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The Fertility Problem Inventory and Infertility-Related Stress: A Case Study

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Running head: INFERTILITY STRESS

The Fertility Problem Inventory and Infertility-Related Stress: A Case Study

by

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Counselor Education and Supervision

Minnesota State University, Mankato

May 2015

INFERTILITY STRESS

The Fertility Problem Inventory and Infertility-Related Stress: A Case Study

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Abstract

More than seven million people of childbearing age in the United States experience infertility. For women, the experience of infertility is stressful. The Fertility Problem Inventory (FPI) has been used to quantitatively measure women's experience of infertility-related stress. However, the construct of infertility-related stress is poorly described in existing literature. The purpose of this case study was understand how women experience the FPI as a measure of infertility-related stress. To address this issue, women who are undergoing infertility treatment completed the FPI and participated in unstructured interviews. Archival documents were also retrieved to corroborate findings and satisfy saturation. Results indicate that the FPI is lacking in structure and organization to describe women's experiences of infertility-related stress. Specifically women described feeling infertility having an influence upon their identity and their coping.

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Dedication

I dedicate this work to all women who experience infertility, in the past, in the present, and in the future. For those who might not have had the words, for those who did not know where to turn, for those who felt different, even for a moment. You are not alone. My sisters, you are brave, strong, powerful, and worthy.

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Chapter One: Introduction

Some girls dreamt of becoming a princess, others dreamt of their wedding day; all her life she imagined herself becoming a mother. Through high school and college, a societal pressure focused her attention on preventing pregnancy using birth control and abstinence, embedding the covert social assumption that it easily can happen with one slip of the mind or moment of heated passion. Then, when the time came when she and her partner decided to start their own family, excitement erupted; a lifelong dream was going to be fulfilled. Sadness crashed over this excitement like an unseen tidal wave when conceiving a child became difficult, complicated, and unsuccessful. She and her partner sought out medical help; the doctor presented options for treatment that revealed previously unknown paths to parenthood, but left her feeling anxious, scared, uncertain, and confused. She turned inward, questioned herself: who was she as a woman; why did she not deserve to become a parent? This inward focus increased negative affect and one year into treatment, she was scrambling to find someone, somewhere to reach out to; it was taboo to talk about *not* getting pregnant in her social group; and her doctor knew of a clinician that specialized in mental health related to infertility whose office was 60+ miles away. She felt lost.

According to RESOLVE, the National Infertility Association, more than seven million people of childbearing age in the United States experience infertility. Often, infertility is an unexpected disruption for those who expect parenthood to be a key identity and adult activity (McQuillan, Greil, White & Jacob, 2003). The experience of

infertility for an individual can permeate their entire existence; affecting perceptions and experiences of physical, spiritual, emotional, sexual, and psychological well-being (Tufford, 2011; Watkins & Baldo, 2004).

The definition of infertility is “the result of a disease (an interruption, cessation, or disorder of body functions, systems, or organs) of the male or female reproductive tract which prevents the conception of a child or the ability to carry a pregnancy to delivery” (ASRM, 2012). Infertility is further understood through a set of subcategories of primary or secondary. Primary infertility is the inability to conceive a first child. Secondary infertility is the inability to conceive after one live birth (Gibson & Myers, 2000). The rate of infertility amongst the population in the United States is 10-15%. For a couple not experiencing infertility, the month-to-month rate of conception is about 25%, where 85% of these couples will conceive in a 12-month period (ASRM, 2013).

The experience of infertility has a significant affect on biological, psychological, and social factors for an individual or a couple. Traditionally, the milestone of beginning a family and raising children is socially assumed once individuals have married. Infertility disrupts this assumed progression and requires individuals to seek outside assistance in hopes to achieving pregnancy (Sexton, Byrd, O’Donohue, & Jacobs, 2010). Research has demonstrated that medical intervention for treatment of infertility causes significant psychological and social stress in one’s life (Freeman, Boxer, Rickels, Tureck, & Mastrianni, 1985). Factoring in the invasiveness, intensity, and frequency required by the medical treatment of infertility, it is encouraged that medical and mental health professionals collaborate to provide total care of the experience of infertility;

treating the medical, psychological and social implications (Watkins & Baldo, 2004).

The purpose of this Chapter is to create an understanding of the biological, psychological, and social implications of infertility and its treatment.

Biological and Medical Factors

An infertility diagnosis is determined when a couple has had an inability to conceive after 12 months of unprotected intercourse (ASRM, 2012; Gibson & Myers, 2000). Few individuals are aware of their own difficulty with infertility until they make an effort to initiate their own family planning. Medically, the diagnostic process of infertility begins when a couple requests services from a physician. The focus of medical treatment is upon determining which partner is infertile so that treatments can center upon the core problem. The diagnostic process frequently requires repeated office visits as well as a variety of tests and examinations for both partners, including medical history, physical examination, laboratory tests, procedures, and charting (Gibson & Myers, 2000).

The average length of time to arrive at an infertility diagnosis is longer for women, usually taking about six months, and about one month for men (Meyers, Diamond, Kezur, Scharf, Wenshel, & Rait, 1995). Men and women equally receive the medical diagnosis of infertility (Gibson & Myers, 2000). For all cases of infertility, about 40% are attributed to female-factor, 40% to male-factor infertility, and about 20% are unknown, or have no known diagnosis (ASRM, 2012). Once the determination of infertility is clear, one is faced with the decision of pursuing treatment. A variety of factors are considered included financial costs (Gibson & Myers, 2000; Mercer, 2006;

RESOLVE, 2006), options for treatment (Burnett, 2009; Gibson & Myers, 2000), and treatment prognosis (CDC, 2009; Gibson & Myers, 2000).

Financial costs. Insurance coverage has a large impact on the financial costs of infertility treatment. Mercer Health and Benefits (2006) reported that about 20% of all employers currently provide coverage for assisted reproductive therapy for the treatment of infertility. More recently, 15 states in the United States have passed laws requiring that insurance companies provide coverage for at least some level of treatment for infertility (Mercer, 2006). Stepping into the infertility sub-culture, it is not uncommon to find individuals who have changed jobs or moved to a different state in order to receive financial relief for infertility treatment.

While some financial support exists, most women and men pursuing infertility treatment are faced with decision to pay out-of-pocket, which range greatly from \$50 (up to \$250) for one dose of hormone therapy, to \$12,400 for procedures such as in vitro fertilization (Gibson & Myers, 2000; RESOLVE, 2006). Considering most assisted reproductive technology treatments for pregnancy involve multiple doses of multiple hormones, monitoring completed within a doctor's office, as well as the actual procedure, a single attempt to become pregnant can easily cost more than \$20,000.

The financial requirements of infertility have made it accessible to only those who have access to treatment; particularly financially. Oftentimes, leaving others without access to gaining treatment if the financial means are not available.

Options for treatment. Medical management of infertility can occur in a broad range of treatments, based on diagnosis. Non-invasive treatments include monitoring

fertility through basal body temperature, where a woman monitors and charts her waking body temperature every morning, at the same time, with a thermometer that is accurate to the 100th degree. For women diagnosed with infertility, treatment tends to be more costly and invasive (Gibson & Myers, 2000). Less invasive procedures for women include hormone and antibiotic therapies. More invasive, as well as costly treatments include Assisted Reproductive Technologies (ART), such as intrauterine insemination (IUI) and in vitro fertilization (IVF) (Gibson & Myers, 2000).

The American Pregnancy Association (2014) describes intrauterine insemination (IUI) as a fertility treatment that involves placing sperm inside a woman's uterus to facilitate fertilization. The goal of IUI is to increase the number of sperm that reach the fallopian tubes and subsequently increase the chance of fertilization. Often, before the IUI procedure, women take hormone therapies to stimulate ovulation, and may even take an injection of human chorionic gonadotropin to ensure that ovulation takes place. Then, a partner provides a semen sample, or donor sperm is obtained. The doctor carefully times the insemination with a woman's ovulation. Again, this procedure allows the control, and increased likelihood that ovulation takes place. Moreover, the procedure bypasses the cervix by placing the sperm inside the uterus.

Another form of ART, in vitro fertilization (IVF), is a method of assisted reproduction that involves the overstimulation of the ovaries through hormone therapies to produce multiple eggs. This overstimulation alone can result in significant side effects, ranging from mood swings and hot flashes to hyperstimulation, which can be deadly if left untreated. With a needle puncture through the vaginal wall, eggs are

harvested from the woman's ovaries. The retrieved eggs are combined with sperm in a laboratory dish. If the egg(s) fertilizes and begins cell division, the resulting embryo is transferred into the woman's uterus where it will hopefully implant in the uterine lining and further develop (ASRM, 2015).

IVF cannot be understood as simply a procedure. Often times, multiple embryos begin development. Doctors and intended parents are challenged with ethical dilemmas of considering the number of embryos to transfer based on maternal age, embryo quality, and treatment history. ASRM (2015) guidelines recommend that unless extenuating circumstances exist, one embryo should be transferred to a woman in good health, under the age of 35. These ethical recommendations are in place to prevent multiple births as they cause risk to the child(ren) and mother. If embryos that have begun to divide are not implanted, they are then sent to a laboratory to be frozen. Not all embryos are successfully frozen, but those that do successfully freeze, are then stored in the laboratories' freezer, which parents pay a monthly storage fee to maintain. Should the parents choose to undergo another cycle of IVF in the future, their embryos would be thawed and transferred. If the parents choose not to undergo further IVF they are faced with the choice of donating the embryos to research, donating the embryos to another couple via embryo adoption, or having them destroyed. These are often choices that couples have not considered until they are faced with making these existential decisions at the time of the IVF procedure.

Men often are requested to provide a semen sample for analysis to the fertility clinic or an urologist who will examine sperm under a microscope and make

recommendations to improve count and quality. Male-factor infertility may be a concern when a semen analysis shows that a man has a low sperm count, poor sperm motility or structure, poor sperm morphology, or low sperm volume. A typical treatments for male-factor infertility include the use of antibiotics and hormones and is usually less invasive and less costly. These recommendations often include vitamins, reduced restriction and heat near the testes, abstaining from caffeine, alcohol and drugs, and sometimes includes the use of hormones to increase sperm production. Regardless of which partner has the contributing factor to infertility, women more often than men undergo more invasive fertility treatment.

Treatment prognosis. Before someone commits to the time and expense of undergoing ART, it is important to consider the likelihood of achieving pregnancy by ART. Success rates of medication and assisted reproductive technologies to treat infertility vary greatly according to individual diagnosis, treatment availability, and treatment compliance (Gibson & Myers, 2000).

According to CDC's 2012 ART Success Rates Report, 176,247 ART cycles were performed at 456 reporting clinics in the United States during 2012, resulting in 51,267 live births (deliveries of one or more living infants) and 65,160 live born infants.

Although the use of ART is still relatively rare as compared to the potential demand, its use has doubled over the past decade. Today, over 1% of all infants born in the United States every year are conceived using ART (CDC, 2012).

The American Pregnancy Association (2014) reported that the success of intrauterine insemination (IUI) depends on several factors. If a couple has the

IUI procedure performed each month, success rates may reach as high as 20% per cycle depending on variables such as woman's age, the reason for infertility, and whether fertility drugs were used, among other variables. While IUI is a less invasive and less expensive option, pregnancy rates from IUI are lower than those from IVF. The success rate of IVF depends on a number of factors including reproductive history, maternal age, cause of infertility, and lifestyle factors. It is also important to understand that pregnancy rates are not the same as live birth rates. In the United States, the live birth rate for each IVF cycle started varies by age: 41-43% for women under age 35; 33-36% for women ages 35 to 37; 23-27% for women ages 38 to 40; 13-18% for women ages over 40 (American Pregnancy Association, 2014).

Psychological Factors

The experience of infertility is not only a medical one, but it is also an emotional experience (Covingeton & Burns, 2006). Those experiencing infertility encounter a variety of feelings. These feelings vary widely: from stress and reactions to diagnoses and medical treatments (Burnett, 2009; Daniluk, 2001b; Finamore, Seifer, Ananth & Leiblum, 2007; Gerrity, 2001; Gibson & Myers, 2000; Katz, 2008; Lukse & Vacc, 1999), to the experience created by the physician and medical environment (Daniluk, 2001a), to loss of control (Daniluk, 2001a; Gerrity, 2001; Gibson & Myers, 2000), and accepting involuntary childlessness (Daniluk, 2001a).

Stress and reactions to diagnoses and medical treatments. Discussion of the impact of diagnosis and treatment of infertility is essential in understanding the

psychological consequences one experiences (Gibson & Myers, 2000). Psychological stress abounds related to the medical procedures endured (Daniluk, 2001b; Finamore et al., 2007; Lukse & Vacc, 1999). The initial experience of an infertility diagnosis can create stress within an individual, couple, or family system (Burnett, 2009). While an infertility diagnosis is a biological concern, it has heavy emotional consequences and can quickly overcome an individual or couple (Burnett, 2009). Research suggests that stress, depression, anxiety, and other negative psychological feelings can result in poorer outcomes for individuals undergoing infertility treatment (Finamore, et al., 2007; Katz, 2008)

A cycle of treatment for a woman frequently consists of medications that stop a woman's natural menstrual cycle and replaces it with synthetic and natural hormones to hyperstimulate the ovaries for egg production. This wide shift in hormonal functioning is frequently described by patients as feeling as though they are on an emotional rollercoaster, experiencing high emotions of hope followed by deep plunges of despair (Daniluk, 2001a; Gerrity, 2001; Gibson & Myers, 2000): at the beginning of each treatment cycle, there is great hope and anticipation of fertility success; in the middle of the cycle, near ovulation, hormonal changes impact emotional regulation and anxiety related to procedures as well as timed intercourse increases experiences of stress; the onset of a menstrual cycle is frequently associated with depression and failure (Gibson & Myers, 2000). This emotional rollercoaster of a cycle of infertility treatment is evidenced in Lukse and Vacc's (1999) study that found that 58% of participants were experiencing

significant levels of feelings of depression prior to initiating treatment and 65% reported these levels of feelings after receiving a negative pregnancy test result.

Experience created by the physician and medical environment. Medical staff treating infertility play a large role in the psychological experience of individuals participating in infertility treatments. The approach used by physicians, nurses, and medical staff in treating infertility has a large effect on the couples' experience (Daniluk 2001a). Couples interviewed in Daniluk's (2001a) qualitative study identified dignity, sensitivity, and control as important factors in the process. Often, couples reported feeling as though their doctor did not have adequate time to answer questions. Couples also reported experiencing direct and indirect messages that medical staff was spread thin across a bulging caseload. Often, misinformation, or insufficient information was available regarding the actual experience of infertility treatment. A lack of information or absence of a diagnosis tends to exacerbate psychological stress and frustration amongst couples (Daniluk, 2001a).

Couples report becoming "hooked into treatment" by the optimism portrayed by their physician that one more round of treatment might finally work for them. The ultimate goal of achieving pregnancy can drive couples into pursuing treatment despite costs as well as treatments that may have previously been considered unacceptable by the couple. Couples noted that those physicians acknowledged the distress of infertility treatment and participated in discussing various treatment options and success rates gave a more positive experience to the couples to feel confident in making informed decisions (Daniluk, 2001a).

Loss of control. The theme of control was highlighted in a number of studies (Daniluk, 2001a; Gerrity, 2001). Women reported a need for a sense of self-control of emotional responses while undergoing infertility treatments. A sense of greater self-control allows an individual more freedom to operate in a culture in which having children is the norm. Additionally, individuals undergoing infertility treatment report increased anxiety, and a greater sense of self-control may provide a sense of mastery and maintenance of outside relationships (Gerrity, 2001).

Those couples whom did not have a diagnosis described the most acute experiences of losing control. Despite numerous tests and examinations, the lack of a diagnosis exacerbated frustrations (Daniluk, 2001a). Tying into the experience created by the physician, the more information made available to patients undergoing infertility treatment increased their feelings of having some control (Daniluk, 2001a).

Accepting involuntary childlessness. Sometimes, after pursuing a variety of infertility treatments, couples are faced with the choice of accepting involuntary childlessness. In a narrative study 65 couples who were unable to conceive and/or carry a pregnancy to term, Daniluk (2001a) found that some felt as though it were a relief, and that they could regain control of their lives. These couples reported feeling as if they could finally make progress again in their lives, which had felt as though they were paused. For other couples, hostility and anger dominated. These couples felt as though time, financial, and emotional investments were lost that could not be recuperated (Daniluk, 2001a). As difficult as the treatment of infertility was, all participants in Daniluk's (2001a) study of couples who were unsuccessful with infertility treatments, the

resounding response was that they would do it again if it meant they would have a child of their own.

Sociological Factors

Infertility also effects how an individual or couple interact with and perceive their social environments. Researchers have found that perceptions of infertility are affected by social constructions of parenthood (Busch, 2001; Gibson & Myers, 2000; Watkins & Baldo, 2004), reactions of others (Burnett, 2009; Gerrity, 2000; Gibson & Myers, 2002; Lukse & Vacc, 1999), and work (Finamore et al., 2007).

Social constructions of parenthood. The diagnosis of infertility can be perceived as a failure of achieving a developmental milestone: family creation (Busch, 2001). Social messages abound. The Bible encourages, “Be fruitful and multiply,” “Give me children or I die,” all statements imbedding the messages that life is not worth living without one’s own children (Watkins & Baldo, 2004). Further, the culture in the United States frequently places blame on women for infertility; historically it was directly, recently in ways that are more indirect. In the 1940s, infertility was seen as an unconscious fear of a woman’s sexual feelings or as neuroses. This shifted only slightly in the 1950s and 1960s where infertility was seen as a response to a women’s psychological impairment or ambivalence toward becoming a mother (Gibson & Myers, 2000). More recently, some point to pressure that society has often placed upon women who pursue their career before pursuing a family (Watkins & Baldo, 2004).

Traditional Western society upholds the transition to parenthood as one that occurs following the marriage of a couple (Gibson & Myers, 2000). Infertility can spoil

this concept of an ideal normative transition (Busch, 2001; Gibson & Myers, 2000) and place feelings of guilt and shame upon couples and individuals grappling with the changing schema of their family identity.

Reaction of others. Research has demonstrated that the experience of infertility can be isolating (Gerrity, 2000; Gibson & Myers, 2002; Lukse & Vacc, 1999).

Individuals and couples are faced with the decision or choice to tell others about their fertility struggles. Well-meant inquiries and suggestions can disrupt relationships and stir animosity in women experiencing infertility (Burnett, 2009). Women reported attending fewer social functions that involved children, such as baby showers, birthday parties, and christenings (Gerrity, 2001). While experiencing infertility may cause a person to want to withdraw, research has shown that social coping resources and growth-fostering relationship, such as family and partner support, significantly decrease an individual's experience of infertility stress (Gibson & Myers, 2002).

Work. Women being treated or evaluated for infertility must have a flexible work schedule and be willing and able to go for frequent office visits. This can lead to hours and sometimes days of missed work. If an employer is not supportive of these frequent absences, the situation can lead to increased stress levels, which in turn, can affect fertility. (Finamore et al., 2007). Current medical treatments for infertility can become time consuming, and frequent office visits are mandatory. For women who work, this necessitates understanding, flexibility, and cooperation at the workplace from co-workers and supervisors, which would require in some instances disclosing ones infertility. While it may be thought to be of benefit to the have this honest disclosure,

Finamore et al., (2007) found that disclosing infertility status did not significantly decrease the experience of personal stress from infertility treatment. Rather, the decision to disclose to an employer is more so a reflection on an individual's or couple's values and decision-making styles.

Purpose

For women, the experience of infertility is stressful (Burnett, 2009; Daniluk, 2001a; Gerrity, 2001; Gibson & Myers, 2000). Empathy and recognition of this stressful experience lacks understanding because of social, cultural, and financial pressures. Therefore, studying the qualitative experience of infertility-related stress for women has provided important information for those who support them personally and professionally. The lack of understanding of the experience of infertility-related stress for women hinders their medical treatment, career experiences, social expectations, and relationships. Additionally, the poorly defined construct of infertility-related stress has resulted in haphazard and misrepresentative measurement, as outlined in Chapter two.

A number of fertility-specific stress measures have been developed, but not one of these measures has been identified as a standard measure (Gourounti et al., 2010; Greil et al., 2011). Newton et al., (1999) suggests that most instruments available to assess infertility related stress lack a theoretical basis for understanding stress, and therefore are ineffective assessments. The FPI, proposed by Newton et al., (1999) describes the experience of infertility-related stress through five domains: social concern, including sensitivity to comments, reminders of infertility, and feelings of social isolation; sexual concern, including decreased sexual enjoyment and timed intercourse; relationship

concern, including difficulty talking with partner about infertility and concerns about impact of infertility on quality of relationship; rejection of childfree lifestyle, including a negative view of living child-free and decreased future happiness dependent on having a child; and need for parenthood, including viewing parenting as an essential life goal (Moura-Ramos et al., 2012; Newton et al., 1999).

The purpose of this case study was understand how women experience the Fertility Problems Inventory (FPI) as a measure of infertility-related stress. To address this issue, I recruited women who are undergoing infertility treatment to complete the FPI, a validated measure of infertility-related stress. Although this instrument has been validated, it also lacks clarity in defining and describing the construct of infertility-related stress. Research has indicated that treatment related to infertility can bring about the most stress (Freeman et al., 1985; Watkins & Baldo, 2004).

The research was conducted from a qualitative case study method. The research question was “How do women experience the FPI as a measure of infertility-related stress?” The important emphasis of the qualitative approach was to give a voice to the understanding of this issue.

Theoretical Framework

Qualitative methods allow a researcher to understand a phenomenon through the meaning that an individual or group of individuals ascribes to it. Additionally, there is an understanding that multiple meanings exist and that these meanings are socially and historically constructed (Creswell, 2003). Qualitative research strategies tend to be open-ended, and knowledge emerges from the data through the development of themes and

patterns (Creswell, 2003). The qualitative paradigm informing this research is social constructivism. This perspective maintains that our understanding of our world is our own construction, rather than a construction of absolute truth (Maxwell, 2013). Simply put, reality is experienced and interpreted by each individual, and there is no set laws of that can describe such complex experiences. Qualitative, social constructivist methodology suited the research question as the experience of infertility and the resulting stress is individual and shaped by social contexts.

The theoretical perspective informing this research was feminist theory. Lather (1986) clearly described the goal of feminist research as being one that aims to “correct both the invisibility and the distortion of female experience in ways relevant to ending women’s unequal social position” (p. 68). An essential perspective of this framework included seeing gender as an organizing principle that shapes women’s experience (Creswell, 2007; Lather, 1986). Additionally, the use of feminist theory encourages change to the status quo (Lather, 1986).

Rationale for Using Case Study

The intent of this research was to understand how women experience the FPI as a measure of infertility-related stress. Addressing the research of describing women’s experience of infertility-related stress was best suited by a case study because the construct of infertility-related stress and how it can be measured was poorly defined in the literature (Sexton et al., 2010). Lincoln and Guba (1985) emphasize that qualitative research is based on social phenomena, human dilemmas, and that the nature of case studies are situational. Therefore, a case study was most appropriate in addressing the

research question, as the purpose of the research was to understand women's experiences with the case, the FPI.

Chapter Summary

Social taboos limit the awareness and incidence of infertility. Research has demonstrated that the experience of infertility is not solely medical, but also has an impact on the psychological and social functioning of individuals and couples (Domar, Zuttermeister, & Friedman, 1993; Sexton et al., 2010; Tufford 2011; Watkins & Baldo, 2004). The technologies for treatment of infertility have advanced as rapidly as other medical technologies. A variety of treatments exist for men and women; often, treatment of infertility in women is more costly and at times more invasive (Gibson & Myers, 2000). It is noteworthy that even medical treatments that are considered "less invasive" for men and women may have substantial psychological and emotional implications. (Gerrity, 2001; Gibson & Myers, 2000).

While the milestone of having children is often a choice, for individuals experiencing infertility, it becomes a choice that is unattainable without the assistance of others (Gerrity, 2001; Katz, 2008). This reliance on others for assistance contributes to a sense of a loss of control (Gerrity, 2001; Gibson & Myers, 2000). Doctors can cancel infertility treatment cycles, leaving hopeful parents shattered with the idea of pursuing parenthood delayed another cycle. This loss of control can lead to increased psychological stress as well as interpersonal conflict (Gerrity, 2001), and social withdrawal (Daniluk, 2001a).

Overall, it is important for those caring for and treating women experiencing infertility to understand the complex biological, psychological, and social implications. The purpose of this case study was to understand how women experience the FPI as a measure of infertility-related stress.

Overview of Remaining Chapters

Chapter two will review relevant literature related to stress and infertility. The review of the study of stress in infertility as well as the examination of the definition of stress as it relates to infertility in the literature were completed. Additionally, the psychometric properties and use of the Fertility Problem Inventory are reviewed.

Chapter three will describe the methodology I used throughout this study. This included an overview of qualitative methodology, social constructivism, and feminist theory. Additionally, the guiding principles of the case study methodology is discussed. Next, a discussion of the data collection and analysis procedures were reviewed. Last, issues of trustworthiness and credibility are discussed along with a statement of researcher worldview.

Next, Chapter four will present participant profiles to help frame this case study as well as the procedure for the interviews with participants. Next, I identify themes found from the review of interviews and archival documents and present them here. Then, I summarize why the theories presented in Chapter 3 can or cannot be accepted.

Last, in Chapter 5, I will provide a discussion of the results. This discussion will include placing this study's findings in the context of the researcher's propositions and previous research on women's experience of infertility-related stress, issues of

trustworthiness and credibility of the study, the limitations of the study are discussed, implications of this study's findings, and suggestions for future research.

Chapter Two: Literature Review

It has been identified in the literature that general and infertility-specific stress are separate, while related, constructs (Edelmann & Connolly 1998; Sexton et al., 2010). The experience of infertility for women can result in stress; affecting perceptions and experiences of physical, spiritual, emotional, sexual, and psychological well-being (Tufford, 2011; Watkins & Baldo, 2004). Reflecting the degree of psychological stress concordant with fertility problems, one study reported that half of women described infertility as the most distressing experience of their lives (Freeman et al., 1985). Others found that women experiencing infertility problems did not differ on measures of global distress from cancer, cardiac rehabilitation, and hypertension patients (Domar et al. 1993).

Further, the effects of infertility-related stress can be long lasting. Women interviewed 20 years after discontinuing infertility treatment described continuing to feel emotional consequences of infertility, including low self-esteem and feelings of isolation (Wirtberg, Moller, Hogstrom, Tronstad & Lalos, 2007). For these women, feelings of social isolation ebbed and flowed with the typical transitions in life; isolation increased during times when friends and family were having their own families and then again becoming grandparents. These transitions served as lifelong reminders of the feelings of inferiority reported by women who experienced infertility (Wirtberg et al., 2007).

The purpose of this Chapter is to review relevant literature related to stress and infertility. The review of the study of stress in infertility as well as the examination of the

definition of stress as it relates to infertility in the existing literature. Additionally, the psychometric properties and use of the Fertility Problem Inventory (FPI) are reviewed.

Literature reviewed was limited to those studies that were conducted in the continental United States and European countries. Significant cultural variables influence the perception, interpretation and experience of infertility. Even population within the United States holds differing degrees of opinions on the experience and treatment of infertility. Additionally, the review of literature was restricted to investigating women's experiences of infertility. It is well supported and researched in the literature that infertility is a major psychological problem, especially for women (Burns, & Covington, 2006; Edelman & Connolly, 1998; Freeman et al., 1985). Often, regardless of which partner is diagnosed with infertility, women most commonly undergo medical treatment, procedures, and testing completed.

In this Chapter, I will review the concept of stress as described by Lazarus and Folkman (1984), review the literature of the incidents of women experiencing infertility, and examine the development and use of the FPI.

Women, Infertility, and Stress

The Transactional Model of Stress was described by Lazarus and Folkman (1984). They described stress as a transaction between the person and the environment in which the person implicitly questions whether the stress may or may not cause harm through a primary appraisal. In the stage of primary appraisal, an individual tends to ask questions like, "What does this stressor and/ or situation mean?", and, "How can it influence me?" Typically, these questions can be answered by: 1) "this is not important;"

2) "this is good;" 3) "this is stressful." While the experience of infertility does not explicitly cause physical harm, the thought of the failure to achieve a key desired identity of parenthood can result in emotional and psychological stress to the individual.

When stress is detected, according to the model, a secondary appraisal takes place, sometimes simultaneously with the primary appraisal. Secondary appraisals involve those feelings related to dealing with the stressor or the stress it produces. During this secondary appraisal, one surveys their own resources and determines whether they are able to cope with the stress. When resources for coping are available, positive stress results and one may have the cognitive appraisals such as, "I can do it if I do my best," or "I will try whether my chances of success are high or not," and "If this way fails, I can always try another method." When inadequate resources for coping are available, negative stress results and one might experience negative cognitive appraisals of the stress such as, "I can't do it; I know I will fail," or "I will not do it because no one believes I can," and, "I won't try because my chances are low," (Lazarus & Folkman, 1984). Figure 2.1 provides a visual description of the Transactional Model of Stress.

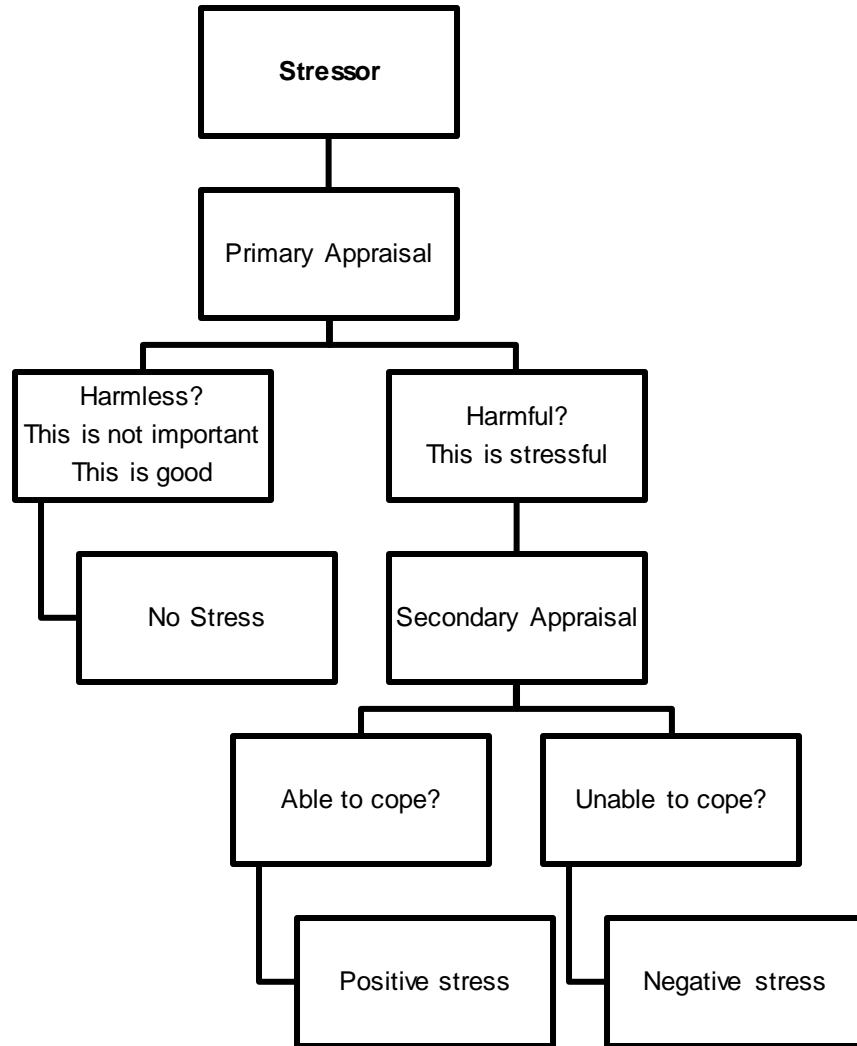


Figure 2.1: Transactional Model of Stress.

When a situation does not allow the ability to obtain or maintain a valued identity regardless of the individual’s attempt to manipulate or change the situation, such as the frequent experience of infertility, infertility-related stress is likely to occur (McQuillan et al., 2003). Additionally, stress related to a failing to achieve a valued identity increases

as medical treatment and psychosocial variables amass. Stress of the experience of infertility encompasses elements that women are likely to appraise as stressful (Lazarus & Folkman, 1984): unpredictability, negativity, uncontrollability and ambiguity (Gourounti, Anagnostopoulos, Potamianos, Lykeridou, Schmidt, & Vaslamatzis, 2010).

Physiological outcomes of stress can have negative implications on the success of conception. Research of attempts to achieve conception with and without the assistance of reproductive technologies has demonstrated that higher levels of stress significantly predict lower rates of conception (Finamore et al., 2007; Katz, 2008; Nakamura, Sheps & Arck, 2008). Biological mechanisms have been proposed to describe the connection between psychological stress and decreased fertility (Nakamura et al., 2008). Stress triggers the hypothalamic-pituitary-adrenal axis, which upregulates corticotrophin-releasing hormone, adrenocorticotrophic hormone, and glucocorticoids. Increased levels of these stress hormones can disrupt the timing of ovulations, decrease the length of a woman's luteal phase, and decrease the likelihood of successful implantation (Nakamura et al., 2008). Stage of infertility treatment and duration of infertility may also affect perceived infertility-related stress.

Although part of the same process, in the infertility and mental health literature, the constructs stress and distress are often incorrectly used interchangeably. These terms are differentiated by existence of an environmental stressor. Distress is a feeling, a result of environmental stressor and the related psychological stress. Additionally, some researchers refer to effects similar to stress as strain. These multiple, and generic terms referring to the difficult experience created by infertility lack the specificity in defining

the problem. For the purpose of this literature review, the experience of stress related to infertility was described as infertility-related stress.

The presence of psychopathology and impact of infertility-related stress in infertility treatment has been examined using multiple methodologies. Some women do not experience significant differences in pre- and post-assessments measures of depression and infertility-related stress while undergoing assisted reproductive technology treatment. Edelmann and Connolly (1998) included 57 women presenting with primary infertility to complete psychological measures and weekly diaries of their feelings and predominant mood while undergoing medical infertility treatment. Connolly et al., (1992) reported the findings of the initial and seven-month follow-up completion of the psychological measures. Participants completed the Eysenck Personality Questionnaire (EPQ), General health Questionnaire (GHQ), Beck Depression Inventory (BDI) and the State-Trait Anxiety Inventory (STAI). Psychopathology was not present in the findings and little variation in depression scores between the pre and post-assessment were noted. The weekly diaries included a feeling checklist in which participants recorded on a five-point scale their feelings of guilt, success, anger, contentment, frustration, happiness, isolation, confidence, anxiety, satisfaction, depression and competence. Overall distress scores were calculated and it was found that psychopathology was not present in this sample at initial presentation or seven months following up (Edelmann & Connolly, 1998). However, this study captures the ineffectiveness of utilizing standardized measures such as the BDI and STAI to measure infertility-related stress. Additionally, weekly diaries suggested that distress was

minimal. While the weekly diaries incorporate an interesting component into the investigation of infertility-related stress, rating scales are not effective at describing the true qualitative emotional experience.

Medical environmental factors and staff play a role in the experience infertility-related stress of individuals participating in infertility treatments. The approach used by physicians, nurses, and medical staff in treating infertility has a large effect on the one's experience of infertility-related stress (Daniluk 2001). Participants interviewed in Daniluk's (2001) qualitative study identified dignity, sensitivity, and control as important factors in the process. Participants reported feeling as though their doctor did not have adequate time to answer questions, and there were also direct and indirect messages that medical staff was spread thin across a bulging caseload. Often, misinformation, or insufficient information was available regarding the actual experience of infertility treatment. A lack of information or absence of a diagnosis tends to exacerbate infertility-related stress as described by participants (Daniluk, 2001).

Age might also play a factor in the experience of infertility-related stress (Cooper, Gerber, McGettrick & Johnson, 2007; Newton, Sherrard, & Glavac, 1999). Additionally, women experiencing infertility-related stress at an earlier age may have decreased likelihood of achieving pregnancy (Cooper et al., 2007; Matthiesen, Frederiksen, Ingerslev & Zachariae, 2011). In effort to review and analyze evidence for associations between the psychological variables of infertility-related stress and assisted reproductive technology outcome, Matthiesen et al., (2011) completed a meta-analysis of 31 articles investigating a total of 4,902 participants with an average sample size of 158 participants.

Four out of six studies had found a statistically significant association between infertility-related stress and clinical pregnancy rate. Regression analysis of these studies also revealed that trait anxiety and depression was associated with reduced chance of clinical pregnancy in younger patients (Matthiesen et al., 2011).

In an effort to understand whether infertility-related stress occurs because of the condition of infertility itself or because of infertility treatment, Griel et al., (2011) compared the aforementioned groups through a longitudinal analysis. Telephone interviews were completed with women who identified themselves as experiencing infertility at the initial contact and then again three years later. The researchers felt that there was not a delineated fertility stress measure and therefore drew six questions from the Infertility Reaction Scale. Of the 266 women who met criteria to be considered, women who reported having no infertility treatment and no live birth reported significantly lower levels of infertility-related stress than those who received treatment. Noteworthy, even when treatment yielded a live birth, women still reported significantly higher levels of infertility-related stress. Additionally, three years later, women who reported continuing to experience infertility that did not receive treatment and did not have a live birth had significantly lower levels of infertility-related stress. Infertility-related stress increased significantly for those women who sought treatment compared to those who did not (Greil et al., 2011). This demonstrates that infertility treatment is associated with women experiencing higher levels of infertility-related stress compared to those that experience infertility without treatment. These findings validate previous findings that identify infertility treatment as a stressful experience (Daniluk, 2001).

On the contrary, other research has found that infertility treatment is not always the primary cause of infertility-related stress. Additionally, the buffer of not having a live birth decreasing long-term infertility-related stress has not been found in other studies. In attempt to sample from a diverse non-clinic-based sample, Griel et al., (2003) used a Census-based random sample of 580 women, of which 241 had experienced infertility. These participants completed 20-items of the Center for Epidemiological Studies Depression Scale (CES-D). When compared with the 339 individuals who were not experiencing infertility, individuals who were experiencing infertility reported statistically significant long-term infertility-related stress for women with no children (Griel et al., 2003). While this research makes attempts to random sample from a non-clinic based sample, it fails to address the specific experience of infertility-related stress by evaluating stress through the CES-D.

Also studied longitudinally, Schneider and Forthofer (2005) investigated psychosocial factors associated with stress over the course of infertility treatment. Researchers constructed a composite scale to measure infertility-related stress that included domains of social support, spousal support, self-esteem, perceived health, importance biological children, life events, and attribution of responsibility. Self-esteem, perceived health and attribution of responsibility to physician were found to be significant psychosocial factors that contributed to infertility-related stress in women (Schneider & Forthofer, 2005). That is, individuals with lower self-esteem, poorer perceived health and those who attributed outcome responsibility to the physician experienced greater infertility-related stress.

Assessing Infertility-Related Stress: The Fertility Problem Inventory

A number of fertility-specific stress measures have been developed, but not one of these measures has been identified as a standard measure (Gourounti et al., 2010; Greil et al., 2011). Newton et al., (1999) suggests that most instruments available to assess infertility related stress lack a theoretical basis for understanding stress, and therefore are ineffective assessments. For example, the Infertility Questionnaire was created to measure psychological dysfunction in areas of self-esteem, blame/guilt and sexuality (Bernstein, Potts & Mattox, 1985). While this measure presents adequate internal and retest reliability, it measures only these three constructs without proper rationale (Newton et al., 1999). Additionally, the Fertility Problem Stress Inventory, a self-report measure, assesses infertility-related stress in multiple domains of a woman's life (Abbey, Andrews & Halman, 1991). The Infertility Distress Scale, another self-report measure, assesses self-reported fertility-related stress in men (Pook, Rohrle & Krause, 1999). Other measures exist which propose to assess infertility through self-report single dimension measures, but these fail to capture the multi-dimensional experience of infertility and necessary sensitivity to detect important concerns specific to infertility (Gourounti et al., 2010; Moura-Ramos, Gameiro, Canavarro & Soares, 2012; Newton et al., 1999).

The Fertility Problem Inventory (FPI) has been used in multiple investigations to examine infertility-related stress (Cooper et al., 2007; Cousineau, Green, Corsini, Barnar, Seibring & Domar, 2006; Domar, Penzias & Dusak, 2005; Peterson, Newton & Rosen, 2003; Peterson, Newton & Rosen, 2006; Peterson, Newton & Feingold, 2007; Sexton et al., 2010; Slade, O'Neill, Simpson & Lahen, 2007). The FPI, proposed by Newton et al.,

(1999) describes the experience of infertility-related stress through five domains: social concern, including sensitivity to comments, reminders of infertility, and feelings of social isolation; sexual concern, including decreased sexual enjoyment and timed intercourse; relationship concern, including difficulty talking with partner about infertility and concerns about impact of infertility on quality of relationship; rejection of childfree lifestyle, including a negative view of living child-free and decreased future happiness dependent on having a child; and need for parenthood, including viewing parenting as an essential life goal (Moura-Ramos et al., 2012; Newton et al., 1999).

The FPI was developed with participants who were referred for assessment and treatment with IVF, controlled ovarian hyperstimulation and IUI, or therapeutic donor insemination at a university-affiliated teaching hospital. Participants completed the BDI, STAI, Dyadic Adjustment Scale (DAS), and the Social Desirability Scale of the Personality Research Form-E, as well as a preliminary questionnaire to assess fertility-specific distress. Questions for the preliminary form were constructed from review of literature and significant infertility-related themes identified by other researchers. From this, seven domains were defined and 84 questions were developed (Newton et al., 1999).

To obtain the final version of the FPI, domain homogeneity was maximized by eliminating items whose total scale correlations were less than .40. The original scales of Role loss and Role failure showed high correlation with Social Concern (.81 and .72 respectively) and each other (.77) and therefore both scales were eliminated, resulting in the final five domains of the 46-item FPI: social concern, sexual concern, relationship concern, need for parenthood, and rejection of childfree lifestyle. A composite score of

the sum of the five domains is referred to as the global measure of infertility-related stress. Test-Retest reliability was assessed over a 30-day interval with a correlation of stress of .83 for women and .84 for men (Newton et al., 1999).

To ensure that each scale was measuring something different, discriminant validity was assessed scale intercorrelations were examined to evaluate the discriminant validity of the five domains and those scales which correlated by more than .70 were considered to be overlapping. Scale intercorrelations ranged from .26-.66 with a mean of .45 suggesting that the items in the assessment were measuring separate but related constructs of infertility (Newton et al., 1999).

In order to assess how well the FPI correlates with other variables with which it should correlate, convergent validity was measured with standardized measures administered to participants (recall the BDI, STAI, DAS and SDS). Higher levels of depression and anxiety correlated with higher scores of global infertility stress in the FPI. It was found that depression was correlated with higher report of global infertility stress (.60 for women and .40 for men) as well as anxiety (.37 and .41 respectively). Moderate correlations were considered satisfactory because it would support the concept that the FPI is not simply measuring a single construct of psychopathology. Satisfactory marital adjustment was reported as negatively correlated for both women and men with high global infertility stress (-.40 and -.23 respectively) (Newton et al., 1999).

Research with the FPI

The FPI assumes a comprehensive approach by measuring infertility-related stress amongst five different domains of one's life. Moura-Ramos et al., (2012) sought to

evaluate the factor structure of the FPI in a sample of 209 infertile patients through confirmatory factor analysis. Researchers presented two higher-order models. First, the original model presented by Newton et al., (1999), which identified that first-order factors (five domains) contribute to a common underlying construct of infertility-related stress (global infertility stress). They also proposed a second model that included an intermediate level of two latent variables: problematic infertility domains and representations about the importance of parenthood in men and women's life. Results indicated that the five original factors loaded reliably on the intermediate factors. The intermediate factors loaded significantly in the measure of global infertility stress. This analysis purported that the proposed second model including two latent variables was a better model for describing the dimensions of infertility-related stress (Moura-Ramos et al., 2012).

The FPI has been found to discriminate between general stress and infertility-related stress. Sexton et al., (2010) evaluated the effectiveness of a web-based treatment of infertility-related stress. They utilized the Symptom Checklist 90-Revised (SCL-90) to measure general stress and the FPI to assess infertility-related stress. Participants completed the SCL-90 and the FPI prior to initiating treatment as well as following the two-week web-based intervention phase. Participants in the treatment were found to have a statistically significant decrease in general stress but did not improve in infertility-related stress (Sexton et al., 2010). Their results confirm that general and infertility-related stress are separate but related constructs.

While Newton et al., (1999) presents solid arguments, others suggest that a drawback of fertility-specific measures, such as the FPI, is that it may not permit comparison with a control group. It is suggested that measures such as this are more useful when examining differences in within-group distress among women experiencing infertility as well as in longitudinal designs (Greil et al., 2011). What this argument serves to remind researchers is that infertility is best studied under longitudinal conditions and is most easily compared to against other women experiencing infertility.

Additionally, Moura-Ramos et al., (2012) proposed that infertility-related stress can be better understood through the assessment of problematic functioning (social, sexual and relationship domains) and assessment of beliefs and representations (need for parenthood and rejection of childfree lifestyle domains). However, better understanding of the experience of infertility-related stress as it relates to the meaning of parenthood and childlessness may help explain individual differences in adjustment to infertility (Moura-Ramos et al., 2012). The FPI is sufficient in explaining whether stress exists, however it lacks the ability to describe an individual's subjective experience.

The Connor-Davidson Resilience Scale (CD-RISC) has been used to investigate the experience of infertility-related stress. The CD-RISC was developed to measure presence of resilience in individuals who have experienced posttraumatic stress disorder. In effort to establish appropriate use of the CD-RISC with women experiencing infertility, Sexton et al., (2010) completed an exploratory factor analysis of with the CD-RISC and other measures. Forty participants were recruited from two infertility clinics and completed the CD-RISC to measure resilience, the BDI to measure negative affect

and provide an exclusionary criteria if significant depression scores were detected, The SCL-90 to evaluate general distress, the FPI to measure infertility-related stress and the Ways of Coping Questionnaire (WCQ) to identify engagement in coping behaviors. Participant's CD-RISC scores were significantly negatively correlated with global infertility related stress scores on the FPI ($r = -.644, p < .001$). Researchers found that resilience in treatment-seeking women experiencing infertility is significantly lower than that of the general population. Participants evidenced resilience scores nearly a standard deviation below the general population, levels reported by participants are similar to those described for psychiatric outpatients (Sexton et al., 2009). This study utilized a convenience sample of women undergoing medical treatment for infertility and cannot be generalized to non-treatment seeking women experiencing infertility. This study also did not measure levels of resilience prior to seeking infertility treatment; therefore, it is unknown whether the experience of infertility treatment has a negative effect on women's perception of resilience

Chapter Summary

Based on the literature reviewed, the construct of infertility-related stress is poorly defined in the literature. Further, research that has been completed is from a primarily quantitative approach using measures of psychopathology. This research aimed to give voice to the subjective experience of infertility-related stress. Through a case study methodology that included completion of the FPI, interviews, and a review of relevant literature investigating the FPI, a greater understanding of the construct of infertility-related stress has been revealed.

Chapter 3: Methodology

Quantitative researchers purport that the FPI has been found to discriminate between general stress and infertility-related stress (Sexton et al., 2010). In Sexton et al.'s (2010) research of web-based treatment to reduce psychological distress, scores on the Fertility Problems Inventory (FPI) and the Symptom Checklist-90 Revised were significantly associated, but did not parallel those of the infertility-specific scale. Researchers thought these findings may begin to explain some of the confusion in the literature that women often fall in normative ranges on scales of psychopathology (Berg & Wilson, 1990; Edelman & Connolly, 1998; Greil et al., 2011) while concurrently describing fertility problems as the most stressful experience in life to date (Freeman, 1985). The FPI is sufficient in explaining whether stress exists, however it lacks the ability to describe an individual's subjective experience.

There is a distinct difference between clinical psychopathology and subclinical infertility-related stress (Sexton et al., 2010). Misunderstanding of the experience of infertility-related stress (Wirtberg et al., 2007) and misuse of measurements to assess these constructs reduces empathic understanding and insufficient care to women experiencing infertility (Connolly et al., 1992; Edelman & Connolly, 1998). Due to the lack in distinction and incidence of misunderstanding infertility-related stress, the purpose of this research was to understand how women experience the FPI as a measure of infertility-related stress. To address the grand research question, this research utilized

a qualitative, case study method informed by feminist theory and the transactional model of stress.

In this Chapter, I described the rationale for qualitative methodology. Additionally, the theoretical framework, informing this study and case study methodology are reviewed. Next, a discussion of the data collection and analysis procedures are included. Last, issues of trustworthiness and credibility are discussed along with a statement of researcher worldview.

Rationale for Qualitative Methodology

Qualitative research is idiographic and emic (Morrow, 2005). That is, qualitative methods allow a researcher to understand a phenomenon through the meaning that an individual or group of individuals ascribes to it. Additionally, there is an understanding that multiple meanings exist and that these meanings are socially and historically constructed. Qualitative research strategies tend to be open-ended, and knowledge emerges from the data through the development of themes and patterns (Creswell, 2003).

The intent of this research was to understand how women experience the FPI as a measure of infertility-related stress. Qualitative methods provide the most adequate tools to address this need for understanding by obtaining data through capturing participant experiences with the FPI. Further, the process of this qualitative research was inductive with the meaning being generated from the data collected in the field (Creswell, 2003), which will support the purpose of this research in understanding women's constructions of infertility-related stress.

Social Constructivism. The qualitative epistemology informing this research was social constructivism. This perspective maintains that our understanding of our world is our own construction, rather than a construction of absolute truth (Maxwell, 2013). Simply put, reality is experienced and interpreted by each individual, and there is no set laws of that can describe such complex experiences. Creswell (2003) elaborates:

Humans engage in their world and make sense of it based on their historical and social perspective – we are all born into a world of meaning bestowed upon us by our culture. Thus, qualitative researchers seek to understand the context or setting of the participants through visiting this context and gathering information personally. They also make an interpretation of what they find, an interpretation shaped by the researchers' own experiences and backgrounds. (p. 9)

Meaning and significance of experiences is social and ebbs and flows through interaction with a human community. Infertility-related stress is best studied through social constructivism as women's meanings are constructed by their experiences as they engage with the world (Creswell, 2003). This paradigm was most fitting for this research as the goal was to understand the qualitative experience of the women participants.

Feminist theory. The theoretical perspective that informed this research was feminist theory. Lather (1986) clearly described the goal of feminist research as being one that aims to “correct both the invisibility and the distortion of female experience in ways relevant to ending women's unequal social position” (p. 68). An essential perspective of this framework included seeing gender as an organizing principle that shapes women's experience (Creswell, 2007; Lather, 1986). Additionally, the use of

feminist theory informed the present research and encouraged change to the status quo (Lather, 1986).

The major task of feminist research is not about empirical prediction and control, but rather about generating and refining interactive, participant-informed methods that identify pattern and meaning, particularly for women. Equipped with this knowledge, feminist research approaches encourage transformation (Creswell, 2007), or for participants and researchers to apply the research to equate social activism and social change (Lather, 1986).

Feminist research, as a theoretical framework in this research, was selected to make effort to create an emancipatory science that is empowering (Lather, 1986) and unveiling of important women's health research as it related to infertility-related stress. Particularly, the feminist research lens allowed for the reconceptualization, redefinition, and increased understanding of women's experiences of infertility.

Transactional model of stress. There is an extensive amount of research available on perceived experiences of stress. In the 1980s, Lazarus and Folkman (1984) described a shift in understanding stress through trait-oriented research and instead focusing on coping. This shift emphasized the importance of an individual's psychological and environmental contexts (Lazarus & Folkman, 1984) as opposed to the properties of the person. Lazarus (1966) defined stress as occurring when "an individual perceives that the demands of an external situation are beyond his or her perceived ability to cope with them."

The transactional model of stress (Lazarus & Folkman, 1984) takes into account psychological and environmental context. Stress includes a transaction between individuals and their external world, and that a stress response was elicited if an individual appraised a potentially stressful event as being stressful. The model proposed that when individuals experience a stressor, a primary appraisal is completed. In the primary appraisal, an individual determines whether the stressor poses a threat now or in the future, or if there is no threat at all. If the event is evaluated to be threatening, a secondary appraisal ensues where an individual evaluates their coping strategies to determine if there is adequate internal and external coping options (such as inner strength, peers, professional help, resources). Oftentimes, the primary and secondary appraisal occur nearly simultaneously as well as unconsciously.

The experience of infertility is stressful. Stress often stems from the threat that infertility poses in the present and the future; affecting perceptions and experiences of physical, spiritual, emotional, sexual, and psychological well-being (Tufford, 2011; Watkins & Baldo, 2004). Further, infertility and infertility treatment is often unpredictable, uncontrollable, and oftentimes ambiguous (Gourounti et al., 2010). The transactional model was used to inform how and if women's appraisals of their ability to cope with infertility-related stress influenced their experience of stress in this research.

Returning to the priority of this research, infertility-related stress is poorly described in the existing literature. Understanding the construction of infertility-related stress by making contact with women who have lived this experience brought greater strength to this study. Further, describing the experience of infertility-related stress can

empower women and give voice to an important women's health issue. Through a social constructivist approach framed by feminist theory and the transactional model of stress, this research provided rich descriptions of women's experiences of infertility-related stress.

Case Study

Case study research includes the study of experiences within a real-life setting (Yin, 2013). Further, case study research “investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.” (Yin, 2013, p. 4)

Further, this study is a qualitative approach to research investigating a phenomenon through multiple sources of information and reports (Creswell, 2013; Stake, 2006; Yin, 2013).

Uniquely, in case study research, the researcher was the instrument of the research. Therefore, researcher's bias, experiences, and insights are valuable tools informing the study. This idea starkly contrasted that of quantitative work that seeks to separate the researcher from the experiment. Although case study research has not been codified, several authors have begun to describe techniques for conducting case study research (Stake, 2006; Yin, 2013). For the purpose of this research, methods were developed primarily following those outlined by Yin (2009, 2013).

Methodological characteristics of a case study include that case study inquiry:

Copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources

of evidence, with data need to converge in a triangulating fashion. (Yin, 2013, p. 26)

To initiate effective case study research, it was important to describe what the case study was, and what the case study was not (Zunker, 2009). This case study included the following design characteristics outlined in this section: single-case; descriptive in nature, and; embedded design. Additionally, Yin (2013) proposed five components of a case study: 1) the research question(s); 2) its propositions; 3) its units of analysis; outlined in this section. Yin (2013) also recommends defining: 4) a determination of how the data are linked to the propositions and 5) criteria to interpret the findings, which is discussed in the data collection and data analysis portions of this Chapter. The purpose of the five components was to operationally define the unit of analysis and assist with replication. Yin (2013) purported that case studies are the preferred strategy for answering “how” and “why” questions. Additionally, this case study searched to provide an “in-depth” description of the phenomenon of infertility-related stress, emphasizing the fit of the case study methodology.

Research question. The grand research question for this case study was “How do women experience the Fertility Problem Inventory (FPI) as a measure of infertility-related stress?” The intent of this research was to describe how the FPI captures women’s experiences of infertility-related stress; therefore, this case study was descriptive in nature. Descriptive case studies assist in building insight and understanding of a phenomenon in order to develop hypotheses, models or theories (Scholz & Tietje, 2013)

Addressing the grand research of exploring women's experience of infertility-related stress with the FPI, was best suited by a case study because the construct of infertility-related stress, and how it can be measured, is poorly defined in the literature (Sexton et al., 2010). Lincoln and Guba (1985) emphasized that qualitative research is based on social phenomena, human dilemmas, and that the nature of case studies are situational. Therefore, a case study was most appropriate in addressing the grand research question, as the intent of this research was to understand how women experience the FPI (the case) as a measure of infertility-related stress.

Propositions. The purpose of developing propositions was to direct attention to something that should be examined within the scope of the study and to bind the study (Yin, 2013). Case study propositions increased the likelihood that the researcher was able to place limits and establish focus in this research. Without thoughtful propositions and binding, a case study can become unending, too large, and lose focus. The purpose of propositions was to guide the study by forming the foundation of the conceptual framework (Baxter & Jack, 2008) and to elaborate upon the research question components of "how" and "why" (Yin, 2013). Propositions for this case study have been included in Figure 3.1.

Figure 3.1: Propositions.

Propositions	Source
Traditional measures of psychopathology fail to measure the experience of stress as it relates to infertility.	Literature Sexton et al., 2010
The experience of infertility is stressful	Literature and personal, professional experience
The FPI is the only quantitatively validated measure of the specific construct of infertility-related stress	Literature
Infertility-related stress is poorly defined in the literature	Literature and experience Sexton et al., 2010
Women experience infertility differently than men, regardless of who is diagnosed with infertility; women more often than men undergo more frequent and invasive treatment	Literature and experience
Infertility affects perceptions of women's identity in women	Personal experience; professional experience
Infertility affects perceptions of body "working"	Personal and professional experience
Infertility has a profound impact on relationship functioning	Personal and professional experience.

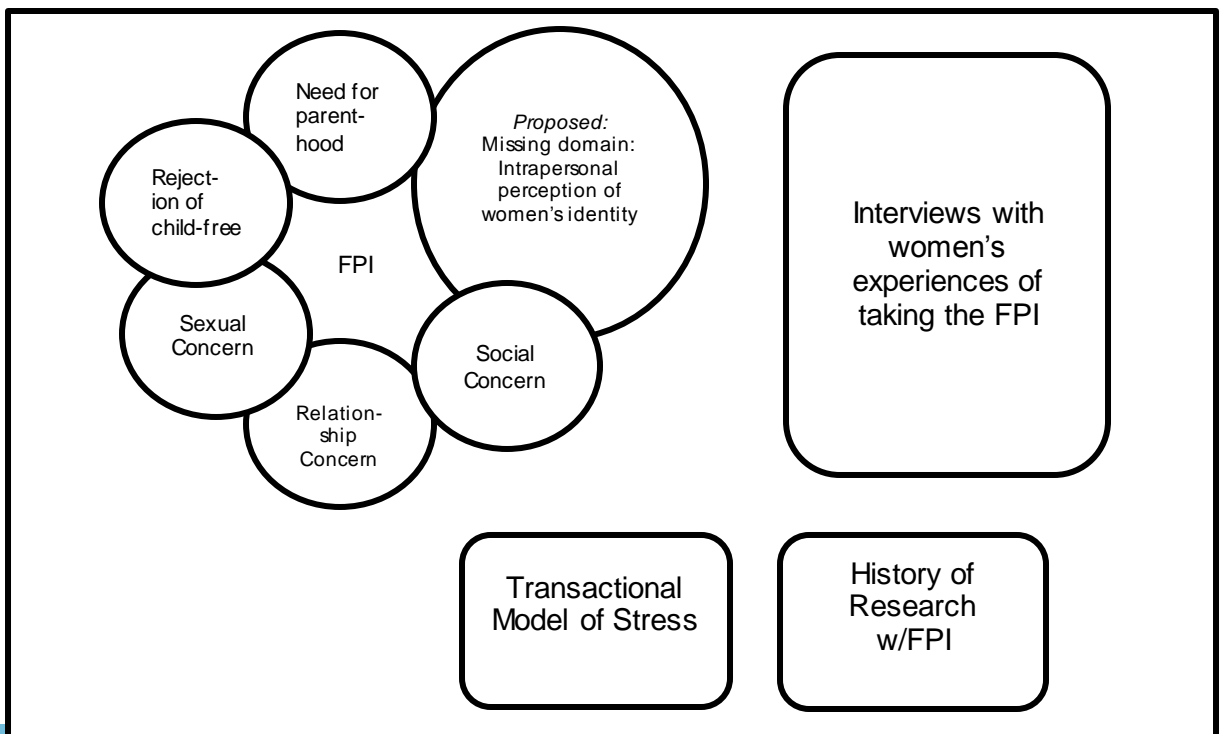
Clearly stating the propositions of a case study allowed the researcher to begin to move in the right direction by identifying where information has been found, and where gaps in information may exist (Yin, 2013).

Unit of analysis – the case. The conceptual framework made the case study clear by describing who was included in the study; the relationships that may exist based on logic, theory, and experience; and the organizational principle of intellectual "bins" (Baxter & Jack, 2008; Miles & Huberman, 1994). This framework was represented

through a graphical or narrative format (Miles & Huberman, 1994); it was considered a work in progress as the research is conducted. Additionally, it serves as another anchor point in keeping research focused, bound, and on track (Baxter & Jack, 2008). In the results in Chapter four, a model is described which has been informed by the conceptual framework and demonstrated relationships between constructs.

The case or unit of analysis, in this study was the FPI. The grand research question was *How do women experience the FPI as a measure of infertility-related stress?* This case study involved more than one unit of analysis within the research question, and therefore was an embedded case study design. Embedded case design allowed for the integration of both qualitative and quantitative data and multiple strategies of knowledge integration (Scholz & Tietje, 2013). Figure 3.2 is a model of the embedded units of analysis for this case study.

Figure 3.2: The Case.



This conceptual framework displays some of the important influences on the FPI as a measure of women's experience of infertility-related stress. The FPI as an existing measure of infertility-related stress includes five domains in its measure: Social Concern, including sensitivity to comments, reminders of infertility, and feelings of social isolation; Sexual Concern, including decreased sexual enjoyment and timed intercourse; Relationship Concern, including difficulty talking with partner about infertility and concerns about impact of infertility on quality of relationship; Rejection of Childfree Lifestyle, including a negative view of living child-free and decreased future happiness dependent on having a child; and Need for Parenthood, including viewing parenting as an essential life goal. In this case study framework, the domains are overlapped as this researcher emphasized the important influence that the domains have independently, as well as the impact that the domains have on each other.

Next, women's identity was an important component of the conceptual framework I proposed, as it described the intrapersonal turmoil of failed or delayed expected life transitions, faulty biological functioning, and cognitions of feeling as less of a woman, described in the literature reviewed in Chapters one and two. Then, women's interpretive experiences of the FPI as a measure of infertility-related stress was important in gathering the lived experience of the measure as a tool in understanding the construct. Further, the influence of the history of quantitative data examining the use of the FPI is essential in defining the construct of infertility-related stress and was included in the case study as archival documents. Last, as reviewed earlier in this Chapter, the important

influence of the theoretical lenses driving this case, the Transactional Model of Stress, and Feminist Theory are included.

Theory Driving Case Study. An important component that sets a case study apart from other similar qualitative techniques such as ethnographies and grounded theories is that a theory is developed as a part of the design phase (Yin, 2013). The theory developed for this case study based on literature review and researcher experience. The theories that drove and bound this case study were: 1) The FPI captures women's experiences of infertility-related stress; and 2) The FPI, while being a leading measure of infertility-related stress, lacks description of important experiences related to the impact of infertility on women's identity.

Data Collection

Similar to many approaches to qualitative research, case study research designs have not been codified (Yin, 2013). Specifically, steps for data collection and analysis are not concrete. This study was designed based on review of founding authors of the field of case study research including Yin (2009, 2013) and Stake (2006). To guide data collection, and increase reliability of the case study research, it is recommended that researchers should develop a protocol (Yin, 2013). A protocol is an illustrative overview, and contains the procedures and general rules to be followed in the research. A protocol is recommended to have four sections: Section A) An overview of the case study including relevant readings about the topic being investigated; Section B) Data collection procedures; Section C) Data collection questions; Section D) a guide for the case study report. For the purpose of this dissertation, Chapters 1 and 2 serve to define Section A of

the protocol; Chapter 3 serves as Section B and Section C, as well as Appendix items including the FPI; and Chapters 4 and 5 fulfill the needs of Section D.

Yin (2013) proposed four principles of data collection to establish the construct of validity and reliability of evidence. First, it was necessary to use multiple sources of evidence to develop converging lines of query and triangulation. True triangulation of data occurs when the data is supported by more than a single source of evidence and is discussed in greater detail in relation to establishing credibility and trustworthiness (Yin, 2013). Second, the researcher created a case study database to organize and document the data collected. To manage the large amounts of data collected from the multiple sources, an electronic data management program was utilized, MAXQDA. This professional software allowed for the management and interpretation of qualitative data. While this did place some distance the researcher from the data, it was an essential resource in maintaining organization (Baxter & Jack, 2008). Third, to increase reliability, a chain of evidence was created to allow an external observer to trace the steps of the researcher (Yin, 2013). Fourth, the researcher exercised care when using data from electronic sources (Yin, 2013). The researcher is a professional, and doctoral level student, and is knowledgeable of delineating credible versus non-credible internet sources.

Participants

To address the grand research question, three participants were selected through purposeful sampling. Purposeful sampling techniques were selected because they allowed the researcher to select participants who have the potential to inform to the grand research question to be addressed (Charmaz, 2006; Stake, 2006). Additionally, all

participants needed to be considered relevant to the research question, provided diversity across context, and provided opportunity to learn about the complexity and context of infertility-related stress (Stake, 2006). The selection of a purposeful sample is helpful in generalizing findings to other similar cases (Creswell, 2013) as well as to expand and generalize theories (Yin, 2013). To address the issue of providing diversity across context, Stake (2006) suggested selecting participants that are both typical and atypical so that one can attain a diverse sample that addressed infertility-related stress from multiple experiences and offers ample opportunity to learn.

Participants were asked to sign an informed consent that outlined what was involved in participation in the project. The informed consent served to explain that participation in the study was voluntary and that participation can be discontinued at any time during the study. See Appendix A for a copy of the informed consent. Participants were also asked to complete a brief demographic questionnaire (Appendix B) that inquired about demographics, relationship status, treatment history of infertility, and important cultural variables that might have influenced their infertility treatment.

In due process as an educator and mental health professional, and researcher, protecting participants from harm and deception was pivotal. Additionally, protecting participant privacy and confidentiality was paramount in participants feeling safe to discuss and disclose the personal nature of the research topic.

Data Collection Sources

The process of collecting data in this case study needed to be thorough and extensive (Baxter & Jack, 2008; Creswell, 2013; Stake, 2006). This case study collected data from the following sources: archival documents and interviews.

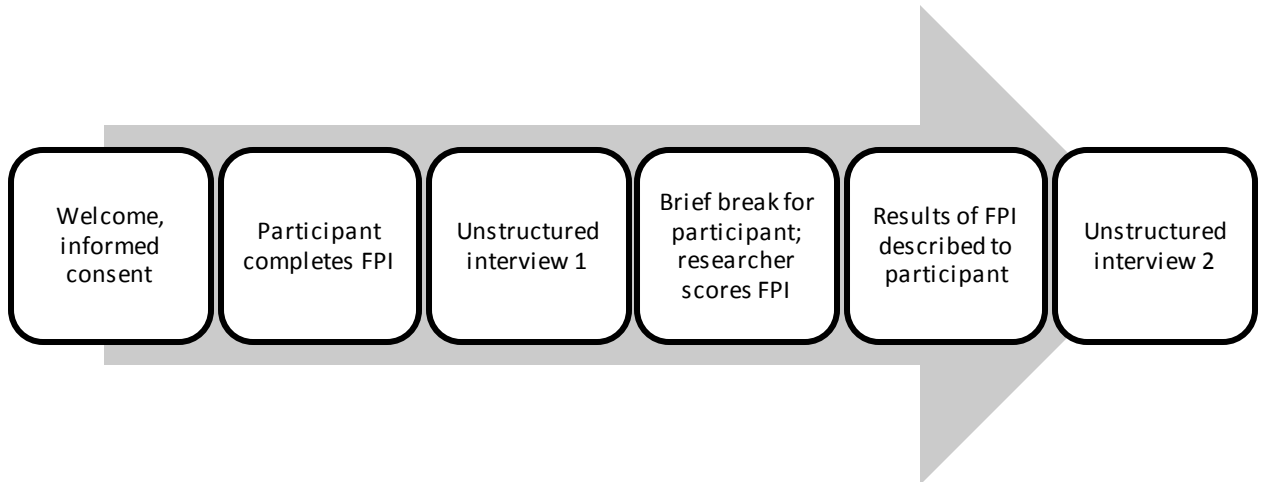
In case study research, documentation used as a part of data collection might include letters, emails, agendas, announcements, administrative documents, formal studies or evaluations, news clipping or other articles (Yin, 2013). The primary purpose of using documentation in this case study was to corroborate and augment evidence from other sources (Yin, 2013). Although documentation may include bias, it can provide specific details to corroborate or contradict information from other sources (Yin, 2013). In this research, the following sources of documentation were included: formal studies using and studying the FPI, from here on referred to as archival documents.

Next, data were also collected from interviews with women who complete the FPI. Interviews are an essential source of case study research (Yin, 2013). Stake (2006) recommended that the best interviews in case studies be probe-based. That is materials, as in the FPI in this study, were used as probes to evoke interviewee comment or interpretation. Additionally, the probe materials gave the interview focus. Great care was taken by the researcher to ensure quality questions with purpose to inform the theory of the case study, while honoring the individual's experience.

In this study, a two-stage unstructured interview process was completed. First, women were asked to complete the FPI and immediately following completion, participated in an unstructured interview about their experiences of taking the FPI. Then, a brief break occurred in which the researcher scored the FPI. Next, the results were

shared with the participant and the second unstructured interview took place about how these results describe their experience of infertility-related stress. This process is illustrated in Figure 3.3.

Figure 3.3: Interview Process.



Following the interviews with participants, the researcher brought the data back to be analyzed through transcription and coding. Interviews were audio recorded and transcribed by the researcher. The researcher has previous experience conducting in-person interviews in an employment setting as well as a clinical environment.

Data Analysis

Even when a case study is complete, research and issue questions will remain unanswered (Stake, 2006). While these questions may be partially answered, to expect to find all of the answers to questions in a case study is not realistic. Therefore, the case study report is a summary of what has been done to attempt to answer the questions, what assertions can be made with some confidence, and what is in need of additional study (Stake, 2006).

Analytic Strategies. In this research, the researcher returned to the propositions and theories driving this research to maintain a focused analysis (Baxter & Jack, 2008). Yin (2013) describes this strategy of data analysis as relying on theoretical propositions. This allowed the researcher to stay focused on the purpose of this case study, and to maintain analytic priorities based on these propositions and theories.

As data analysis gets underway, instead of making statistical generalizations as in empirical research, case study research supports the use of analytical generalizations (Yin, 2013). The findings of this study cannot be generalized to all women's experiences of infertility-related stress, however, their experience with the FPI, and with infertility-related stress, begins to shed empirical light on an important issue in women's mental health and infertility. Empowering the knowledge and further research in women's health also emphasizes the theory with which this study is designed, through a feminist theory lens.

Of important note, the data in this study were not analyzed as separate entities, but as a collective whole (Yin, 2013). The practices outlined in the credibility and trustworthiness portion of this paper facilitated the adherence to converging collected data in a holistic manner (Baxter & Jack, 2008; Yin, 2013). The use of computer software for storing, managing, and analyzing the data helped facilitate the process of analyzing the data as a collective whole; as it electronically symbolized a single holding space for all the data in this study.

The coding strategy used in this research was the constant-comparative method described by Lincoln and Guba (1985). The constant comparative method involved

breaking down the data and coding it into categories. Categories arising from this method generally presented in two forms: those that are derived from the participants' customs and language, and those that the researcher identifies as significant to the project's focus-of-inquiry. The goal of the former "is to reconstruct the categories used by subjects to conceptualize their own experiences and world view" (Lincoln & Guba, 1985, p. 334), and the goal of the latter is to assist the researcher in developing theoretical insights into the social processes operative in the site under study (Lincoln & Guba, 1985).

In the constant comparative method, the researcher simultaneously coded and analyzed the data in order to develop concepts to describe women's experience of infertility-related stress and the FPI. Through constant comparison, the categories were continuously refined, properties and dimensions were identified, relationships to one another were explored, and the sum of this experience was integrated into a coherent model (Lincoln & Guba, 2000).

Analytic Technique. Pattern matching is one of the most desirable techniques to use in case study analysis (Yin, 2013) and was applied to this case study as an analytic technique. Pattern matching is:

Comparing two patterns in order to determine whether they match or do not match. Pattern matching is the core procedure of theory testing with cases.

Testing consists of matching an "observed pattern" (a pattern of measured values) with an "expected pattern" (a hypothesis), and deciding whether these patterns match (resulting in a confirmation of the hypothesis) or do not match (resulting in

a disconfirmation). Essential to pattern matching is that the expected pattern is precisely specified before the matching takes place. (Hak & Dul, 2009, p. 3)

Further, this logic compared empirically based patterns with the theories driving the case study (Yin, 2013). This study has specified the theories driving this research: 1) The FPI captures women's experiences of infertility-related stress; and 2) The FPI, while being a leading measure of infertility-related stress, lacks description of important experiences related to the impact of infertility on women's identity.

Establishing Credibility and Trustworthiness

Case study research can lose credibility when a researcher becomes sloppy in their techniques, does not follow systematic procedures or allows bias to seep into data analysis (Yin, 2013). In the following sections, general aspects of trustworthiness and credibility as required by qualitative research are discussed. Additionally, specific concerns related to case study are addressed including construct validity, internal validity, external validity, and reliability.

In qualitative case study research, construct validity included distinguishing correct operational measures for the construct being studied (Yin, 2013). This was best satisfied by defining the concept of infertility-related stress and identifying operational measures that match the concept (Yin, 2013). This history and context of the experience of infertility-related stress, as well as the quantitative history of the FPI have been thoroughly reviewed in Chapters one and two. This research also adhered to construct validity by using multiple sources of data, establishing a chain of evidence and by conducting member checks (Yin, 2013).

Next, internal validity is mostly a concern for explanatory case studies. Internal validity serves to account for control over cause and effect inferences. Therefore, in the event of a descriptive case study such as this one, internal validity is not applicable, as the purpose of the research is to explore and describe, not infer cause (Yin, 2013).

External validity refers to the realm in which the findings can be generalized beyond the immediate case (Yin, 2013). Experimental research relies on statistical generalization whereas case study research relies on analytic generalization (Yin, 2013). Yin (2013) defines analytic generalization as generalizing “a particular set of results to some broader theory (p. 43).” As mentioned earlier, while the results of this case cannot be generalized to all women who experience infertility, it began to give voice and understanding to a topic not frequently discussed related to women’s mental health and medical care.

Reliability in this qualitative research was developed by documenting and creating a study that can be replicated and achieve similar results. The goal of reliability in research is to minimize biases in the study (Yin, 2013). In order to reduce the likelihood that data is misinterpreted, the researcher listened to recorded tapes and performed multiple observations (Stake, 2006). This fulfilled the goal of achieving redundancy, in that the researcher saw and heard the data repeatedly.

Reflexive subjectivity was also used as the researcher documented how assumptions may or may not have been affected by the data (Lather, 1986). This was done through memos that the researcher wrote after spending time with the data. These

memos also served to help the researcher remain focused on maintaining an inductive approach to the research (Baxter & Jack, 2008).

The researcher also used triangulation (Lincoln & Guba, 1985) to increase credibility and trustworthiness of data. In qualitative research, triangulation focuses on the use of multiple data sources, methods, and theoretical schemes (Lather, 1986; Lincoln & Guba, 1985). In order to achieve the use of multiple data sources, this researcher included data collected by interview, coding, document analysis, and interpretation. All data presented by the researcher was found in multiple sources. For example, a category presented as a research finding was found in at least two participant interviews and an archival document that was reviewed. All findings were then cross-validated with participants through member checks.

The researcher used member checks to establish data credibility. That is, after transcribing interviews and identifying themes through coding, themes were presented to participants for their input on whether the themes do or do not fit the experience they were describing (Reason & Rowan, 1981; Stake, 2006; Yin, 2013). Participants were asked to review these themes to detect if the researcher was accurately capturing their perceptions and experiences.

Reliability of this research was also strengthened by identifying researcher worldview and biases through a worldviewality statement (Morrow, 2005). Another method of enhancing reliability was explicitly documenting the processes and techniques through which data was collected and analyzed (Morrow, 2005). This creates an audit

trail that was available for review to the researcher's dissertation committee, advisor, and a peer reviewer.

Last, and importantly, findings from this research were presented to a peer reviewer and a qualitative research expert. These two individuals served as neutral parties in guiding, interpreting, and reporting the results of this study.

Researcher Worldview

A distinctive feature of qualitative case study research is the researcher's influence on their research. It is not a license to uncritically impose bias, values, and assumptions onto the research (Maxwell, 2013; Strauss, 1987); however, it is an invitation of awareness of our primary experiences (Reason, 1988; 1994).

I presented my own bias and experience as a woman who has been diagnosed with infertility. In 2009, I was diagnosed with Polycystic Ovarian Syndrome, a hormonal disorder that made it nearly impossible for my partner and me to conceive on our own. Refer back to the opening paragraph of Chapter one, that girl who grew up to be a young woman, is me.

My personal experience of isolation, confusion, anxiety, and sadness was exacerbated when my medical doctor reported that emotional support through a therapist who had specialized knowledge in the implications of infertility and its treatment could be reached about 80 miles away. Feeling appalled and conveniently in-training to become a mental health counselor, I devoted my attention and academic efforts to understanding infertility from a variety of angles: the history of pregnancy in the United States, the medical treatment of a variety of infertility diagnoses, the community of

message boards of women seeking support and answers via the Internet, and the lack of understanding in the mental health literature, and the personal agony and isolation of experiencing infertility. I felt called to enhance the description of women's experiences of infertility treatment.

Assisted reproductive technology (ART) coupled with devoted self-care brought my family through an experience of one ectopic (tubal) pregnancy and three early pregnancy losses within six months of initiating medical treatment. Then, our hopes were answered when we achieved a healthy full-term pregnancy with our son. Six months after his birth, determined to not have my family planning interrupted or delayed by infertility treatment, my partner and I returned to infertility treatment once more, for our second pregnancy. Instead of facing multiple failed cycles and early pregnancy losses, we were immediately successful and surprised to learn we had conceived twins. Our boy-girl set arrived a bit early although healthy. I recognize our story has a happy conclusion, which is not always the case for all who experience infertility.

Next, I have worked with female clients in a clinical mental health setting who have presented for mental health treatment for stress related to infertility diagnosis and treatment. These experiences may present difficulty in interpreting and empathizing with data presented in this study. In order to keep these biases in check, I was honest with my dissertation committee about my worldview and biases, as a means to provide a system of checks and balances as I began to analyze participants' data. It was also my intention to keep a memo of notes and reactions I had to participant themes and responses. Aside from personal and professional contact with the experience of infertility, I also presented

bias in believing that sensitivity to the degree of intensity of the experience of stress related to infertility has been grossly unrecognized by medical professionals, and poorly understood by mental health professionals as well as the public.

While some qualitative proponents support the idea that researchers not approach the previously written literature in the subject area until data collection is complete, it is important to disclose that this researcher visited the literature before and after data collection. Other qualitative researchers suggest that grounding in the literature can assist in mitigating researcher bias by expanding one's knowledge and understanding of the phenomenon (Morrow, 2005). Additionally, Stake (2006) warns that wanting to be too open-minded can result in a lack of planning, and emphasized that it is a goal for the case researcher to begin to anticipate what some perspectives might be. Since the researcher has an emotional and personal connection to the study of infertility-related stress, visiting and revisiting the literature enhanced this. Fine (1992) eloquently described this as a process of "positioning researchers as self-conscious, critical, and participatory analysts, engaged with but still distinct from our informants" (p. 220).

An ethical dilemma presented by this qualitative research is the effect of the researcher's presence on the participant's experiences. While unavoidable, it does not go without mention that the researcher's presence during data gathering might have influenced participant's responses while completing the FPI. It was hoped that through member checking and triangulation, this might have decreased any of this effect.

Chapter Summary

In this Chapter, I have summarized the rationale for qualitative methodology. Additionally, the theoretical framework, informing this study and case study methods were reviewed. A review of the data collection and analysis procedures was included as well as issues of trustworthiness and credibility. In the next Chapter, I provide participant profiles followed by steps take to collect and analyze data. Then, I introduce the categories, properties and dimensions that emerged from the data. Last, I will revisit the theories driving this case study.

Chapter Four: Findings

In this Chapter, I presented participant profiles to help frame this case study as well as the procedure for the interviews with participants. Next, I identified themes found from the review of interviews and archival documents and presented them here. Then, I summarized why the theories presented in Chapter 3 cannot be accepted, or can be only partially accepted after reviewing and summarizing the data analyzed. In Chapter 5, I provided a discussion of the results, implications for practice, and suggestions for future research.

Data Analysis

The process of this qualitative research was inductive with the meaning being generated from the data collected in the field (Creswell, 2003). This technique supported the purpose of this research which was to understand how women experience the FPI as a measure of infertility-related stress. The following sections presented interview participant profiles, the procedure used to interview participants, the process used to retrieve archival documents, a description of the software used to manage data, and the procedure used to code the data.

Meet the Interview Participants

I present participant profiles in order to help the reader understand who contributed to the rich data collected through interviews and illustrate an effective and confirmable case study report. The following are participant profiles, meant to provide readers with biographical and demographic information to enhance rich participant

descriptions. Participant's names have been replaced with pseudonyms to protect their identities.

Gina. Gina is a 28-year-old female who resided on a rural dairy farm in a small farming community in south central Minnesota. Gina holds a Master's degree and reported that she felt she was well established in her career. Gina had been married for two years at the time of this interview and reported having begun to try to become pregnant at the onset of her marriage. She became involved in Assisted Reproductive Technology (ART) to become pregnant in 2013.

Gina recognized that she did not expect to have difficulty becoming pregnant; many of her cousins who lived near her had already easily started their families. She did learn through her infertility difficulties, that her mother also had difficulty becoming pregnant with her; something she and her mom had not discussed before. Gina and her partner's mother have a stressed relationship. She recounted her mother-in-law talking about another family member struggling with infertility, to which her mother-in-law described that the family member "just wasn't made right."

During her early journey to become pregnant, Gina reported having used reproductive services closer to her rural community that had were Catholic-based and emphasized natural family planning methods, such as basal body temperature and cervical mucus monitoring. She and her partner decided to start with this approach since her partner and his family closely identified with strict Catholicism; although she did not closely resonate with a particular religious practice. After 14 months of unsuccessful attempts to become pregnant, Gina turned to traditional medical assistance for treatment

of infertility. At a local clinic, she was diagnosed with Polycystic Ovarian Syndrome and was prescribed medication. Also at the local clinic, she reported having completed multiple unsuccessful intrauterine inseminations.

Looking for a change in medical providers and treatment, she and her partner decided to turn to in vitro fertilization (IVF). To receive treatment for IVF, she and her partner travelled more than 90 miles from their home for check-ups, laboratory blood draws, monitoring, and the actual IVF procedure. This physical distance to travel had caused some emotional stress for the couple, as it is difficult for her partner to leave the dairy farm and its responsibilities, resulting in a clash of values and questioning of intentions for the pair. At the new clinic, Gina's previous diagnoses were discarded, disagreeing with the previous practitioner, the doctor labeled the couple's difficulty as "unexplained infertility." Gina felt confused by the conflicting medical information but was unwilling to question her doctor as she felt an imperative urge to become pregnant as soon as possible.

At the time of this interview, Gina was about to undergo her fourth IVF cycle in a "live baby program," which she described a program provided by her IVF clinic in which she "gets her money back if she does not take home a live baby from the hospital" after an allotted number of cycles. This fourth cycle was her final cycle as a part of this "live baby" program.

Kelly. Kelly is a 32-year-old woman who resides in a town in south central Minnesota. Kelly and her partner have been married for more than six years at the time of the first interview. Kelly has her Master's degree and described feeling successful in

her career. When it came to starting a family, Kelly stated that she always knew she was going to be a mother because “too many psychics had told [her] so.” Kelly maintained an open perspective and rested much of her hope in fate; she reported not having a strong religious affiliation.

Prior to seeking medical assistance for infertility, Kelly and her partner tried to conceive on their own for two years. Without attaining pregnancy on their own, the couple sought the advice of a local fertility nurse who recommended some behavioral changes (diet, exercise) for both Kelly and her partner. Both underwent testing at this local clinic, Kelly was diagnosed with Polycystic Ovarian Syndrome, and her partner’s semen analysis was found to be insufficient. Due to the male-factor infertility, the couple had to seek treatment for him more than 70 miles away to which they learned that IVF was their most promising route to parenthood.

Kelly and her partner found a clinic to complete their IVF cycles, which was also a distance from their home. They underwent physicals and genetic testing and learned that Kelly tested positive for the methylenetetrahydrofolate reductase (MTHFR) gene that contains the DNA code to produce the MTHFR enzyme. When there are mutations or variations in the MTHFR gene, it can lead to serious genetic disorders such as homocystinuria, anencephaly, spina bifida, and others. Kelly also learned that her thyroid needed to be regulated differently, and faced conflict with the IVF clinic over how she could regulate it while attempting to achieve pregnancy with them.

Kelly reported receiving emotional support from a few close friends and family members. She recalled a cousin who lived in California who had undergone IVF more

than five years ago and became pregnant. She reported recognizing when her mom had reached a limit in her capability to offer support to her when her mom's response to her emotional difficulties and infertility-related stories received the same response: "Call your cousin Dawn! She'll know what to do!" The truth to the matter was that Kelly did not feel close to Dawn, and had not felt relief in speaking to her; she wanted her mom to hear her story and console her heart, but she was not always available to do so.

At the time of this interview, Kelly had come to an agreement with the clinic as to how she could regulate her thyroid. She and her partner had decided to put their first IVF cycle on hold as they were currently experiencing relationship difficulties. Kelly stated that she was feeling confused as to which direction to go next. She questioned whether her partner really wanted to have a family, as he seemed to avoid the conversations and would say that he was ok if they did not have children. Kelly was trying to imagine what her life could be like without children, or without her partner.

Carla. Carla is a 40-year-old female who resides in a town in south central Minnesota. Carla described her journey to parenthood, as one she "always felt she would attain," and therefore "did not feel much pressure to pursue the path to pregnancy in her early thirties, as her career took off."

Carla had been married and divorced twice. Her first marriage ended when she was 32 and had been married to him for six years. She reported that this marriage ended when she asked her partner if he was ready to have kids, to which he replied "no." Carla reported that she discussed her desire to have children with her second husband before they married and that the two agreed they would have a family. However, this marriage

ended as they entered in to ART to become pregnant. On the morning her ex-husband was to provide a semen sample for their intrauterine insemination, he refused. Carla described feeling “shattered, betrayed, and unable to trust.” She described her relationship challenges as personal struggles that shook her to her core: wondering how could someone lie to her, or lead her to believe that their beliefs were in line with hers, only to leave her in the cold on such an important and emotional day for all involved. Subsequently, Carla reported that this marriage ended because she and her partner did not agree on having children.

Carla was diagnosed with Polycystic Ovarian Syndrome in her early 30s, and had worked closely with her obstetrician to identify treatments that would help her become pregnant. Following the dissolution of both of her marriages, Carla sought out donor sperm to attempt to become pregnant on her own. This procedure proved emotionally enduring, expensive, and unsuccessful for her.

As Carla re-entered the dating world at 39, she became close with her next partner, who was younger than she was, and eager to become a father. Carla described feeling skeptical, cautious, and hesitant to trust him as he freely offered to visit the urologist, take vitamins, and support her in any treatment she may need to undergo to become pregnant.

Carla reported having people in her life for support in her infertility journey. She was very close to her sister who lived more than 300 miles away. She reported that when her sister became pregnant, she was surprised to feel joy instead of jealousy. Carla reported she was the only woman she was aware of in her family having difficulty

conceiving. Carla's mother did not experience infertility, and in fact told Carla of a story of one of her friends whom distanced herself from Carla's mother when she became pregnant with her children, because she had been told she could not have children of her own because of infertility. Carla said her mom felt miffed by her friend's distancing behaviors but was happy when her friend re-entered her life following her children growing out of the baby stage. However, this same friend distanced herself again as Carla's mother became a grandmother; a reminder of the transition in life that this woman would not experience.

At the time of the interviews for this research, Carla and her partner were actively trying to become pregnant through timed intercourse, and were discussing future options of intrauterine insemination and IVF. Carla felt that her partner understood her preoccupation with time, in that she felt she did not have a large window to become pregnant herself, due to her age. Further, the couple was eagerly discussing their plans to marry.

Participant Interview Procedure

The following section described the steps taken during the participant interview. Interviews were held in a private office space reserved by the researcher. Each participant completed an informed consent prior to completing the assessment and interviews. Next, participants completed the FPI (Appendix C). Following completion of the FPI, the researcher asked the question: *How does the Fertility Problem Inventory capture your experience of infertility-related stress?* As is permissible by a more

unstructured interview style, the researcher explored the participant's experiences using probes and open-ended questions.

Following the first interview, participants were told they might have a brief break of 10-15 minutes while the researcher scored the FPI, and then they would resume the interview. Next, the researcher described the results of the participant's FPI to the each woman, including a description of the domains of the FPI, and whether participant scores indicated "moderate, high, or very high" levels of infertility-related stress, as described by the authors of the FPI (Newton et al., 1999).

Following the delivery of the results, the researcher asked the question: *How does the Fertility Problem Inventory capture your experience of infertility-related stress?* Again, appropriate probes and open-ended questions were asked by the researcher to elucidate responses.

This process was repeated with each participant; resulting in each participant completing two interviews, or six interviews in this case study. All interviews were recorded and transcribed by the researcher. Transcribed interview documents were uploaded into MAXQDA software for coding by the researcher.

Archival Document Procedure

In case study research, documentation used as a part of data collection might include letters, emails, agendas, announcements, administrative documents, formal studies or evaluations, news clipping or other articles (Yin, 2013). The primary purpose of using documentation in case study research is to corroborate and augment evidence from other sources (Yin, 2013). Although documentation may include bias, it provided

specific details to corroborate or contradict information from other sources (Yin, 2013).

In this case study, formal studies that have been published using and studying the FPI were included and reviewed as archival documents.

A review of the available literature investigating the use and efficacy of measuring infertility-related stress with the FPI was completed in December of 2014. Multiple keyword searches to electronic journal holdings resources were gathered. This process is illustrated in Figure 4.1.

Figure 4.1: Archival Document Retrieval Process.

Site	Search terms	Relevant hits	Total hits
ScienceDirect	“Fertility Problem Inventory”	13	60
Proquest Databases (Applied Social Sciences Index and Abstracts, Biological Sciences, BioOne Abstracts & Indexes, British Humanities Index, ComDisDome, ebrary e-books, ERIC, ProQuest Nursing & Allied Health Source, ProQuest, Psychology Journals, PsycArticles, PsycInfo, PsycTests, Social Services Abstracts, Sociological Abstracts)	“Fertility Problem Inventory”	6; all 13 hits from ScienceDirect also appeared in duplicate – total of 19 relevant hits	68

Articles were opened and searched for the terms “FPI” and “Fertility Problems Inventory”. Those articles including these search terms were included in the analysis.

Additionally, archival documents were reviewed from studies conducted in the United

States and European countries to limit the cultural disparities and social influences of infertility.

Nineteen relevant articles were identified for further review. After closer review of the 19 articles for the content studied, 11 were included in the study. Articles removed from consideration were removed because they did not explicate how the FPI was used and what the results were. All included articles were uploaded to MAXQDA for coding by the researcher. Articles included as a part of the archival document review process were then coded by the researcher based on themes presented by the author's research results related to the FPI.

Software

For the purpose of collecting, storing, and analyzing data, qualitative research software MAXQDA was used. While some software for use with qualitative research has been criticized for doing the analysis for the researcher, MAXQDA was used by the researcher as a tool to organize data. While advanced tools allow this software to conduct analysis for the researcher, these advanced protocols were not used by this researcher as they go against a true qualitative approach of immersing oneself into the data. Instead, MAXQDA served to organize themes and data generated by the user, and plot these themes into visual displays, described later in this Chapter as document portraits and code relations browsers.

Coding

Data collected was uploaded and stored in MAXQDA for coding and analysis. A code in qualitative inquiry is a word, or short phrase that assigns a summative, essence-

capturing, evocative attribute for a portion of language-based of visual data (Saldana, 2008). Through multiple cycles and careful, detailed researcher memos, coding for this study evolved into the art of linking; an analytical process for uncovering the essence of the experience investigated.

For the purpose of this case study, inductive coding was used. Inductive coding is a technique in which all codes are generated by the researcher through line-by-line coding. Throughout the coding process, all archival documents and interviews were viewed together, that is, not one piece of data was viewed as standing alone (Yin, 2013). This process and philosophy upholds the focus and rigor of the case study methodology and qualitative research.

The coding strategy used in this research was the constant-comparative method described by Lincoln and Guba (1985). The constant comparative method involved breaking down the data and coding it into categories. Categories that arose from this method generally take two forms: those that are derived from the participants' customs and language, and those that the researcher identifies as significant to the project's focus-of-inquiry; the goal of the former "is to reconstruct the categories used by subjects to conceptualize their own experiences and world view" (Lincoln & Guba, 1985, p. 334), the goal of the latter is to assist the researcher in developing theoretical insights into the social processes operative in the site under study (Lincoln & Guba, 1985).

In the constant comparative method, the researcher simultaneously coded and analyzed the data in order to develop concepts to describe women's experience of infertility-related stress and the FPI. Through constant comparison, the categories were

continuously refined, properties and dimensions were identified, relationships to one another were explored, and the sum of this experience was integrated into a coherent model (Lincoln & Guba, 2000).

Three cycles of coding were completed. The researcher completed a primary cycle of coding, reviewing all data collected. At the end of this cycle, careful memos were documented, capturing initial researcher hunches, reactions, and insights. Then, a second cycle of recoding was conducted, focusing on the salient features of the qualitative data through which properties began to emerge, followed by thorough memo recording. In this round of coding, the researcher looked for richness of detail, conflicting ideas from the same interviewee, unique experiences, and ideas that contradict current thinking on the topic

Next, a third cycle of recoding was completed, where clearer interactive relationships emerged. Categories, properties, and dimensions were organized to capture the description of the interviews and the archival documents reviewed. Properties and dimensions that were observed and coded to exist in two or more data sources were viewed to be sufficient in data triangulation (Creswell, 2003; Lincoln & Guba, 1985).

Following coding, the researcher diagrammed the categories, properties, and dimensions through Post-it® notes on her office wall, SmartArt diagramming in Microsoft word, and mapping features in the MAXQDA software. These multiple modes of visual data allowed the researcher to conceptualize the relationships of the data in a three-dimensional landscape, outside of the computer-generated environment. This tactic helped the researcher thoughtfully identify and group salient relationships and data that

captured the experience of infertility-related stress and the experience of the FPI. These visual representations allowed the researcher to consider what was present and what was absent in the data; what was being said and what was not being said.

Findings

Three key categories evolved from the data coded: *Hope, Avoidance, and Identity*. From the key categories, properties were identified, and in some properties, further dimensions were elucidated. The remainder of this Chapter will describe each category, property, and dimension, and provide supporting evidence for each, while tying back to the original case study tool of the FPI.

Hope

The category of *Hope* evolved from the data reviewed. Through evaluation of the findings, it was realized that *Hope* was a coping strategy for managing infertility-related stress. The experiences within *Hope* often motivated women to keep going in their treatment, to reach out for support, and to recognize their own strengths. Gina eloquently inquired, “I’m meeting these people now, everywhere I turn, who are also experiencing infertility. Where were they before, before I started and knew this too?”

Hope is understood as an identification of available resources for coping with infertility-related stress, recognized supports, an understanding or insight that this experience has a waxing and waning effect. Carla described, “There’s been times where, it just ebbs and flows. That’s how I have felt like it’s been; it’s ebbed and flowed with each cycle and each day.” *Hope* also includes the important acknowledgment that medical and mental health research is indicating attention towards stress related to

infertility as well as the understanding that the experience of infertility-related stress is different for men and women. Properties identified as a part of the category of *Hope* include *Primary Relationship Support*, *Depth of Experience*, and *Difference in Male/Female Experience* of infertility and infertility-related stress.

Primary Relationship Support. A property evident by all participant interviews was that there was bonding that occurred with participant's partners through the experience of infertility-related stress that was coded by the researcher as *Primary Relationship Support*. Although stress can be identified as a negative experience, the presence of helpful supports resonated with all participants and was supported by archival documents reviewed. Enduring these stressful events and coming through the stressful events as a dyad, at times, felt as though it strengthened the relationship. For example, Carla, Interview 1, described her appreciation for her partner's enthusiastic attitude: "Yeah like I said, he's been on board with like; you need me to take a test? Sure. Oh, you want me to take these vitamins? Sure. You want me to quit caffeine? Sure." Gina, Interview 1, illustratively described bonding with her partner over the stressful treatments related to infertility:

It brings you together too. There is a certain level of bonding that I guess occurs when, we are like, with the IVF. So like in one cycle, it might be when we're there doing the treatment, and I'm waking up and he's there for when they put the IV in my arm, and you know, he's there for that as we're both anxiously awaiting how many eggs were retrieved.

Moreover:

So shots, for example: terrifying. There is a meltdown for that. It was a stressful situation and I think [he] gave me hope because he had a lot of confidence... He is calm and gentle, and does not make it hurt. He was able to make it a good experience; he was able to go fast. And so these things just helped me to overcome my fear of this shot that I thought was going to be terrible... It's probably overcoming something together.

Gina resonated with her personal insight that although the experience of infertility had been incredibly stressful for her marriage, it had also presented unique opportunities for her to find strength and support from her partner. This sense of attempting to achieve pregnancy "together" and being in it for each other resonated from the three participant interviews.

Archival documents reviewed as a part of this case study found that dyadic adjustment could partially mediate the effects of infertility-related stress as measured by the FPI. That is, couples who are satisfied in the relationship, experience cohesion, and affective expression in a positive manner with their partners are likely to have less stress related to infertility (Peterson, et al., 2001; Galhardo, Cunha, & Pinto-Gouveia, 2013). Interviews and archival documents reveal that dyadic strengths can mediate the negative experiences of infertility-related stress.

The FPI assesses the specific domain of Relationship Concern as it relates to infertility-related stress and dyadic functioning. For example, the FPI includes questions and elements of detecting support within a primary relationship, including, "My partner and I work well together handling questions about our infertility," and "I could visualize

a happy life together, without a child (or another child).” However, these are the two questions of the total 46-items in the FPI that specifically present a positive relationship aspect or results of infertility-related stress. The remainder of the questions related to infertility-related stress and relationship functioning are negatively directed and problem oriented.

Depth of Experience. *Depth of Experience* was described as thoughts and reactions reported about the participants’ own journey of their infertility experience; as well as how it has ebbed and flowed. For example, Gina, Interview 2, describes: “Infertility is an experience, but I also feel like there’s different levels of it.” As she recounts her own journey of infertility and the depth of her experience as her levels of stress have risen and fallen through each course of treatment. She elaborates on this: “You know, you have people who are like into it at the beginning, where they're just starting their journey. And there's a lot more hope, I feel like,” (Gina, Interview 2). Her reflections here not only illustrates the loss of hope and emotional distancing she has experienced, but also a reflective insight on how her journey and infertility-related stress has shifted throughout time and courses of treatment.

The *Depth of Experience* of infertility is also corroborated by findings in published journal articles reviewed as archival documents in this case study that record that women’s scores on the CD-RISC, a measure of general stress, were significantly and negatively correlated with infertility-related stress as measured by the FPI (Sexton, Byrd, & von Kluge, 2009). Additional documentation reviewed found that as women progressed through multiple cycles of infertility treatment, they reported a significant

increase in depressive and/or anxious symptoms (Lawson, Klock, Pavon, Hirshfield-Cytron, Smith, & Kazer, 2014).

While measuring for infertility-related stress, the FPI lacks the qualitative experience of understanding where an individual is at in the course of treatment – first cycle of assisted reproductive technology versus being years into the experience. The development of the FPI did include an examination of fertility history, however this construct was dichotomously defined as whether the individual taking the measure had previous children or did not. This approach fails to capture the *Depth of Experience* described by participants and archival documents in this case study; and may not be accurately captured by any quantitative measure.

Difference in Male/Female Experience. Archival documents reviewed that included the FPI in their research found that the experience of infertility-related stress for men and women is different. Findings include that women were found to score significantly higher than men did on all subscales of the FPI (Cousineau et al., 2006; Peterson, Newton, & Rosen, 2001; Slade et al., 2007). Newton et al. (1999) elaborated that women score higher than men on the global stress index as well as the domains of Social concern, Sexual concern, and Need for Parenthood in the FPI. Although it is not known how much higher women score, Newton et al. (1999), hypothesized that women might be more likely to access social support, which in turn creates more conversations about children that can make women feel socially vulnerable or stigmatized.

Interviewees provided a similar yet different description of the *Difference in Male/Female Experience*, which seems to support earlier research reviewed regarding the

consuming nature of infertility treatment for women, regardless of which partner is diagnosed with the infertility problem Gina described, (Interview, 1):

I wonder if he wants it as much as I do. Since he does not want to talk about it as much as me, seems to find the appointments getting in the way of his work, and his attitude towards it all is just that it will happen when it is supposed to happen. That does not help. It makes me question him, and wonder if it is as important to him as it is to me.

Kelly also described a disconnection between she and her partner's experience and desire for infertility treatment, (Interview, 2):

He gives so much attention to the things he is passionate about, especially golf. Really, the guy will clean his clubs every night. And I give a similar amount of attention to becoming pregnant, and it makes me question him, if he really wants this as much as I do, since he does not appear to spend as much time or energy with it. And it's not like he's there to talk about it when I want to, he seems to brush it off and avoids talking about it actually.

While earlier describing moment of *Primary Relationship Support* through the experience of infertility, there were identified patterns of incongruences in support or availability of support from partners that seemed to lead women to question their partner's intentions or desires.

These interesting findings leave more questions than answers. First, having interviewed only women in this study, the experience of men has been filtered through the lenses of their female partner's experiences and interpretations. Then, much of the

Difference in Male/Female Experience in infertility-related stress experiences seems related to social and cultural variables. That is, the contexts and norms that society imposes upon women, how women interact with each other, and how women view ourselves in comparison to others seems to influence this domain of infertility-related stress most. While the FPI recognized the male/female differences in the experience of infertility, it lacks the description of coping, resiliency, and support; components of the category of *Hope* revealed in this case study.

Avoidance

The category of *Avoidance* emerged from the data as ways of avoiding affective intensity through engaging with future concerns or creating an emotional distance. Kelly, Interview 2, insightfully describes:

...am I really coming to terms with myself, or am I just looking at the surface, saying ‘ok other people can be happy without having kids and...’ and when I say that I think I can be happy without having kids and I can just throw my entire self into work... and I wonder how much is that cognitive like, ‘it’s fine, everything will be fine.’

She attempts to use logic to convince her heart that perhaps she too can be happy living a childfree lifestyle. Also, as Gina describes in her first interview: “it feels like my environment is determines how well I can handle infertility stress.” Gina’s self-determination of her ability to cope being externalized by the environmental difficulties she may or may not be experiencing vividly captures the need, or desire, to control for as much as possible in one’s life during infertility. In her second interview, while

describing the ebbs and flows of her infertility journey, also relates to distancing herself more from the hope she experienced in the earlier stages: “You know, you have people who are like into it at the beginning, where they're just starting their journey. And there's a lot more hope, I feel like,” (Gina, Interview 2). The properties of *Preoccupation*, *Distancing*, and *Control* emerged and are described here.

Preoccupation. The property of *Preoccupation* was described all participants and includes the dimension of *Future Considerations*. This property is understood as a devotion of mental energy, rumination and obsession, related to infertility. For examples: “I literally I’m looking at the calendar as far as when is my next visit with him and where might that fall for me.” (Carla, Interview 1). In this quote, she is describing the amount of mental energy she expels in planning the next opportunity she might have to be able to try to conceive with her partner. This is also an example of *Avoidance* and *Distancing*, as it is forcing her from staying away from the here-and-now emotions of infertility-related stress and emphasizes *Preoccupation* with future encounters and energy to plan.

Additionally, “In every free second I have I am thinking about getting pregnant, about us,” (Kelly, Interview 1) and later:

Like at work, I don’t know how I’m doing my job. I’m just not fully there, I’m thinking about a million other things and how I would rather be doing and being anywhere else but being there, but I get through it...

Gina related to spending lots of mental energy “planning for the next step,” of her infertility journey and the next stage of treatment. Gina’s experience illustrates another

example of *Avoidance*, as she was avoiding staying in the present moment emotion by escaping to preoccupation about the future.

Future Considerations. The dimension of *Future Considerations* was identified within *Preoccupation*. This dimension can be best understood as the preoccupation focusing on the next stage of treatment, considering all possible outcomes as a way of coping with the present stress related to infertility. As in Gina, Interview 1, “I’m always rooting for, okay, there’s always another step. You know, there’s always another step,” and as Carla processes, “I mean if we tried to adopt and couldn’t adopt a baby or something, whatever reasons that that it happened...” Both women present their concerns, and focus, toward the next stage of treatment. As a way of coping with the painful present emotions, they prepare themselves for the emotional rollercoaster of what is to occur next in fulfilling their dreams of becoming mothers.

In comparing this theme of *Preoccupation* to Newton’s FPI, it seems that the FPI is again lacking the description of understanding the degree of consumption that infertility has undertaken on an individual’s life and how this might be affecting other domains of their life. The issue of impact of work is not mentioned in the FPI, but as described in Chapter 2, can have a large impact on stress as individuals miss work for appointments and procedures while undergoing assisted reproductive technology treatment.

Distancing. *Distancing*, in this property, is an emotional distancing versus a physical distancing. It was described by participants as separating oneself emotionally from the experience of infertility, denying the impact of infertility, *Avoidance*, and minimizing. A quote demonstrating this theme:

I know I don't need to have a child to be the person I am, or to have relationships I want to have, you know what I mean? It is not a need. Like I need oxygen, I don't need a child. (Carla, Interview 2).

Here, Carla was describing her desire for parenthood, and as she got close to emotionally sensitive conversation, she began to distance herself and focus more on biological needs versus her emotional wants as a means of coping with stress related to infertility.

Another example of distancing, "I think when I can get out of my head space and listen to my body, that is when I know that the stress is really there, and impacting me," (Kelly, Interview 1). As Kelly insightfully shared, she had made a connection to her coping style of using logic and cognition to emotionally distance herself from present stress she was experiencing.

While the FPI is a measure of the experience of infertility-related stress, it is not a measure of how one is coping, managing, or interpreting the stress. Additionally, it lacks a theoretical framework for understanding stress, and does not inquire about whether or not participants feel they have adequate resources to cope with this stress.

Control. A property emerging from the data was described as *Control*. In these data, *Control* can be conceptualized as a spectrum; on one end is a need for having as much control as possible, and on the other end is this total feeling of no control. It was found in the data that one person could experience both ends of the spectrum in their need for control, which seemed to increase their experience of infertility-related stress. For example, "Like he'd go pick up a refill, but is he actually putting it into his body?" as Carla described her need for control and knowing if her partner was contributing to their

quest for parenthood. Then on the other experience of *Control*, Carla describes her experience of undergoing infertility treatment, particularly an intrauterine insemination, in which she describes, “you’re just so exposed in that situation, physically and emotionally,” and she is describing a total lack of control.

Another aspect of *Control* described in the data was the subscription of control to outside sources, which is also related to distancing and *Avoidance*, described earlier.

Gina described, “It feels like my environment determines how well I can handle infertility stress,” as she continued to describe how she feels more able to handle infertility stress if she feels like she has her environmental, external stress under control.

This is also supported by Lazarus and Folkman’s model of stress, which requires individuals to determine if they have adequate resources to determine if they can handle the stress. Additionally, documentation revealed that low perception of personal control is positively correlated with infertility-related stress (Gourotini et al., 2012).

While the FPI serves to measure the experience of infertility-related stress, it is lacking in the description of participants’ need for *Control* or perceived need for *Control*. It does serve to identify areas of living that may be causing stress, however it is lacking in recognizing important internal dialogue a woman is having with herself in regards to her ability to cope with stress by feeling some sense of perceived *Control*.

Identity

The category of *Identity* was a part of the data that was not overtly stated but covertly described through participant stories. *Identity* described a shift in how one might think of themselves and their future identities, as evidenced by Carla, Interview 1: “I feel

like it makes me less of a person, less of a woman, less of value in society because I can't do anything about it." This quote illustrates an intense internal emotional dialogue this participant experienced in questioning who she was as a woman, and not only feeling role failure in achieving parenthood, but also role failure in achieving key identity as a woman.

In addition, *Identity* described the central role that parenthood has in one's life: "But I don't feel like if I can't have children somehow I failed in my life," and, "But, it's just what's out there, like, I might never have that [parenthood]," (Carla, Interview 1). As well as in Gina, "I could feel not fulfilled if we didn't have children," and:

I don't necessarily think that I was born, or not meant to be... Like I said, it's been something I've always wanted. It has always been in my plans. When I looked ahead in life it always included children, (Gina, Interview 1).

These quotes not only demonstrate the central role that having children and achieving parenthood means for the women participants, but also the intensity of the emotional determination and unwillingness to allow a key part of their identity to be unfulfilled.

Newton (1999) discussed that the constructs of role loss and role failure were largely related to a social context and therefore included these areas of concern in the Social concern domain of the FPI. This seems to collude the unique and individual experience women have; yes, it is a social concern, but there is also an incredible individual concern, as described by participants in this study. Gina illustrates, "A lot of the things that they talk about in this measure are things that are not socially acceptable to

acknowledge.” Further describing the category of *Identity* are the following properties:

Body Dysfunction, Desire for Parenthood, Primary Relationship Stress, and Social Relationship Stress.

Body dysfunction. An important property of *Identity*, which captures more of the physical dysfunction versus the emotional reaction, is *Body Dysfunction*. Participants described feeling anger and sadness at the result of their body not functioning as they expected it to, or as in comparison to individuals in their social groups. For example, Carla, Interview 1:

But it’s just one of those things that’s like okay but I did lose weight and I took the drugs and I’ve done this and (pauses) you know, I, I guess for me the biggest thing is my age. Like I’m just running out of time (crying).

A large amount of stress related to Carla’s experience was related to her body not functioning optimally due to her advanced biological age. Gina, Interview also described:

These women, who are obese, who do drugs, who smoke. In addition, doing all this gross stuff and they can have kids. I control for everything. I’m healthy. I take care of myself. I go above and beyond, and my body is not working. I feel terrible.

As described earlier in the theme of identity, in developing the FPI, Newton (1999) would likely lump this experience in the domain of Social concern. However, while it does include nuances of comparing self to others, it is important to understand the individual dialogue and emotional reactivity that results.

Resiliently, Gina described her way of coping with her perception of her *Body Dysfunction*, as she searched for ways to channel her energy and develop different perceptions of her body's functioning:

So things that I thought about moving forward: I needed to pick something out for a challenge for my body that I could feel ok about. I don't know if I needed to relieve that, or if I needed to achieve something... Umm, I needed to find something. Like I need to prove to myself, that I am capable. That it's strong. You know, that it feels good.

Desire for parenthood. The property of *Desire for Parenthood* is likely and obvious consideration in the realm of infertility-related stress. Three important dimensions related to desire for parenthood emerged *Worthy of Parenthood*; *Desire for Parenthood for Women*; and *Perceived Desire for Parenthood for the Partners*.

Worthy of Parenthood. First, the dimension *Worthy of Parenthood*, largely related to participants questioning why they and their partners, were experiencing infertility. All three participants alluded to questioning higher powers. This theme seems to be largely related to a spiritual or existential dilemma. Participants really seemed to wonder why they seemed to be "chosen" to undergo this journey, while it was not one they had chosen for themselves. While this related to other themes presented in the findings (*Control, Social Stress*), it seemed to be separated by participant's internal questioning this worth to the higher power – regardless of religious affiliation, or asking existential question of, 'who am I without this key role achievement that I have imagined for myself?'

In reviewing the development of the FPI, Newton (1999) lumped this dimension into three domains: Social concern, Rejection of childfree lifestyle, and Need for parenthood. While these three domains explore this dimension, they seem to take a multidimensional construct and flatten it by removing the affective and spiritual connotations that participants expressed.

Desire for Parenthood for Woman/Partner: Next, the two dimension of *Desire for Parenthood for Women* and *Perceived Desire for Parenthood for the Partners* emerged. While the interviews were conducted with women alone, the *Partner's Perceived Desire for Parenthood* is the description of the women participants describing how they perceived their partner's desires. Gina, Interview 1, captures both of these dimensions in:

That [parenthood] was a central thing to both of us. So I think, I don't know, I am just thinking about how I could feel not fulfilled if we didn't have children.

Umm, he's a farmer, that doesn't provide a whole lot of room for travel, and we don't have a lot of together time, so, if we don't have kids and we don't have together time, I don't know.

In addition, again later, Gina elaborates:

I just don't feel like that could be me, I will one way or another have children.

It's just something that's a piece of me. There's adoption, there's options. I will have children. Because I don't feel I would be fulfilled if I don't have children.

Kelly, Interview 1, also describes:

For me, and my partner, having some issues in general about our relationship and what it's going to be in the future, if we don't have kids I think he would be fine with it, and that's not okay for me and that's something that I want in the relationship. I want kids, and have a relationship with him. It's how I view our relationship, I mean, who are we if we don't have kids?

Moreover, Carla, Interview 1:

I feel that I found out for sure I; it was not even an option for me he would want us to be looking at other options immediately as far as adoption and that type of stuff because he really wants to be a father.

Archival documents reviewed as a part of this study interestingly identified the following correlation: "Individuals who experience more infertility-related stress as measured by the FPI may be more emotionally invested in IVF and thus more likely to conceive," (Cooper et al., 2007; p. 232). Which the authors go on to elaborate that this provides evidence against the argument that higher levels of stress can hamper the likelihood of conception. The FPI does recognize the specific domains of Need for Parenthood and Relationship concern, which seem to begin to capture these experiences described by participants and archival documents reviewed.

Primary Relationship Stress. The property of *Primary Relationship Stress* appeared through most all archival documents and participants of this study. It is likely to expect that the experience of infertility cause individual as well as relationship stress. However, most measures of relationship satisfaction do not capture the experience of stress related to infertility (Newton, 1999).

The property of *Primary Relationship Stress* was described by participants as the degree of stress they experienced with their partner; boyfriend or husband. Gina, Interview 1 describes:

“And our marriage has completely centered around that [infertility], it’s been a big thing... We talk about that our marriage feels like it been an enormous amount of stress and that we’ve been on hold.”

Later, illustratively, Gina describes her experience of being on bed rest after a cycle of IVF:

It was not, because he forgot about me. It was 8 o’clock at night and I had to call him and be like ‘hey dude, you have to be here, and you have to feed me, I can’t get up’ . . . Like with the food thing, and he’s outside, and he’s finishing mowing the lawn. Which I know is his therapy, and his stress reliever, and I know he is taking care of himself, but it is kinda like he needs to be inside taking care of me . . . but it’s like he forgot about me. He’s not doing it to make me feel less important, but I am feeling like this is the most important thing.

These repeated patterns of communication, difference in perceived perception, and consuming amount of emotional, mental, and physical energy that infertility brings, easily caused distress on important intimate relationship.

Sexual Stress. Included in the property of *Primary Relationship Stress* is the dimension of *Sexual Stress*. Participants as well as archival documents reviewed described the intimate difficulty of timing sexual intercourse as well as maintaining interest in sex. Peterson, Newton and Feingold (2007) found that: “One of the key

findings in this study was that subjective anxiety (inability to relax, feeling nervous) and autonomic anxiety (feeling hot, sweating, feelings of indigestion) were significantly related to sexual stress for both men and women.” That is, regardless of the type of anxiety and stress experienced, it also contributes to *Sexual Stress*.

The researcher’s professional experience lends support that much of stress experienced related to relationships and infertility-related stress can be related to *Sexual Stress* (shift in frequency, enjoyment, purpose, and timing), however this was not as apparent in the data collected from participant interviews in this case study. In reviewing the participant interviews and archival documents reviewed, it seems that the FPI adequately captures stress and concern related to the primary relationship as well as the sexual relationship. Interestingly, is that while participants responded to 8 questions of the 46 that directly asked about feelings related to sexual concern (I find I’ve lost my enjoyment of sex because of the fertility problem; I feel just as attractive to my partner as before; I don’t feel any different from other members of my sex; I feel like I’ve failed at sex; During sex, all I can think about is wanting a child (or another child); Having sex is difficult because I don’t want another disappointment; If we miss a critical day to have sex, I can feel quite angry; Sometimes I feel so much pressure, that having sex becomes difficult). While participants noted that the FPI allowed for conversation about what might be considered taboo topics, sexual stress was not a topic further elucidated by participants of this case study. This might be due to the fact that it was not a large concern for this sample of women, or it could be that participants did not feel comfortable discussing their experience of *Sexual Stress* in this environment.

Concerns about the Future of the Relationship. The last dimension of *Primary Relationship Stress* is *Concerns about the Future of the Relationship*. Through and through, participants interviewed discussed their concerns about the unknown future of the relationship due to the stress related to infertility. While at varying degrees, it was evident in all participants. For example, Carla, Interview 1: “I don’t know if it’s another year from now and nothing’s happened if that would be different... I don’t, that wouldn’t sit well with him.” In addition, Gina, Interview 1: “... we don’t have a lot of together time, so, if we don’t have kids and we don’t have together time, I don’t know...” It seemed that participants described an inability to conceptualize how their relationship might change, and in turn their identity within that relationship if they were not able to achieve their key role of parenthood with their partner. For these women in this study, achieving pregnancy in their present relationship seemed to be a tipping point as to whether the relationship would continue into the future.

In terms of the FPI, the measure does present questions that ask participants to consider the importance of pregnancy and childbirth within their relationship (“Pregnancy and childbirth are the two most important events in a couple’s relationship”). This question is a part of the Need for Parenthood domain, which is described as a close identification with the role of parent, parenthood primary or essential life goal. However, this domain does seem to lump the individual *and* couple experience together with questions such as: “Pregnancy and childbirth are the two most important events in a couple’s relationship,” “It’s hard to feel like a true adult until you have a child,” and “A future without a child (or another child) would frighten me.” which again

seems to flatten the dimensionality of the experience described by interview participants – including elements of individual identity as well as relationship functioning.

Social Relationship Stress. *Social Relationship Stress* was a property developed from the data collected in this case study. It can be described as the feeling of pressure to have a child from peers and family, relationships changing because of peers/family members having children, difficulty engaging in social activities such as baby showers and birthdays. This theme was evidenced in all participant interviews and some of the archival documents reviewed. Gina, Interview 1 describes:

It feels like when your friends have kids, then you want to, to stay a part of their life. .. Or, it becomes about things with them and their children, except if you don't have your own it can be not as fun... I think it's hard when you see people, people who are married after you who have kids before you do, or people who are done having kids before you've even started having kids... I mean, I feel left out, because you feel like you are going to grow apart. Maybe that's the hard part.

Here, Gina is describing the intense social pressure she has placed upon herself to have children to maintain important peer relationships and social status. Simultaneously to trying to become pregnant, Gina described an intense fear she feels she is confronted with if she were to lose these relationships because she does not have the ability to relate as well to her peers since she seems to find herself in a different life stage. Archival documents reviewed also provide support. Galhardo et al. (2013) found that: “In women, perceptions of the self as existing negatively in the minds of others (i.e., external shame) have a direct impact on the perceived stress associated with infertility.” This finding

demonstrates the impact of concern of perception of others can have on women's experiences of infertility related stress.

Another example, described by Carla, Interview 2:

Or when people say, 'oh, do you have children?' You know if you've just met someone or something, and you're like, 'No, I don't.' 'OK.' Like, if someone asked me why, I'd be, but most people are smart enough not to, you know, dig too deep and that kind of thing.

While she identifies that some are smart enough not to dig too deep, she is beginning to allude to the social pressure and norm of asking about family, superficial questions that can evoke painful memories and emotions for women undergoing infertility treatment.

The FPI seems to adequately capture this general theme adequately through the Social Concern domain through such questions as: "It doesn't bother me when I'm asked questions about children," "Family members don't seem to treat us any differently," "The holidays are especially difficult for me," "Family get-togethers are especially difficult for me," "I can't help comparing myself with friends who have children," "I still have lots in common with friends who have children," "I find it hard to spend time with friends who have young children," "When I see families with children I feel left out," "I feel like friends or family are leaving us behind," and "It doesn't bother me when others talk about their children." As the questions included in the Social Concern domain are listed here, a reminder to readers that this is one of the primary categories in which Newton et al., (1999) identified that the experience of identity was captured. Adequately addressing the

internal impact of infertility-related stress cannot be described by an external comparison construct only.

Prevalence of Infertility. *Social Relationship Stress* also included the dimension of *Prevalence of Infertility*. *Prevalence of Infertility* seemed to be a bipolar experience for women participants in this study. On one pole, is their own experience of infertility, and the isolation they experienced. Then, on the other pole, was the connections that they had made with others based on their experience of infertility. It was described by participants as a surprised reaction to the number of women encountered who are or who have in the past experienced infertility. Carla, Interview 1 elaborates: “How is that possible? Like how many women I’ve come across that ... and it’s not because I’m in a fertility situation with other women on purpose that come together.”

This dimension brings to light the impact of the taboo topic of discussing infertility has. That until a woman begins to seek out connection; she does not realize that her coworker or good friend could be having the same experience. *Prevalence of Infertility* or the impact of making connections with others who have experienced infertility is not clearly addressed by the FPI.

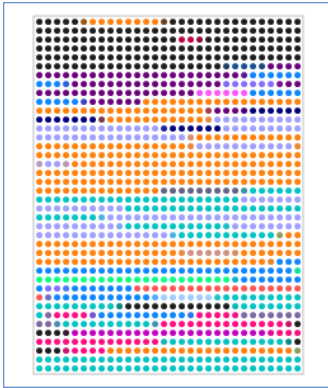
Interview Portraits

Rich categories, properties and dimensions emerged through line-by-line coding. A vital component of case study research is viewing the findings as a collective whole versus independent subjects within a case. Interview portraits derived from the coding from the interviews played a critical function in observing the data as a whole.

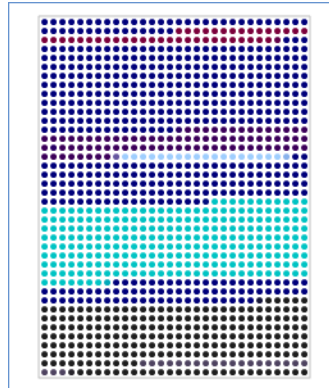
A feature of MAXQDA includes illustrative representations of the codes assigned by the researcher. The colored dots represent coding in the interview. You can now see which codes are used in each of the interviews and get an idea of the proportions between the various codes. As a part of the document analysis, following coding, the researcher generated Interview Portraits of each interview, illustrated in Figure 6.

Figure 4.2: Interview Portraits.

Gina
Interview 1



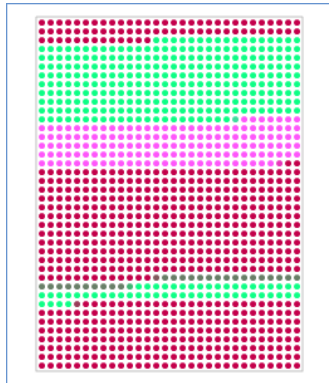
Interview 2



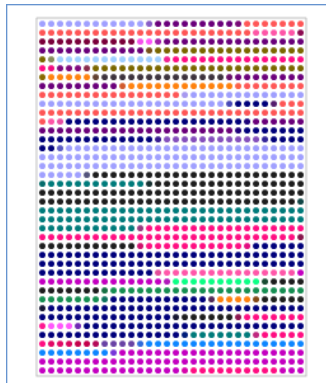
Kelly
Interview 1



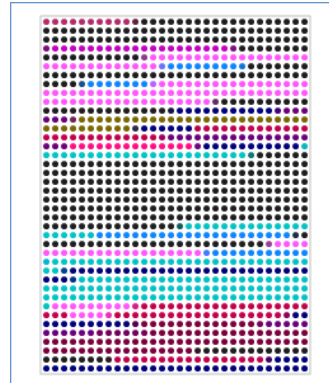
Interview 2



Carla
Interview 1



Interview 2



Without presenting the specific codes represented in each color, it is visually obvious that the shift in the dynamic of the participants' description following receipt of the results of the FPI.

For example, while all participants discussed *Primary Relationship Stress* (orange) in interview 1, it does not appear as a theme in interview 2. Additionally, *Preoccupation* is more prevalent in interview 1. Next, *Primary Relationship Support* (light blue) is much more frequently occurring in interview 1 over interview 2. In addition, *Social Relationship Stress* (black), *Depth of Experience* (navy), and *Future Considerations* also increased in frequency in the second interview for participants 1 and 3. Then, for all participants, *Desire for Parenthood for Women* (pink), *Control* (turquoise), and *Distancing* (red) were obvious in interview 2.

From analytical review of these Interview Portraits, this researcher has several wonderings: *Primary Relationship Stress* was discussed by all three participants in interview 1, however following the receipt of the results; it did not appear in interview 2. This might have some effect on the fact that *Primary Relationship Stress* is a domain of the FPI, and the results were clearly captured by the domain description provided by the researcher.

Next, *Primary Relationship Support* appeared in interview 1 and not in interview 2. This could be for several reasons. It is not a specific domain of the FPI, and therefore, participants did not use language of support. It could also be that the domains of the FPI are primarily problem-based, and not resource-based. That is, participants are not being asked questions about how well they are coping, but instead, how poorly they are coping.

Another observation was a strong shift on the focus of *Social Relationship Stress*, *Depth of Experience*, *Future Considerations* and *Control* were more prominent in interview 2. This is an interesting shift in the discussion of the experience of infertility-related stress. It seems that after receiving the results of the FPI, participants engaged in more of the *Distancing* properties of the category of *Avoidance* than any other area.

These shifts could result from several things. One hypothesis is that the receiving the results of the FPI triggered a sensitive emotional reaction in the participants. In order to manage this amount of stress, participants used coping strategies that placed distance between themselves and the experience of infertility. Another hypothesis might look into the condition that providing the results of the FPI to women, tells them what infertility-related stress is, as described by the assessment authors. In a way, this sends the covert message that the previous ways in which the woman identified with infertility-related stress are invalid.

Taken together, the critical observation of the data as a collective whole presented new and important findings in this case study. As the interviews began, women described their unique experiences as they related to infertility-related stress. Then, as the results of the FPI were delivered, a change occurred in the three participants' content of their interviews, indicating a prominent shift toward distancing themselves from the emotional sensitivity of the topic. The data collected from the interview portraits seemed to strengthen a resounding component of the *Identity* that is associated with infertility-related stress.

Code Relations

Next, a Code Relations Browser was created. The Code Relations Browser creates a visualization of the intersections of codes in the all archival documents reviewed in this case study. This allows investigators to identify connections or “relationships” between your codes. In the Code Relations Browser generated from the data, colored squares demonstrate intersections of codes in the data. The size and color of the squares indicate the number of instances the codes on the x-axis overlap with the codes on the y-axis. The larger and brighter red squares represented the most frequently intersecting codes.

In the data, the following intersections are noted: *Future Considerations* intersected two times with the code *Control* (purple). This seems to indicate that having perceived control includes planning ahead, whether it’s concerning the relationship or the next stage of infertility-related treatment, often women described a need for control in the here and now as well as the future.

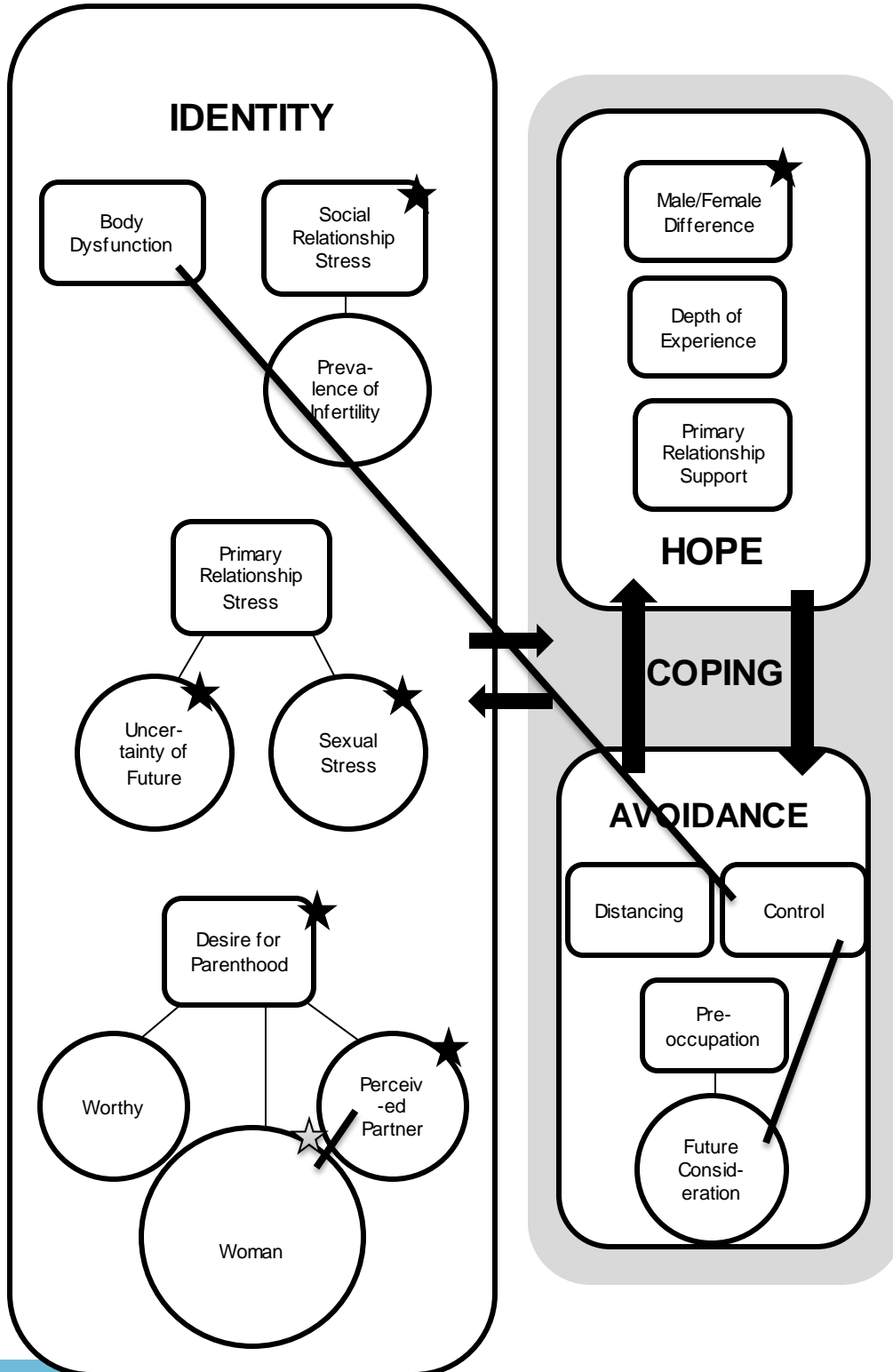
Next, *Body Dysfunction* and *Control* intersected two times (purple). This interesting intersection might describe the discomfort experienced when the body is not functioning as a woman had planned, and her attempt to control everything that happens with her body so that she can achieve pregnancy takes over. Of note, the participants in this study all are established in their careers and have advanced degrees, demonstrating their achievements and drive to be successful. As Gina described in her interview, she attempted to control what she put in her body – from food, to vitamins, to herbal supplements, so that she may be as prepared as possible to become pregnant.

Supporting the earlier findings that the FPI's domain of Need for Parenthood contains similar elements related to identity, in this research, the *Desire for Parenthood for Women* intersected with the code *Identity* three times (magenta). In addition, the codes *Desire for Parenthood for Women* and *Perceived Desire for Parenthood for Partner* intersected four times (red). This is best understood as the women participants describing the individual desire for parenthood as well as how they perceived their partner's desire for parenthood. The remaining small blue squares indicated intersections of one. These intersections were identified on the model created to describe this case study in the following section.

Model

This Chapter presented participant profiles, procedures for interviews and document collection, as well as a summary of the categories, properties, and dimensions coded from the data. As a result, a model for describing the experience of infertility related stress was generated and compared to the five domains of infertility related stress proposed by the FPI. Figure 7 is a visualization created by the researcher to represent the properties, categories, dimensions, and code relationships, as described thus far.

Figure 4.3. Model describing how women experience the FPI as a measure of infertility-related stress.



Presented in this model is a visual representation of the categories, and their underlying properties and dimensions that emerged from the essence of the interviews and archival documents analyzed as a part of this case study to describe how women experience the FPI as a measure of infertility-related stress.

Of note, are the items that are starred in red: *Difference in Male/Female Experience, Primary Relationship Support; Desire for Parenthood* (partial for woman); *Perceived Desire for Parenthood for Partner; Primary Relationship Stress* including *Uncertainty of Future* and *Sexual Stress*; and *Social Relationship Stress*. These items seem to be supported by the domains and research of the FPI. That is, they seem to be accurately captured by the FPI. The remaining Categories, Properties and Dimensions seem to lack description through the measure of the FPI: *Depth of Experience; Preoccupation*, including *Future Considerations; Distancing; Control; Body Dysfunction; Worthy of Parenthood*; and *Prevalence of Infertility*. The purple lines connecting properties, categories and dimensions reflect the relationships described in the Code Relations Browser. The thickness of the line depicts the strength of the code relationship.

Next, through the process of member checks, a component of establishing trustworthiness and credibility to the presented research, the model was further developed in order to describe the interaction of the domains. This model, as described by participants, includes the identification that *Avoidance* and *Hope*, are in fact ways of coping with infertility-related stress. Participants identified that *Avoidance* and *Hope* can occur at the same time and sometimes overlap. Kelly described:

Sometimes I use hope to keep moving forward and stay positive, and then other times I use logic to avoid painful emotions. Then, there are times where I use components of hope to avoid, so there is an interaction there where they can occur at the same time.

Further, both Kelly and Gina identified that how they are coping has a direct impact on *Identity*. For example, Kelly described that for her, the equation of her identity including *Worthy of Parenthood* plus *Hope* equates to progress and willingness to move forward; on the contrary *Worthy of Parenthood* plus *Avoidance*, equals resistance, denial, and stagnation in her infertility journey.

Analysis of Theory 1

The first theory presented from Chapter 3: “The FPI captures women’s experiences of infertility-related stress,” cannot be accepted by the data collected from this case study. Analysis of data revealed and described in this Chapter illustrated that while being a leading measure in the field of infertility and infertility-related stress, the FPI is lacking in richness of description of capturing the essence of the experience of infertility-related stress for women.

Specifically to this study resources for coping identified in the category of *Hope*, including *Primary Relationship Support* and *Depth of Experience* are lacking. The problem-oriented connotation that the FPI’s assessment takes fails to address the resiliency that women may have. This lack in the assessment of *Hope* also demonstrates that the FPI does not clearly adhere to a model of stress to understand infertility-related stress. The model presented by Lazarus and Folkman (1984), reviewed in Chapter 2, and

identifies the Secondary Appraisal that occurs in the event of stress, where an individual assesses whether or not they have adequate resources to cope. When adequate resources are present, positive stress occurs, which is what participants described in the properties of *Primary Relationship Support* and *Depth of Experience*. Interview participants clearly identified how they had become closer to their partner in the event of infertility, as well as an increased awareness that their journey to parenthood had ebbed and flowed with stress, and will likely continue to do so in the future, providing a sense of grounding, and expectation that they will get through the next stressor, too.

Similarly, in the category of *Avoidance*, the FPI is lacking identification of this coping-style in understanding infertility-related stress. Participants described *Distancing* themselves from painful emotions, experiencing intense *Preoccupation* with future treatments and their outcomes, and a strong need for *Control* in multiple domains of their lives. The lack of the assessment of this coping style fails to address coping strategies implemented. Again, returning to Lazarus and Folkman's (1984) model described in Chapter 2, during the Secondary Appraisal of the stressful event, if adequate resources for coping are not available, negative stress occurs. This seems to be captured by the experience of *Avoidance*, described by participants and archival documents within this study.

Finally, the category of *Identity* observed within this research is not adequately addressed by the FPI. To begin, the FPI acknowledges the disbursement and involvement of components related to identity and infertility-related stress in the published article describing the assessment's creation. However, the authors' decision to

justify that identity was captured within the domain of Social Concern, only includes the external identity of a woman. Participants in this study identified strong internal *Identity* components influenced by infertility-related stress. First, participants described an experience of biological loss, when their body seemed to not work as they had hoped and intended it to, described as *Body Dysfunction*. Next, participants and research also described an element of *Worthy of Parenthood*, when participants questioned their spirituality and existential purpose in life, if they were not to become parents, particularly while they encountered others around them easily attaining the path to parenthood. The category of *Identity* is also further described in the second theory driving this research. Overall, analyses of the rich data gathered and coded in this research provide ample support to reject the acceptance of the FPI as a complete assessment of infertility-related stress for women.

Analysis of Theory 2

Next, the second theory: “The FPI, while being a leading measure of infertility-related stress, lacks description of important experiences related to the impact of infertility on women’s identity,” can be partially accepted. Women’s identity is an important component of the conceptual framework proposed by this researcher, as it describes the intrapersonal turmoil of failed or delayed expected life transitions, faulty biological functioning, and cognitions of feeling as less of a woman. This is the justification of understanding how women’s interpretive experiences the FPI as a measure of infertility-related stress.

Newton et al. (1999), argues that identity is addressed in the social domains of the FPI, because of the propensity for women to seek social support, or share social experiences related to infertility with each other, this is how the FPI is capturing the implications this has on women's identity.

The indirect and haphazard technique of measuring a profound construct is neglectful, biased, and fails to acknowledge the intensity of the experience and its impact. Participants in this study described *Identity* being influenced by their external social relationship, but also by their internal perceptions of themselves. The category of *Identity* observed within this research identified strong internal *Identity* components as well as external *Identity* components influenced by infertility-related stress. Internal components included *Body Dysfunction*, *Worthy of Parenthood*, *Desire for Parenthood*, *Uncertainty about the Future of the Relationship*, and *Sexual Stress*. External components of infertility-related stress identified in this study include *Social Relationship Stress* and *Primary Relationship Stress*.

Chapter Summary

In this Chapter, I presented participant profiles and the steps taken to collect and analyze the data. Next, I presented the categories, properties and dimensions of this research. I closed this Chapter presenting findings as to why the theories driving this case study cannot be accepted, or can be only partially accepted. In Chapter 5, I will provide a discussion of the results, findings of the research question and relationships to previous research address the limitations of this study, describe implications for practice, and suggestions for future research.

Chapter 5: Discussion

“A lot of the things in here are not things that you want to talk about with others.

It’s hard to do”. - Gina

This study originated from the researcher’s curiosity about the construct of infertility-related stress and how has been described and measured. The purpose of this research was to understand how women experience the FPI as a measure of infertility-related stress. The following discussion is divided into five sections. The first section places this study’s findings in the context of the researcher’s propositions and previous research on women’s experience of infertility-related stress. The second part of the discussion addresses issues of trustworthiness and credibility of the study. Third, the limitations of the study are discussed. The fourth section explores the implications of this study’s findings. The last segment explores directions for future research.

Placing Findings in Context

The previous Chapter organized findings around emergent themes that were grouped into categories, properties and dimensions in order to demonstrate relationship and depth, and the research questions that guided this study. The current section resembles that format, beginning with a discussion of the emergent categories, properties and dimension placed in the context of the researcher’s expectations and the extant literature. Following the emergent themes, a contextual model is revisited for the researcher’s insights into the research questions.

Three categories emerged from interview and document data. These three categories were *Identity*, *Avoidance*, and *Hope*. Within the category of *Identity*, the following properties and dimensions were found: *Body Dysfunction*; *Desire for Parenthood with the dimensions of Worthy of Parenthood, Desire for Parenthood – Woman, and Desire for Parenthood – Partner*; *Primary Relationship Stress* with the dimensions of *Uncertainty of Future and Sexual Stress*; and *Social Relationship Stress* with the dimension of *Prevalence of Infertility*. Next, within the category of *Avoidance*, the following properties and dimensions were found: *Preoccupation* with the dimension of *Future Considerations*; *Distancing*; and *Control*. Finally, in the category of *Hope*, the following properties developed: *Difference in Male/Female experience*; *Primary Relationship Support*; and *Depth of Experience*. Below, the categories and their properties and dimensions are placed in context to the researcher's expectations.

Hope

An important category that emerged from the data that surprised this researcher was the category of *Hope*. This seemed to capture the experience of positive stress associated with infertility-related stress. Lazarus and Folkman (1984) emphasize that the outcomes of stress can include negative and/or positive stress experiences, which is what participants and archival documents revealed in this category. In this research, *Hope* encompassed the strength and support that participants identified within their infertility journey, including learning more about their partners, new ways to manage conflict, revitalizing relationships, connecting with other women who experience infertility in

supportive ways, and feeling validated that men's and women's experiences of infertility-related stress are in fact unique and different.

Much of the literature reviewed as a part of this research focused on the negative associations of stress related to infertility. It was not until reviewing the research as a part of the test development for the Infertility Self-Efficacy Scale (Cousineau et al., 2006) as a part of this literature review, did the notion of the Fertility Problem Inventory having a problem-centered focus become realized.

For example, a large component of the experience of *Hope* was driven by the sense of *Primary Relationship Support* that women described in their interviews. Interestingly, Interview Portraits revealed that women participants described this support in their first interview; however, they did not describe this in their second interview, after they had received the results of the FPI. Cousineau et al., (2006) note that the domains of the FPI are primarily problem-based, and not resource-based. That is, participants are not being asked questions about how well they are coping, but instead, how poorly they are functioning. Relationship support, including components of dyadic satisfaction and relationship cohesion, has been found to be a large factor in diminishing the experience of infertility-related stress (Galhardo, Pinto-Gouveia, & Matos, 2013).

Another facet of *Hope* derived from this research was the property of *Depth of Experience*. This seemed to develop as an insight for participants, as they described their early blind approach to infertility treatment, and not knowing what to expect. Then, as treatment progressed, and large emotional swings ensued, participants began to recognize that more emotional pain and suffering were to likely occur before they may achieve

pregnancy. Further, participants reflected on the experience of being early on in treatment, and not knowing what to expect, and seemed to find solace in this to prepare them for the rollercoaster of future treatments.

Last, while historically, stress related to women's health has been misinterpreted to be an emotional over-response corresponding with the female gender; recent research has recognized the differences that exist in the physical, psychological, and social experiences of infertility-related stress. Specifically, Newton et al. (1999) addressed that women experience infertility as more stressful than men on the FPI. Adding that women also are more likely to seek support socially, which sometimes may work out in a woman's favor, but at the same time may make them more socially vulnerable to address difficult conversations or questions about family planning and children (Newton et al., 1999). Returning to the feminist theory embodying this research, the category of *Hope* emphasizes the importance of a strengths-based approach, while acknowledging pathology, but mobilizing action.

Examining the first theory driving and binding this research, "The FPI captures women's experiences of infertility-related stress," alongside the patterns matched within the interviews and archival documents reviewed, this theory cannot support the category of *Hope*. Of most importance is the problem-focused nature of the FPI, and its limiting ability to capture mechanisms of support. Additionally, the second theory driving and binding this research, "The FPI, while being a leading measure of infertility-related stress, lacks description of important experiences related to the impact of infertility on women's identity," cannot be upheld, because the FPI is also lacking in appraisal of

support while also measuring for stress if it were to follow a validated model of stress, such as Lazarus and Folkman's (1984) Transactional model.

Avoidance

Another category that emerged from the data analysis was *Avoidance*. This category included the properties of *Preoccupation of Thought*, *Distancing* and *Control*. The emergence of this category surprised the researcher, as literature reviewed using the FPI were not investigating availability or use of coping resources but rather the existence and severity of stress.

Revisiting Lazarus and Folkman's (1984) Transactional Stress Model, it seems that it is insufficient to describe one's experience of stress without also concurrently understanding the interpretation and availability of resources as the two are mutually dependent. As I conducted this research, and also recognize my professional history of practicing as a mental health counselor, I experienced an intuitive sense of circumvention emitted from participants as I engaged in dialogue with participants around infertility-related stress. It seemed that as participants got close to emotional content, they would practice logic, shift topic, or use humor to lighten the experience. In the researcher/interviewer role, I mentally noted these experiences through memos but did not pursue them as this was not the purpose of the research. As a qualitative researcher and a mental health clinician, this seemed like a clear boundary to establish and maintain these separate but related roles.

Reviewing the data later, this was also visually noticeable in the Interview Portraits. Following the delivery of the FPI results there was a strong shift on the focus

of *Social Relationship Stress*, *Depth of Experience*, *Future Considerations* and *Control*.

These categories were much more prominent in second interview and presented a noteworthy shift in the discussion of the experience of infertility-related stress. It seems that after receiving the results of the FPI, participants engaged in conversations that were included in the category of *Avoidance* than any other area. This could be a result of the sensitive emotional reaction to the results of the FPI. These findings support the idea that the FPI tells women how they ought to experience infertility-related stress. This message, while taboo, is socially embedded and perpetuated

This researcher was surprised that the direct discussion of *Control* was not outwardly discussed by participants. Rather, it seemed to be a tangential or covert issue discussed rather than an overt feature of infertility. Previous research found that women sought out more control in their lives to buffer the experience of a loss of control experienced in infertility and its treatment (Gerrity, 2001; Gibson & Myers, 2000).

It seems that in light of having insufficient internal or external support for coping with infertility-related stress, *Distancing* may be the next safest way to keep moving forward with one's normal tasks of living as well as undergoing infertility treatment. Research has revealed that the emotional rollercoaster experienced as a part of infertility treatment is stressful as evidenced in Lukse and Vacc's (1999) study that found that 58% of participants were experiencing significant levels of feelings of depression prior to initiating treatment and 65% reported these levels of feelings after receiving a negative pregnancy test result. On top of the experience of infertility-related stress, it is well known in the research that stress, depression, anxiety, and other negative psychological

feelings can result in poorer outcomes for individuals undergoing infertility treatment (Finamore et al., 2007; Katz, 2008).

In a time where a woman might need more social supports than ever, research has shown that social coping resources and growth-fostering relationships, such as family and partner support, significantly decrease an individual's experience of infertility stress (Gibson & Myers, 2002). Behaviors related to *Avoidance* often includes attending fewer social interactions (Gerrity, 2001), perpetuating the experience of internal and external isolation.

Revisiting the pattern matching analysis technique and the first theory driving and binding this research, "The FPI captures women's experiences of infertility-related stress," patterns identified within the participants interviews and archival documents reviewed cannot support the FPI's description of infertility-related stress. None of the information developed from this research in relation to *Avoidance* is corroborated by the FPI, its structure and administration, or its domains of defining infertility-related stress.

Additionally, the second theory driving and binding this research, "The FPI, while being a leading measure of infertility-related stress, lacks description of important experiences related to the impact of infertility on women's identity," cannot be upheld, because the FPI is also lacking in appraisal of coping while also measuring for stress if it were to follow a validated model of stress, such as Lazarus and Folkman's (1984) Transactional model.

Identity

Most prominently, the category of *Identity* emerged from the data. This category, along with its properties, encompasses a woman's experience of themselves; internally as well as how they interpret their experience of themselves externally. While Newton et al. (1999) posited that an individual's identity was accounted for within the Social Relationship domain of the FPI, it is evident that the identity of the woman exists beyond the constraints of those who define them socially.

For instance, there is the consideration the property of *Body Dysfunction*. As the researcher wondered in earlier Chapters of this paper, women interviewed in this research expressed concerns about who they were as women if their quest to parenthood was to be interrupted by their own dysfunctional female body. Participants wondered why their friends, their relatives were so easily able to conceive and carry children, and what their how their own worth would be measured they could not carry children and fulfill their dreams, too. Earlier research reviewed as a part of this study also alluded to the impact of self-esteem and perceived health as protective factors of reduced experience of infertility-related stress (Schneider & Forthofer, 2005). Perhaps higher levels of self-esteem can serve as a protective factor in the exacerbation of infertility-related stress.

Also, take for consideration, a property of *Identity*: the *Desire for Parenthood*. This property described the large component of a women's identity that was consumed with becoming a parent. When this failed milestone interrupted their lives, women began to question their worth, their spiritual roots, their value and contribution to their community. Since elementary school, most women have had the messages of abstinence and birth control to prevent pregnancy. What is missing in our traditional education is

the opportunity for young girls to understand that our body's health can also affect our ability to become pregnant and carry a baby to term. Our Western social perpetuation of the mind and body disconnect leave young women lacking the needed resources to cope with stress related to infertility and confidently manage their own physical and mental health. Our bodies are not just tools that allow us to do the things we do, they are the very precondition for life. Therefore, if our bodies happen to fail us, it is a threat to life, as we know it and affects us all.

What is more alarming of the evidence of the impact of infertility-related stress on a woman's identity is the difficulty in finding support related to the socially taboo topic of infertility. All participants in this research spoke about others they had found who had experienced infertility, but not first without experiencing some degree of isolation. The feminist approach to this research presents information that emphasizes support and recognition versus perpetuated isolation. Infertility-related stress has been found to be one of the most stressful experiences a woman faces (Freeman, 1985) in her life. A professional and societal acknowledgement of the degree of the stress found in the results of this case study allowed for the reconceptualization, redefinition, and increased understanding of women's experiences of infertility.

Taken further, the Interview Portraits, presented in Chapter 4 derived from the three participants in this research, paint an interesting portrait of how Newton et al. (1999), explains infertility related stress. A shift occurred as interviewees received their FPI results in between the first and second interviews: As participants were either validated by their results, that yes, their experience exists as a domain of infertility-

related stress, as defined by the authors of the FPI; or their experience was not validated by a domain included in the FPI – women’s descriptions of their experience of infertility-related stress shifted. Take for example, *Primary Relationship Stress* – a dimension of *Identity* in this study – that was discussed by all three participants in the first interview. However, following the receipt of the results of the FPI, it did not appear in the second interview. This might have some effect on the fact that *Primary Relationship Stress* is a domain of the FPI, and the results were clearly captured by the domain description provided by the researcher. The experience was validated to have existed by the results of the FPI. However, the visual and notable shifts in the Interview Portraits made this researcher realize that the depth and subjectivity of the experience of infertility-related stress was being shaped and defined by a measure that lacked relevance to women. Further, this measure, developed by a male primary author, seemed to tell participants what infertility-related stress ought to be, and what infertility-related stress is not: through the delivery of the results categorized into five domains.

What became blaringly obvious to the researcher at the midpoint of research through the process of recording memos was the heteronormative focus of the FPI. Questions that probe about *Sexual Stress* such as “During sex, all I can think about is wanting a child (or another child),” or “Having sex is difficult because I don’t want another disappointment,” or “If we miss a critical day to have sex, I can feel quite angry.” These questions address points of stress that a male-female partnership may experience, however they fail to capture the experience of same sex couples. While this is a response

inventory, there may be a way to measure sexual stress without blatantly excluding same-sex couples.

Returning to the analytic technique of pattern matching used to code this research to review the first theory driving and binding this research, “The FPI captures women’s experiences of infertility-related stress,” patterns within the participants interviews and archival documents reviewed only partially support the FPI’s description of the impact of infertility-related stress on *Identity*. This research identified that infertility-related stress does affect Social Relationships and Primary Relationships, However the FPI lacks the rich description of the *internal* impact of infertility-related stress on women, including *Body Dysfunction* and *Worthy of Parenthood*. By burying the concept of *Identity* within the domain of Social Relationship Stress, Newton et al (1999) fail to address the degree and complexity of the experience of infertility-related stress which supports the second theory driving and binding this research: “The FPI, while being a leading measure of infertility-related stress, lacks description of important experiences related to the impact of infertility on women’s identity.”

Ensuring Trustworthiness and Credibility

Case study research can lose credibility when a researcher becomes haphazard in their techniques, does not follow systematic procedures, or allows bias to seep into data analysis (Yin, 2013). In order to enhance credibility and trustworthiness, this case study addressed construct validity, external validity, and reliability (Yin, 2013).

In qualitative case study research, Yin (2013) described construct validity as distinguishing correct operational measures for the construct being studied. This was

best satisfied by defining the concept of infertility-related stress by thoroughly reviewing the history and context of the experience of infertility-related stress, as well as the quantitative history of the FPI. This research adhered to construct validity by using multiple sources of data, including interviews and archival documents, as well as establishing a chain of evidence and by conducting member checks (Yin, 2013).

Member checks were used to assess and strengthen the accuracy of the data as well as the credibility of the findings. As part of these checks, via e-mail, all participants were invited to review the description of the categories, properties and dimensions. Two of the three participants responded to this request to review the findings. The two members who checked the findings provided feedback to the researcher. Both members provided feedback as to how they felt the model interacted and moved; this feedback was incorporated into the model described in Chapter 4. Overwhelmingly, both members described that the model and findings “gave words to [their] experience.”

To increase the trustworthiness and credibility of the data, this researcher used triangulation. In qualitative research, triangulation focuses on the use of multiple data sources, methods, and theoretical schemes (Lather, 1986). In order to achieve the use of multiple data sources, this research included data collected by interview, coding, archival document analysis, and interpretation. All categories, properties and dimensions were found to be a theme of three sources. For example, a theme presented by two participants and presented in one archival document. Again, member checks were also used as a form of triangulation, so that participants could clarify whether or not the findings were reflecting their experience.

In case study research, external validity refers to the realm in which the findings can be generalized beyond the immediate case (Yin, 2013). Experimental research relies on statistical generalization whereas case study research relies on analytic generalization. Yin (2013) defines analytic generalization as generalizing “a particular set of results to some broader theory,” (p. 43). Binding this case study with propositions as well as identifying the theories driving this case study, this case study was able to maintain its specified focus. Further, through the process of analyzing the data for patterns as a whole, versus analyzing each participant and document individually, one is more generalizable.

Reliability in qualitative research is developed by documenting and creating a study that can be replicated and to achieve similar results (Yin, 2013). The goal of reliability in this research was to also minimize bias. To reduce the likelihood that data from the interviews was misinterpreted (Stake, 2006), this researcher listened to the recordings of each interview at least three times to achieve redundancy and recorded memos following each listening.

The researcher also maintained detailed memos of her experience. There were multiple purposes to the memos. First, reflexive subjectivity allowed the researcher to document how her assumptions may or may not be affecting her analysis of the data (Lather, 1986). These memos also served to help the researcher remain focused on maintaining an inductive approach to the research (Baxter & Jack, 2008).

Reliability of the data was also enhanced by a statement of researcher worldview. In Chapter 3, this statement clarifies the researcher’s implicit assumptions and biases to

self as well as others (Morrow, 2005). Another method of enhancing reliability is explicitly documenting the processes and techniques through which data was collected and analyzed (Morrow, 2005). This creates an audit trail that was available for review to the researcher's dissertation committee, advisor, and a peer reviewer.

Next, one peer reviewer provided feedback regarding the coding of this study's findings. The peer reviewer was provided with the three interview transcripts and the categories, properties and dimensions that emerged from the data. The peer reviewer was to: (a) offer feedback on how the findings reflected participants' voices, (b) challenge any of the researcher's assumptions that had surreptitiously made their way into the findings, (c) flush out statements that were not supported by the data, and (d) question findings that could have interpreted differently. Recommendations from this peer reviewer were included in two ways: as a part of the movement and relationship of the categories of the model described in Chapter 4, and as a part of the discussion in Chapter 5.

Last, most importantly, throughout the research process and writing, a qualitative expert advised this researcher on methods and limitations of the research. As recommendations were made, edits to the research methods and writing were appropriately applied.

Addressing the Limitations of the Study

The current study sought to explore how women experience the FPI as a measure of infertility-related stress. Interviews and archival document data provided insights into the research questions driving and binding this research. As we explore the potential

usefulness of this study, some limitations warrant consideration before any conclusions are drawn.

First, the study included a small and homogenous sample. While saturation seemed to be reached within this participant group, including more women participants might have allowed the researcher to capture divergent viewpoints and experiences.

Another limitation of this study was that women were reflecting upon their experience of infertility-related stress at different time points. That is, some participants had known of their infertility and had undergone treatment for varying degrees of time. Additionally, as the results revealed, the Depth of the Experience of infertility ebbed and flowed as treatment progressed, therefore also influencing the limitation of participant's time point in infertility.

Another limitation to the present study was the use of purposive sampling. The researcher experienced difficulty in locating participants willing to discuss the sensitive topic of infertility-related stress, because of its taboo nature. Participants were first recruited by an email of contacts known to the researcher, inquiring if they might be interested in participating if they qualified, or if they would forward the message onto their contacts, too. The taboo nature of the topic perpetuated the limited number of individuals willing to discuss this in the research. Additional requests for participants were sent, however no responses were received beyond the initial three interested participants.

Along with the sampling limitations indicated above, another potential limitation existed regarding the researcher's capacity to adequately describe women's experience of

infertility-related stress from the perspective of participants. The researcher entered into this study with a set of expectations and biases of infertility-related stress. For example, based on a literature review and personal experience, the researcher expected there to be a missing component related to identity. In some cases, the researchers' expectations and biases aligned with the current study's findings; sometimes they did not. Whether ultimately accurate or inaccurate, the researcher's expectations and biases shaped how the researcher examined, understood, and described participants' accounts of the FPI and infertility-related stress. Steps were taken to help ensure trustworthiness of the researcher's account, including: (a) incorporating member checks, (b) obtaining feedback from external reviewers (one of which was a qualitative research expert), and (c) providing a rich description of the data.

Recommendations for Practice

The findings from this study provide important information for professionals treating women experience infertility in medical and mental health care environments. The current study provides insight into understanding how women experience the FPI as a measure of infertility-related stress. Resonating from the voices of the interview participants, and the voices of women participants from archival documents, is the overwhelming notion that infertility-related stress is a concept that has been misrepresented, misunderstood, and minimized. Professionals serving women need to be informed to prevent future harm to client, patients and consumers.

First, until a thorough measure of infertility-related stress exists, quantitative measures of infertility-related stress, such as the FPI, must be used with caution. For

example, the evidence of the flattening dimensionality of the interview portraits provides important demonstration for professionals that administering and delivering the results of a quantitative instrument can in fact detract from, flatten, and devalue a participant's experience. For those whose profession requires the documentation of quantitative symptomology, consider the best practice of multiple measures of assessment, and not relying on the use of the FPI alone. Professionals who may wish to assess infertility-related stress may use the FPI along with a qualitative interview that expands upon important themes addressed in this research, such as a woman's strengths, coping, supports, and identity.

Professionals working with women experiencing infertility should note that a quantitative measure might be useful, but consider the depth of understanding the individual experience of infertility-related stress. Also, consider the impact of delivering the results of such an assessment, as a tool such as the FPI might shift, or invalidate a woman's experience of infertility related stress versus validating and strengthening it, as observed in this research. Further, recognize how the delivery of the results of an assessment such as the FPI can elicit *Avoidance* responses in participants, and recognize the internal stress that may be experienced.

Resoundingly, women described their experience of infertility-related stress as also having some strength-building experiences for them. In this research, women's relationships while simultaneously experiencing stress, experienced growth. Helping women recognize how their partnerships have successfully resolved conflict or offered support to each other in the face of stress can instill *Hope* for the strength to continue to

do so in the future as infertility journeys progress. Further, this strength-based approach is empowering in an all-too-disempowering setting that infertility treatment can exist. Providers might also consider discussing a brief model of stress, such as Lazarus and Folkman's (1984), so that there is a visual representation of our natural responses to stress, such as infertility.

Medical professionals working with women experiencing infertility benefit their practice and their patients by partnering closely with a specialist in women's mental health care. More importantly, those working with women experiencing infertility-related stress must recognize the multidimensional experience it includes. Referring back to earlier literature which placed emphasis on the experience of women feeling stress from the medical environment and the treatment received from doctors related to infertility, specialists in women's health care need to work collaboratively to address the mind, and not only the body, when treating infertility. Offices of physicians and mental health providers that exist separate of each other create a disparity for those in need of service in the moment – of receiving diagnosis, of undergoing testing, of preparedness for future procedures.

Last, aside from important relationships and ways of coping, consider the important components of *Identity* and infertility-related stress. Too often, the transition to parenthood is one that is consciously delayed until a woman feels prepared, however when encountering infertility, this unexpected interruption can cause great stress in how a woman experiences herself, and who she is, and will become. *Identity* is the core understanding of the experience of infertility-related stress and deserves

acknowledgement, in order to honor the unique experience every woman has in infertility.

Recommendations for Further Research

The present study was a qualitative exploration of how women experience the FPI as a measure of infertility-related stress. In this study, women qualitatively described their experience of infertility-related stress and the FPI, shaping their own construction of the categories, properties and dimensions to describe their experience.

Rarely, if ever, has previous research described women's experience of infertility-related stress qualitatively. Future research of infertility-related stress needs to reflect an examination of: (a) clear definition and construct of infertility-related stress so that it can be clearly and continuously described and defined in the literature, (b) a comprehensive theoretical base for measuring infertility-related stress, and (c) a more thorough assessment technique for understanding infertility-related stress.

There continues to be differences in the description and definition of infertility-related stress. That is, it is a common term used to describe stress related to infertility, however, a clear definition is lacking in the literature. For the benefit of women's health, research, and treatment of infertility-related stress, a common definition would benefit all professionals working with women experiencing infertility across healthcare settings.

The FPI is lacking a theoretical base of a stress theory. The assessment attempted to measure the experience of infertility-related stress, however, it does not explicitly use a theory of stress to describe the experience or guide its design. While Newton et al., (1999) pointed out in their article describing the development of the FPI that previous

measures of infertility-related stress lacked a model of stress. However, they committed the same foul by not explicitly describing and relating back to a model of stress. More specifically, for example, assessment questions intentionally designed to identify and describe the positive and negative responses to stress, as described by the Transactional Model of Stress (Lazarus & Folkman, 1984), should be incorporated.

Aside from the lacking in a clear stress model, future research needs to focus on creating an instrument that is validated with women experiencing infertility across multiple settings. Oftentimes, measures of infertility-related stress are normed with samples obtaining ART at an infertility clinic. The use of these convenience samples forgoes the experience of those who do not have access to infertility treatment. Reasons for not obtaining treatment can range from lack of financial resources to going against an individual's religious beliefs. Most of the existing research has been done with participant's who are white, middle to upper class, educated, and able to access financial resources.

This study was descriptive in nature and guided by an interest in understanding an apparently taboo phenomenon—women's experiences of infertility-related stress. The findings of the this study cannot be generalized to all women's experiences of infertility-related stress, however, their experience with the FPI, and with infertility-related stress, begins to shed empirical light on an important issue in women's mental health and infertility. While the research question has been addressed by this case study, many questions remain answered. This study builds upon the existing literature and offers a basis for future research.

Conclusions

This research demonstrated that attempting to describe women's experiences of infertility-related stress through a quantitative measure is precarious. The blind trust to an instrument, such as the FPI, repeatedly in the literature for more than fifteen years with little scrutiny has left gaps in our understanding and treatment of women experiencing significant stress related to infertility. These perpetuated gaps leave important aspects of women's healthcare unaddressed and are deserving of attention. Although helpful in identifying that women's experiences of infertility are truly stressful, when typical measures of psychopathology such as the BDI and STAI were not measuring, the FPI lacks depth and research in describing the rich experience. Of course, the most important question in this case study was recognized: that the experience of infertility can be truly stressful. It seems that more clarity, diverse research, and social acknowledgment of the phenomena will continue to advance this important women's health issue.

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Appendix A

Informed consent

INFORMED CONSENT FORM FOR RESEARCH PARTICIPANTS

Under the direction of Dr. Preston, a faculty member at Minnesota State University, Mankato, the purpose of this research is to describe women's experience of taking the Fertility Problem Inventory as a measure of infertility-related stress. The Fertility Problem Inventory is sufficient in explaining whether stress exists, however it lacks the ability to describe an individual's subjective experience. A copy of this consent has been given to you for you to review and sign, as well as a copy to keep for your records and future reference.

In this research, if you choose to consent, you will be asked to:

1. Complete the Fertility Problem Inventory (30 minutes)
2. Following the Fertility Problem Inventory, participate in a semi-structured interview with the question: *How does the Fertility Problem Inventory capture your experience of infertility-related stress?* (30 minutes)
3. Take a brief break while the researcher scores the Fertility Problem Inventory (15 minutes)
4. Receive the results of the Fertility Problem Inventory by the researcher, followed by a semi-structured interview with the question: *How do the results of the Fertility Problem Inventory capture your experience of infertility-related stress?* (45 minutes)
5. Review transcript of the interview to address issues of trustworthiness and credibility (60 minutes)
This process will include Staci mailing you a transcript of the interview for you to review. You will have the opportunity to read the transcript and provide any reactions and feedback. The reactions and/or feedback can be delivered via a face-to-face meeting with Staci at a location comfortable to you, or it can be written by you and mailed or emailed to Staci. The review of the transcript by participants allows for the opportunity to ensure that the transcript accurately reflects what was stated and to increase the likelihood that the findings will be seen as credible.

You have been asked because I am interested in interviewing participants who are/have:

- Women
- Have attempted to conceive without the assistance of reproductive technology for at least 6 months, prior to seeking infertility treatment
- Experienced at least two cycles of infertility treatment
- Currently participating/seeking participation in infertility treatment

Participation is voluntary and that, after any individual research project has begun, you may refuse to participate further without penalty. Decision whether or not to participate will not affect your relationship to Minnesota State University, Mankato, nor will a refusal to participate involve a penalty or loss of benefits. You may discontinue participation at any time before the data collection is complete without penalty.

The researcher will ensure that no clues to your identity appear in the dissertation. Any extracts from what you say that are quoted in the dissertation will be entirely anonymous. Participant interviews will be audio recorded and transcribed by Staci Born. The data, including transcriptions, audio recordings, and consent forms will be kept confidential. On completion of the dissertation, they will be retained in a locked drawer that only Staci Born and her faculty Advisor, Jennifer Preston, have access. After three years has passed, data, recordings, and consent forms will be destroyed.

Your identity will be hidden during any writing or presenting of the findings. The results will be presented in the dissertation. They will be seen by my advisor, a peer reviewer, and may be viewed by my dissertation committee. The study may be published in a research journal. It is possible that talking about your experience in this way may cause some social or emotional distress. At the end of the interview, I will discuss with you how you found the experience and how you are feeling. If you subsequently feel distressed, I will provide you with a referral to a mental health professional. If you need any further information, have questions about the research, participants' rights, and research-related injuries, you can contact me: Staci Born, cell: 507-380-0626, email: staci.born@mnsu.edu; or my Faculty Advisor: Jennifer Preston, phone: 507-389-5837; email: Jennifer.preston@mnsu.edu, or Graduate Dean: Dr. Barry Ries, phone: 507-389-1242; email: barry.ries@mnsu.edu

Consent Form

I.....agree to participate in Staci Born's research study.

The purpose and nature of the study has been explained to me in writing.

I am participating voluntarily.

I give permission for my interview with Staci Born to be audio-recorded

I understand that I can withdraw from the study, without repercussions, at any time, whether before it starts or while I am participating.

I understand that I can withdraw permission to use the data within two weeks of the interview, in which case the material will be deleted.

I understand that anonymity will be ensured in the write-up by disguising my identity.

I understand that disguised extracts from my interview may be quoted in the dissertation and any subsequent publications if I give permission below:

(Please tick one:)

- I agree to quotation/publication of extracts from my interview
- I do not agree to quotation/publication of extracts from my interview

Signed.....

Date.....

IRBNet number: 613200

Appendix B
Demographic Questionnaire

Demographic Questionnaire

Participant _____ (to be completed by researcher)

Today's Date _____

Present age:

Relationship status:

Years with partner:

Education:

Occupation:

Years in occupation:

Infertility history (diagnoses, length of treatment, number of cycles, results of cycles,
testing completed)

Religious, cultural, familial factors that have influenced your infertility journey:

Appendix C

Fertility Problem Inventory (FPI)

Fertility Problem Inventory (FPI)

The following statements express different opinions about a fertility problem. Please indicate the degree to which you agree or disagree with each statement. If you have a child, please answer the way you feel right now, after having a child.

	Strongly Agree	Moderately Agree	Slightly Agree	Slightly Disagree	Moderately Disagree	Strongly Disagree
1. Couples without a child are just as happy as those with children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Pregnancy and childbirth are the two most important events in a couple's relationship.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I find I've lost my enjoyment of sex because of the fertility problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I feel just as attractive to my partner as before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. For me, being a parent is a more important goal than having a satisfying career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. My marriage needs a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I don't feel any different from other members of my sex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. It's hard to feel like a true adult until you have a child.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. It doesn't bother me when I'm asked questions about children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. A future without a child (or another child) would frighten me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I can't show my partner how I feel because it will make him/her feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Family don't seem to treat us any differently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I feel like I've failed at sex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. The holidays are especially difficult for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I could see a number of advantages if we didn't have a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. My partner doesn't understand the way the fertility problem affects me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. During sex, all I can think about is wanting a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Agree	Moderately Agree	Slightly Agree	Slightly Disagree	Moderately Disagree	Strongly Disagree
18. My partner and I work well together handling questions about our infertility.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I feel empty because of our fertility problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I could visualize a happy life together, without a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. It bothers me that my partner reacts differently to the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Having sex is difficult because I don't want another disappointment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Having a child (or another child) is not the major focus of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. My partner is quite disappointed with me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. At times, I seriously wonder if I want a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. My partner and I could talk more openly with each other about our fertility problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Family get-togethers are especially difficult for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Not having a child (or another child) would allow me time to do other satisfying things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I have often felt that I was born to be a parent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I can't help comparing myself with friends who have children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Having a child (or another child) is not necessary for my happiness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. If we miss a critical day to have sex, I can feel quite angry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. I can't imagine us ever separating because of this.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. As long as I can remember, I've wanted to be a parent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. I still have lots in common with friends who have children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. When we try to talk about our fertility problems, it seems to lead to an argument.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. Sometimes I feel so much pressure, that having sex becomes difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Agree	Moderately Agree	Slightly Agree	Slightly Disagree	Moderately Disagree	Strongly Disagree
38. We could have a long, happy relationship without a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. I find it hard to spent time with friends who have young children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. When I see families with children I feel left out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. There is a certain freedom without children that appeals to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42. I will do just about anything to have a child (or another child).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43. I feel like friends or family are leaving us behind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44. It doesn't bother me when others talk about their children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45. Because of infertility, I worry that my partner and I are drifting apart.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46. When we talk about our fertility problem, my partner seems comforted by my comments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>