using Facebook. No previously reported studies of fear of birth were conducted using online social media. No previous studies were found in which researchers used social media for sample recruitment. Previous studies were conducted in antenatal clinics, hospitals, pregnancy classes, and birthing centers (Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014).

The sample included primarily White (83%), married (76%) women with an average income of \$37,000. Research data on race, relationship status, and income level has varied in

other studies of fear of birth. In this study, ages ranged from 18 to 43. The average age of women in this study was 30 years, which is similar to the average age in other studies of fear of birth from other countries. The age range in this study is much broader than the age range reported from the other studies in the United States (18 – 24; Greathouse, 2016; Lowe, 2000; Stoll et al., 2015).

In the studies of fear of birth from other countries, women were mostly in their second trimester (Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014) because data were mostly collected during women's 20-week ultrasound appointment. In this study, women could be any gestation, and the sample consisted of women who were mostly in their third trimester.

Interpretation of Major Findings

To answer the first research question regarding prevalence of fear of birth in pregnant nulliparous and multiparous women in the United States, frequency and percentage were calculated. In this study, 39.4% of pregnant nulliparous and multiparous women reported fear of birth. The prevalence of fear of birth in this study is higher than the prevalence of fear of birth reported by researchers from the Scandinavian countries, as well as Australia, Turkey, China, the Netherlands, and Canada (22.3% to 24.9%; Elvander et al., 2013; Haines et al., 2011; Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014).

The higher prevalence rate in this study compared to those in other countries may be related to the different recruitment methods and settings. In other countries, recruitment took place during women's prenatal care at antenatal clinics, hospitals, pregnancy classes, and birthing centers (Rouhe et al., 2015; Ternstrom et al., 2016; Toohill, Fenwick, Gamble, & Creedy, 2014). Participants did not have to have access to the internet to participate in those studies.

Prevalence in this study may have also been higher than prevalence in other countries because healthcare providers routinely screen and treat fear of birth during prenatal care in other countries (Fenwick, Toohill, Creedy, et al., 2015). Cognitive behavioral therapy, group therapy, and individual counseling have been used to treat women with fear of birth from other countries, thus reducing the prevalence of fear of birth. In the United States, screening for fear of birth is not part of routine prenatal care, so women are less likely to receive treatment to decrease fear of birth during pregnancy.

The prevalence of fear of birth in this study (39%) falls within the range of prevalence rates reported in studies done in the United States (27% to 52%; Greathouse, 2016; Lowe, 2000; Stoll, Edmonds, & Hall, 2015). The similarity in the prevalence rates is remarkable considering that the populations sampled in the other studies (college-aged, never been pregnant, already in childbirth classes) were very different from the population sampled in the present study (pregnant women of a wider age range). The similarity in prevalence of fear of birth to the other studies in the United States may be related to the widespread lack of information and education about fear of birth in the United States. Women in the United States are not routinely assessed and treated for fear of birth, which may explain why the studies in the United States have higher prevalence of fear of birth than that in other countries. More research on the prevalence of fear of birth in pregnant women in the United States is needed to validate the findings in the present study.

Correlations and multiple regression were calculated to determine whether anxiety, depression, social support, parity, previous negative experience, history of abuse, maternal confidence, and sources of childbirth information were associated with fear of birth in pregnant nulliparous and multiparous women in the United States. The only variables found to be significantly associated with fear of birth were parity, social support, and maternal confidence,

all of which were inversely correlated with fear of birth. Nulliparity and lack of social support were significant predictors of fear of birth.

Parity

In this study, the sample consisted of more multiparous women than nulliparous women (66% vs. 34%, $n = 137$). Other studies of fear of birth included samples of more nulliparous women than multiparous women (83% vs. 17%; Gao et al., 2015). The previous studies from the United States consisted of only nulliparous women (Greathouse, 2016; Lowe, 2000; Stoll et al., 2015).

Parity was inversely correlated with fear of birth ($r = -.09, p < .05$) in this study. Nulliparous pregnant women reported higher levels of fear of birth compared to multiparous women. This finding is congruent with studies from other countries on fear of birth in which more nulliparous women reported fear of birth than did multiparous women (Toohill et al., 2014). Further studies in the United States are needed to validate this finding.

Social Support

In this study, 14.5% ($n = 137$) of women reported little social support (5 or below on a 10-point Likert scale) during their current pregnancy, and social support was inversely associated with fear of birth. One participant in this study reported having no social support during her current pregnancy. In the literature review, only Elvander et al. (2013) was found to have reported that social support was measured quantitatively, and they found a much higher prevalence (51%) of limited of social support in their study. In the present study, lower levels of social support significantly predicted fear of birth ($\beta = -.23, p = .013$), which is congruent with Elvander et al.'s (2013) findings. Researchers from other countries have described the relationship between fear of birth and social support using qualitative research methods. A common theme found in those studies was that women with fear of birth felt lack of support

from partners, family, and healthcare professionals (Fenwick, Toohill, Creedy et al., 2015; Fisher et al., 2006; Gao et al., 2015). These themes are consistent with the finding from the current study that lack of social support is associated with fear of birth.

Maternal Confidence

Maternal confidence was measured using the CBSEI-I and CBSEI-II. In this study, the mean score on the CBSEI-I, reflecting efficacy expectations, was higher than the mean score in Lowe's (1993) original study on maternal confidence ($\bar{x} = 209.7$, $SD = 46.1$). In this study, the mean score on the CBSEI-II, reflecting outcome expectations, was lower ($\bar{x} = 208.91$, $SD = 48.23$) than the mean in Lowe's (1993) original study ($\bar{x} = 257.9$, $SD = 32.2$). Lowe's (1993) study consisted of a smaller sample ($n = 76$) and only included healthy pregnant women who were attending childbirth classes, which may explain some of the differences in means because of the differences in the samples. The findings in this study of a significant negative association between fear of birth and maternal confidence ($p < .05$) were congruent with the findings in the literature from other countries, in which researchers found an association between higher levels of fear of birth and lower levels of maternal confidence ($p < .001$; Salomonsson et al., 2013). Further studies in the United States are needed to validate these findings.

Mental Health

Anxiety. Over one third of women in this study (36%, $n = 137$) reported anxiety levels of six or greater on a 10-point Likert scale, with 10 being the worst anxiety possible. The prevalence of anxiety in this study was higher than prevalence of anxiety during pregnancy reported in other studies of fear of birth, which ranged from 11.8% to 21% (Nordeng, Hansen, Garthus-Niegel, & Eberhard-Gran, 2012; Storksen et al., 2012). Higher rates of anxiety in this study could have been related to the method of measurement used to determine anxiety. In other

studies, anxiety was measured by using diagnoses of anxiety disorders or medical histories of clinical anxiety.

Depression. Less than one third of women in this study (27.7%, $n = 137$) reported depression levels of six or greater on a 10-point Likert scale, with 10 being the worst depression possible. This is comparable to the upper end of the range of reported prevalence of depression of 5% to 30% in other studies of fear of birth (Altshuler et al., 2000; Pereira et al., 2011). The prevalence of depression found in this study may not reflect the actual rate of clinical depression because a Likert-scale was used to rate depression in this study rather than a diagnosis from a health care professional.

Neither anxiety nor depression were significantly associated with or were predictors of fear of birth in this study. This differs from other studies of fear of birth, in which researchers have found anxiety and depression to be significantly associated with fear of birth. This difference may be related to the methods used to assess anxiety and depression in this study compared with the other studies. In other studies, anxiety and depression were associated with fear of birth in women who were clinically diagnosed with anxiety and depression, whereas in this study, no association was found between anxiety and depression in women who rated their anxiety and depression using a Likert-scale which only reflected their perceptions at the time they completed the survey. Fear of birth may be experienced differently in women with clinically diagnosed anxiety or depression in comparison with women rating their feelings of depression at a single point in time. Future studies are needed in the United States in which researchers further explore the experiences of fear of birth both in women with clinically diagnosed anxiety and depression and in women with episodic or situational anxiety or depression.

Previous Negative Birth Experience

In the current study, only 7.2% of multiparous women rated their previous birth experiences as the worst possible, and previous birth experience was not significantly associated with fear of birth. Researchers from other countries have qualitatively studied factors associated with negative birth experiences, but in this study, specific factors of negative previous birth experiences and the fears for subsequent births were not explored. No other study was found in which researchers examined fear of birth and quantitatively measured previous birth experiences.

History of Abuse

Women in the present study reported having experienced various types of abuse. Sexual abuse was reported by 28.5% of the women, emotional abuse was reported by 59.9% of the women, and physical abuse was reported by 29.2% of the women, but none of these were significantly associated with fear of birth in this study. In other studies, prevalence of abuse in women with fear of birth ranged from 33% to 63% (Eberhard et al., 2008; Lukasse et al., 2014; Nerum et al., 2016). In these studies, researchers found that history of emotional abuse (OR 2.00 [1.30-3.08], 95% CI) and sexual abuse (24.7% with sexual abuse vs. 5.3% without abuse, $p < .01$) were significant risk factors for fear of birth (Leeners et al., 2016; Lukasse et al., 2010).

In this study, abuse was measured by asking women to answer “yes” or “no” if they had ever experienced abuse, whereas in other studies, researchers determined the prevalence of abuse using a validated instrument (Lukasse et al., 2014). In this study, history of abuse was not a sampling criterion, and history of abuse was determined by a different measurement method than in other studies, which may have contributed to the different study results. Future research is needed in which fear of birth is studied in women in the United States with a history of abuse to determine similarities and differences to the findings in this study and other studies done of abuse and fear of birth.

Sources of Information

The internet and smart phones were the most common sources participants in this study used to get information about pregnancy and childbirth. Most women (95%, $n = 137$) used the internet and smartphones to get information about pregnancy and childbirth, 25.5% used television, and 85.4% used friends and family, but only 28.5% participated in pregnancy classes to gain information on pregnancy and childbirth. The low level of participation in childbirth classes, however, was not associated with higher levels of anxiety or higher levels of fear of birth in this study. The findings in this study regarding internet and smartphone use for information about pregnancy are much higher than the prevalence of technology use (38.5%) reported from another study of fear of birth (Stoll et al., 2014). The very high frequency of internet and smartphone use to get information about pregnancy in this study are not at all surprising considering the fact that the study participants were all recruited from pregnancy sites on social media. None of the sources of information about pregnancy in this study were significantly associated with fear of birth, which is in contrast to the findings from other studies in which television and internet were significant predictors of fear of birth (Stoll & Hall, 2013; Stoll & Hall, 2014; Stoll et al., 2014). The samples in these studies were very different from the sample in the present study, which may have contributed to the difference in findings. In contrast to the present study sample which included a wide age range of women who were mostly multiparous, the samples in the other studies consisted only of college-aged women who had never been pregnant. The college-aged women who had never been pregnant may have had more fear of birth regardless of their information sources but may have been more frequent users of the internet and television than older women who were currently pregnant and may have had previous birth experiences.

Link to Theoretical Framework

Bandura's Self-Efficacy Theory (1977) was the theoretical framework supporting this study. Three of the propositions from the theoretical framework were supported by the findings from this study. In this study, performance accomplishments, social persuasion, and self-efficacy were associated with a given behavior. The framework's concept of a behavior was operationalized in this study as the extreme state of anxiety from phobia about childbirth which is known as fear of birth. The concept of performance accomplishments was operationalized as parity and previous negative birth experience for this study. Consistent with the framework, parity was found to be associated fear of birth ($r = -.09, p < .05$). Parity was not associated with maternal confidence, and previous negative birth experience was not associated with fear of birth or maternal confidence as proposed from the framework. Social persuasion, operationalized as social support, was associated with fear of birth ($r = -.218, p < .05$), which was consistent with the framework, but in contrast with the framework, it was not significantly associated with self-efficacy. As proposed from the framework, self-efficacy, operationalized as maternal confidence was associated with fear of birth (CBSEI-I $r = -.101$, CBSEI-II $r = -.160, p < .05$). This study supported three of the propositions from the Self-Efficacy Theory, but future research is needed to validate these findings and examine the association of emotional states (anxiety, depression, history of abuse) with fear of birth.

Study Limitations

In this study, the sample consisted of women who had access to the internet, were familiar with Facebook, and were likely to use the internet for support and education regarding pregnancy and childbirth. The sample excluded women who did not have access to the internet and those who may not have been interested in learning about pregnancy and childbirth on the internet. Another limitation is that the researcher assumed that participants were honest when answering the survey and that they met the sampling criteria to be included in the study.

Because the study was not done in person, there was no way of validating the sampling criteria or any other data gathered in the study.

Conclusions

Despite study limitations, several conclusions can be drawn from this study. Fear of birth is associated with some of the risk factors identified in previous research studies. Findings from this study can be used to support the Self-Efficacy Theory and provide evidence that the theoretical concepts are associated with fear of birth. The finding regarding prevalence of fear of birth in this sample of women in the United States provides support that fear of birth is an important issue that needs further exploration.

Implications

Study findings have important implications for healthcare. The importance of fear of birth during pregnancy in the United States was supported by the study finding that 39.4% of pregnant women who completed the study reported fear of birth. In this study, nulliparity, lack of social support, and low maternal confidence were associated with fear of birth. Healthcare providers need to become more educated about these risk factors for fear of birth in order to better identify pregnant women with fear of birth. Healthcare providers must assess pregnant women for fear of birth early during their prenatal care in order to identify women struggling with fear of birth so that support and treatment for fear of birth can begin early. This may help to decrease fears of pregnant women and prevent negative outcomes that have been associated with fear of birth.

Recommendations for Future Research

The present study was limited to social media recruitment. Future research is needed in the United States using different research settings and recruitment strategies. Recruitment of participants from healthcare professionals' offices, prenatal clinics, birthing centers, and

hospitals will help determine if the prevalence of fear of birth is similar to or different from this study and to the other studies conducted about fear of birth in other countries.

To support the findings from this study, future research is also needed about the factors associated with fear of birth. Using different measurement methods for anxiety and depression may reveal findings congruent with studies outside of the United States in which anxiety and depression were significantly associated with fear of birth. Future qualitative studies may also provide more insight about the risk factors for fear of birth.

Women who participated in this study made comments on the Facebook pages and sent the researcher emails desiring to know the results of this study and interventions to help with fear of birth. Interventions for fear of birth in the United States need to be tested in quantitative research studies. Interventions for fear of birth that have been tested in other countries include mid-wife led counseling, group therapy, cognitive behavioral therapy, EMDR, and prenatal yoga. Future studies of these interventions will provide more data about how to help women with fear of birth in the United States. Therapeutic interventions used in the United States for anxiety and phobia disorders, such as dialectical behavioral therapy, motivational interviewing, and trauma therapy, could be tested in women with fear of birth to potentially provide additional treatment options for these women.

Summary

This chapter included a discussion of the findings of this study. The findings of this study were compared with other similar research studies and linked to the theoretical framework. Implications for nursing practice were discussed. Future research was proposed based on the findings of this study.

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Appendix A

Wijma Delivery Expectancy/Experience Questionnaire (WDEQ) Version A

II How do you think you will feel in general during the labour and delivery?

8	0	1	2	3	4	5
	Extremely weak				Not at all weak	
9	0	1	2	3	4	5
	Extremely safe				Not at all safe	
10	0	1	2	3	4	5
	Extremely independent				Not at all independent	
11	0	1	2	3	4	5
	Extremely desolate				Not at all desolate	
12	0	1	2	3	4	5
	Extremely tense				Not at all tense	
13	0	1	2	3	4	5
	Extremely glad				Not at all glad	
14	0	1	2	3	4	5
	Extremely proud				Not at all proud	
15	0	1	2	3	4	5
	Extremely abandoned				Not at all abandoned	
16	0	1	2	3	4	5
	Totally composed				Not at all composed	
17	0	1	2	3	4	5
	Extremely relaxed				Not at all relaxed	
18	0	1	2	3	4	5
	Extremely happy				Not at all happy	

Appendix B

Childbirth Self-Efficacy Inventory (CBSEI)

Appendix C
Socio-Demographic Questionnaire

Socio-Demographic Questionnaire

1. What is your age? _____
2. What is your race?
 - a. White
 - b. Hispanic
 - c. Black
 - d. Native American/Pacific Islander
 - e. Asian
 - f. Other
3. Relationship status?
 - a. Single
 - b. Married
 - c. With a partner
4. Including the present pregnancy, how many times have you been pregnant? _____
5. How many hours per week do you work at outside employment? _____
6. Income to the nearest \$10,000:
7. How would you rate your anxiety prior to pregnancy?
No anxiety Extremely severe anxiety
0 1 2 3 4 5 6 7 8 9 10
8. How would you rate your depression prior to pregnancy?
No depression Extremely severe depression
0 1 2 3 4 5 6 7 8 9 10
9. How many weeks pregnant are you currently? _____
10. Do you use the internet for information and education about pregnancy and childbirth?
 - a. Yes
 - b. No

11. Do you use an application on your smart phone for information and education about pregnancy and childbirth?

- a. Yes
- b. No

12. Do you use television for information and education about pregnancy and childbirth?

- a. Yes
- b. No

13. Do you use family and friends for information and education about pregnancy and childbirth?

- a. Yes
- b. No

14. Do you attend pregnancy classes for information and education about pregnancy and childbirth?

- a. Yes
- b. No

15. How would you rate your social support for your current pregnancy?

No support

A lot of support

0 1 2 3 4 5 6 7 8 9 10

16. Would you rate your previous birth experience (if applicable):

Negative

Positive

0 1 2 3 4 5 6 7 8 9 10

17. Have you ever experienced physical abuse?

- a. Yes
- b. No

18. Have you ever experienced sexual abuse?

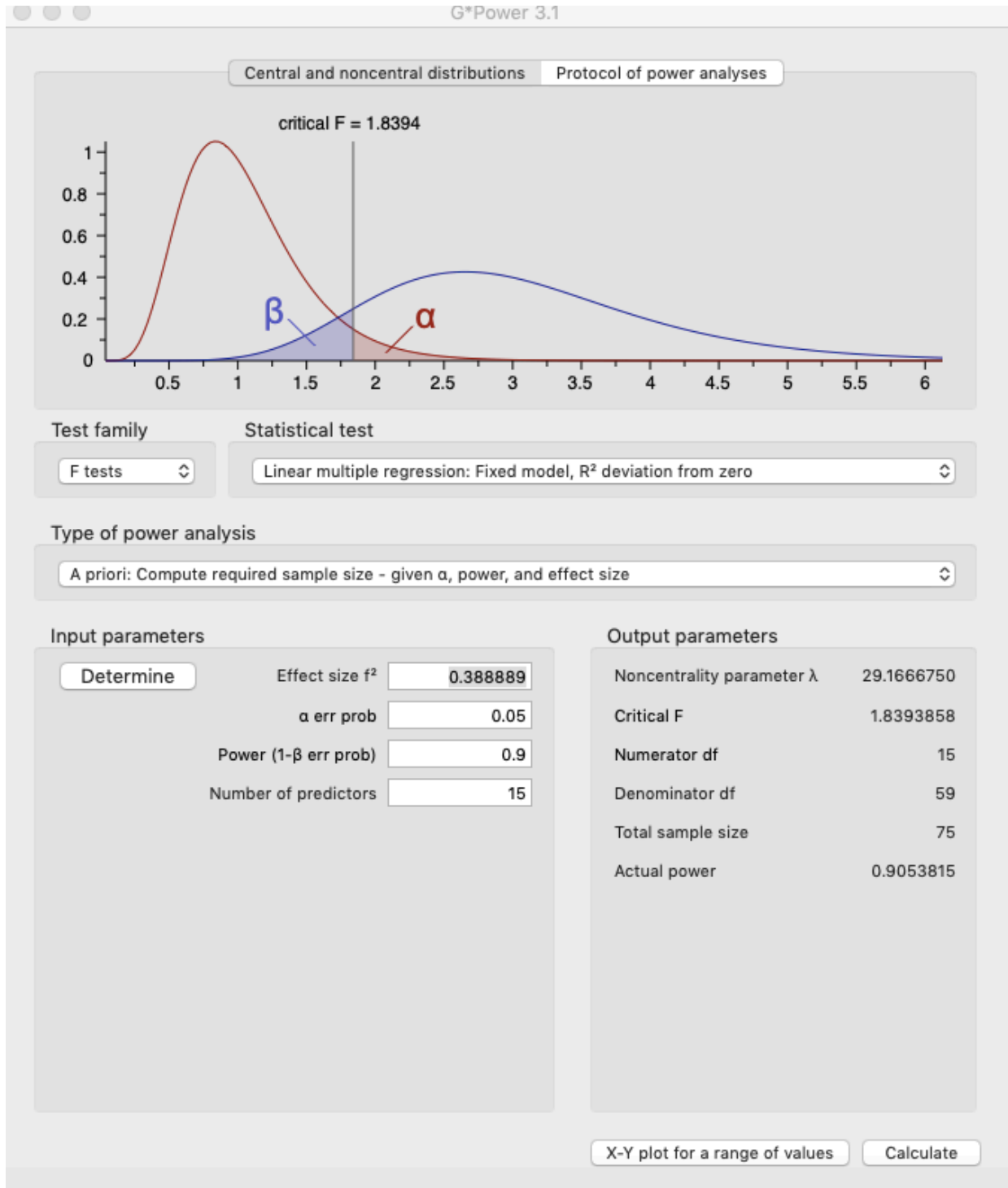
- a. Yes
- b. No

19. Have you ever experienced emotional abuse?

- a. Yes
- b. No

Appendix C
Power Analysis

Power Analysis



Appendix D
Website Permission

5/30/18

Hello,

My name is Whitney Mildren, and I am a doctoral nursing student at the University of Texas at Arlington College of Nursing, located in Arlington, Texas. My area of research interest is maternal mental health. I am planning to conduct my dissertation research study on fear of childbirth, which is a relatively new diagnosis in the United States. Fear of childbirth is similar to pregnancy-specific anxiety. Very little research has been done in the United States on fear of childbirth. While working as a nurse in maternal health, I saw many women who experienced fear of childbirth during their pregnancy. It is important that we identify these women, so that they can get help and treatment early in their pregnancy.

The purpose of my study will be to determine the prevalence of fear of birth and factors associated with fear of birth among pregnant women in the United States. Participants in this study will include adult women in the United States who are pregnant. Non-English speaking women will be excluded from this study because of limited translational resources. Participants in the study will be asked to complete an anonymous online survey which includes socio-demographic questions and questions about fear of birth and self-efficacy. It should take participants up to 30 minutes to complete the survey. Participation will be entirely voluntary, and participants may quit participating in the survey at any time if they choose.

After I obtain the approval of The University of Texas at Arlington Institutional Review Board to conduct the study, I would like to begin the study. I would like your permission to use your website to post information about my dissertation study and a link to the online survey for my study.

Please let me know if you have any questions, and if using your site would be available for me to use for my study on fear of birth. My dissertation chair is Dr. Lauri John. If you need to contact her for additional information, her email is ljohn@uta.edu.

Thank you,
Whitney Mildren

whitney.mildren@mavs.uta.edu
214-536-3129

Appendix E
Informational Letter

Prevalence and Risk Factors for Fear of Birth in Pregnant Women in the United States

My name is Whitney Mildren, and I am a doctoral nursing student at the University of Texas at Arlington College of Nursing, located in Arlington, Texas. My area of research interest is maternal mental health.

I am interested in understanding fear of birth. Fear of birth is an extreme state of anxiety from fears about childbirth, causing severe distress and worry. The fear is more severe than any actual threat. Not all women experience fear of birth. I am interested in information from women who don't have fear of birth as well as those who do have fear of birth.

If you decide to be in the study, you will be asked to complete three questionnaires in an online survey. The survey will include questions about you, your emotional health, your pregnancy, and your confidence and feelings about childbirth. The survey questions could take you up to 30 minutes to complete. Your answers will be kept completely private. Your participation in this research is voluntary, and your personal information will remain unknown. You have the right to quit at any point during the study, for any reason, and without any judgment.

If you have any questions and would like to contact me to discuss this research, please e-mail me at whitney.mildren@mavs.uta.edu.

Please note that the survey will be best shown on a computer or smart phone.

If you are interested in participating in this research study, please click on this link to access the consent form and the study survey: https://uta.qualtrics.com/jfe/form/SV_3lxXOMj4ZpJ7bnL

Thank you for your interest in this research study!

Appendix F
WDEQ Permission

Friday, March 9, 2018 at 12:40:16 PM Central Standard Time

Subject: Re: W-DEQ

Date: Thursday, March 2, 2017 at 4:52:51 AM Central Standard Time

From: Klaas Wijma

To: Mildren, Whitney Gray

Dear Whitney Mildren,

Yes, you could have permission to use the W-DEQ – although that has to come in a separate email and after I have seen your wishes and offered my conditions – but you are not permitted to change the questionnaire. The reason is its psychometrics. I am not sure how familiar you are with psychometrics? The W-DEQ is used world wide and of course there are cultural differences, probably much more between Sweden and Jordan than e.g. between Sweden and the USA. Nevertheless exactly the same W-DEQ is used to be able to compare results between countries. Such differences appear by such comparisons, NOT by changing the measurement.

Kind regards,

Klaas Wijma, PhD, Senior Professor

Unit of Medical Psychology

Department of Clinical and Experimental Medicine

House 511

Faculty of Medicine and Health Science

Linköping University

S-58183 Linköping, Sweden

Tel. +46 13 28 46 67

Mob. +46 732 713067

E-mail klaas.wijma@liu.se

Web site <https://liu.se/medfak/ike/forskning/forskare-vid-ike/wijma-klaas?!=sv>

Board of Fellows ISPOG (<http://www.ispog.org/>)

Want to know about the state of the art for Childbirth and Anxiety?

Forthcoming: Wijma K, Wijma B. A woman afraid to deliver - how to manage childbirth anxiety.

Chapter 1 in: Paarlberg KM, Van de Wiel HBM, editors. Bio-psycho-social Obstetrics and Gynaecology.

A Competence-oriented Approach. Berlin: Springer; 2017

Från: "Mildren, Whitney Gray" <whitney.mildren@mavs.uta.edu>

Datum: onsdag 25 januari 2017 02:20

Till: Klaas Wijma <klaas.wijma@liu.se>, Barbro Wijma <barbro.wijma@liu.se>

Ämne: W-DEQ

Hello,

My name is Whitney. I am a nursing doctoral student from Dallas, Texas, U.S.A. I currently am an ObGYN nurse, mostly providing prenatal and postnatal care. My area of research interest is in maternal mental health. I am focusing on fear of childbirth. Very little research has been done in the United States on fear of childbirth. I see women experiencing fear of childbirth daily. It is important that we start identifying these women.

I wanted to ask permission to use the Wijma Delivery Expectancy Questionnaire for my research in the United States. The risk factors for fear of birth have not been clearly identified in the U.S. By using the W-DEQ, we can identify the women with fear of birth early on in pregnancy.

Appendix G
CBSEI Permission

Saturday, April 7, 2018 at 4:00:58 PM Central Daylight Time

Subject: Re: instrument by Lowe
Date: Thursday, April 5, 2018 at 8:54:52 AM Central Daylight Time
From: Lowe, Nancy
To: Mancuso, Peggy, nancy.lowe@uchscu.edu
CC: Mildren, Whitney Gray
Attachments: CBSEI CU.pdf, CBSEIINS CU.pdf, CBSEI Use CU.pdf

Hi, Peggy,

How very nice to hear from you! I am glad to hear that you are still being production - although, I am not surprised.

I am well and have begun the process of phased retirement which our university offers to tenured faculty. So I am now in my second year of 40% at the university which is certainly a better pace at this stage of life. The journal, of course, keeps me very busy outside of the U.

Unfortunately, there is not a shortened version of the CBSEI. I wish I had done that. Attached are all the documents you need for your student to considered using it. Please let me know if you have any questions. She may use it if desired.

Best wishes,

Nancy

Nancy K. Lowe, CNM, PhD, FACNM, FAAN
 Editor, *Journal of Obstetric, Gynecologic, & Neonatal Nursing (JOGNN)*
 Professor
 College of Nursing
 University of Colorado Denver
 Mail Stop C288-18
 13120 E. 19th Avenue, Room 4235
 P.O. Box 6511
 Aurora, CO 80045
 (303) 724-8549
 (303) 724-8560 FAX
 nancy.lowe@ucdenver.edu

From: Mancuso, Peggy <PMancuso@twu.edu>
Sent: Wednesday, April 4, 2018 10:06:04 AM
To: nancy.lowe@uchscu.edu; Lowe, Nancy
Cc: Mildren, Whitney Gray
Subject: Re: instrument by Lowe

Hi Nancy -- I hope this email finds you healthy, happy, and well. I am still at Texas Woman's University, working hard as always.

I have a favor to ask. I am on the dissertation committee of a Ph.D. student, Whitney Mildren, at the University of Texas at Arlington. Whitney would like to use your childbirth self-efficacy instrument in her work, but she would like an English shortened version. Does one exist? If so, how would Whitney obtain permission to use this?

Childbirth Self-Efficacy Inventory
Nancy K. Lowe, CNM, PhD, FACNM, FAAN
College of Nursing
University of Colorado
(303) 724-8549; nancy.lowe@ucdenver.edu

Thank you for your interest in my research and the Childbirth Self-Efficacy Inventory (CBSEI). I am pleased to send you a copy of the CBSEI for potential use in your research. There is no charge for the use of the CBSEI; however, I ask that you abide by the following stipulations:

1. You will **notify me** of your decision to use the CBSEI in advance of any data collection, supplying me with the title of your study, an abstract of your proposal, and the name of the principal investigator. If you are a student, send the name and contact information for your research advisor
2. The **instrument will be photocopied directly from the original (or printed from the electronic file)** and no changes in wording or format will be made without my permission (unless translation is necessary).
3. If it is necessary to translate the instrument, a linguistic specialist will participate in the translation and back translation will be used to establish the validity of the translation. **A copy of the translated instrument will be sent to me on completion of the study for my files.**
4. **Psychometric data** for the instrument from the study data will be sent to me including reliability estimates, any relevant validity information, and results of a factor analysis, if done.
5. On completion, an **abstract of the study** will be sent to me containing a detailed description of sample characteristics, methodology and findings.
6. You will **not give a copy** of the instrument to anyone else, but rather refer him or her to me for a copy of the instrument.

Please call or write if you have questions (303-724-8549; e-mail nancy.lowe@ucdenver.edu).

Appendix H
Informed Consent

INFORMED CONSENT DOCUMENT FOR ENROLLING PREGNANT WOMEN IN STUDY
University of Texas Arlington

Investigator:

Whitney G. Mildren, RN, BSN, PhD Nursing Student, University of Texas Arlington College of Nursing

whitney.mildren@mavs.uta.edu

214-536-3129

FACULTY ADVISOR

Lauri D. John, PhD, RN, CNS (Oncology), Dissertation Chair, University of Texas at Arlington College of Nursing

ljohn@uta.edu

817-272-2776

Project Title:

Prevalence and Risk Factors for Fear of Birth in Pregnant Women in the United States

INTRODUCTION:

Fear of birth is an extreme state of anxiety from fears about childbirth, causing severe distress and worry. You are being asked to participate in a research study about fear of birth. You are being asked to participate because you are currently pregnant. You may or may not have ever had fear of birth. Your participation is voluntary. If you decide that you don't want to participate or want to stop participating at any time, you will not lose any benefits to which you are already entitled, and you will have no penalties. Please ask questions if there is anything you do not understand.

Purpose:

The purpose of this research study is to find out how many pregnant women in the United States have fear of birth and what might relate to fear of birth.

DURATION:

Participation in this study could take up to 30 minutes.

NUMBER OF PARTICIPANTS:

The number of anticipated participants in this research study is 500.

Procedures:

You will be asked to complete three questionnaires in an online survey. The survey will include questions about you, your emotional health, your pregnancy, and your confidence and feelings about childbirth. Because this study is not a part of your routine pregnancy care, there are no alternatives to this study.

Risks or Discomforts:

There are no physical risks to you in this study. There is a risk for emotional upset because some questions on the survey are about upsetting topics, like history of physical or emotional abuse. If any questions cause emotional upset, you can skip those questions or stop answering questions and withdraw from the study at any time. If your emotional upset is severe, you should contact your healthcare provider. Contact the primary investigator at whitney.mildren@mavs.uta.edu or 214-536-3129 if you need more help with emotional upset.

Benefits:

You are not likely to benefit in any way from joining this study; however, you may get better insight about your current and past pregnancies.

VOLUNTARY PARTICIPATION

Participation in this research study is voluntary. You have the right to decline participation in any or all study procedures or quit at any time with no consequence.

Confidentiality:

Every attempt will be made to see that your study results are kept confidential. The results of this study may be published and/or presented at meetings without naming you as a participant. Additional research studies could evolve from the information you have provided, but your information will not be linked to you in anyway; it will be anonymous. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA Institutional Review Board (IRB), and personnel particular to this research have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above. The IRB at UTA has reviewed and approved this study and the information within this consent form. If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, the University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law.

By clicking the button to consent, you acknowledge that your participation in the study is voluntary, you are pregnant, at least 18 years of age, and that you are aware that you may choose to skip questions or stop the survey at any time and for any reason.

- I consent to participate in this research study and begin the study (1)
- I do not consent, I do not wish to participate (2)

Appendix I

Institutional Review Board Approval



August 13, 2018

Whitney Mildren
Dr. Lauri D. John
College of Nursing
The University of Texas at Arlington
Box 19407

Protocol Number: 2018-0591

Protocol Title: *Prevalence and Risk Factors for Fear of Birth in Pregnant Women in the United States*

APPROVAL OF MINIMAL RISK HUMAN SUBJECTS RESEARCH WITHOUT FEDERAL FUNDING

The University of Texas Arlington Institutional Review Board (UTA IRB) or designee has reviewed your protocol and made the determination that this research study involving human subjects is approved in accordance with UT Arlington's [Standard Operating Procedures \(SOPs\)](#) for minimal risk research. You are therefore authorized to begin the research as of **August 10, 2018**.

Note that this project is not covered by UTA's Federalwide Assurance (FWA) and the researcher has indicated it will not receive federal funding. You must inform Regulatory Services immediately if the project may or will receive federal funding in the future, as this will require that the protocol be re-reviewed in accordance with the federal regulations for the protection of human subjects.

As Principal Investigator of this IRB approved study, the following items are your responsibility throughout the life of the study:

UNANTICIPATED ADVERSE EVENTS

Please be advised that as the Principal Investigator, you are required to report local adverse (unanticipated) events to The UT Arlington Office of Research Administration; Regulatory Services within 24 hours of the occurrence or upon acknowledgement of the occurrence.

INFORMED CONSENT DOCUMENT

The IRB approved version of the informed consent document (ICD) must be used when prospectively enrolling volunteer participants into the study. Unless otherwise determined by the IRB, all signed consent forms must be securely maintained on the UT Arlington campus for the duration of the study plus a minimum of three years after the completion of all study procedures (including data analysis). The complete study record is subject to inspection and/or audit during this time period by entities including but not limited to the UT Arlington IRB, Regulatory Services staff, OHRP, FDA, and by study sponsors (as applicable).

**REGULATORY SERVICES
SERVICES**

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