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The Experience of Uncertainty in Infertility

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The Experience of Uncertainty in Infertility

by

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Dedication

This dissertation is dedicated to three celestial beings.

To Odin,

God of Wisdom and Death,

who therefore must be the God of Dissertations.

To Beyoncé,

patron saint of women trying to make their mark on this world.

Most of all,

to my Mother,

who always believed I have a big brain* because of the knobs on my infant head.

*While this hypothesis remains unsupported through empirical evidence, her belief has nevertheless given me hope that I may turn out to be smart one day.

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Abstract

The Experience of Uncertainty in Infertility

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This dissertation offers a review of the extant literature regarding infertility, as well as medical, personal, social, and relational uncertainty through the theoretical lens of the tripartite model of uncertainty and the relational turbulence model within the context of infertility. This research explored a research question and hypotheses that inquired into the various forms of uncertainty that may arise among couples experiencing fertility, how the forms of uncertainty may be related to one another or operate independently, and how they may influence important individual and relational outcomes within this particular health context. In order to investigate the research problem, survey data were collected from 250 participants currently dealing with fertility troubles. Evidence of direct and mediated connections between medical and relational uncertainty was discovered, while personal uncertainty appeared to be experienced separately.

Keywords: infertility, uncertainty, communication satisfaction

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Chapter One: Introduction

Women and men have been faced with fertility challenges since the beginning of recorded history. In Genesis 30:1, we learn of Rachel's fertility troubles and the negative impact it had on her and her romantic relationship; "When Rachel saw that she was not bearing Jacob any children, she became jealous of her sister. So she said to Jacob, 'Give me children, or I'll die!' (The holy bible: New international version, 1986). Today, individuals are still faced with similar struggles and challenges. Infertility is a medical condition attributed to a heterosexual couple who have had unprotected sexual intercourse for 12 months without a pregnancy (Zegers-Hochschild et al., 2009), and it influences over 6 million women in the United States (CDC, 2016).

Previous research of experiences of infertility has indicated that emotional, medical, existential, cultural and social aspects all inform this health context, and have indicated that for many individuals, fertility troubles cause distress, social isolation, low self-esteem and sexual dysfunction (Earle & Letherby, 2007; Greil et al., 2011). Given that many individuals will have some trouble when they attempt to have a child, and that this fertility trouble can have a large impact on themselves and their relationships, it is imperative to learn more about this process and peoples' experience.

This study proposed that further investigation of communication and uncertainty during infertility would offer a theoretical contribution by uncovering more fully what these constructs are, and identifying associations among the various forms of uncertainty in the tripartite model of uncertainty. Specifically, it sought to capture how various forms of uncertainty might operate independently from one another, or in conjunction with one another. Additionally, it sought to

understand how the experience of these various forms of uncertainty might be associated with communicative, behavioral, and relational outcomes.

Infertility is a medical condition that causes significant strife and turbulence in relationships (Knobloch & Solomon, 2001). Dealing with infertility may create tensions between the partners that may lead to blame, anger, depression, avoidance, and even divorce or separation (Schneider & Forthofer, 2005). Couples who are able to turn to one another demonstrate the ability to be more resilient in stressful and situations (Afifi, Merrill, & Davis, 2016). When people are faced with situations that are fraught with uncertainty, those who can cope communally with their communicative partner report a greater capacity to cope with the challenges they face (Afifi, Hutchinson, & Krause, 2006). This is true for health situations characterized by uncertainty and stress (Afifi, Shahnazi, Coveleski, Davis, & Merrill, 2017). This makes infertility a compelling context to study communication practices. One way to approach this empirical investigation is through the theoretical lens of the tripartite model of uncertainty (Brashers, 2003), which builds upon Mishel's (1998) uncertainty in illness.

The tripartite model of uncertainty has been applied to a variety of health contexts, but not to infertility, a complex health arena where many forms of uncertainty swirl related to diagnosis and bodily integrity, treatment options and outcomes, identity concerns, and romantic relationship commitment. This health context offers an opportunity to explore how forms of uncertainty are related to one another and how they influence the individual's experience in managing their fertility troubles, as well as their relationship with their partner. This dissertation discovered some evidence that some forms of uncertainty covaried in meaningful ways, while others seemed to operate independently. Associations between forms of uncertainty and

important outcomes were not always direct, with evidence of mediated associations between multiple forms of uncertainty explaining some relationships.

Chapter I introduces the research problem and goals of this dissertation. Chapter 2 reviews the extant literature on infertility, as well as the theoretical perspectives of uncertainty in illness and the tripartite model of uncertainty. It also identifies the construct of relational uncertainty from the relational turbulence model as a useful operationalization of social uncertainty from the tripartite model in the context of infertility. Chapter three unpacks the methodology of how the research question and hypotheses were tested, including scale reliabilities and participant demographics. Chapter four describes the preliminary and main analyses conducted. Chapter 5 offers a discussion on the theoretical and practical implications related to the findings of this dissertation. Limitations and future directions are discussed.

Chapter Two: Review of the Literature and Theoretical Perspectives

INTRODUCTION

This chapter offers a review of the extant literature regarding infertility, as well as medical, personal, social, and relational uncertainty through the theoretical lens of the tripartite model of uncertainty and the relational turbulence model within the context of infertility. This review demonstrates additional dimensions of understanding that could be gained by inquiring into the various forms of uncertainty that may arise among couples experiencing fertility, how the forms of uncertainty may be related to one another, and how they may influence important individual and relational outcomes within this particular health context. This study proposed that further investigation of communication and uncertainty during infertility would offer a specific theoretical contribution by identifying the magnitude and direction of associations among the various forms of uncertainty in the tripartite model of uncertainty. An additional theoretical contribution was intended to be made by connecting one prong of the tripartite model of uncertainty—social uncertainty—with the concept of relational uncertainty from the relational turbulence model. The literature indicates that these two constructs are related in important ways. This chapter will expound upon the aforementioned premises and introduce the current study's research questions and hypotheses.

THE EXPERIENCE OF INFERTILITY

Infertility is not a discrete event, but rather an unfolding process that evolves over time, often without a clear beginning or end point (Dunkel-Schetter et al., 1991). Infertility is a medical condition attributed to a heterosexual couple who have had unprotected sexual intercourse for 12 months without a pregnancy (Zegers-Hochschild et al., 2009). Some definitions include more qualifiers, such as specifying that women over the age of 35 are infertile after a 6-month period without pregnancy. According to the Centers for Disease Control and Prevention (2016), 6%, or 1.5 million married women aged 15-44 years, are unable to get pregnant after one year of unprotected sex in the United States. About 12%, or 6.7 million women aged 15-44 years, have

difficulty getting pregnant or carrying a pregnancy to term. The actual incidence of infertility in the population is impossible to state with certainty because the diagnosis is a difficult one to make (see Adamson & Abusief, 2018). Many people who remain involuntarily childless may not ever have an official diagnosis, and infertility can have a range of meanings from absolute sterility and biological impossibility (e.g., no ovum) to low fertility to trying unsuccessfully to conceive for 12 months (sometimes coincidence). Thus, the prevalence of fertility problems may be even greater than data would indicate.

Women today are more likely to delay childbearing than their predecessors. Though they may conceive, women over the age of 40 are 5 times more likely to miscarry than women ages 31-35. Overall, 7.4 million American women aged 15-44 years have used infertility services at some point (CDC, 2016). Globally, infertility affects up to 15% of reproductive-aged couples (WHO, 2013). Because the experience of infertility requires adaptation over time, often with no immediate resolution, infertility has been compared to a chronic illness (Fleming & Burry, 1988).

Causes of Infertility. A variety of factors are thought to contribute to infertility, including infectious, environmental, genetic, and even dietary considerations (Cates et al., 1985). About 30% of infertility is due to female factor and 30% is due to male factor. However, fertility troubles and their cause are not always clearly identified as caused by only male or female factor fertility troubles. In most cases, infertility results from problems in both partners (male and female factor), or the cause of the infertility is unexplained. Approximately one in five couples will experience unexplained infertility despite completing a full infertility work-up (Resolve, 2013). Evidence suggests that throughout the world, differences in the prevalence of infectious diseases, which lead to fallopian tube blockage in women, are the main reason for changes over time in infertility rates (Collins & Van Steirteghem, 2004; Mayaud, 2001). Increasing age at childbearing could also decrease fertility, as the ability to become pregnant and deliver a live birth reduces with age (United Nations Population Division, 2011). Delays in childbearing have made infertility more common within the United States (Schneider & Forthofer, 2005).

Roughly one-third of couples in which the woman is older than 35 experience fertility problems, and 20% of women in the United States are waiting to have their first child until after that age (CDC, 2013). As women age, their ovaries become less able to release eggs, and they have fewer eggs, which are not as healthy, and therefore are more likely to have other health problems that cause infertility. Aging also increases the chance of miscarriage or genetic abnormality (CDC, 2013). In addition to increased age of child bearing, smoking, excessive alcohol use, extreme weight changes, and excessive emotional stress can increase a woman's chance of experiencing infertility (Leiblum, 1996b).

Testing for Infertility. According to the American Society for Reproductive Medicine (2012a, 2012b), infertility testing involves a complete medical history, physical examinations, and blood and imaging tests of both the male and female partners. For women, infertility testing can include checking hormone levels including progesterone and luteinizing urine tests, pelvic ultrasound, laparoscopy, thyroid functioning, hysterosalpingography (HSG), and taking body temperature first thing in the morning to check if the ovaries are releasing eggs.

For men, testing infertility may include sperm testing, ultrasound and examination of the genitals, blood tests to check hormone levels, and in rare cases testicular biopsy. The National Survey of Family Growth (CDC, 2013) indicates that semen analysis can determine how male factors are contributing to infertility. A specialist will evaluate the number of sperm (concentration), motility (movement), and morphology (shape) in a semen analysis. Conditions that can contribute to abnormal semen analysis include medical conditions (e.g., diabetes, cystic fibrosis, varicoceles), medical exposures (e.g., chemotherapy, radiation), unhealthy habits (e.g., heavy alcohol use, smoking, anabolic steroid use, illicit drug use), and exposure to environmental toxins (e.g., pesticides, lead). Carlsen et al. (1992) hypothesized that sperm quality is declining, but the evidence is not conclusive (te Velde et al., 2010).

A CDC study analyzed data from the 2002 National Survey of Family Growth and found that 7.5% of all sexually experienced men younger than age 45 reported seeing a fertility doctor during their lifetime—this equals 3.3–4.7 million men. Of men who sought help, 18% were

diagnosed with a male-related infertility problem, including sperm or semen problems (14%) and varicocele (6%; CDC, 2013).

Treating Infertility. There are a variety of treatment options and alternative solutions for infertility. Depending on its etiology, it can be treated with medicine, surgery, assisted reproductive technology such as intra-uterine insemination (commonly known as artificial insemination or IUI) and in vitro fertilization (IVF), or a combination. Women who are advised not to become pregnant because of a serious health problem, or women who have ovaries but no uterus, can consider using a gestational carrier. A woman's egg fertilized with the male partner's sperm is placed in the carrier's uterus. Women who have either unhealthy eggs or no eggs can consider surrogacy, where a surrogate agrees to use her own egg and the male partner's sperm to become pregnant. The child, therefore, is genetically linked to the male partner and the surrogate (CDC, 2013). Some couples pursue adoption.

SOCIAL BURDEN SURROUNDING INFERTILITY

Notably, although male infertility has been found to be the cause of a couple's failure to conceive in as many cases as women, the social burden "falls disproportionately on women," according to Dr. Mahmoud Fathalla, who served as the director of the Special Program of Research, Development and Research Training in Human Reproduction based at the World Health Organization (WHO, 2010). Women who are considered the "cause" of the couple's infertility experience high levels of stress related to their fertility struggles (Goldberg, 1975). Even when the male partner is the "cause" of the infertility, women still feel responsible and struggle with seeking social support (Lee, Sun, & Chao, 2001).

While American men display a strong desire to be fathers, most say they do not have to have children to be happy. This is according to the National Survey of Family Growth; an analysis is based on data collected from 2006 to 2008 among a nationally representative sample

of 13,495 men and women ages 15-44. Overall, 87% of males ages 15-44 who have no children say that they want to have children at some point. Among childless men between the ages of 40-44, a narrow majority (51%) still want children. According to Martinez and colleagues (2006), women demonstrate a strong desire to become mothers as well. Their sample included 7,643 women who reported on the “wantedness” of current and future children. They reported similar desires to their male counterparts. Men who do not have children reject the idea that people can’t be happy unless they have children. Only 8% of childless men agree with this statement, and even among fathers, only a small minority (14%) agree that children are necessary in order to be happy (CDC, 2013).

Despite this expressed attitude from American men, research shows that most societies see parenthood as an essential milestone of adulthood (Bos & van Rooij, 2007; Purewal & van den Akker, 2009). These sorts of social expectations can cause stress within an infertile couple’s relationship and take a toll on partners’ personal well-being (Greil, 1997). Couples report experiencing pressure from both society at large and important others to have children (Bernardi & Klarner, 2014; Bute, 2009). These unfulfilled expectations can result in a variety of detrimental outcomes to the infertile couple, including social isolation (Allison, 2011). For those who do turn to their social network rather than away, they often receive unhelpful social support (Donovan, Nelson, & Scheinfeld, 2017; Donovan, LeFebvre, Tardif, Brown, & Love, 2014; Donovan-Kicken & Bute, 2008). Despite the good intentions of their social network, these communication episodes can result in additional stress (Mindes, Ingram, Kliewer, & James, 2003; Slade, O’Neill, Simpson, & Lashen, 2007).

For many women, pregnancy and motherhood are seen as normative, and they feel enormous pressure to fulfill this role (Klein & White, 2002). Infertility can be “the worst thing

that can happen to them” (Kraaij, Garnefski, & Schrovers, 2009, p. 19). Many women consider their ability to conceive and bear children an “innate function” (p. 298), and when they cannot accomplish them either easily or at all, they are concerned with how others will react to their inability to do so (Hsu & Kuo, 2002). Thus, even as infertile couples are already coping with their own sense of frustration, disappointment, and loss, they may also have to cope with the stigma of childlessness.

In some ways, infertility is similar to other chronic health conditions that diminish or dampen well-being. The monthly cycle of anticipation and subsequent frustration is emotionally, physically, and sometimes financially draining. Feelings of depression, inadequacy, anxiety, and low self-esteem are common concomitants of infertility (Schneider & Forthofer, 2005). Though not typically life-threatening, infertility challenges a sense of bodily integrity, self-concept, emotional stability, future plans, and the fulfillment of social roles (see Bute, 2009; Leiblum, 1996; te Velde et al., 2010). Infertility is often associated with feelings of shame and guilt, which add to its burden. Couples must deal with societal expectations regarding the importance of having children and the personal implications associated with childlessness. For women compared to men, fertility problems appear to constitute a unique stressor in that there are stronger and more devastating effects on sexual self-esteem, sexual dissatisfaction, and a sense of self-efficacy. Further, women are more likely than men to regard childlessness as a personal failure because historically, conception and pregnancy were regarded as the sole responsibility of women and the major expectation and accomplishment of their gender role (Leiblum, 1996).

For some individuals, feelings of shame, guilt, and self-blame may be so great that the partner diagnosed with the infertility may feel unworthy of the other partner’s love and commitment. As Nemeth (2000) noted in her research on sexuality and disability, there has been

a historical tendency to socialize both genders in childhood to see the female as caregiver, and that when women cannot fulfill this role due to disability, it is cited as a primary contributor to divorce. People who are otherwise able-bodied may feel that they are disabled in this one fertility-related way: unable to conceive or have a child. Additionally, either partner who contributes to decreased fertility may feel that they have to compensate for this by being an especially “good” partner in order to make up for what their partner is missing out on by being with them (Nemeth, 2000). There is evidence that people who are disabled (and perhaps by extension also those who are unable to conceive) feel pressure to compensate for what they perceive as their own relational limitations by being overly giving, supportive, and positive to their partners in an attempt to be worthier of them (Nemeth, 2000). In sum, those who are experiencing infertility may feel unworthy of the love of their partners, or not allowed to express negative emotion or thoughts surrounding their infertility experience.

It is plausible that the fertile partner may feel angry, antagonistic, or resentful toward an infertile partner, and in fact there is some evidence that such negative affect does occur (Kraaij, Garnefski, & Schroevers, 2009). Others may question the nature or purpose of their romantic relationship. Men and women alike are subjected to societal messages about sexuality and physical ability (Nemeth, 2000). There is a narrow and rigid definition for what counts as a “normal” and “natural” romantic relationship, with great emphasis placed on health, youth, and physical perfection (Zola, 1982). Nemeth (2000) indicated that in romantic relationships between people who are differently physically abled from one another, the more abled person (in this case, the more fertile partner) may feel as though they are walking through a relational mine field. They sometimes feel as though they must move carefully and be on guard for the

communication episode that will “blow up in their faces” as seeming patronizing or indifferent (Nemeth, 2000, p. 44).

The chronic yet unpredictable nature of infertility creates special challenges for those individuals who are trying to have a child (Leiblum, 1996). There are multiple sources of stress surrounding infertility; the failure to identify a cause for failing to conceive, the pressure to account for your childlessness to inquisitive family and friends, the blame directed at yourself or partner for having infertility problems, the indignities of treatment and evaluation, and so on. Even with the best medical care possible, uncertainty may still persist. According to Macaluso et al. (2010), a Center for Disease Control working group reports considerable gaps in surveillance, research, communication, program development, and policy surrounding infertility. There are no clear guidelines as to when a couple should abandon efforts to conceive. The number of decisions associated with infertility treatment may require sophisticated negotiation and communication skills.

INFERTILITY AS A COMPELLING COMMUNICATION CONTEXT

The potential ways that the infertility experience is both manifested within, and managed through, communication make it a compelling context for empirical study. For example, as compared with other medical conditions, there may be increased uncertainty surrounding the diagnosis, treatment, and resolution of infertility. While infertility is defined as not successfully becoming pregnant after attempting to do so for 12 months (Steuber & Solomon, 2008), for some the timeline is more truncated. According to the American Society for Reproductive Medicine (2017), in couples with “advanced female age” (35 years or older), diagnostic evaluation for infertility is initiated after 6 months of regular unprotected sexual intercourse. Therefore, there is not even a concrete timeline a couple can follow to determine when they are actually

experiencing infertility. Those experiencing infertility, therefore, may experience increased uncertainty surrounding their diagnosis, treatment, and personal involvement in the process.

Additionally, infertility offers a unique communicative context to explore because it is an inherently dyadic health condition. Even in the event that the infertility might “belong” to one of the partners, it affects both members of a couple who wish to have a child. Therefore, infertility may prompt individuals and couples to re-evaluate their relationships to one another. Infertility can be disruptive to the couple in terms of physical and financial investments, and may also call into question their role in the relationship presently or in the future. If a couple had previously defined their relationship as the start to a family with biological children, those roles and expectations must necessarily be revisited and perhaps change. If the infertility persists, a person may question their commitment to their partner or vice versa, and perhaps their commitment to the relationship overall. It should be acknowledged that this line of reasoning presupposes the possibility of biological children for the couple, and therefore may implicate that all couples seeking to become parents are heteronormative. While the majority of research on infertility has used data from heterosexual couples, the reproductive dilemmas of same sex couples have also been explored (Pennings & Mertes, 2012; Risking & Patterson, 2010) and certainly deserve equal attention and inquiry.

Not only are there unique trials both intrapersonally, and dyadically for couples having fertility troubles, there is evidence that the uncertainty brought about by infertility may have even more communicative challenges. For example, Donovan and Bute (2008) found that people experiencing illness-related uncertainty also experienced uncertainty surrounding how to communicate with their social network. For all of these reasons, more research on uncertainty and communication during infertility is warranted.

Investigating uncertainty during infertility: Aims of the present study. Dealing with uncertainty is highly complex, and multiple sources of uncertainty can manifest from infertility. This study sought to explore how the experience of infertility affects the type of uncertainty that is reported, as well as relevant health and behavioral intentions related to infertility, including treatment plans and financial investments. This study was guided by existing literature on uncertainty in illness, which will be reviewed next. It was designed to make theoretical contributions to the communication literature by advancing research on the tripartite model of uncertainty and by connecting research on uncertainty in illness to research on relational uncertainty. It was my hope that the knowledge gained from this study would also yield helpful information for couples, by illuminating the uncertainty experience within this specific medical context that is already rife with challenges.

UNCERTAINTY IN INFERTILITY

Health and medical problems have the power to strengthen or weaken a relationship based on the way that each partner or member of the pair deals with the uncertainty tied to having a serious illness (Mishel, 1998). Infertility is a medical condition that causes significant strife and turbulence in relationships (Knobloch & Solomon, 2001). Dealing with infertility may create tensions between the partners that may lead to blame, anger, depression, avoidance, and even divorce or separation (Schneider & Forthofer, 2005). Couples who are able to turn to one another demonstrate the ability to be more resilient in stressful and situations (Afifi, Merrill, & Davis, 2016). When people are faced with situations that are fraught with uncertainty, those who can cope communally with their communicative partner report a greater capacity to cope with the challenges they face (Afifi, Hutchinson, & Krause, 2006). This is true for health situations characterized by uncertainty and stress (Afifi, Shahnazi, Coveleski, Davis, & Merrill, 2017).

Effective interpersonal communication is vital to the ability of each partner to voice his or her needs in a non-confrontational way to help move the relationship beyond the illness and into healthy dialogue and care. Partners may engage in unhealthy dialogue that adds to the stress of dealing with a medical problem and further exacerbates an already tense situation. Infertility may even be considered a larger contributor to relational stress as each partner may sense a biological need to reproduce him- or herself in a timely manner, and so not being able to realize this genetic goal could cause major psychological disturbances for both male and female partners (Leiblum, 1996). In looking at how infertility contributes to uncertainty, the tripartite model of uncertainty and the relational turbulence model help to explain the relationship dynamics involved as a theoretical framework for the present research.

Experiencing Uncertainty. Uncertainty is experienced in a variety of scenarios, such as when making decisions, planning events, or interacting in social situations (Brashers, 2001). Uncertainty is highly contextual with different forms of uncertainty being experienced in different contexts and different behavioral responses becoming apparent based on the context (Brashers, 2001). People are more likely to experience uncertainty when information is unavailable or inconsistent or when they feel insecure about the knowledge that they do possess (Babrow, Hines & Kasch, 2000; Babrow, Kasch, & Ford, 1998). In the context of infertility, uncertainty may be experienced due to what they do know about their problems with fertility, yet on the other hand uncertainty could also be experienced based on what they do not know or understand regarding their diagnosis, treatment, relationships, and identity. Uncertainty is largely tied to one's perceptions and self-assessments because if a person feels they are uncertain, then they are rightly considered to be in a state of uncertainty (Brashers, 2001). While knowledge can be objectively measured, one's perception of their state of knowledge is dependent on self-

assessments and declarations (Brashers, 2001). For example, a person who has trouble with fertility may have definitive answers regarding their medical situation and feel very certain regarding that realm, but still may identify as experiencing uncertainty surrounding other areas of their life related to fertility, such as their role as a parent or adult. A person may have sufficient knowledge on a topic according to measures of knowledge, but still feel uncertain because of their own perceptions (Brashers, 2001). Beyond assessing knowledge, individuals also experience uncertainty when considering probability (Babrow, 1992). A curvilinear relationship exists between uncertainty and beliefs about probability, such that uncertainty is lowest when probability of occurrence is very low or very high, and highest when probability has about a 50 percent chance of occurrence (Brashers, 2001; Brashers et al., 2003). People experiencing infertility may have to make conjectures of the probability of various outcomes based on what information is available to them regarding their potential to conceive or have a child.

The Trajectory of Uncertainty. Further, uncertainty has a temporal dimension in that experiences of uncertainty may be short-lived or enduring (Brashers, 2001). In the case of dealing with a chronic illness or medical condition, the trajectory of the illness may indicate the span of uncertainty across time (Brashers, 2001). Uncertainty may increase or decrease in salience at different stages of the illness, and experiences of uncertainty may cause different concerns at different times (Brashers, 2001). People with fertility problems may mirror the experience of a chronic illness in that their diagnosis and treatment period may go on indefinitely, with no clear end point. Brashers' (2001) research suggested that the layers of context relevant in illness-related uncertainty indicate that one type of uncertainty may increase or decrease other uncertainties, and people may experience multiple sources of uncertainty at once. Understanding the different types and levels of uncertainty improves descriptions and

explanations of how it influences people's lives as they deal with complex situations, especially those related to medical conditions and health. For example, Donovan and colleagues (2014b) found that the presence of different forms and combinations of uncertainty in messages about cancer elicited varying forms of social support in responses to the original message.

Uncertainty and quality of life. Uncertainty has the propensity to negatively influence quality of life of people who are suffering with chronic illness or disability, and it has been shown to endure throughout the life cycle of their medical condition (Brashers, 2001; Donovan et al., 2014a; Germino et al., 2013; Miller, 2014; Neville, 1998; Wonghongkul et al., 2000). When conceptualizing uncertainty in the context of dealing with a major illness, a prevailing definition is a perception that one is unable to explain, predict, or construct meaning around their medical circumstance (Brashers, 2001; Donovan et al, 2014a; Mishel, 1988). People experience uncertainty related to their illness or even their relationships as a result of encountering ambiguous, ambivalent, complex, conflicting, insufficient, or overwhelming information about their situation, especially related to their future well-being and health status (Brashers et al., 2000; Donovan et al., 2014a; Ford, Babrow, & Stohl, 1996; Mishel, 1988; Sammarco, 2001). Although living with some uncertainty can allow people to maintain hope for good outcomes, in general uncertainty challenges people's sense of order and coherence (Mishel, 1990).

Uncertainty and the expenditure of resources. The feeling of uncertainty is predicted to increase in response to the amount of resources people have access to, with limited access to resources like financial, educational, or social support associated with greater levels of uncertainty (Mishel, 1988). Individuals lacking money to treat their illness or family members to support them during their medical trials will have more uncertainty than those with adequate resources at their disposal (Mishel, 1988). Less is known, however, about how levels of different

types of uncertainty may be associated with health behaviors such as devoting resources toward the fertility problems. Therefore, this study proposes to investigate how certain important health behaviors might be related to the experience of uncertainty. In the context of infertility, health behaviors such as intention to seek treatment for infertility, and how much time and money they are willing to spend pursuing these treatments in the future is of interest because these are central to coping with fertility problems (CDC, 2013).

Uncertainty as Danger Versus Opportunity. Uncertainty is theorized to be managed differently depending on individual evaluations of the situation, such that uncertainty might be translated as danger/risk or as opportunity (Bailey, Wallace, & Mishel, 2007; Brashers, 2001; Mishel, 1988). Individual appraisals are central in determining the level and type of uncertainty experienced. Although the nuances of appraisals themselves were not the main focus of the current study, it is worth pointing out that people are likely to cope with their health conditions and the associated uncertainty in different ways, due to their appraisals of the uncertainty. The current project was grounded in theory and research that have provided evidence of variability in uncertainty and in coping (i.e., health behaviors). Mishel's (1988) model of uncertainty and its various components, including uncertainty as opportunity or as danger is included below.

Figure 1: Mishel's Model of Uncertainty

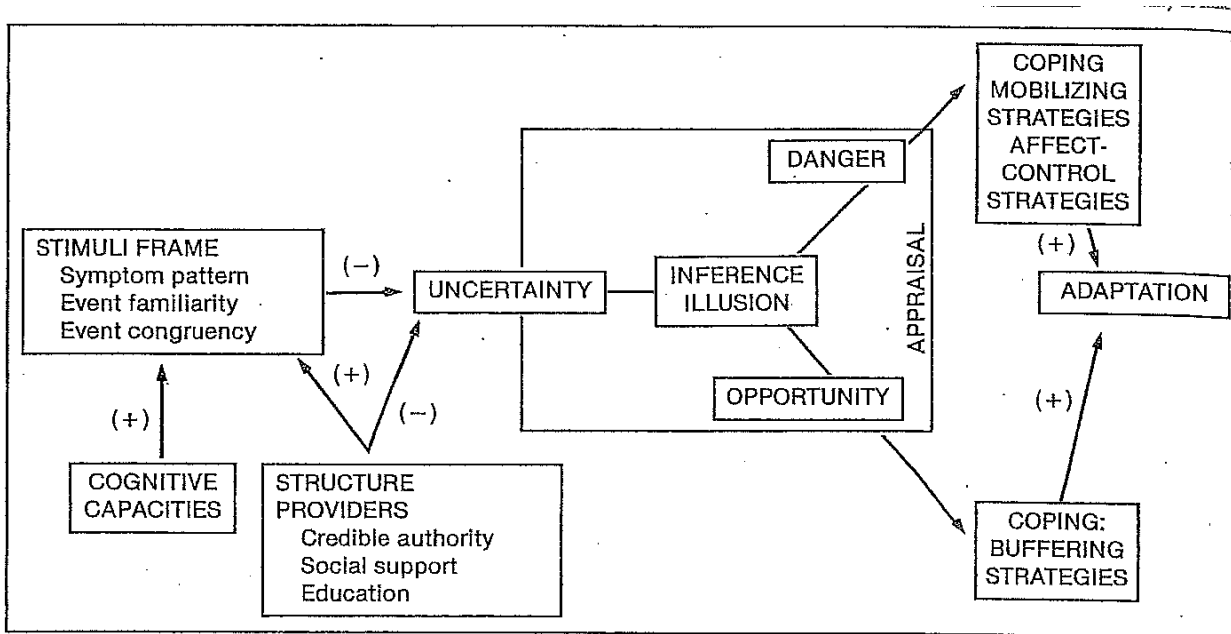


Figure 1. Model of perceived uncertainty in illness.

Reproduced from Mishel, M. H. (1988). Uncertainty in illness. *Image: Journal of Nursing Scholarship*, 20, 225-232.

Affective responses to uncertainty. A range of emotional responses has been observed in response to uncertainty (Brashers, 2001; Folkman, 1997; Lazarus, 1991). A negative emotional response is the appraisal of uncertainty as a danger or threat (Brashers, 2001). For those with fertility problems, this would include the negative emotions felt in response to the idea that a successful pregnancy may not be possible or ever happen. A positive emotional response frames uncertainty as a benefit that may lead to a bright future (Brashers, 2001). In the case of infertility, this could include a healthy pregnancy carried to term, or the positive reframing of secondary infertility (e.g., “there are some upsides to having an only child”). Neutral emotional responses judge uncertainty to be inconsequential or less salient to one’s life trajectory (Brashers, 2001). This neutral affective response to uncertainty in infertility may include a destiny belied such as “if it’s meant to be, it will be,” or “everything happens for a reason.” Individuals can also express a combined emotional response to uncertainty in which

positive and negative responses occur simultaneously (Folkman, 1997; Lazarus, 1991). Emotional responses to uncertainty resulting from appraisals may shift over time as new information becomes available or during reappraisals (Brashers, 2001). High levels of uncertainty are often associated with lacking appropriate cognitive structures to integrate new information and interpret events (Brashers et al., 2003). It may be difficult for a childless couple with fertility problems to imagine a future wherein they are not the parents of a biological child. Furthermore, individuals may engage with newfound uncertainty if their prognosis improves such that the renegotiation of uncertainty may include feelings of hope and a future orientation (Brashers et al., 2003).

Societal influences on uncertainty. Uncertainty has also been studied in the context of cultural biases that may introduce cultural ideals of coherence and order based on underlying social values (Mishel, 1990). Critical social theory has been employed in explorations of uncertainty versus certainty as a desired, highly valued state in society (Mishel, 1990). In Westernized societies, predictability, control, and mastery are valued over uncertainty, ambiguity, and confusion, which sets expectations in medicine for the achievement of these values and reduction of those contradictory forces, uncertainty being the primary force in opposition to predictability and surety (Mishel, 1990). This leads to an unrealistic expectation that diagnosis is always desired and accurate, and that illness can always be controlled (Mishel, 1990). Failures at controlling illness may be attributed to the physician or the patient with resulting uncertainty being cast as anomalous or indicating a greater deficiency (Mishel, 1990). In terms of sociocultural biases, uncertainty is disequilibrium and an undesired state disrupting individual control and life direction (Mishel, 1990). Those with fertility problems may feel that as an individual or as a couple, they lack control over their own bodies and family planning.

THE TRIPARTITE MODEL OF UNCERTAINTY

The literature reviewed thus far indicates that uncertainty is a significant contributor to lowered quality of life among people with chronic illnesses (Mishel, 1997). A chronic illness or disability, like infertility, is characterized as being permanent or taking longer to treat with some potential for recovery or remission and the development of additional comorbidities which makes the experience of uncertainty more multifaceted (Brashers, 2001; Donovan et al., 2014a; Mishel, 1988; Mishel, 1990). Originally, Mishel (1988) focused research into uncertainty on specific medical conditions that presented confusing symptoms, thus exacerbating the level of uncertainty experienced and resulted in a constant and complete state of uncertainty about one's life. Mishel's (1988) work drew from Lazarus and Folkman's (1984) stress and coping framework. Mishel (1988) proposed that there were associations between the illness experience, the development of uncertainty, individual appraisals of uncertainty, and the reduction of uncertainty as the illness is managed. The illness experience included such factors as symptom patterns, the availability of social support, and relationships with physicians, nurses, and other health care providers (Mishel, 1988). In the 1990s, Mishel (1997) extended her theory and suggested numerous antecedents to uncertainty that influence the magnitude of the uncertainty experienced. These antecedents included illness severity, diagnostic specificity, personality factors, and patient demographics (Mishel, 1997). Mishel (1997) also proposed continual uncertainty to explain findings that demonstrate uncertainty decreases and increases over time depending on illness progression with the highest levels experienced prior to receiving a diagnosis. Mishel's (1997) expanded theory proposed that the goal of understanding uncertainty is not to eliminate uncertainty entirely, which may be impossible in some illness specific contexts, but to learn to accept uncertainty and integrate it into one's life and world view. Narratives around illness uncertainty have reflected the potential for personal growth and change

to occur despite the unpredictability of symptoms and lack of information related to living with the illness or disability (Brashers et al., 2003).

Brashers and colleagues (2003) extended Mishel's (1988) research to apply the concept of uncertainty to people living with HIV/AIDS. Based on their research findings, Brashers and colleagues (2003) introduced three forms of uncertainty: (1) personal uncertainty, defined as confusion about one's identity or life plans; (2) social uncertainty, involving questions about intimate and professional relationships; and (3) medical uncertainty, or the inability to understand one's symptoms, diagnosis, and/or treatment options. These three concepts formed the tripartite model of uncertainty, which helped to advance the study of uncertainty into areas relevant for other illnesses and medical conditions (Donovan et al., 2014a). The tripartite model of uncertainty has significantly fueled health communication research as it has reinforced the importance of the medical, personal, and social context of individuals living with a variety of diseases (Donovan et al., 2014a). Brashers et al.'s (2003) findings have also shown that different illnesses may have features that cause varying levels and forms of uncertainty among a demographically diverse population of individuals with illnesses or medical conditions. Thus, uncertainty will impact people differently depending on a variety of factors unique to their particular situation, with people suffering from infertility potentially experiencing uncertainty in a way that may be different from that experienced by people with cancer or HIV/AIDS. Thus, although there are theoretical takeaways that can be extrapolated from research on uncertainty during cancer or HIV to uncertainty during infertility, empirical data are needed to advance knowledge of the uncertainty experiences of people coping with infertility.

For the purposes of this study, social uncertainty will be referred to as relational uncertainty. Further detail of the operationalization of this variable will be provided in the

methods section, but for clarity I offer a brief explanation here of this choice. Social uncertainty, as conceptualized by Brashers and colleagues (2003), includes uncertainty surrounding one's ability to be in relationships with other people, what your health and illness status implicates for your ability to relate and connect to others, and what roles you can or want to fill in terms of interpersonal association generally. These relationships include platonic, romantic, and professional relationships. In exploring the health context of infertility, I am primarily interested in how romantic couples experience uncertainty, with questions about how the various forms of uncertainty are related to one another and how they are related to relationship and communication satisfaction. Therefore, the relationship this study is interested in has a narrower scope than social uncertainty, and the construct must also be captured more specifically. In other words, this study is interested in social uncertainty as it applies to couples, and excludes other forms of interpersonal connections such as friendships and work relationships. In order to target romantic partnerships only, the most germane form of social uncertainty to include is relational uncertainty (Knobloch & Solomon, 1999). This uncertainty construct is a valid and relevant component of general social uncertainty, and allowed me to explore the relationship between the uncertainty couples feel about their romantic relationships and other types of uncertainty, relationship outcomes, and behavioral outcomes. Moving forward, whenever discussing the construct of social uncertainty, I will refer to the specific form of social uncertainty that is relevant for this research: relational uncertainty.

Medical uncertainty. Medical uncertainty occurs as individuals attempt to understand the meaning of illness-related events and information (Donovan et al., 2014a). People dealing with severe illnesses, like cancer or HIV/AIDS, are almost guaranteed to experience uncertainty throughout the course of their medical condition (Shaha, Cox, Talman, & Kelly, 2008).

Individuals may receive insufficient, incomplete, or even inaccurate information about their diagnosis, especially in regard to unclear meanings of diagnostic tests and their results (Brashers et al., 2003). Medical uncertainty may also manifest in regard to symptoms, treatments, and prognoses (Miller, 2012). People suffering with an illness may question their ability to manage their illness, or they may challenge their healthcare providers' training, skills, and beliefs (Brashers, 2001). Uncertainty has been identified as a cause of medical malpractice claims (Fielding, 1999). A diagnosis may be inaccurate or inappropriate, symptoms may be attributed to the illness or have no cause at all, risks of treatment may pass a threshold of acceptability, and as such, these contradictory forces contribute to feelings of uncertainty (Brashers, 2001). Unknown etiology of symptoms and unfamiliar symptoms also contribute to medical uncertainty (Brashers et al., 2003). Individuals may question the terminology used to describe their illness and whether or not it is treatable or curable (Middleton et al., 2012).

Medical uncertainty and infertility. My interpretation of this literature indicates that individuals and couples who are faced with fertility problems are likely to experience uncertainty regarding their diagnosis, fertility status, treatment options, treatment timelines, and potential to have a successful pregnancy. In particular, this study proposes to explore how various types of infertility may be related to one another. Using the tripartite model of uncertainty as a theoretical lens, I will explore how the presence of one form of uncertainty (medical, personal, or social/relational) may be related to the experience of the others. Mishel's (1998) theory of uncertainty in illness specifically postulated that uncertainty would be higher when patients were less able to understand their symptoms and establish a sense of familiarity or predictability to their condition. Therefore, I hypothesized that fertility problems would be positively related to medical uncertainty. Thus:

H1: Extent of fertility problems is positively associated with medical uncertainty.

Given the existing literature on infertility, tripartite uncertainty, and relational uncertainty, there is some indication that all three issues are related to one another. However, our understanding of these associations between various forms of uncertainty has heretofore gone unexplored. For example, there is reason to believe that people experiencing infertility are likely to have medical uncertainty surrounding their diagnosis, treatment, and reproductive outcomes, as well as uncertainty surrounding their identity or their romantic relationship. The literature indicates that people experience multiple forms of uncertainty, perhaps simultaneously (Brashers, 2001), and there is some evidence that these three forms of uncertainty are related to one another (Donovan et al., 2014).

The present study sought to explore how the presence of different forms of uncertainty in the infertility context may be correlated with other types of uncertainty. I examined whether people's experiences of infertility-related medical uncertainty are correlated with uncertainty about their romantic relationships (relational uncertainty) or their identity (personal uncertainty). There is evidence that types of uncertainty are expressed in conjunction with one another in naturally-occurring communication between adolescent and young adult cancer survivors (Donovan, et al, 2014a). Donovan and colleagues investigated the prevalence of each of the three sources of uncertainty from the tripartite model of uncertainty. They also tracked the extent to which each individual source of uncertainty was expressed simultaneously with, or in isolation from, the other sources of uncertainty. They found that messages frequently contained multiple sources of uncertainty (e.g., medical and personal) within one communication episode. In fact, out of 695 original messages, 201 contained multiple sources of uncertainty (Donovan, et al., 2014a). If various forms of uncertainty are being verbally expressed together within one

message, this supports the proposition that the individual was experiencing them concurrently as well. Based off of my interpretation of this data, I hypothesized that medical, social, and personal sources of uncertainty are positively related to one another. Specifically, I hypothesized that for people with fertility problems, the experience of medical uncertainty is positively associated with the experience of relational uncertainty. As previously stated within this study, infertility is an inherently dyadic health condition that has implications for a couple's lifestyle. The desired outcome, parenthood, is also inherently connected to their romantic union. If a person is unsure about their diagnosis, fertility status, or ability to have a child in the future, they may also have uncertainty surrounding the status of their romantic relationship, its purpose, or the commitment each partner has to it. Thus:

H2: Medical uncertainty is positively associated with relational uncertainty.

Additionally, Donovan and colleagues' (2014a) work indicates that people who have medical uncertainty may also have uncertainty surrounding their identity. Individuals with fertility problems may have uncertainty about their own personal status or roles. For example, due to the ambiguous nature of infertility diagnoses, they may not know if they are healthy (fertile) or sick (fertility-impaired). For individuals who always imagined becoming a biological parent, they may have to reevaluate this core part of their identity as they move forward. Due to their fertility problems, they may experience "global affective changes," where their overall emotional state is in flux. Based off Donovan and colleagues' (2014a) evidence, I suspected that the more that people were experiencing medical uncertainty, the more they would also be experiencing personal uncertainty. Thus:

H3: Medical uncertainty is positively associated with personal uncertainty.

Medical uncertainty and treatment options. Medical uncertainty is also realized in regard to individuals' evaluating appropriate treatment options and the likelihood of success at treating their illness (Donovan et al., 2014a). They may inquire into how a particular treatment will impact their body or how they can incorporate alternative treatments with minimal risk to already altered lives (Brashers et al., 2003; Martin et al., 2010; Middleton et al., 2012). Experimental medications, complex treatment regimens, and tedious health maintenance behaviors were found to be additional sources of medical uncertainty (Brashers et al., 2003). In their study of adolescents and young adults with cancer, Donovan and colleagues (2014a) found medical sources of uncertainty most prevalent in online forum discussions, with 74 percent of their analyzed messages pertaining to diagnosis, systems and processes of treatment and care, and the unpredictability of cancer progression (p. 5).

Medical uncertainty and fertility treatment. This study was interested in determining how uncertainty is related to participants' decisions about their fertility treatment. This study proposed to explore the implications of uncertainty on health behavior intentions, for example, how the experience of various forms of uncertainty is related to health behavior intentions such as intention to pursue various treatments, and the amount of resources (money and time) the person is willing to invest in infertility treatments in the future. The literature demonstrates evidence that medical treatments can be disruptive to people's lives (Martin et al., 2010). There is evidence (Brashers et al., 2003) to suggest that because some fertility treatments are expensive, physically unpleasant (e.g., daily hormone shots), and cumbersome (e.g., frequent visits to their fertility specialist, gynecologist, and/or general practitioner), medical uncertainty may be heightened. Additionally, it is never certain whether any given fertility treatment will actually be successful, which is a circumstance that has been demonstrated (Donovan et al.,

2014a) to be connected with medical uncertainty. Individuals are aware that any of these costly, time-consuming, and unpleasant treatments might not result in the desired pregnancy.

I expected that the more medical uncertainty a person was experiencing surrounding their diagnosis, options for treatment, and chances of success, the less willing that person would be to make significant investments of time and money into their reproductive pursuits, because there is no guarantee that their investments will be rewarded with the desired outcome of a healthy pregnancy. This supposition is bolstered by the extant literature surrounding decision making in situations characterized by uncertainty, which indicates that individuals will consider the potential for success and failure of the available options to them (Holloway, 1979). There is some evidence from other fields that individuals are more conservative in their decisions when there is less certainty of success (Platt & Huettel, 2008). The more medical uncertainty an individual experiences, the more doubts they have about their chances of successfully becoming biological parents. Since fertility problems are chronic, participants may have already invested significant time and financial resources pursuing treatment. Based on this logic, I anticipated that greater perceived medical uncertainty would be associated with less willingness to pursue various fertility treatments, or to invest money and time in the future. Therefore:

H4: Medical uncertainty is inversely associated with intent to pursue various fertility treatments.

H5: Medical uncertainty is inversely associated with the amount of money that one is willing to spend on fertility treatments.

H6: Medical uncertainty is inversely associated with the amount of time that one is willing to pursue fertility treatment.

Medical uncertainty and relationship satisfaction. There is evidence (Greil, 1991; Steuber & Solomon, 2008) that infertility is a particular health context in which uncertainty may have relationship implications. Steuber and Solomon's (2008) work pointed to the fact that fertility troubles raise relationship questions between a couple, especially when the couple has differences in opinions, or they contribute different levels of involvement (e.g., one person being treated with drugs or procedures, while the other is not). In the previous section, I demonstrated the potentially taxing nature of pursuing treatment for fertility problems. I have previously demonstrated that fertility problems are a dyadic health issue, and therefore the distress a person experiences related to fertility treatment may be reflected within their romantic relationship. This may potentially create a decrease in their relationship satisfaction, especially if they perceive their medical uncertainty as a source of danger or distress. Conversely, if they perceive their medical uncertainty as a source of hope (Bailey, Wallace, & Mishel, 2007; Brashers, 2001; Mishel, 1988) wherein a healthy pregnancy could happen in the near future, they may experience increased relationship satisfaction. I posed a research question exploring how medical uncertainty and relationship satisfaction may be related to one another. Thus:

RQ1: Is medical uncertainty positively or inversely associated with relationship satisfaction?

Personal uncertainty. People experience personal uncertainty when they reflect on how their health condition will impact their identity, personal and professional roles, financial stability, and future outcomes (Donovan et al., 2014a). People dealing with illness may be confused about how to properly navigate between their sick role (Parsons, 1964) and their healthy or well role (Brashers et al., 2003). They may also need to define being seen as a care-receiver when previously having fulfilled a caregiver role (Brashers et al., 2003). Uncertainty

might also center on disability status, health insurance availability and procedures, treatment costs, and the impact of their illness on their employment (Brashers et al., 2003; Martin et al., 2010). People experience uncertainty about their values and how their illness forces them to reevaluate what they hold dear, their place in the world, and how their illness transforms their lives permanently (Donovan et al., 2014a).

Personal Uncertainty and Identity. In their study of adolescent and young adults with cancer, Donovan and their colleagues (2014a) found that 36 percent of online messages related to self-reflection about how their illness might impact their roles, identities, education, career prospects, and financial stability (p. 5). Personal uncertainty centralizes uncertainty as a real concern for people suffering with an illness or disability. This may be relevant in the infertility context because of the identities people claim surrounding having children. According to societal scripts, a couple becomes a family, a woman becomes a mother, and man becomes a father. These new roles and definitions of their function and purpose in life are profoundly impacted through fertility, or lack thereof. A common cultural idiom is that “a baby changes everything.” The literature on infertility and uncertainty indicates that people with fertility problems, as well as their social network, may be unsure of who they are (as a man or woman, or perhaps as an adult) if they are not a biological parent (Bernardi & Klarner, 2014; Bute, 2009). Kraaij and colleagues’ (2009) study showed that fertility problems can seem like a defining experience for an individual, and that women especially had negative self-concepts related to the inability to have a successful pregnancy. Holter (2014) found that women showed stronger emotional reactions to their own infertility than men. This supports the proposition that the experience of fertility problems may be related to questions about one’s identity, including their bodily integrity, self-concept, and emotional stability (Bute, 2009; Leiblum, 1996; te Velde et al., 2010).

Therefore, this study proposed that those with fertility problems evaluate who they are as an individual. I hypothesized that fertility problems are likely to cause a person to feel uncertainty surrounding their identity. Thus:

H7: Extent of fertility problems is positively related to personal uncertainty.

Social uncertainty. Social uncertainty is experienced in response to attempts to make sense of interpersonal relationships and reactions after diagnosis with an illness (Brashers et al., 2003; Donovan et al., 2014a). People may become unsure of how they are supposed to move through social situations as someone with an illness, especially in regard to managing and maintaining close relationships (Brashers et al., 2003; Donovan et al., 2014a; Middleton et al., 2012). They may wonder how their illness will negatively affect their loved one's lives or their romantic partners, especially their ability to develop or maintain intimate relationships in a hospital setting (Martin et al., 2010). This is especially relevant in the infertility context, as fertility problems are inherently dyadic to the romantic partners. The uncertainty may oscillate between experiences of stigma and affirmation or between rejection and acceptance or even tolerance (Brashers et al., 2003).

Connecting social uncertainty and relational uncertainty. In the present study, the construct of social uncertainty from the tripartite model of uncertainty was captured by examining a more targeted construct: relational uncertainty. Relational uncertainty is a concept that has been well developed in the interpersonal communication literature, particularly within the relational turbulence model literature, with validated instrumentation. Its focus on intimate, romantic relationships is appropriate for the context of infertility. Connecting these two theoretical models—the tripartite model of uncertainty and the relational turbulence model—through this common construct of social/relational uncertainty was also pursued to make a new

contribution to the literature.

Social uncertainty from Brashers' (2003) tripartite model of uncertainty is a construct that taps into doubts and lack of clarity surrounding interpersonal relationships during illness. It includes uncertainty about how to navigate social situations, how to manage close relationships, and whether their illness will detrimentally affect loved ones' lives (e.g., Brashers et al., 2003; Middleton et al., 2012; Weber & Solomon, 2008). Martin and colleagues' (2010) study found that after receiving a transplant, individuals had uncertainty surrounding how it might impact their romantic lives, and whether they would be able to maintain a romantic relationship while they were in the hospital. Donovan and colleagues' (2014a) study found that young adults with cancer were unsure about their viability as a romantic interest, their ability to be perceived as attractive, and pragmatic concerns about dating and sex. An example was a young adult who had gone through chemotherapy was unsure about when to share with a dating partner that their hair was actually a wig.

Relational uncertainty from the relational turbulence model is a construct that captures the amount of confidence people have in their perceptions of each partner's involvement in a relationship (Knobloch & Solomon, 1999). Relational uncertainty is an umbrella term that covers three interrelated sources of uncertainty: self, partner, and relationship (Knobloch & Solomon, 2001). Self-uncertainty pertains to an individual's own desire and commitment to be in the relationship, while partner-uncertainty pertains to their perceptions of their partner's commitment and desire to be in a relationship together. Relationship uncertainty pertains to doubts about the nature of the relationship itself (a complete review of relational uncertainty and the relational turbulence model follows). Knobloch and Solomon (1999; 2001) used relational uncertainty as the basis of investigating how extreme cognitive, emotional, and communication

responses to relationship-modifying events (transitions and disruptions, such as fertility problems) were associated with intimacy and the level of involvement individuals reported in the relationship.

The constructs of social uncertainty and relational uncertainty are related to one another and overlap in important ways. They both involve how individuals respond to relationship-modifying events or episodes. In the case of social uncertainty, these events have been rooted in medical changes (a health event or diagnosis). In the case of relational uncertainty, these events have included expectation violations, conflict, problematic events, physical separation, and environmental changes (Knobloch & Solomon, 2002a). They both tap into the idea that when something changes in an individual's life, there are implications for how the individual perceives their relationship. Social uncertainty as a construct can examine a variety of interpersonal relationships, including friendships, family, and romantic relationships. It has also been used to examine both real and potential future relationships (Donovan, 2014a; Donovan 2014b). This study is interested in the uncertainty that may arise for an individual with fertility problems surrounding their romantic partnership. Therefore, the scope of what types of relationships are of interest is narrower than conceptions of social uncertainty in the past. Because of the similar theoretical implications of these two related constructs, and because relational uncertainty targets romantic relationships specifically, this is the most relevant form of social uncertainty to study in the infertility context.

Relational uncertainty and relationship implications. The potential for social isolation may trigger social uncertainty (Brashers et al., 2003). In their study of adolescents and young adults with cancer, Donovan and colleagues (2014a) found that 22 percent of messages sent in an online forum related to unpredictable interpersonal reactions to their illness and unclear

relational implications following their diagnosis, especially related to past, present, and future interactions and the potential to develop future relationships (p. 7). In the context of infertility, uncertainty may arise for an individual due to the complications and issues that emerge in their romantic partnership as a result of being unable to conceive or have a biological child. As noted previously, women with fertility problems experience high levels of stress related to their struggles (Goldberg, Downing, & Richardson, 2009), and even if their male partner is technically the physical source of the decreased fertility, women may still feel the burden of responsibility (Lee, Sun, & Chao, 2001). Social expectations for couples to have children have been shown to cause stress in couples' marriages (Greil, 1997). Individuals are already coping with their own sense of frustration and disappointment related to fertility problems, and have to also cope with their partners' responses and expectations. All this could cause resentment towards one's partner, calling their own commitment and desire to be and stay in the relationship into question.

Additionally, individuals may be concerned about their partners' commitment to them. Hsu and Kuo (2002) found that women with fertility problems are concerned with how others will respond to their inability to conceive or bear children. It is not hard to imagine that considerable care would be directed at your romantic partner's reaction to fertility problems. As demonstrated by Nemeth (2000), either partner who contributes to decreased fertility may feel shame, guilt, or self-blame to the extents that they may feel unworthy of their partner's love and commitment. Therefore, I expected to find a positive relationship between fertility problems and relational uncertainty. Thus:

H8: Extent of fertility problems is positively associated with relational uncertainty.

Relational uncertainty is likewise relevant in dealing with personal uncertainty, as having close relationships is one of the means by which people dealing with illness manage their own

personal uncertainty (Mishel, 1990). In Donovan and colleagues' (2014a) study of adolescents and young adults with cancer, they found that naturally occurring messages often reflected multiple sources of uncertainty. Hypotheses two and three propose that medical uncertainty is positively associated with both social and personal uncertainty. There was also evidence that social and personal uncertainty were expressed together, and in the proposed study I expanded on this to argue that those varying sources of uncertainty may have been experienced concurrently as well. Based off of this evidence, I suggested that the same may be true in the fertility context. Uncertainty surrounding one's romantic relationship may be related to uncertainty about who you are as person, and vice versa. I suggested that doubts about who you are as an individual and a couple may go hand in hand. Individuals may wonder; "are we a 'real family' if we don't have children," or "if I'm not a parent, what is my role as a husband/wife/partner". Therefore, I hypothesized that the experience of social and personal uncertainty are positively associated. Therefore:

H9: Relational uncertainty is positively related to personal uncertainty.

The connections between interpersonal communication satisfaction and uncertainty.

To further illuminate the relationship between social and personal uncertainty, communication satisfaction may be an important variable to consider. This is because uncertainty is fundamentally intertwined with communication, both in the expression of uncertainty and in the interpretation of uncertainty-provoking interactions. It is important to investigate the relationship between interpersonal communication satisfaction and uncertainty because communication episodes can create, heighten, mitigate, or negate the stress surrounding an uncertain situation. Fertility problems may cause romantic partners to experience increased stress (Goldberg, Downing, & Richardson, 2009), and the way that they communicate with one another may be

influential on their experience and their ability to effectively cope with it. Conversations with their romantic partner about their fertility goals, troubles, and hopes may be highly impactful, leaving the individual feeling understood, acknowledged, supported, and comforted. Or conversely, unpleasant interactions on the topic may leave the individual feeling cold, lonely, fearful and frustrated.

Because fertility is a topic fraught with identity and relationship implications, the quality of communication between partners on the subject could be impactful to the relationships' satisfaction and stability. Those experiencing fertility troubles note societal pressure to become parents (Greil, 1997), but the expectations and pressures expressed from their own partner may also be impactful. Having effective communication between romantic partners about their fertility problems and experiences may influence their own commitment to their partner and the relationship. Positive and competent communication about this highly sensitive and complicated topic may decrease uncertainty regarding their willingness to continue in the relationship. On the other hand, if a person with fertility troubles perceives the communication they have with their partner regarding their shared struggle as ineffective, insensitive, or lacking in terms of quality, they may feel less sure about their commitment to the relationship or to their partner.

Communication satisfaction is one of the outcomes commonly associated with competent and effective interpersonal communication (Hecht, 1978). We need to know more about how different forms of uncertainty are associated with the quality of communication in these relationships. Therefore, this study tested the following proposition:

H10: Interpersonal communication satisfaction during infertility is negatively associated with relational uncertainty.

Additionally, an individual's satisfaction regarding communication about fertility with their partner may be related to the amount of uncertainty they experience surrounding their own identities and roles. A couple may be unsure of who they are as individuals, as a couple, and as adults if they are unable to have children biologically (Bernardi & Klarner, 2014; Bute, 2009). Fertility troubles are experienced as a defining component of one's self-concept (Kraajj et al., 2009), and it may be expected that individuals will come to understand and negotiate their identity with their romantic partner, especially since fertility troubles are inherently dyadic. The quality of conversations about fertility between romantic partners, therefore, might be connected to their experience of personal uncertainty. If the experience of fertility problems may be related to questions about ones' identity, including their bodily integrity, self-concept, and emotional stability (Bute, 2009; Leiblum, 1996; te Velde et al., 2010), conversations about this topic might influence the degree to which they feel such uncertainty. For example, sharing information about a chronic health condition with a spouse can lead to better management of one's health (Checton, et al., 2012). Markman and colleagues (2010) found that marital communication is associated with marital satisfaction and quality. On the other hand, having difficulty in communicating with a spouse led to greater fertility-related stress according to Schmidt, Holstein, Christensen, and Boivin, (2005). Thus, I hypothesized that experiencing higher interpersonal communication satisfaction about fertility conversations with one's romantic partner would be related to lower personal uncertainty regarding their identity.

H11: Interpersonal communication satisfaction is negatively associated with personal uncertainty.

Next, the literature from the relational turbulence model will be reviewed.

RELATIONAL TURBULENCE MODEL

Of particular interest in my study of relational uncertainty as it is related to infertility, the relational turbulence model offers insights into how infertility as a transformative medical event impacts marriages and relationships. Knobloch and Solomon (1999; 2001) identified their work into relational uncertainty as the basis of understanding how extreme cognitive, emotional, and communication responses to relationship-modifying events were associated with intimacy and level of involvement in the relationship. Heightened reactivity in relationships is caused by ambiguity in relationship status and challenges related to behavioral merges of routines for interdependence (Knobloch & Solomon, 2001). Relational uncertainty is one of the mechanisms by which reactivity to events in a relationship occur. Specifically, relational turbulence as a result of relational uncertainty is characterized by three interrelated sources: self uncertainty, partner uncertainty, and relationship uncertainty (Knobloch & Solomon, 2001). The relational turbulence model suggests that relational uncertainty increases in transition periods related to increases in intimacy and seriousness of the relationship (Knobloch & Solomon, 2001), as well as other periods of transition and disruption. These other instances will be summarized next.

Summary of challenges that couples face. The relational turbulence model is a theoretical framework that has illustrated how people experience interpersonal phenomena during various periods of transition and disruption. Initially, the model sought to explain the transition from casual to more serious dating (Knobloch & Solomon, 1999; Solomon & Knobloch, 2001). Their conceptualization of uncertainty was then expanded to include certainty at any point in the relationship (Knobloch, 2008). Changes in relationships or circumstances create uncertainty that may lead to cognitive, emotional, and communicative outcomes, which is even more pronounced when relationships are going through a challenge or change (Knobloch,

2010; Knobloch & Donovan-Kicken, 2006). Relational turbulence (Knobloch, 2007a, 2010) offers a framework of relational uncertainty, outlining predictors and outcomes of relational uncertainty in both initial and ongoing romantic relationships. In fact, Knobloch (2008a) found that while doubts surrounding commitment occurred in both dating and marital relationships, in the more established relationships a whole host of sources for uncertainty emerged, including issues surrounding money and health.

Knobloch and Solomon and colleagues' work on the relational turbulence model and infertility is the most germane to this study, and therefore the rest of the literature review focuses on the underlying constructs of the relational turbulence model and its application to the context of infertility (Steuber & Solomon, 2008). However, it should be noted that more recent work has extended the model to other relationship disruptions and transitions, including depression (Knobloch & Delaney, 2012; Knobloch & Knobloch-Fedders, 2010), topic avoidance (Knobloch & Carpenter-Theune, 2004), and when a family member returns from deployment in military families (Knobloch et al., 2016). The relational turbulence model has been investigated through longitudinal design (Knobloch & Theiss, 2011), as well as how relational uncertainty was communicated in online forums (Steuber & Solomon, 2008), and between empty-nesters (Nagy & Theiss, 2011). The relational turbulence model has been tested in the context of hurtful messages in romantic relationships (McLaren & Solomon, 2014; Theiss, Knobloch, Checten, & Magsamen-Conrad, 2009). Theiss and Nagy (2013) examined partner responsiveness and relational communication across cultures.

Relational turbulence in Infertility. With regard to infertility, the relational turbulence model suggests that difficulty conceiving a child constitutes a transitional period in which partners may question or doubt the relationship and reevaluate their plan to develop a family, or

grapple with their own self-concepts related to reproduction (Greil, 1991; 1997; Steuber & Solomon, 2008). The doubts that characterize relational uncertainty may become even more heightened in situations of infertility, especially related to romantic partners' commitment, perceptions of gender roles, differences in opinions, and different levels of involvement (Greil, 1991; 1997; Steuber & Solomon, 2008). Dealing with infertility thus requires partners to renegotiate their shared goals in a way that may disrupt the future of their relationship, especially with regard to family planning (Steuber & Solomon, 2008).

In a study of 438 threads posted in online discussion boards related to infertility, Steuber and Solomon (2008) found that infertility dominated discussions between partners, online and offline, that frustration and disappointment were common emotional responses, and that finding places to cast blame were common behavioral responses. Women reported more time spent dealing with infertility than men, with women reporting a lack of instrumental support from male partners (Steuber & Solomon, 2008). Interdependence and mutual commitment were also discussed in people's conception of infertility as a medical problem their relationship was dealing with, and this included some use of 'us,' 'we,' and 'our' language, indicating a collectivist orientation in people dealing with infertility (Steuber & Solomon, 2008). Relational uncertainty was experienced as relational invalidation, or uncertainty around partners' involvement or commitment to the relationship, and blame with the direction of strong emotions like anger and sadness toward each partner (Steuber & Solomon, 2008). Relational uncertainty was further expressed as interference from partners by withdrawing from the pregnancy goals and violations of expectations related to treatment (Steuber & Solomon, 2008). Their research found that the relational turbulence model did not directly address identity development or shifts

in identity as a result of relational uncertainty, and they proposed this as an opportunity for future research (Steuber & Solomon, 2008), which the present study sought to address.

Uncertainty in relationships. Added to the concept of uncertainty tied to infertility, interpersonal communication in relationships becomes a site of increasing importance in managing uncertainty and facilitating adaptation (Knobloch & Solomon, 2003). Individuals relate to others through relationship conceptualizations, or the association of particular characteristics with their relationship (Knobloch & Solomon, 2003). People define their relationships through the messages they receive within and about the relationship, especially in regard to interpreting actions, creating continuity between interaction episodes, and choosing appropriate behaviors (Dillard, Solomon, & Samp, 1996; Duck, 1995; Honeycutt & Cantrill, 2001; Sigman, 1991; Wish, Deutsch, & Kaplan, 1976). The potential success of a relationship in moving beyond relational uncertainty is determined by equitable resolution of relationship-modifying events or episodes, such as expectation violations, conflict, problematic events, physical separation, and environmental changes (Knobloch & Solomon, 2002a). In order to overcome relational uncertainty, individuals must manage these relationship-modifying events in a way that advances the relationship rather than resulting in its termination (Baxter & Bullis, 1986; Lloyd & Cate, 1985; Planalp & Honeycutt, 1985; Planalp, Rutherford, & Honeycutt, 1988; Schwebel, Moss, & Fine, 1999). People's reactions to relationship-modifying events may increase relational uncertainty through the context of relational intimacy. In this instance, relational uncertainty is the amount of confidence people have in their perceptions of each partner's involvement in a relationship (Knobloch & Solomon, 1999).

Sources of relational uncertainty. Relational uncertainty may arise from the self, the partner, or the relationship (Knobloch & Solomon, 1999; 2002a; 2002b; 2003). Self uncertainty

is related to individual doubts people may develop about their own ability to participate in the relationship (Knobloch & Solomon, 2002a; 2002b). Partner uncertainty involves people questioning their partner's involvement and commitment to the relationship (Knobloch & Solomon, 2002a; 2002b). Relationship uncertainty includes individual doubts about their relation, such as the current status or potential of longevity (Knobloch & Solomon, 2002a; 2002b). Relational uncertainty includes a full spectrum of doubts related to interpersonal relationships that may manifest as self-uncertainty, partner uncertainty, or relationship uncertainty, and cause individuals to question their own desire for the relationship, the worth of the relationship, and whether the relationship is compatible with their future goals (Knobloch & Solomon, 2002a; 2002b). In the present study, social uncertainty from the tripartite model of uncertainty was conceptualized as relational uncertainty from the relational turbulence model because it was specific to the romantic relationship during a health stressor that presents unique challenges to couples coping with infertility.

Responses to relational uncertainty. In their study of 328 romantic relationships, Knobloch & Solomon (2002a) used 51 different hypothetical scenarios to explore the interaction between intimacy and relational uncertainty in order to determine the mechanisms through which relational uncertainty is realized in interpersonal relationships. Their results indicated that relational uncertainty decreases as intimacy increases (Knobloch & Solomon, 2002a; 2002b). Relational uncertainty was highest at the lowest levels of intimacy (Knobloch & Solomon, 2002a). They also found that close relationships are sites of intense emotions, such as sadness, anger, and fear, and these underscore the risks of relationship participation in general (Knobloch & Solomon, 2002a). People experienced relational uncertainty negatively, both cognitively and emotionally, but relational uncertainty may lead to pleasant outcomes in some situations,

especially as it allows for partners to reestablish their commitment to the relationship (Knobloch & Solomon, 2002a; 2002b). In light of infertility as a medical condition that would classify as a relationship-modifying event, the relationship between relational uncertainty and people's emotional and cognitive responses remains pervasive with large associations between the level of intimacy and the level of uncertainty (Knobloch & Solomon, 2002a; 2002b).

Previously, I hypothesized that medical uncertainty is inversely associated with willingness to seek various fertility treatments, and to invest important resources such as time and money (see hypotheses 4, 5, and 6). Medical uncertainty is not the only relevant form of uncertainty to consider in terms of these health behavior intentions related to fertility treatment. I expected that relational uncertainty is also related to willingness to make significant investments of time and money in infertility treatments in the future. Under conditions of heightened relational uncertainty and reactivity, partners must negotiate or renegotiate important relationship expectations and roles, as well as overcome differences in opinion regarding their fertility treatment plan or privacy boundaries surrounding sharing infertility-related information (Steuber & Solomon, 2008). Infertility in particular has been shown to cause people to question their gender roles within the relationship, their partners' commitment to them, and their partners' willingness to be there with them for the troublesome aspects of fertility problems (Greil, 1991; 1997; Steuber & Solomon, 2008). The extant literature demonstrates that part of dealing with fertility problems is negotiating and renegotiating shared goals with romantic partners. There is evidence (Solomon & Steuber, 2008) that especially if there is disagreement between romantic partners about their family planning, this relational uncertainty can actually disrupt the future of their relationship. If an individual's commitment to their partner or their relationship is unclear, they may be less willing to go through with additional fertility treatments or to invest their time

and financial resources in order to pursue treatment. Therefore, greater relational uncertainty ought to be associated with lower levels of directing resources toward fertility treatment:

H12: Relational uncertainty is inversely associated with intent to pursue various fertility treatments.

H13: Relational uncertainty is inversely associated with the amount of money that one is willing to spend on fertility treatments.

H14: Relational uncertainty is inversely associated with the amount of time that one is willing to pursue treatment.

Indirect effect of medical uncertainty through relational uncertainty. Hypotheses 4, 5, and 6 address how medical uncertainty may be related to intent to pursue various treatments, and intent to invest time and money into fertility treatment in the future. However, medical uncertainty may not be directly related to these behavioral outcomes. It is possible that medical uncertainty predicts fertility treatment plans specifically because medical uncertainty influences the relational climate and people's confidence in the stability of their romantic partnerships, which in turn is a criterion for their treatment plans. If a person with fertility problems has less relational uncertainty, they may be more willing to spend their time and money and intend to pursue more treatments despite their medical uncertainty. I expected that individuals' perceived relational uncertainty may actually mediate this relationship:

H15: Relational uncertainty mediates the association between medical uncertainty and intent to pursue various fertility treatments.

H16: Relational uncertainty mediates the association between medical uncertainty and the amount of money that one is willing to spend on fertility treatments.

H17: Relational uncertainty mediates the association between medical uncertainty and the amount of time that one is willing to pursue fertility treatment.

Previously, I posed the research question of whether medical uncertainty is positively or inversely associated with relationship satisfaction (RQ1). In addition to learning about how these two variables are related, I investigated how relational uncertainty may play a role. I anticipated that perceptions of relational uncertainty would mediate the relationship between medical uncertainty and relationship satisfaction, if there is one. Those who feel confident about their commitment to their romantic relationship in general, and their partner specifically, may not experience less relationship satisfaction, despite their medical uncertainty. There is some evidence to indicate that while medical uncertainty may directly affect satisfaction, relational uncertainty may also play a role. For example, Sormunen, Aanesen, Fossum, Karlgren, and Westerbotn (2018) explored fertility-related communication strategies used by women coping with infertility, and found that their ability to communicate effectively with their romantic partner was related to their coping success. My interpretation of their work is that medical uncertainty may influence relationship satisfaction directly, and that medical uncertainty may also influence relational uncertainty, which in turn influences relationship satisfaction. Thus, I hypothesized:

H18: Relational uncertainty mediates the association between medical uncertainty and relationship satisfaction.

My assessment of the literature on uncertainty in the illness context indicates that higher levels of relational uncertainty would be associated with lower levels of happiness in their romantic relationships (Theiss, Knobloch, Checten, & Magsamen-Conrad, 2009). I expected that infertility may also prompt relational uncertainty to arise as individuals reevaluate their

commitment to the relationship and each other. It is reasonable to anticipate that the less certain a person feels about their commitment to their romantic partner, their partner's commitment to them, or their desire to maintain the relationship itself, the less satisfied they would be with their romantic relationship in general. Therefore, I hypothesized:

H19: Relational uncertainty is inversely associated with relationship satisfaction.

CONCLUSION

The preceding literature review explored infertility as a medical condition impacting millions of people and contributing to uncertainty. Uncertainty in illness was explicated. The tripartite model of uncertainty was explored as a useful model for understanding the different types of uncertainty that may be experienced within the infertility context. Social uncertainty was positioned as relational uncertainty in the present research problem. The relational turbulence model was proposed as a framework for investigating the impact of infertility on relational uncertainty. The gaps in the literature were exposed with regard to understanding how interpersonal communication, uncertainty management, and identity shifts after experiencing infertility impact the current research on illness-related uncertainty. Steuber and Solomon (2008) called for additional research into the infertility and uncertainty. In order to help fill this gap of knowledge, the overarching purpose of this study was to determine to what extent the experience of medical uncertainty in the infertility context is related to the experience of personal and relational uncertainty. It also proposed to investigate how these various forms of uncertainty are related to relationship satisfaction, communication satisfaction, and important behavioral intentions such as intention to seek infertility treatment, how much time and money they would be willing to invest.

Chapter Three: Methods

The goal of this dissertation was to examine the experience of uncertainty, communication, and relationship quality in couples coping with fertility troubles. In the following sections, I will describe the data collection procedures, measures, and preliminary and main analyses conducted.

SAMPLING FROM QUALTRICS

The data in this study were collected through an online questionnaire. Due to the sensitivity of the topic, anonymous self-report was an appropriate form of data collection. Additionally, this study proposed to look at the relationships that may exist between uncertainty and intention to perform certain fertility-related behaviors in the future. All of this information can be captured through self-report. Researchers have often relied on convenience samples consisting of students, personal contacts, and/or other easy-to-obtain, geographically concentrated participant populations when collecting data for human research, but online instrument delivery technologies such as Qualtrics can assist in reaching externally valid participants (Brandon et al., 2014). Using an online survey can assist in avoiding social desirability biases, and allows participants to answer at their own pace (Chang & Krosnick 2009; Sue & Ritter 2012). Qualtrics' participant selection and recruitment, and the ability to tailor incentives to the complexity of the research instrument, helps to ensure data quality and also decreases participant attrition (Bryant et al., 2014). Additionally, Qualtrics removes survey responses that are incomplete, or surveys that were answered so quickly they might not contain strong data, resulting in higher quality data than unmonitored online questionnaires.

Qualtrics has research partnerships that allow it to solicit participation from a large participant pool. They utilize demographic screens that enable collection from a focused and

externally valid sample relevant to the research problem and questions. My dissertation investigated a population dealing with fertility troubles, a context which carries potential for stigmatization as well as identity, relational, and medical uncertainty. Qualtrics provides “unprecedented access to heretofore-inaccessible research populations” (Bryant et al., 2004, p. 109), which was useful when attempting to survey a population that may have been otherwise difficult to reach. Qualtrics’ panel aggregator was used to recruit online panel participants for this dissertation, which used digital fingerprinting technology and IP address checks to ensure that participants’ data were as valid and reliable as possible (Guillory et al., 2016). An added feature offered by Qualtrics restricted participants from duplicate participation by screening their IP addresses.

SAMPLING PROCEDURES

Screening questions. After receiving approval from the Institutional Review Board at The University of Texas for all procedures (study number 2017-12-0056), data collection commenced. The first step of this process was to screen potential respondents so that the sample was comprised of only individuals who could speak to the experience of uncertainty while facing fertility troubles. Initially, participants received an email from Qualtrics inviting them to participate in the study, and were provided with a link to a short survey that established their eligibility with screening questions. Prior to answering any questions, participants were presented with a consent form informing them about the nature of the survey, risks, benefits, and compensation procedures. If they consented to participate, they clicked through a link that stated “I agree to participate.”

Qualtrics targeted participants based on their profiling attributes which are included in online panels that are used to create detailed and accurate descriptions of potential participants

(Guillory et al., 2016). Eligibility requirements for participation included: self-identifying as experiencing fertility troubles, living in the United States, being 18 years of age or older, being able to read English, and having access to the internet. Participants were able to self-identify as “experiencing fertility troubles” rather than “being infertile” due to the dyadic nature of the diagnosis. If an individual’s romantic partner was infertile, s/he may be fertile, yet still experiencing infertility because of their inability to have a successful pregnancy together as a couple. This was also a strategic language choice to mitigate the stigmatizing nature of the label “infertile,” which people may not want to identify with.

This study sampled participants who were *currently* experiencing fertility troubles. Therefore, targeting criteria had to be met before the beginning of the instrument. These screening questions included “I am currently experiencing fertility troubles” or “My romantic partner is currently experiencing fertility troubles.” Due to the goals of the research, participants were also required to read English, and currently be in a romantic relationship. Sexual orientation was not included as inclusion criteria, participants were included regardless of their gender or the gender of their romantic partner. Those who did not pass the screening criteria were prevented from continuing with the survey.

Pilot Data Collection. To further establish the quality of the data provided by Qualtrics, I piloted my questionnaire before collecting a final dataset. Guided by Hertzog (2008), the sample size for this “soft launch” was 28 participants. This soft launch allowed me to establish the feasibility of the survey, and to check for variance on key constructs. As a result of the soft launch pilot study, I created a speed-check for respondents. Qualtrics standard procedure is to average the time it takes for respondents to complete the survey, and use half of this median time as a cut-off for speeding. Any respondents who finish the survey faster than the speed cut-off are

automatically removed from the sample. Using that criterion, the speed cut-off for this soft launch sample was 7.6 minutes. In order to increase rigor and ensure that the survey was completed in a thoughtful manner, I increased the speed cut off to a minimum completion time of 10 minutes.

Six participants in the soft launch indicated that they were in casual dating relationships. A variety of items asked respondents about the status and nature of their romantic relationship, their romantic partner, and key constructs such as relationship satisfaction, communication satisfaction, various forms of uncertainty, and their intentions regarding pursuing treatment for fertility in the future. Therefore, it was crucial that all respondents were able to speak to these issues. In light of this, I closed this relationship category for the full launch, meaning that anyone who identified as casually dating was not included in the sample moving forward. In summary, following the pilot study, relationship status became an additional screening factor for participation in this study.

DATA COLLECTION

Following the soft launch, full data collection commenced. I will review the data collection procedures, steps taken to clean and prepare the data, and the demographics of the final sample set. Participants determined to be eligible based on their responses to screening questions were presented with a consent form. Those participants who consented to participate in the study clicked a statement that read “I agree to participate,” and continued on to the survey where they answered questions related to demographics, medical uncertainty, relational uncertainty, personal uncertainty, relationship satisfaction, relationship quality, and medical behavior intentions (see descriptions below and the Appendices for complete measures). The participants were then debriefed on the purpose of the study, and provided with support

resources in case they experienced any distress as a result of participating (see Appendix J). Participants who completed the survey were compensated with the standard Qualtrics panel incentive, which can be redeemed for rewards and had an estimated value of approximately US \$7.00. This incentive structure and amount is commensurate with what Qualtrics and other survey panels provide to participants as compensation for this length of survey and these screening requirements (Guillory et al., 2016).

Data Cleaning. Initially, Qualtrics collected responses from 256 participants. In reviewing the data, 14 cases were eliminated for partial responses to the survey items. An additional 4 cases were removed due to contradictory or questionable qualitative statements. For example, in response to the final prompt of “Is there anything else you would like to add?”, one participant wrote “No, but I lied tho.” This case was considered unreliable, and was therefore removed from the final sample. In addition, due to the nature of this project and its focus on the experience of current fertility troubles within the context of a committed romantic relationship, participants who self-identified as being in casual or terminated relationships were ultimately removed from the sample. This included the six respondents who were “casually dating” from the soft launch, as well as six additional cases who self-identified as separated ($n = 3$) or divorced ($n = 3$). The logic behind this decision was that people who were no longer romantically involved with their partner would likely have a different set of fertility-related experiences, options, and goals than people who are still together with their romantic partner. Altogether, 25 cases were removed, with the final sample comprising 231 participants. All variables were examined for violations of the assumptions of normality, linearity, homoscedasticity, and independence. Tests of homogeneity of variance were checked using Levene’s tests, assumptions of normality were checked through the Kolmogorov-Smirnov

statistic, and scatter plots and histograms were created for all variables before Pearson correlations were calculated. The demographic features of this sample will be described in the following section.

Sample Demographics. The first block of demographic items included questions pertaining to the participants’ sex, ethnicity, education level, and income (see Appendix A). The final sample ($N = 231$) consisted of 175 females, 47 males, and 9 who declined to share their sex. The age of female participants ranged from 18 to 47 ($M = 29.4$, $SD = 6.57$), and the age of male age of participants ranged from 19 to 45 ($M = 32.00$, $SD = 11.83$). Ethnicities of participants included: 135 (58.4%) Caucasian, 19 (8.2%) Asian or Pacific Islander, 25 (10.8%) Latino/a or Hispanic, 24 (10.3%) Black or African American, 1 (.4%) Middle Eastern, 6 (2.6%) Native American, and 1 (.4%) other or multiple ethnicities. There were 20 participants (8.7%) who declined to indicate their ethnicity. See Table 1 for participants’ demographic proportions participants.

Table 1: Ethnicity Breakdown of Study Participants

Ethnicity	Count	Percentage
Caucasian	135	58.4%
Asian or Pacific Islander	19	8.2%
Latino/a or Hispanic	25	10.8%
Black or African American	24	10.3%
Middle Eastern	1	.4%
Native American	6	2.6%
Other or Multiple Ethnicities	1	.4%
Declined to Say	20	8.7%

Note. Percentages are based on $N = 231$.

Education level for participants was as follows: 89 (38.5%) had a high school or GED, 45 (19.5%) had an Associate’s degree, 50 (21.6%) had a Bachelor’s degree, 31 (13.4%) had a graduate degree, 10 (4.3%) selected “other”, and 6 (2.6%) declined to indicate their education

level. Annual income ranged from no income to over \$200,000. The income brackets participants fell into were: 32 (13.9%) making \$0-19,000, 43 (20.8%) making \$20-39,000, 41 (17.7%) making \$40-59,000, 35 (15.2) making \$60-79,000, 23 (10%) making \$80-99,000, 17 (7.4) making \$100-119,000, 6 (2.6%) making \$120-139,000, 5 (2.2%) making \$140-159,000, 6 (2.6%) making \$160-179,000, 7 (3%) making \$180-199,000, 10 (4.3%) making over \$250,000, and one participant (.4%) who declined to indicate their income.

The second block of demographic items included the participants' relationship length and the status of their romantic relationship. The relationship lengths in the sample ranged from 3 months to 300 months, or 25 years ($M = 65.83$ months or 5.5 years, $SD = 53.49$ months or 4.5 years, $MDN = 50$ months or 4.2 years). Participants characterized their current relationship as: seriously dating 29 (12.6%), long-term committed relationship 58 (25.1%), engaged 43 (18.6%), cohabitating domestic partnership 19 (8.2%), and married 82 (35.5%). See Table 2 for the proportions of relationship status represented in the sample.

Table 2: Relationship Status Breakdown

Relationship Status	Count	Percentage
Seriously dating	29	12.6%
Long-term committed	58	25.1%
Engaged	43	18.6%
Cohabitating/domestic partnership	19	8.2%
Married	82	35.3%

Note. Percentages are based on $N = 231$.

The third set of demographic factors collected were related to the nature of participants' experiences with fertility troubles (available in Appendix B). They included questions about their past expenses, the overall severity of their fertility troubles, and what type of fertility issues they were facing. The participants reported if they were experiencing primary or secondary infertility,

or in other words, if they already had a living child. In this sample, 52% of females ($n = 91$) did already have a living child, and were experiencing secondary infertility, whereas 48% ($n = 84$) reported primary infertility with no living children. Of the men, 55% ($n = 26$) had a living child, while 45% ($n = 21$) did not already have a child. See Table 3 for participants' type of infertility (either primary or secondary) for females, males, and total participants.

Table 3: Type of Infertility Breakdown by Sex

Type of Infertility	Primary Count	Primary Percentage	Secondary Count	Secondary Percentage
Males	26	55.3%	21	44.7%
Females	91	52%	84	48%
Total Participants	117	52.7%	105	47.3%

Note. Percentages are based on $N = 222$.

Participants reported how much money they had spent in the past on fertility-related treatments. This figure varied widely from one individual to the next—expenses ranged from \$0-30,000—with an average of several thousand dollars ($M = \$6,522$, $SD = \$26,527$). This is a huge spread on the standard deviation, however participants reported a large variation in the amount of money they had spent. This is in keeping with the spending behaviors of larger population, where median costs range from \$1,182 to \$38,015 (Katz, Showstack, Smith, Nachtigall, Millstein, Wing, Eisenberg, Pasch, Croughan, & Adler, 2011).

The extent of fertility troubles is an independent variable in hypotheses 1, 9, and 12. This variable was operationalized as participants' score on the 10-point scale item "I would describe my (and/or my partner's) fertility troubles as being..." with an option ranging from (1) *very mild* to (10) *very severe*. It was preceded by the prompt, "The next item asks you to consider overall the extent of your fertility troubles." Higher scores on this item correspond to greater severity of

fertility troubles. The participants ranged the full spectrum, skewing toward greater severity ($M = 6.59$, $SD = 2.47$). The length of time participants had spent in trying to conceive also varied widely, with a range of 0 to 156 months, or 13 years ($M = 31.93$ months or 2.66 years, $SD = 32.07$).

Debrief. After the survey, participants were presented with a debrief page, which became available when participants either completed the survey, or decided to discontinue their participation, which they were able to do at any time. In the event that participants experienced distress, sadness, or grief, support resource information was provided. These sources for support are free and easily accessible, and provide quality information and support to those experiencing fertility troubles (Burns, 2007). They included the phone number and online address for the American Society for Reproductive Medicine (ASRM), and the National Infertility Association (RESOLVE).

MEASURES

A series of scales were used to assess the relationships between various forms of uncertainty, communication satisfaction, relationship satisfaction, and behavioral intentions. The following paragraphs detail these scales and review their prior use and reliability.

Medical uncertainty. This medical uncertainty scale was adapted from Mishel's (1999) Uncertainty in Illness Scale (UIS or MUIS), which was theoretically grounded in Mishel's uncertainty in illness theory (Mishel, 1984; 1990) and follows Mishel's (1988, 1990) conceptualization of uncertainty in illness. In this scale, uncertainty was measured in four subscales including ambiguity, lack of clarity, lack of information, and unpredictability. This measure has been used extensively, with its validity and reliability demonstrated in previous studies (see Clayton et al., 2006, 2008; McCormick, 2002.; McCormick et al., 2006; Mishel,

1999). Sample items from the original scale include “I don’t know what is wrong with me,” “The purpose of each treatment has been clear to me,” and “Because of the unpredictability of my condition I cannot plan for the future.”

For the purposes of this study, the scale was modified to address infertility specifically, rather than illness generally. For example, “the purpose of each treatment has been clear to me” was modified to “the purpose of each infertility treatment has been clear to me.” Participants responded to a 5-point Likert-type response scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*) to assess their response to items. The anchors on the original scale yield values such that lower scores correspond to greater uncertainty. However, on the other measures of uncertainty (relational and personal, to be discussed momentarily), higher scores are meant to indicate higher uncertainty. Therefore, to avoid confusion in interpreting the results, I reverse coded the items on the medical uncertainty measure so that higher scores would equal higher medical uncertainty.

There were four items that could only be answered if the participant had spoken to a health care provider about their fertility troubles, which not all participants were presumed to have done. In order to address this, I constructed the survey flow to set these apart. They included statements such as “I know what treatment we are currently pursuing for the fertility troubles,” “The doctors say things to me about fertility troubles that could have many meanings,” “I understand everything explained to me about my treatment options,” and “The purpose of each fertility treatment is clear to me.” The participants were offered the prompt “Have you consulted with a medical professional about your fertility troubles”? Those who answered affirmatively were able to provide responses to the four items. On this modified version, items 15, 16, 17, 21, 22, 24, 25, 26, 29, and 33 were reverse-coded (See Appendix C for the original and revised order of items). Reliability for the 35-item scale was established ($\alpha = .78$, $M =$

112.65, $SD = 18.82$), and a composite was formed by calculating an average score for medical uncertainty across the items. Higher scores correspond to greater levels of medical uncertainty.

Relational uncertainty scale. As argued in the previous chapter, a central variable in this study, social uncertainty, was designed to be operationalized through the existing measure for relational uncertainty. This measure has three subscales that assessed self, partner, and relational uncertainty using items developed by Knobloch and Solomon (1999) and adapted by Merolla and Steinberg (2007). Self uncertainty reflects the presence of doubts about the respondent's own involvement in the relationship. Partner uncertainty represents the respondent's doubts about the romantic partner's involvement in the relationship. Relationship uncertainty addresses questions about the status and future of the relationship in general. These measurements have shown evidence of both reliability and validity in previous studies (see Knobloch, 2007a, 2010; Steuber & Solomon, 2012; Theiss & Estlein, 2014). In the published version of the scale, participants respond to a 6-point Likert-type response scale (1 = *Completely or Almost Completely Uncertain* to 6 = *Completely or Almost Completely Certain*) to assess their response to items with the stem "How certain are you about...?". However, in constructing my own survey in Qualtrics, I inadvertently set the Likert scale to 7 points, allowing for a central neutral point on the score 4. (In reviewing the score distribution, there was no reason to believe that respondents defaulted to the neutral midpoint with any unusual frequency.) All responses were reverse coded so that higher scores on the Relational Uncertainty Scale indicated more relational uncertainty (See Appendix D). The entire scale had a Cronbach's α of .96 ($M = 2.46$, $SD = 1.64$). See Table 4 for the individual self, partner, and relationship uncertainty subscales' means, standard deviations, and reliabilities.

Table 4: Relational Uncertainty Subscales Reliability

Relational Uncertainty Subscales	<i>M</i>	<i>SD</i>	Cronbach's α
Self (<i>N</i> = 221)	2.45	1.70	.91
Partner (<i>N</i> = 222)	2.50	1.65	.93
Relationship (<i>N</i> = 223)	2.40	1.58	.90

Self-uncertainty contains 4 items. These items include: (1) how you feel about this relationship, (2) your view of the relationship, (3) your goals for the future of this relationship, and (4) how important this relationship is to you. Cronbach's α for self-uncertainty items was .91 ($M = 2.45$, $SD = 1.55$). Partner uncertainty contains 4 items with parallel wording to the self-uncertainty section. Items include; (1) how does your partner feel about this relationship, (2) your partner's view of this relationship, (3) your partner's goals for the future of this relationship, and (4) how important this relationship is to your partner. Cronbach's α for partner uncertainty items was .93 ($M = 2.53$, $SD = 1.53$). Relationship uncertainty also includes 4 items: (1) how you can or cannot behave around your partner, (2) the current status of this relationship, (3) the definition of this relationship, and (4) the future of the relationship. Cronbach's α for relationship uncertainty items was .90 ($M = 2.43$, $SD = 1.41$).

Personal uncertainty. Based off of Brashers' (2003) conception of uncertainty as emerging from multiple sources, and Donovan and colleague's work applying the tripartite model of uncertainty to adolescents and young adults with cancer (2014a, 2014b), I created several items to measure personal uncertainty surrounding identity. These items were guided by the identity concerns frequently raised in the extant infertility literature and informed by the codebook used to categorize expressions of uncertainty from Donovan et al.'s (2014a) work. (Please see Appendix K for the codebook for Sources of Uncertainty in Young Adults with Cancer.)

Several sources of personal uncertainty during illness were established by Donovan and colleagues (2014a). They found evidence that demonstrated how health challenges could have unclear implications for individual's roles, identities, and financial stability. They established two sub-categories for personal uncertainty: complex role and identity challenges, and unclear financial and career consequences. Similarly, individuals with fertility troubles may have uncertainty about their own personal status or roles. For example, due to the ambiguous nature of infertility diagnoses, they may not know if they are "healthy" (fertile) or "sick" (fertility-impaired). For individuals who always imagined becoming a biological parent, they may have to reevaluate this core part of their identity as they move forward. Due to their fertility troubles, they may experience global affective changes where their overall emotional state is in flux. Items for complex role and identity challenges in the present study included "Whatever happens with my fertility troubles, I know exactly who I am" and "If my fertility troubles are not resolved, I will feel lost."

Participants will respond to a 5-point Likert-type response scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*) to assess their response to items. The 7 personal identity uncertainty items included "I'm not sure what my fertility troubles means in terms of how I see myself," "If I am not able to have biological children, I am not sure who I am," "At this moment, I am uncertain about my identity," "In general, I have questions about what my roles are because of my fertility troubles," "Whatever happens with my fertility troubles, I know exactly who I am" (reverse scored), "I have always thought that 'parent' would be a central part of my identity," and "If my fertility troubles are not resolved, I will feel lost." Higher scores on this measure correspond to greater levels of personal uncertainty (See Appendix E). Due to an inadvertent mistake in the survey flow, item 7 was labeled as item 8. The item 7 line was a prompt to the participants, and

had no corresponding answer options. In short, “If my fertility troubles are not resolved, I will feel lost” was labeled as Personal Identity Uncertainty Item 8, despite there being a total of 7 items. Two items were dropped from the scale in order to achieve an acceptable reliability ($\alpha = .84$, $M = 2.96$, $SD = 1.02$), and a composite was formed by taking the average score of the items.

The deleted items were “Whatever happens with my fertility problems, I know exactly who I am” and “I have always thought that ‘parent’ would be a central part of my identity.” Before removing these two items, the Cronbach’s alpha for the complete measure was $\alpha = .69$. After item five (“*Whatever happens with my fertility problems, I know exactly who I am*”) was dropped, the reliability improved to $\alpha = .82$, and once item six (“*I have always thought that “parent” would be a central part of my identity*”) was dropped, the alpha became $\alpha = .84$. Beyond the improvement in scale reliability, these two items emerged as different from the other items on the scale in a more conceptual way. They both tapped into slightly different qualitative fertility and identity themes than the other items on the measure, particularly in how they relate to the experience of uncertainty. With those related, yet qualitatively different, items removed, we had confidence that this measure assessed the construct of personal uncertainty adequately.

Relationship satisfaction. The ten-item Marital Opinion Questionnaire (Huston, McHale, & Crouter, 1986) assessed participants’ satisfaction with their romantic relationships. Participants were prompted to think of their relationship over the past two months, and to respond to 9 semantic differential scales. Items included (1) miserable – enjoyable, (2) helpful – harmful, (3) hopeful – discouraging, and (4) empty – full. The tenth item asked participants to complete a 7-point Likert scale item indicating their overall satisfaction with their partner, ranging from completely dissatisfied to completely satisfied. Items 1, 4, 7, and 8 were reverse coded, so that higher scores on this scale corresponded to less relationship satisfaction (See

Appendix F). To calculate a score for this scale, I followed the instructions of the authors and added the composite of the first 9 items with the single Likert scale (item 10) and divided by two. This average became the composite relationship satisfaction score. Reliability was satisfactory at $\alpha = .90$ ($M = 49.79$, $SD = 12.68$).

Perceived relationship quality component inventory. This measurement (Fletcher, Simpson, & Thomas, 2000) consisted of 18 items related to various factors that contribute to relationship satisfaction. Each perceived relationship quality component (e.g., relationship satisfaction, commitment, intimacy, trust, passion, and love) was assessed using three questions. Each statement was answered on a 7-point Likert-type scale (1 = *Not at All* to 7 = *Extremely*). Participants were asked to rate their romantic partner and relationship on each item. Higher scores on the PRQC inventory correspond to greater relationship satisfaction. This measure adds additional nuance to the present study's understanding of relationship satisfaction, because although the Marital Opinion Questionnaire (Huston, McHale, & Crouter, 1986) targets relationship satisfaction generally, the PRQC gathers specific information about commitment, intimacy, trust, passion and love (See Appendix G). Cronbach's α for specific relationship quality components were: relationship satisfaction $\alpha = .93$ ($M = 16.80$, $SD = 4.33$), commitment $\alpha = .91$ ($M = 17.65$, $SD = 4.00$), intimacy $\alpha = .87$ ($M = 16.74$, $SD = 4.00$), trust $\alpha = .90$ ($M = 17.04$, $SD = 4.29$), passion $\alpha = .90$ ($M = 17.04$, $SD = 4.29$), and love $\alpha = .88$ ($M = 15.66$, $SD = 4.66$).

Medical treatment behavior intentions. I developed a series of questions related to choices about relevant medical behavior intentions. This included information on what fertility treatments the participant had already pursued and their intention to seek fertility treatments in the future, and items related to their intention to spend important resources such as time and money on fertility treatments in the future. The variables of money and time were captured by

participants' self-reported willingness to spend a specific dollar amount and time in months and years. Higher scores correspond to greater intention to spend their time and money on fertility treatments in the future. Their willingness to seek treatment in the future was captured by a scale from 0-100, with 0 indicating that they had no intention at all to seek treatment in the future, and 100 indicating complete intention to seek treatment in the future (See Appendix H).

Interpersonal communication satisfaction inventory. This instrument (Hecht, 1978) consisted of 19 items related to various factors that contribute to interpersonal communication satisfaction. Each statement was answered on a 7-point Likert-type scale (1 = *Strongly Agree* to 7 = *Strongly Disagree*). Participants were asked to rate their communication satisfaction regarding conversations with their partner on each item. Items 2, 5, 6, 11, 12, 17, 18, and 19 were reverse-coded. This measure has demonstrated strong validity and reliability when used to measure communication satisfaction with actual or recalled conversations with conversational partners including those who are perceived to be a friend, acquaintance, or stranger. For the purposes of this study, the directions were edited to direct the participant to reflect on actual conversations they have held with their romantic partner related to their fertility. Item four was edited from "The other person genuinely wanted to get to know me" to "My romantic partner genuinely wanted to understand me" (See Appendix I). The reliability for this scale was $\alpha = .85$ ($M = 60.79$, $SD = 16.60$), and a composite was created by averaging the scores on the scale items.

Chapter Four: Results

PRELIMINARY ANALYSES

Several predictions were made about the experience of uncertainty and fertility troubles. Initially, a series of preliminary analyses were conducted to learn more about the relationship between these variables, and to identify any control variables that would be worth considering for the main analyses. The preliminary analyses included bivariate Pearson correlations, and mean difference tests (i.e., ANOVAs and t-tests). These preliminary results are provided below.

CORRELATIONS

The goal of this dissertation was to test the assumption that uncertainty about fertility troubles shares a relationship with other key factors (such as communication and relationship satisfaction and behavioral outcomes). To begin, simple Pearson correlations were conducted for Research Question 1 and Hypotheses 1-19. The following sections review the correlation results.

Research Question 1. Research question one asks what direction the relationship is between medical uncertainty and relationship satisfaction. Rather than asking about the direction of the relationship, this question should perhaps have been phrased “Is there a relationship between medical uncertainty and relationship satisfaction, and if so, what direction?” because I was interested both in the existence and direction of a significant relationship between these variables. There were two measures of relationship satisfaction utilized (the Marital Opinion Questionnaire and the Perceived Relationship Quality Components scales), the second of which is comprised of six subscales. Therefore, multiple Pearson correlations were performed to provide preliminary information to answer this research question [See Table 5]. A Pearson correlation was performed to examine the relationship between medical uncertainty and relationship satisfaction as measured by the Marital Opinion Questionnaire, $r = .284$, $n = 224$, p

< .01. This significant positive relationship indicated that as medical uncertainty increased, relationship satisfaction increased as well.

Another set of Pearson correlations were performed between medical uncertainty and the subscales of the Perceived Relationship Quality Components scale, including satisfaction, commitment, intimacy, trust, passion, and love. Given the nature of the research question, the satisfaction subscale was the most germane, but all six are included here and in Table 5. The Pearson correlation coefficient between medical uncertainty and the PRQC subscales were as follows; satisfaction ($r = .25, n = 225, p < .001$); commitment ($r = .13, n = 223, p = .06$ nonsignificant), intimacy ($r = .23, n = 224, p < .001$), trust ($r = .15, n = 224, p < .05$), passion ($r = .24, n = 224, p < .01$), and love ($r = .08, n = 224, p = .22$ nonsignificant). There were positive significant relationships at the .01 level between medical uncertainty and the satisfaction, intimacy, and passion subscales. There was a significant positive relationship at the .05 level for medical uncertainty and the subscale of trust. This second measure of relationship satisfaction, therefore, also offers some support that medical uncertainty and relationship satisfaction do share a significant positive relationship.

Table 5: Correlations for RQ1

Scales	1 <i>n</i> = 225	2 <i>n</i> = 224	3 <i>n</i> = 225	4 <i>n</i> = 223	5 <i>n</i> = 224	6 <i>n</i> = 224	7 <i>n</i> = 224	8 <i>n</i> = 224
1- Medical Uncertainty	1	.284**	.253**	.126	.231**	.149*	.240**	.082
2- MOQ	.284**	1	.652**	.548**	.625**	.639**	.561**	.556**
3- PRQC satisfaction	.253**	.652**	1	.768**	.802**	.784**	.733**	.764**
4- PRQC commitment	.126	.548**	.768**	1	.723**	.736**	.509**	.824**
5- PRQC intimacy	.231**	.625**	.802**	.723**	1	.727**	.820**	.684**
6- PRQC trust	.149*	.639**	.784**	.736**	.727**	1	.602**	.735**
7- PRQC passion	.240**	.561**	.733**	.509**	.820**	.602**	1	.545**
8- PRQC love	.082	.556**	.764**	.824**	.684**	.735**	.545**	1

Notes. * correlation is significant at the 0.05 level (2-tailed). ** correlation is significant at the 0.01 level (2-tailed).

Please see Table 6 for a complete correlation matrix.

HYPOTHESIS 1. Initially, a Pearson correlation was performed to examine the relationship between the extent of fertility troubles and medical uncertainty. As seen in Table 6, the strength of the relationship was weak ($r = .1$). The relationship between medical uncertainty and the severity of fertility problems was evaluated using Pearson correlation coefficient. This sample did not offer support that there is a relationship between these two variables, $r = .081$, $n = 222$, $p = .23$ (nonsignificant).

Hypothesis 2. There was a significant negative relationship between medical uncertainty and relational uncertainty, $r = -.260$, $n = 224$, $p < .01$, which suggests that as medical uncertainty increases, relational uncertainty decreases. This was the opposite direction predicted by the hypothesis.

Hypothesis 3. The relationship between medical and personal uncertainty was examined in order to determine if there was support for hypothesis 3. As seen in Table 6, with the Pearson coefficient at $r = .015$, $n = 225$, $p = .70$ (nonsignificant), there was no evidence of a relationship between medical uncertainty and personal uncertainty.

Hypothesis 4. The fourth hypothesis predicted that medical uncertainty would be inversely associated with intent to pursue various fertility treatments in the future. The correlation coefficient did not indicate support for this relationship: $r = .089$, $n = 214$, $p = .37$ (nonsignificant).

Hypothesis 5. The fifth hypothesis predicted that medical uncertainty would be inversely associated with the amount of money that one is willing to spend on fertility treatments. However, with a correlation coefficient of $r = -.014$, $n = 202$, $p = .82$ (nonsignificant), this hypothesis was not supported.

Hypothesis 6. The sixth hypothesis was also not supported within this sample $r = -.043$, $n = 197$, $p = .78$ (nonsignificant). This correlation coefficient indicates that medical uncertainty is not significantly associated with the amount of time that one is willing to pursue fertility treatment.

Hypothesis 7. The relationship between the severity of fertility troubles a person reported and their personal uncertainty was assessed and a significant positive association was found, $r = .24$, $n = 224$, $p < .01$. This indicates that as severity of fertility troubles increases, so does personal uncertainty. This provides preliminary support for hypothesis 7.

Hypothesis 8. The eighth hypothesis predicted that the severity of fertility troubles would be positively associated with relational uncertainty, and also found support through a Pearson correlation; $r = -.25$, $n = 223$, $p < .01$. This significant negative relationship is the opposite direction of what was hypothesized in hypothesis 8, demonstrating a negative relationship.

Hypothesis 9. The ninth hypothesis predicted that relational uncertainty would be positively related to personal uncertainty, but the correlation coefficient indicated that there was no evidence of a significant relationship between relational and personal uncertainty; $r = -.053$, $n = 224$, $p = .62$ (nonsignificant).

Hypothesis 10. The tenth hypothesis predicted that interpersonal communication satisfaction would be negatively associated with relational uncertainty. There was no evidence of a significant relationship found between communication satisfaction and relational uncertainty; $r = .055$, $n = 224$, $p = .28$ (nonsignificant).

Hypothesis 11. The eleventh hypothesis predicted that interpersonal communication satisfaction would be negatively associated with personal uncertainty. The correlation coefficient, $r = -.223$, $n = 225$, $p < .01$, provided preliminary support for hypothesis 11.

Hypothesis 12. The twelfth hypothesis predicted that relational uncertainty would be inversely associated with intent to pursue various fertility treatments in the future. The correlation coefficient was $r = -.200$, $n = 213$, $p < .05$, offering initial support for hypothesis 12.

Hypothesis 13. The thirteenth hypothesis predicted that relational uncertainty would be inversely associated with the amount of money that one is willing to spend on fertility treatments in the future. It was not supported; $r = -.018$, $n = 201$, $p = .82$ (nonsignificant).

Hypothesis 14. The fourteenth hypothesis was also not supported; $r = -.051$, $n = 196$, $p = .48$ (nonsignificant). This indicates that there is no evidence for the predicted association of relational uncertainty being inversely associated with the amount of time that one is willing to pursue treatment in the future.

Table 6: Correlations for Key Variables

Scales	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
N	<i>n</i> =225	<i>n</i> =225	<i>n</i> =224	<i>n</i> =225	<i>n</i> =224	<i>n</i> =225	<i>n</i> =223	<i>n</i> =224	<i>n</i> =224	<i>n</i> =224	<i>n</i> =224	<i>n</i> =202	<i>n</i> =214	<i>n</i> =197	<i>n</i> =196
1- Medical Uncertainty	1	.015	-.260**	-.175**	.284**	.253**	.126	.231**	.149*	.240**	.082	-.014	.089	-.043	.081
2- Personal Uncertainty	.015	1	-.053	-.223**	.024	.050	.044	.092	-.008	.099	.005	-.054	.261**	.160*	.239**
3- Relational Uncertainty	-.260**	-.053	1	.055	-.665**	-.774**	-.736**	-.744**	-.740**	-.591**	-.693**	-.018	-.200**	-.051	-
4- Com Satisfaction	-.175**	-.223**	.055	1	-.167*	-.191**	-.079	-.203**	-.145*	-.181**	-.099	-.013	-.107	-.126	.254**
5- MOQ	.284**	.024	-.665**	-.167*	1	.652**	.548**	.625**	.639**	.561**	.556**	.021	.235**	.104	.229**
6- PRQC satisfaction	.253**	.050	-.774**	-.191**	.652**	1	.768**	.802**	.784**	.733**	.764**	.005	.250**	.084	.209**
7- PRQC commitment	.126	.044	-.736**	-.079	.548**	.768**	1	.723**	.736**	.509**	.824**	.028	.187**	.039	.259**
8- PRQC intimacy	.231**	.092	-.744**	-.203**	.625**	.802**	.723**	1	.727**	.820**	.684**	.060	.222**	.130	.257**
9- PRQC Trust	.149*	-.008	-.740**	-.145*	.639**	.784**	.736**	.727**	1	.602**	.735**	.075	.201**	.016	.206**
10- PRQC passion	.240**	.099	-.591**	-.181**	.561**	.733**	.509**	.820**	.602**	1	.545**	.045	.254**	.135	.188*
11- PRQC love	.082	.005	-.693**	-.099	.556**	.764**	.824**	.684**	.735**	.545**	1	.079	.181**	.066	.175**
12- Money	-.014	-.054	-.018	-.013	.021	.005	.028	.060	.075	.045	.079	1	.114	.136	.003
13-Treatment	.089	.261**	-.200**	-.107	.235**	.250**	.187**	.222**	.201**	.254**	.181**	.114	1	.251**	.090
14- Time	-.043	.160*	-.051	-.126	.104	.084	.039	.130	.016	.135	.066	.136	.251**	1	.117
15- Severity	.081	.239**	-	-.152*	.229**	.209**	.259**	.257**	.206**	.188*	.175**	.003	.090	.117	1
			.254**												

Notes. * correlation is significant at the 0.05 level (2-tailed). ** correlation is significant at the 0.01 level (2-tailed).

Hypotheses 15-18. The next set of hypotheses predicted indirect relationships between medical uncertainty and behaviors—intent to pursue fertility treatments (H15); amount of money one would spend (H16); and amount of time one would commit (H17)—as well as an indirect relationship between medical uncertainty and relationship satisfaction (H18). All of these indirect associations were hypothesized to be mediated by relational uncertainty. The preliminary analyses demonstrated little to no evidence that H16 or H17 warranted further testing. H15 and H18 will be examined with regression and mediation analyses later in this chapter.

Hypothesis 19. Hypothesis nineteen predicted that relational uncertainty would be inversely associated with relationship satisfaction. Please refer to Table 7 for details; as a reminder, relationship satisfaction was captured by two measures (the MOQ and the PRQC). The bivariate association between relational uncertainty and relationship satisfaction as measured by the Marital Opinion Questionnaire was significant, $r = -.67, n = 224, p < .01$. As relational uncertainty increased, relationship satisfaction decreased, offering support for H19.

Another set of Pearson correlations were calculated between relational uncertainty and the subscales of the Perceived Relationship Quality Components scale, including satisfaction, commitment, intimacy, trust, passion, and love. Given the nature of the research question, the satisfaction subscale was the most germane, but all six are included here and in Table 7. The correlation coefficients between relational uncertainty and the PRQC subscales were as follows; satisfaction ($r = -.77, n = 224, p < .01$); commitment ($r = -.74, n = 222, p < .01$), intimacy ($r = -.74, n = 223, p < .01$), trust ($r = -.74, n = 223, p < .01$), passion ($r = -.59, n =$

223, $p < .01$), and love ($r = -.69, n = 223, p < .01$). There were negative significant relationships at the .01 level between relational uncertainty and all six of the PRQC subscales, offering additional preliminary evidence of support for Hypothesis 19.

Table 7: Correlations Among Relational Uncertainty and Measures of Relationship Satisfaction

Scales	1	2	3	4	5	6	7	8
	<i>n</i> = 224	<i>n</i> = 224	<i>n</i> = 224	<i>n</i> = 222	<i>n</i> = 223	<i>n</i> = 223	<i>n</i> = 223	<i>n</i> = 223
1- Relational Uncertainty	1	-.665**	-.774**	-.736**	-.744**	-.740**	-.591**	-.693**
2- MOQ	-.665**	1	.652**	.548**	.625**	.639**	.561**	.556**
3- PRQC satisfaction	-.774**	.652**	1	.768**	.802**	.784**	.733**	.764**
4- PRQC commitment	-.736**	.548**	.768**	1	.723**	.736**	.509**	.824**
5- PRQC intimacy	-.744**	.625**	.802**	.723**	1	.727**	.820**	.684**
6- PRQC trust	-.740**	.639**	.784**	.736**	.727**	1	.602**	.735**
7- PRQC passion	-.591**	.561**	.733**	.509**	.820**	.602**	1	.545**
8- PRQC love	-.693**	.556**	.764**	.824**	.684**	.735**	.545**	1

Note. * correlation is significant at the 0.05 level (2-tailed). ** correlation is significant at the 0.01 level (2-tailed).

Correlation coefficient summary. As reviewed above and as seen in Table 6, Pearson coefficient results showed that indeed some significant positive and negative relationships exist between key constructs. Below, Table 8 reviews hypotheses 1 through 19 and indicates which had evidence of support through these preliminary analyses, and which did not.

Table 8: Preliminary Evidence of Support for Hypotheses

Hypothesis or Research Question	Evidence of Significant Association Between Variables through Preliminary Analysis	Evidence of Support for Hypothesis through Preliminary Analysis
H1: Extent of fertility troubles is positively associated with medical uncertainty.	No	No
H2: Medical uncertainty is positively associated with relational uncertainty.	Yes	No
H3: Medical uncertainty is positively associated with personal uncertainty.	No	No
H4: Medical uncertainty is inversely associated with intent to pursue various fertility treatments.	No	No
H5: Medical uncertainty is inversely associated with the amount of money that one is willing to spend on fertility treatments.	No	No

Table 8 (continued)

H6: Medical uncertainty is inversely associated with the amount of time that one is willing to pursue fertility treatment.	No	No
H7: Extent of fertility troubles is positively related to personal uncertainty.	Yes	Yes
H8: Extent of fertility troubles is positively associated with relational uncertainty.	Yes	No
H9: Relational uncertainty is positively related to personal uncertainty.	No	No
H10: Interpersonal communication satisfaction is negatively associated with relational uncertainty.	No	No
H11: Interpersonal communication satisfaction is negatively associated with personal uncertainty.	Yes	Yes
H12: Relational uncertainty is inversely associated with intent to pursue various fertility treatments.	Yes	Yes
H13: Relational uncertainty is inversely associated with the amount of money that one is willing to spend on fertility treatments.	No	No
H14: Relational uncertainty is inversely associated with the amount of time that one is willing to pursue treatment.	No	No

Table 8 (continued)

H15: Relational uncertainty mediates the association between medical uncertainty and intent to pursue various fertility treatments.	No	Yes (H12)
H16: Relational uncertainty mediates the association between medical uncertainty and the amount of money that one is willing to spend on fertility treatments.	No	No
H17: Relational uncertainty mediated the association between medical uncertainty and the amount of time that one is willing to pursue fertility treatment.	No	No
H18: Relational uncertainty mediates the association between medical uncertainty and relationship satisfaction.	Yes (RQ1)	Yes
H19: Relational uncertainty is inversely associated with relationship satisfaction.	Yes	Yes

POTENTIAL CONTAMINATING OR CONTROL VARIABLES

To investigate the possibility that other individual and relationship characteristics might play a role in these findings, the following section describes statistical tests to evaluate possible control variables for the main analyses. Although not formally predicted as hypotheses during the conceptualization of this study, I decided that it would

be prudent to examine potential mean differences on key variables when comparing participant groups by sex, education, ethnicity, relationship status, and parenthood status.

PRELIMINARY ANALYSIS EXAMINING POTENTIAL SEX DIFFERENCES

There is reason to suspect that the infertility experience, like many health conditions, is gendered such that it is internalized and experienced differently by men and women. For that reason, as a preliminary step for organizing the data, I wanted to evaluate whether there are any consistent differences on key variables in this study between men and women. A series of t-tests were conducted to test for mean differences.

Sex and Medical Uncertainty. An independent-samples t-test was conducted to compare the medical uncertainty scores for males and females. There was not a significant difference in scores for males ($M = 3.19, SD = .49$) and females ($M = 3.15, SD = .45$); $t(220) = .438, p = .331$ (nonsignificant), two-tailed. This indicates that there was no evidence of a significant association between sex and medical uncertainty.

Sex and Personal Uncertainty. An independent-samples t-test was used to compare the personal uncertainty scores for males and females. There was no evidence of a significant difference in scores for males ($M = 2.99, SD = 2.95$) and females ($M = 2.95, SD = 1.01$); $t(220) = .226, p = .591$ (nonsignificant), two-tailed.

Sex and Relational Uncertainty. An independent-samples t-test was used to compare the relational uncertainty scores for males and females. There was no evidence of a significant difference in scores for males ($M = 2.77, SD = 1.48$) and females ($M = 2.36, SD = 1.35$); $t(219) = 1.77, p = .731$ (nonsignificant), two-tailed.

Sex and Communication Satisfaction. An independent-samples t-test was used to compare the communication satisfaction scores for males and females. There was a significant difference in scores for males ($M = 2.80, SD = .859$) and females ($M = 3.31, SD = .82$); $t(220) = -3.77, p < .001$, two-tailed. This indicated that females on average had higher communication satisfaction than males.

Sex and Relationship Satisfaction (MOQ). An independent-samples t-test was used to compare the relationship satisfaction scores for males and females using the MOQ. There was no evidence of a significant difference in scores for males ($M = 4.96, SD = 1.37$) and females ($M = 5.17, SD = 1.30$); $t(219) = -.968, p = .723$ (nonsignificant), two-tailed.

Sex and Relationship Satisfaction (PRQC). An independent-samples t-test was also used to compare the PRQC satisfaction scores for males and females. There was no evidence of a significant difference in scores for males ($M = 5.21, SD = 1.57$) and females ($M = 5.71, SD = 1.38$); $t(220) = -2.153, p = .125$ (nonsignificant), two-tailed.

Sex and Commitment. An independent-samples t-test was used to compare the PRQC commitment scores for males and females. There was a significant difference in scores for males ($M = 5.50, SD = 1.53$) and females ($M = 6.02, SD = 1.24$); $t(218) = -2.39, p < .05$ ($p = .049$), two-tailed such that women on average reported higher levels of commitment.

Sex and Intimacy. An independent-samples t-test was used to compare the PRQC intimacy scores for males and females. There was no evidence of a significant

difference between scores for males ($M = 5.42$, $SD = 1.41$) and females ($M = 5.66$, $SD = 1.30$); $t(219) = -1.08$, $p = .648$ (nonsignificant), two-tailed.

Sex and Trust. An independent-samples t-test was used to compare the PRQC trust scores for males and females. There was no evidence of a significant difference in scores for males ($M = 5.45$, $SD = 1.58$) and females ($M = 5.73$, $SD = 1.40$); $t(219) = -1.15$, $p = .431$ (nonsignificant), two-tailed.

Sex and Passion. An independent-samples t-test was used to compare the PRQC passion scores for males and females. There was no evidence of a significant difference in scores for males ($M = 5.01$, $SD = 1.74$) and females ($M = 5.28$, $SD = 1.50$); $t(219) = -1.03$, $p = .175$ (nonsignificant), two-tailed.

Sex and Love. An independent-samples t-test was used to compare the PRQC love scores for males and females. There was no evidence of a significant difference in scores for males ($M = 5.29$, $SD = 1.60$) and females ($M = 5.99$, $SD = 1.35$); $t(219) = -2.99$, $p = .154$ (nonsignificant), two-tailed.

Sex and Fertility Treatment in the Future. An independent-samples t-test was used to compare the scores for males and females on how willing they were to seek fertility treatment in the future. There was no evidence of a significant difference in scores between males ($M = 72$, $SD = 34.07$) and females ($M = 65.54$, $SD = 33.34$); $t(209) = 1.12$, $p = .740$ (nonsignificant), two-tailed.

Sex and Time Spent Pursuing Fertility Treatment in the Future. An independent-samples t-test was used to compare the scores for males and females on how much time they were willing to spend seeking treatment in the future in months. There

was no evidence of a significant difference in scores for males ($M = 33.90$, $SD = 36.33$) and females ($M = 36.87$, $SD = 34.27$); $t(193) = -.487$, $p = .732$ (nonsignificant), two-tailed.

Summary of Sex and Key Variables. In summary, several t-tests were run as preliminary analyses to test if sex influenced scores on key variables. Overall, there was little evidence of a significant association between the participant's sex and scores on key constructs. Specifically, there was no evidence of association between sex and medical uncertainty, personal uncertainty, relational uncertainty, intention to pursue treatment in the future, or willingness to spend time in the future pursuing fertility assistance. There was very little evidence of mean differences by sex on the relational satisfaction scores. One subscale from the PRQC, commitment, evinced a significant association, with women scoring higher than men. Communication satisfaction also demonstrated some evidence of a significant association between gender and scores on this measure, with women reporting higher communication satisfaction than men.

PRELIMINARY ANALYSIS EXAMINING DIFFERENCES BY DEMOGRAPHIC VARIABLES

A second goal in this preliminary set of analyses was to gauge whether or not any demographic variables were predictive of key variables and therefore worth taking into consideration during the main analyses. To determine this, a series of ANOVAs and t-tests were conducted on education level and ethnicity. Also, given the focus of this project, relationship status and number children living were selected to be tested as well. The following sections review these findings.

Potential Differences by Education. A series of one-way between groups analysis of variance were conducted to examine whether key predictor and outcome variables—willingness to seek treatment, spend time and money in the future, communication satisfaction, relationship satisfaction, and medical, relational, and personal uncertainty—differed according to participants' level of education. Participants were divided into 5 groups according to their education (Group 1: high school; Group 2: Associate's; Group 3: Bachelor's; Group 4: Graduate; Group 5; Other). Education level was nonsignificant on all key variables. Education and medical uncertainty; $F(4, 219) = 1.38, p = .24$ (nonsignificant). Education and personal uncertainty; $F(4, 219) = 1.92, p = .11$ (nonsignificant). Education and relational uncertainty; $F(4, 218) = .99, p = .41$ (nonsignificant). Education and communication satisfaction; $F(4, 219) = 1.76, p = .14$ (nonsignificant). Education and relationship satisfaction as measured by the MOQ; $F(4, 218) = .37, p = .83$ (nonsignificant). Education and the satisfaction subscale of the PRQC; $F(4, 219) = .20, p = .94$ (nonsignificant). Education and the commitment subscale of the PRQC; $F(4, 217) = .85, p = .49$ (nonsignificant). Education and the intimacy subscale of the PRQC; $F(4, 218) = .60, p = .66$ (nonsignificant). Education and the trust subscale of the PRQC; $F(4, 218) = .57, p = .68$ (nonsignificant). Education and the passion subscale of the PRQC; $F(4, 218) = .33, p = .86$ (nonsignificant). Education and the love subscale of the PRQC; $F(4, 218) = 1.23, p = .30$ (nonsignificant). Education and willingness to spend money in the future; $F(4, 196) = .83, p = .51$ (nonsignificant). Education and willingness to seek additional fertility treatment in the future; $F(4, 208) = 2.18, p = .07$ (nonsignificant). Education and willingness to spend time in the future; $F(4, 191) = .786,$

$p = .54$ (nonsignificant). Since there were no significant differences from one group to another on education, it was eliminated as a potential control variable in subsequent analyses.

Potential Differences by Ethnicity. Participants were divided into 7 groups according to their ethnicity (Group 1: African-American or Black; Group 2: Asian or Pacific Islander; Group 3: Caucasian; Group 4: Hispanic or Latino/a; Group 5: Middle Eastern; Group 6: Native American/First Nation; Group 7: Other). A one-way between groups analysis of variance was conducted to explore the influence of ethnicity on participants' relational uncertainty as measured by the original three subscales of the Relational Uncertainty Scale (Knobloch & Solomon, 1999). There was a statistically significant difference at the $p < .05$ level: $F(6, 220) = 2.12, p = .001$. Post-hoc comparisons using the Tukey HSD test were not possible due to the small cell size of some groups. Some groups seemed to report higher relational uncertainty than others. People who self-identified as Other reported the most relational uncertainty ($M = 4.50$), followed by Asian ($M = 3.15$), Native American ($M = 3.04$), Hispanic ($M = 2.53$), Black ($M = 2.33$), Caucasian ($M = 2.31$), and Middle Eastern ($M = 1.92$).

A one-way between groups analysis of variance was conducted to explore the influence of ethnicity on participants' relationship satisfaction, as measured by the subscales of the PRQC inventory (Fletcher, Simpson, & Thomas, 2000). There was a statistically significant group difference at the $p < .05$ level in ethnicities on two of the subscales; commitment and trust. Ethnicity and the commitment subscale: $F(6, 219) = 2.31, p = .001$. Post-hoc comparisons using the Tukey HSD test were not possible due to

the small size of various groups. On average, some groups reported higher commitment than others. People who self-identified as Caucasian ($M = 6.10$) reported the most commitment, followed by Black ($M = 5.74$), Hispanic ($M = 5.65$), Other ($M = 5.50$), Asian ($M = 5.12$), Native American ($M = 5.06$), and Middle Eastern ($M = 5.00$). There was also a statistically significant difference at the $p < .05$ level in ethnicities on the trust subscale: $F(6, 220) = 2.33, p = .001$. Post-hoc comparisons using the Tukey HSD test were not possible due to the small size of various groups. On average, some groups reported higher trust than others. People who self-identified as Caucasian ($M = 5.83$) reported the most trust, followed by Hispanic ($M = 5.74$), Black ($M = 5.25$), Native American ($M = 5.19$), Asian ($M = 4.97$), Middle Eastern ($M = 4.33$), and Other ($M = 3.33$).

Ultimately, the small and uneven size (e.g., Native American $n = 6$, Middle Eastern $n = 1$, Other $n = 1$) of some ethnic categories made between group comparisons only minimally informative, and therefore ethnicity was not considered a useful control variable in the main analyses.

Potential Differences by Relationship Status. A series of one way between-groups analyses of variance were conducted to explore potential group differences by relationship status on the subscales of the PRQC. Participants were divided into 8 groups according to their relationship status (Group 1: casually dating; Group 2: seriously dating; Group 3: long-term committed dating relationship; Group 4: engaged; Group 5: cohabitating domestic partnership; Group 6: married; Group 7: separated; Group 8; divorced). Ultimately, Groups 1, 7, and 8 (those who were casually dating, separated, or

divorced) were removed from the sample altogether. This decision was informed by the results that are included here, and therefore I will report the findings related to these groups. This ultimate exclusion is also explained in the summary of this section exploring potential differences based off of relationship status. Several key variables demonstrated no differences between groups based on relationship status. Relationship status and medical uncertainty; $F(4,220) = 1.40, p = .24$ (nonsignificant). Relationship status and personal uncertainty; $F(4,220) = 1.47, p = .21$ (nonsignificant). Relationship status and relational uncertainty; $F(4, 219) = 2.13, p = .08$ (nonsignificant). Relationship status and communication satisfaction; $F(4,220) = 1.45, p = .22$ (nonsignificant). Relationship status and relationship satisfaction as measured by the MOQ; $F(4, 219) = 1.64, p = .16$ (nonsignificant). Relationship status and the intimacy subscale of the PRQC; $F(4, 219) = 1.38, p = .24$ (nonsignificant). Relationship status and willingness to spend money; $F(4, 197) = .27, p = .90$ (nonsignificant). Relationship status and willingness to seek fertility treatment in the future; $F(4, 209) = .17, p = .95$ (nonsignificant). Relationship status and willingness to spend time; $F(4, 192) = .35, p = .85$ (nonsignificant).

Relationship status and satisfaction. A one-way between groups analysis of variance was conducted to explore the influence of relationship status on relationship satisfaction, as measured by the first subscale (satisfaction) of the PRQC (Fletcher, Simpson, & Thomas, 2000). There was a statistically significant difference at the $p < .05$ level in relationship status on the subscale of satisfaction: $F(7, 233) = 4.37, p = .001$. Post-hoc comparisons using the Tukey HSD test showed that the mean for those casually dating ($M = 3.94, SD = 1.98$) was significantly different than those who are married ($M =$

5.93, $SD = 1.33$). This indicated that those who were married reported significantly different (higher) satisfaction than those who are casually dating.

Relationship status and commitment. A one-way between groups analysis of variance was conducted to explore the influence of relationship status on relationship satisfaction, as measured by the commitment subscale of the PRQC (Fletcher, Simpson, & Thomas, 2000). There was a statistically significant difference at the $p < .05$ level in relationship status on the subscale of commitment: $F(7, 231) = 6.30, p = .001$. Post-hoc comparisons using the Tukey HSD test showed that the mean for those casually dating ($M = 4.00, SD = 2.23$) was significantly different than those who were in a long-term committed dating relationship ($M = 5.90, SD = 1.30$), engaged ($M = 5.89, SD = 1.23$), cohabitating domestic partnership ($M = 6.28, SD = 1.23$), or married ($M = 6.18, SD = 1.27$). Additionally, the mean for those who were seriously dating ($M = 4.93, SD = 1.34$) was significantly different from those who were in a long-term committed dating relationship ($M = 5.90, SD = 1.30$), cohabitating ($M = 6.28, SD = 1.23$), or married ($M = 6.18, SD = 1.27$). The mean for those who were married ($M = 6.18, SD = 1.27$) was significantly different from those who are divorced ($M = 3.78, SD = 2.04$). In subsequent analyses, participants who were separated or divorced were removed from the sample.

Relationship status and trust. A one-way between groups analysis of variance was conducted to explore the influence of relationship status on relationship satisfaction, as measured by the trust subscale of the PRQC (Fletcher, Simpson, & Thomas, 2000). There was a statistically significant difference at the $p < .05$ level in relationship status on the subscale of trust: $F(7, 232) = 3.98, p = .001$. Post-hoc comparisons using the Tukey

HSD test showed that the mean for those who were married ($M = 6.03$, $SD = 1.32$) was significantly different on trust than those who were separated ($M = 3.00$, $SD = 3.46$). This suggests that married people were significantly different from separated people in that they had higher trust on average. Ultimately, participants who were separated or divorced were removed from the sample altogether.

Relationship status and passion. A one-way between groups analysis of variance was conducted to explore the influence of relationship status on relationship satisfaction, as measured by the passion subscale of the PRQC (Fletcher, Simpson, & Thomas, 2000). There was a statistically significant difference at the $p < .05$ level in relationship status on the subscale of passion: $F(7, 232) = 2.89$, $p = .001$. Post-hoc comparisons using the Tukey HSD test showed that the mean for those in a cohabitating domestic partnership ($M = 4.19$, $SD = 2.27$) was significantly different than those who were engaged ($M = 5.71$, $SD = 1.15$). This suggests that those who were engaged reported a significantly higher amount of passion as compared to those who were cohabitating.

Relationship status and love. A one-way between groups analysis of variance was conducted to explore the influence of relationship status on relationship satisfaction, as measured by the love subscale of the PRCQ (Fletcher, Simpson, & Thomas, 2000). There was a statistically significant difference at the $p < .05$ level in relationship status on the subscale of love: $F(7, 232) = 3.38$, $p = .001$. Post-hoc comparisons using the Tukey HSD test showed that the mean for those who were seriously dating ($M = 5.11$, $SD = 1.39$) was significantly different than those who were married ($M = 6.11$, $SD = 1.40$). This

suggests that those who were married reported a significantly higher amount of love as compared to those who were seriously dating.

Summary of differences by relationship status. These ANOVAs provided evidence that there is a difference in relationship quality for those in a committed relationship as compared to those who were not. In addition to the statistics, this differentiation makes sense on its face. Couples who are casually dating, and people who are no longer actively pursuing a life together (such as those who are separated or divorced) would logically face different concerns, goals, communication fluency and frequency. Qualitatively, it makes sense to distinguish between people who are in a committed relationship and those who are not when investigating the infertility experience. Additionally, due to the nature of the hypotheses and research question of this dissertation, those who are not in a committed relationship may not be able to speak to the items related to relationship and communication satisfaction, plans for the future regarding spending time and money pursuing fertility treatments, and the various forms of uncertainty related to self, partner, and relationship uncertainty captured by the relational uncertainty scale. Therefore, I decided not to include relationship status as a control variable, but rather to eliminate certain relationship categories from the sample altogether. This elimination is described in further detail in the demographics section of the methods chapter.

Potential Differences by Parenthood Status. Another descriptive factor collected in the demographics section of the questionnaire asked participants whether they currently had any living children. There is reason to suspect that the infertility

experience may be different for those who already have a biological child, as compared to those who do not. In order to investigate this idea, participants were divided into two groups (those who did not already have a living child, versus those who did), and a series of t-tests was conducted.

An independent-samples t-test was conducted to compare the influence on medical uncertainty scores, as measured by the Uncertainty in Illness Scale (Mishel, 1990), for those who did not have living children (group 1) versus those who did (group 2). There was a statistically significant difference at the $p < .05$ level in scores for those who did not have living children ($M = 3.09$, $SD = .46$) and those who did have a living child ($M = 3.24$, $SD = .44$); $t(223) = -2.43$, $p = .016$, two-tailed. This indicates that there is evidence of a significant association between parenthood status and scores on medical uncertainty, with those who have living children reporting higher medical uncertainty.

The rest of the key variables of this study were also tested through independent-samples t-tests in order to compare those who did not have living children (group 1) versus those who did (group 2). In testing parenthood status and personal uncertainty, there was no evidence of a statistically significant difference at the $p < .05$ level in scores for those who did not have living children ($M = 3.07$, $SD = .99$) and those who did have a living child ($M = 2.82$, $SD = 1.04$); $t(223) = 1.81$, $p = .071$ (nonsignificant), two-tailed. Other t-tests that were nonsignificant included parenthood status and relational uncertainty ($p = .37$), communication satisfaction ($p = .48$), relationship satisfaction as measured by the MOQ ($p = .74$), any of the subscales of the PRQC: satisfaction ($p = .54$), commitment ($p = .99$), intimacy ($p = .21$), trust ($p = .74$), passion ($p = .32$), or love

($p = .98$). Additionally, there were not significant associations between parenthood status and scores on behavioral outcomes including willingness to spend time ($p = .15$), or money ($p = .80$), or to seek treatment in the future ($p = .37$).

Summary of differences by parenthood status. In sum, there was limited reason to believe that the hypothesis tests in the main analyses would be influenced by this variable. There was limited evidence to suggest that the experiences of uncertainty and relationship quality and behavior variables in this sample were vastly different for those who had a living child as compared to those who did not. A significant relationship existed between parenthood status and medical uncertainty. However, there was no evidence of a relationship for personal uncertainty, relational uncertainty, communication satisfaction, relationship satisfaction as measured by the MOQ or any of the subscales of the PRQC, and behavioral outcomes such as willingness to spend money, seek additional treatment, or spend time. In summary, there was not enough evidence of significant differences in the scores on the means across key variables to support adding parenthood status as a control variable in subsequent analysis.

PRELIMINARY ANALYSIS SUMMARY

Preliminary results indicted possible relationships existed among some of the variables. In response to RQ1, medical uncertainty was positively, significantly associated with relationship satisfaction. In addition, H7, H11, H12, H18, and H19 found evidence of support in this sample (see Table 8). Furthermore, preliminary results indicated that some variables shared no significant association to one another, in

particular, with regard to H1, H2, H3, H4, H5, H6, H8, H9, H10, H13, H14, H15, H16, and H17. Given that preliminary results showed that the variables in H16-17 did not share relationships, the decision was made to focus the main set of analyses on H1-H15, and H18-H19. Additionally, initial statistical tests suggested the need to control for sex in subsequent analyses.

MAIN ANALYSES

After preliminary analyses were conducted, a series of main analyses were performed to test Hypotheses 1-15, 18, and 19. Specifically, the hypotheses were tested through hierarchical regression analyses in order to estimate the associations among variables and their predictive value. These main analyses are detailed below and pinpoint which hypotheses were supported or not supported in this sample. Prior to conducting the main analyses, variables were evaluated to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Sex was included as a control variable in all models unless otherwise specified. Sex was entered as a dummy variable, with 1 = male and 2 = female.

Hypothesis 1. The first hypothesis predicted that the extent of fertility troubles would be positively associated with medical uncertainty. To further examine this relationship, hierarchical regression analysis was used, which assessed the severity of fertility troubles to predict levels of medical uncertainty, after controlling for sex. In Step 1, sex was entered and explained .001% of variance in perceived medical uncertainty. In Step 2, severity of fertility troubles was entered, and the total variance explained by the

model as a whole was .007%, $F(2, 219) = .82, p = .231$ (nonsignificant). The severity of fertility troubles variable explained an additional .006% of medical uncertainty after controlling for sex, R -square change = .007, F -change (2, 219) = 1.14, $p = .231$ (nonsignificant). Table 9 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R -squared and R -squared change statistics for the full model. What these results suggest is that there was no evidence that the severity of fertility troubles predicted how much medical uncertainty participants were experiencing. This hypothesis was not supported.

Table 9: Regression of Medical Uncertainty onto Extent of Fertility Problems

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.001	
	Sex	-.03	.08	-.03		
Step 2					.01	.01
	Severity of fertility problems	.02	.01	.08		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 2. The second hypothesis predicted that medical uncertainty would be positively associated with relational uncertainty. A hierarchical regression analysis was conducted to assess whether medical uncertainty predicted levels of relational uncertainty, after controlling for sex. In Step 1, sex was entered and explained .014% of

variance in relational uncertainty. In Step 2, medical uncertainty was entered, and the total variance explained by the model was .085%, $F(2, 218) = 10.11, p < .001$. The medical uncertainty variable explained an additional .071% of relational uncertainty, after controlling for sex, R square change = .071, F change (2, 218) = 16.87, $p < .000$. These results indicate that when controlling for sex, medical uncertainty and relational uncertainty share a significant, inverse relationship. Table 10 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R -squared and R -squared change statistics for the full model. Medical uncertainty was significantly, inversely associated with relational uncertainty. However, the direction of this relationship was the opposite of what hypothesis two proposed, and therefore this hypothesis was not supported.

Table 10: Regression of Relational Uncertainty onto Medical Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.01	
	Sex	-.40	.23	-.12		
Step 2					.09	.07***
	Medical Uncertainty	-.81***	.20	-.27***		

Note: *** significant at the .001 level. This hypothesis was not supported due to the direction of the relationship.

Hypothesis 3. The third hypothesis predicted that medical uncertainty would be positively associated with personal uncertainty. A hierarchical regression analysis was conducted to assess whether medical uncertainty predicted levels of personal uncertainty, after controlling for sex. In Step 1, sex was entered and explained .000% of variance in personal uncertainty. In Step 2, medical uncertainty was entered, and the total variance explained by the model was .001%, $F(2, 219) = .09$, (nonsignificant). The medical uncertainty variable explained an additional .001% of variance in personal uncertainty, after controlling for sex, R square change = .001, F change (2, 219) = .13, $p = .717$ (nonsignificant). Table 11 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R -squared and R -squared change statistics for the full model. These results indicated that medical uncertainty was not significantly associated with personal uncertainty in this sample, and therefore there was no evidence of support for hypothesis three.

Table 11: Regression of Personal Uncertainty onto Medical Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.00	
	Sex	-.04	.17	-.02		
Step 2					.00	.00
	Medical Uncertainty	-.06	.15	.03		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 4. The fourth hypothesis predicted that medical uncertainty would be inversely associated with willingness to pursue various fertility treatments in the future. A hierarchical regression analysis was conducted to assess whether medical uncertainty predicted intent to pursue fertility treatments, after controlling for sex. In Step 1, sex was entered and explained .006% of variance in intent to pursue various fertility treatments in the future. In Step 2, medical uncertainty was entered, and the total variance explained by the model was .015%, $F(2, 208) = 1.54, p = .265$ (nonsignificant). The medical uncertainty variable explained an additional .009% of variance in willingness to pursue treatment for their fertility troubles in the future, after controlling for sex, R square change = .01, F change (2,208) = 1.82, $p = .178$ (nonsignificant). Table 12 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R -squared and R -squared change statistics for the full model. These results suggest that within this sample, medical uncertainty and the intent to pursue fertility treatments are not significantly associated and there was no evidence of support for hypothesis four.

Table 12: Regression of Willingness to Pursue Fertility Treatments onto Medical Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Step 1				.01	
Sex	-6.46	5.77	-.08		
Step 2				.02	.01
Medical Uncertainty	6.82	5.05	.09		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 5. The fifth hypothesis predicted that medical uncertainty would be inversely associated with the amount of money that one is willing to spend on fertility treatments. A hierarchical regression analysis was conducted to assess whether medical uncertainty predicted levels of the amount of money that one is willing to spend on fertility treatments, after controlling for sex. In Step 1, sex was entered and explained .000% of variance in the amount of money that one is willing to spend on fertility treatments. In Step 2, medical uncertainty was entered, and the total variance explained by the model was .000%, $F(2, 196) = .02, p = .95$ (nonsignificant). The medical uncertainty variable explained no additional variance, R square change = .000, F change (2, 196) = .03, $p = .856$ (nonsignificant). Table 13 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. There was no evidence of support for hypothesis five.

Table 13: Regression of Willingness to Spend Money onto Medical Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.00	
	Sex	228.63	3671.78	.00		
Step 2					.00	.000
	Medical Uncertainty	-598.61	3288.07	-.01		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 6. The sixth hypothesis predicted that medical uncertainty would be inversely associated with the amount of time that one is willing to invest in pursuing fertility treatment. A hierarchical regression analysis was conducted to assess whether medical uncertainty predicted the amount of time that participants were willing to pursue fertility treatment in the future, after controlling for sex. In Step 1, sex was entered and explained .001% of variance. In Step 2, medical uncertainty was entered, and the total variance explained by the model was .003%, $F(2, 192) = .26, p = .627$ (nonsignificant). The medical uncertainty variable explained an additional .002% of variance in the amount of time that one is willing to pursue fertility treatment in the future, after controlling for sex, R square change = .001, F change (2, 192) = .28, $p = .600$ (nonsignificant). Table 14 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. There was not a

significant association between willingness to spend time on treatment and medical uncertainty. Hypothesis six was not supported.

Table 14: Regression of Willingness to Spend Time onto Medical Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.00	
	Sex	2.97	6.01	.04		
Step 2					.00	.00
	Medical Uncertainty	-2.83	5.40	-.04		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 7. The seventh hypothesis predicted that the severity of fertility troubles people reported would be positively related to their personal uncertainty. A hierarchical regression analysis was conducted to assess whether severity of fertility troubles predicted levels of personal uncertainty, after controlling for sex. In Step 1, sex was entered and explained .000% of variance in personal uncertainty. In Step 2, the severity of fertility troubles was entered, and the total variance explained by the model was .057%, $F(2, 219) = 6.65, p < .005 (p = .002)$. The severity of fertility troubles variable explained an additional .057% of variance, after controlling for sex, R square change = .06, F change (2, 219) = 13.25, $p < .001 (p = .000)$. Table 15 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change

statistics for the full model. These results indicate a significant, positive relationship between severity of fertility troubles and personal uncertainty, above and beyond sex, offering support for H7.

Table 15: Regression of Personal Uncertainty onto Severity of Fertility Troubles

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.00	
	Sex	-.04	.17	-.02		
Step 2					.06	.06
	Extent of Fertility Troubles	.10***	.03	.24***		

Note: *** significant at the .001 level. This hypothesis was supported.

Hypothesis 8. The eighth hypothesis predicted that the severity of fertility troubles would be positively associated with relational uncertainty. A hierarchical regression analysis was conducted to assess whether severity of fertility troubles predicted levels of relational uncertainty, after controlling for sex. In Step 1, sex was entered and explained .014% of variance in relational uncertainty. In Step 2, severity of fertility troubles was entered, and the total variance explained by the model was .078%, $F(2, 218) = 9.17, p < .001 (p = .000)$. The severity of fertility troubles variable explained an additional .064% of variance in relational uncertainty, after controlling for sex, R square change = .064, F change (2, 218) = 15.01, $p < .001 (p = .000)$. Table 16 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized

regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. There was a significant, inverse relationship between the severity of fertility troubles and relational uncertainty. Because this was the opposite direction of the relationship predicted in Hypothesis 8, the hypothesis was therefore not supported.

Table 16: Regression of Relational Uncertainty onto Severity of Fertility Troubles

	B	SE B	β	R^2	$R^2 \Delta$
Step 1				.01	
Sex	-.40	.23	-.12		
Step 2				.08	.06***
Extent of Fertility Troubles	-.14***	.04	-.25***		

Note: *** significant at the .001 level. This hypothesis was not supported due to the direction of the relationship.

Hypothesis 9. The ninth hypothesis predicted that relational uncertainty would be positively related to personal uncertainty. A hierarchical regression analysis was conducted to assess whether relational uncertainty predicted personal uncertainty, after controlling for sex. In Step 1, sex was entered and explained .000% of variance in personal uncertainty. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .003%, $F(2, 218) = .35, p = .71$ (nonsignificant). The relational uncertainty variable explained the total .003% of variance on personal uncertainty, after controlling for sex, R square change = .003, F change (2, 218) = .62, p

= .43 (nonsignificant). Table 17 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. These data did not show evidence of a significant association between relational and personal uncertainty.

Hypothesis 9 was not supported.

Table 17: Regression of Personal Uncertainty onto Relational Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.01	
	Sex	-.40	.23	-.12		
Step 2					.08	.06
	Relational Uncertainty	-.14	.04	-.25		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 10. The tenth hypothesis predicted that interpersonal communication satisfaction would be negatively associated with relational uncertainty. A hierarchical regression analysis was conducted to assess whether interpersonal communication satisfaction predicted levels of relational uncertainty, after controlling for sex. In Step 1, sex was entered and explained .014% of variance in relational uncertainty. In Step 2, interpersonal communication satisfaction was entered, and the total variance explained by the model was .024%, $F(2, 218) = 2.74, p = .07$ (nonsignificant). The interpersonal communication satisfaction variable explained an additional .010% of variance on

relational uncertainty, after controlling for sex, R square change = .010, F change (2, 218) = 2.34, $p = .13$ (nonsignificant). Table 18 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. There was no evidence of a significant relationship between communication satisfaction and relational uncertainty. Hypothesis 10 was not supported.

Table 18: Regression of Relational Uncertainty onto Communication Satisfaction

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.01	
	Sex	-.40	.23	-.20		
Step 2					.02	.01
	Communication Satisfaction	.17	.11	.11		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 11. The eleventh hypothesis predicted that interpersonal communication satisfaction would be negatively associated with personal uncertainty. A hierarchical regression analysis was conducted to assess whether interpersonal communication satisfaction predicted levels of personal uncertainty, after controlling for sex. In Step 1, sex was entered and explained .000% of variance in personal uncertainty. In Step 2, interpersonal communication satisfaction was entered, and the total variance explained by the model was .062%, $F(2, 219) = 7.30$, $p = .001$. The interpersonal

communication satisfaction variable explained all of the .062% of variance on personal uncertainty after controlling for sex, R square change = .062, F change (2, 219) = 14.54, $p < .001$ ($p = .000$). Table 19 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. Interpersonal communication satisfaction had a significant, inverse association with personal uncertainty, providing support for H11.

Table 19: Regression of Personal Uncertainty onto Communication Satisfaction

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.000	
	Sex	-.04	.17	-.02		
Step 2					.06	.06**
	Communication Satisfaction	-.31**	.08	-.26**		

Note: ** significant at the .01 level. This hypothesis was supported.

Hypothesis 12. The twelfth hypothesis predicted that relational uncertainty would be inversely associated with intent to pursue various fertility treatments in the future. A hierarchical regression analysis was conducted to assess whether relational uncertainty predicted intent to pursue various fertility treatments in the future, after controlling for sex. In Step 1, sex was entered and explained .006% of variance in intent to pursue

various fertility treatments in the future. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .048%, $F(2, 207) = 5.27, p < .01$ ($p = .006$). The relational uncertainty variable explained an additional .042% of variance for willingness to pursue various fertility treatments in the future, after controlling for sex, R square change = .042, F change (2, 207) = 9.23, $p < .01$ ($p = .003$). Table 20 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R -squared and R -squared change statistics for the full model. There was a significant, inverse association between relational uncertainty and willingness to pursue fertility treatments in the future in this sample, which provided support for Hypothesis 12.

Table 20: Regression of Willingness to Pursue Fertility Treatments onto Relational Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.01	
	Sex	-6.55	5.84	-.08		
Step 2					.05	.04**
	Relational Uncertainty	-5.16**	1.70	-.21**		

Note: ** significant at the .01 level. This hypothesis was supported.

Hypothesis 13. The thirteenth hypothesis predicted that relational uncertainty would be inversely associated with the amount of money that one is willing to spend on fertility treatments in the future. A hierarchical regression analysis was conducted to assess whether relational uncertainty predicted levels of the amount of money that one is willing to spend on fertility treatments, after controlling for sex. In Step 1, sex was entered and explained none (.000%) of the variance in the amount of money that one is willing to spend on fertility treatments. In Step 2, relational uncertainty was entered, and the total variance explained by the model was also zero, $F(2, 195) = .03, p = .97$ (nonsignificant). The relational uncertainty variable explained no additional (.000%) variance, after controlling for sex, $R^2 \text{ change} = .000, F \text{ change}(2, 195) = .07, p = .80$ (nonsignificant). Table 21 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. With no evidence of a significant association between willingness to spend money on fertility treatments and relational uncertainty in this sample, Hypothesis 13 was not supported.

Table 21: Regression of Willingness to Spend Money onto Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Step 1				.00	
Sex	38.49	3715.06	.00		
Step 2				.00	.000
Relational Uncertainty	-292.12	1123.99	-.02		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 14. The fourteenth hypothesis predicted that relational uncertainty would be inversely associated with the amount of time that one is willing to pursue treatment in the future. A hierarchical regression analysis was conducted to assess whether relational uncertainty predicted the amount of time that one is willing to pursue treatment in the future, after controlling for sex. In Step 1, sex was entered and explained .001% of variance in amount of time that one is willing to pursue treatment in the future. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .004%, $F(2, 191) = .35, p = .71$ (nonsignificant). The relational uncertainty variable explained an additional .003% of variance, after controlling for sex, $R^2 \text{ change} = .003, F \text{ change} (2, 191) = .57, p = .45$ (nonsignificant). Table 22 displays the unstandardized regression coefficients (B), standard errors (SE B), and standardized regression coefficients (β) for each variable, and the R-squared and R-squared change statistics for the full model. There was no significant association between willingness to spend time and relational uncertainty. Hypothesis 14 was not supported.

Table 22: Regression of Willingness to Spend Time onto Relational Uncertainty

		B	SE B	β	R^2	$R^2 \Delta$
Step 1					.00	
	Sex	2.12	6.16	.03		
Step 2					.00	.003
	Relational Uncertainty	-1.43	1.90	-.06		

Note: F-values for this model were not significant. This hypothesis was not supported.

Hypothesis 19. Hypothesis nineteen predicted that relational uncertainty would be inversely associated with relationship satisfaction and quality, verified by two different scales; the MOQ, and the PRQC. Therefore, a series of multiple regression analyses were conducted in which different facets of relationship satisfaction were regressed onto relational uncertainty.

MOQ. A hierarchical regression analysis was conducted to assess whether relational uncertainty predicted relationship satisfaction as measured by the MOQ, after controlling for sex. In Step 1, sex was entered and explained .004% of variance in relationship satisfaction, as measured by the MOQ. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .445%, $F(2, 218) = 87.42, p < .001$ ($p = .000$). The relational uncertainty variable explained an additional .441% of variance of relational satisfaction, after controlling for sex, R square change = .441, F change (2, 218) = 173.17, $p < .001$ ($p = .000$). This indicates that there is a significant, inverse association between relational uncertainty and relationship satisfaction. Hypothesis 19 was supported using the MOQ as the measure of relationship satisfaction.

Table 23: Regression of Relationship Satisfaction (MOQ) onto Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Step 1				.00	
Sex	.21	.22	.07		
Step 2				.45	.44***
Relational Uncertainty	-.64***	.05	-.67***		

Note: *** significant at the .001 level. This hypothesis was supported.

The second set of results indicated how relational uncertainty predicted levels of relationship satisfaction as measured by the six subscales of the PRQC; satisfaction, commitment, intimacy, trust, passion, love. A hierarchical regression analysis was conducted to assess whether relational uncertainty predicted relationship satisfaction as measured by the PRQC, after controlling for sex. The Satisfaction subscale is the most germane of the six subscales, but all will be reported in the interest of creating a complete context for the support of Hypothesis 19.

PRQC Satisfaction. In Step 1, sex was entered and explained .016% of variance in relationship satisfaction. In Step 2, relational uncertainty was entered, and the total variance in satisfaction explained by the model was .602%, $F(2, 218) = 164.56, p < .001$. The relational uncertainty variable explained an additional .585% of variance, R square change = .585, F change (2, 218) = 320.15, $p < .001$. There was a significant, inverse association demonstrated with this subscale, offering support for Hypothesis 19.

Table 24: Regression of (PRQC- Satisfaction) onto Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Step 1				.02	
Sex	.45	.23	.13		
Step 2				.60	.59***
Relational Uncertainty	-.79***	.04	-.77***		

Note: *** significant at the .001 level. This hypothesis was supported.

PRQC Commitment. In Step 1, sex was entered and explained .028% of variance in relationship satisfaction. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .549%, $F(2, 216) = 131.46, p < .001$. The relational uncertainty variable explained an additional .521% of variance of relational satisfaction, R square change = .52, F change (2, 216) = 249.68, $p < .001$.

Table 25: Regression of (PRQC- Commitment) onto Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Sex	.54	.22	.17	.03	
Relational Uncertainty	-.69***	.04	-.73***	.55	.52***

Note: *** significant at the .001 level. This hypothesis was supported.

PRQC Intimacy. In Step 1, sex was entered and explained .003% of variance in relationship satisfaction. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .553%, $F(2, 217) = 134.03, p < .001$. The relational uncertainty variable explained an additional .549% of variance, R square change = .549, F change (2, 217) = 266.52, $p < .001$.

Table 26: Regression of (PRQC- Intimacy) onto Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Sex	.18	.22	.06	.00	
Relational Uncertainty	-.71***	.04	-.75***	.55	.55***

Note: *** significant at the .001 level. This hypothesis was supported.

PRQC Trust. In Step 1, sex was entered and explained .007% of variance in relationship satisfaction. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .545%, $F(2, 217) = 129.967, p < .001$. The relational uncertainty variable explained an additional .538% of variance, after controlling for sex, R square change = .538, F change (2, 217) = 256.362, $p < .001$.

Table 27: Regression of (PRQC- Trust) onto Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Sex	.31	.24	.09	.00	
Relational Uncertainty	-.77***	.05	-.74***	.54	.54***

Note: *** significant at the .001 level. This hypothesis was supported.

PRQC Passion. In Step 1, sex was entered and explained .003% of variance in relationship satisfaction. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .348%, $F(2, 217) = 57.85, p < .001$. The relational uncertainty variable explained an additional .345%, after controlling for sex, R square change = .345, F change (2, 217) = 114.80, $p < .001$.

Table 28: Regression of (PRQC- Passion) onto Sex and Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Sex	.20	.26	.05	.00	
Relational Uncertainty	-.70***	.06	-.59***	.35	.35***

Note: *** significant at the .001 level. This hypothesis was supported.

PRQC Love. In Step 1, sex was entered and explained .038% of variance in relationship satisfaction. In Step 2, relational uncertainty was entered, and the total variance explained by the model was .493%, $F(2,217) = 105.64, p < .001$. The relational uncertainty variable explained an additional .455% of variance on relationship satisfaction, after controlling for sex, R square change = .455, F change (2, 217) = 195.05, $p < .001$.

Table 29: Regression of Relationship Satisfaction (PRQC- Love) onto Sex and Relational Uncertainty

	B	SE B	β	R^2	$R^2 \Delta$
Sex	.69	.24	.20	.04	
Relational Uncertainty	-.70***	.05	-.68***	.49	.46***

Note: F-values for this model were significant at the .001 level. This hypothesis was supported.

PRQC Summary. Significant relationships were identified between relational uncertainty and all six subscales of the PRQC (satisfaction, commitment, intimacy, trust, passion, love). This indicates a robust association between relational uncertainty and diverse dimensions of relationship quality.

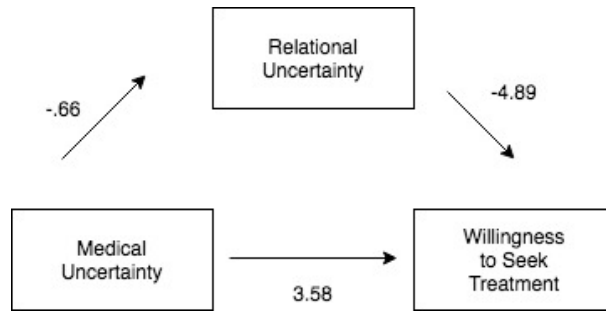
MEDIATION ANALYSES

Hypothesis 15. Hypothesis 15 proposed that relational uncertainty mediates the association between medical uncertainty and the intent to pursue various fertility treatments. Preliminary analyses were conducted to test for evidence of a significant association between medical uncertainty and the intent to pursue fertility treatments through hypothesis 4. There was not evidence of a significant association through Pearson's correlations ($r = .089$, $n = 214$, $p = .37$ nonsignificant). However, hypothesis 12 demonstrated evidence of an association between relational uncertainty and the intention to pursue fertility treatments, and therefore there was reason to conduct the mediation analysis proposed by hypothesis 15. I analyzed whether relational uncertainty mediated the relationship between medical uncertainty and willingness to seek treatment, controlling for sex. I conducted mediation analyses with a simple mediation model to test the indirect effect of medical uncertainty on relationship satisfaction through relational uncertainty using process macro 3.0 Model 4 by Hayes (2012). Using the default settings, the indirect effect was tested using 5,000 bootstrap resamples and yielded 95% confidence intervals around the indirect effect.

The model was significant, $R^2 = .051$, $F(3, 206) = 3.67$, $p = .0132$. Relational uncertainty mediated the relationship between medical uncertainty and willingness to seek treatment, $b = 3.25$, $SE = 1.50$, $LLCI = .79$, $ULCI = 6.98$. Medical uncertainty was inversely associated with relational uncertainty, which in turn was inversely associated with willingness to seek treatment. All paths are shown in Figure 2. There is evidence of

an indirect effect, where relational uncertainty mediated the relationship between medical uncertainty and willingness to seek treatment in the future.

Figure 2: Indirect Effect of Medical Uncertainty on Willingness to Seek Treatment

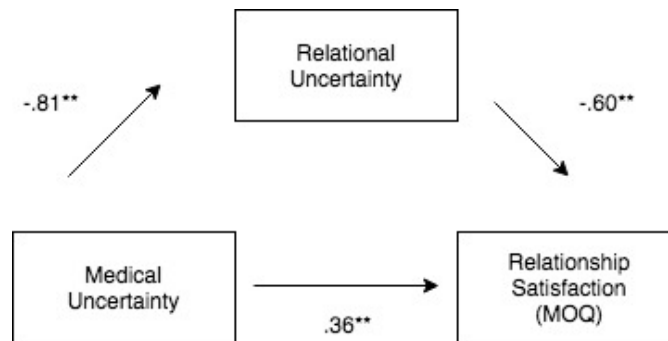


Hypothesis 18. Hypothesis 18 proposed that relational uncertainty mediates the relationship between medical uncertainty and relationship satisfaction. Previous data analysis (conducted to answer RQ1) had demonstrated evidence of a significant positive relationship between medical uncertainty and relationship satisfaction. I conducted mediation analyses with a simple mediation model to test the indirect effect of medical uncertainty on relationship satisfaction through relational uncertainty using process macro 3.0 Model 4 by Hayes (2012). Using the default settings, the indirect effect was tested using 5,000 bootstrap resamples and yielded 95% confidence intervals around the indirect effect. Because relationship satisfaction was measured using two scales (both the Marital Opinion Questionnaire and the Perceived Relational Quality Component Satisfaction Subscale), I will report both.

H18 MOQ. I analyzed whether relational uncertainty mediated the relationship between medical uncertainty and relationship satisfaction, as measured by the MOQ,

controlling for sex. The model was significant, $R^2 = .085$, $F(2, 218) = 10.11$, $p = .0001$. Relational uncertainty mediated the relationship between medical uncertainty and relationship satisfaction, $b = .49$, $SE = .12$, $LLCI = .26$, $ULCI = .75$. Medical uncertainty was inversely associated with relational uncertainty, which in turn was inversely associated with relationship satisfaction. All paths are shown in Figure 3. There is evidence of an indirect effect, and medical uncertainty remained a significant direct predictor of relationship satisfaction.

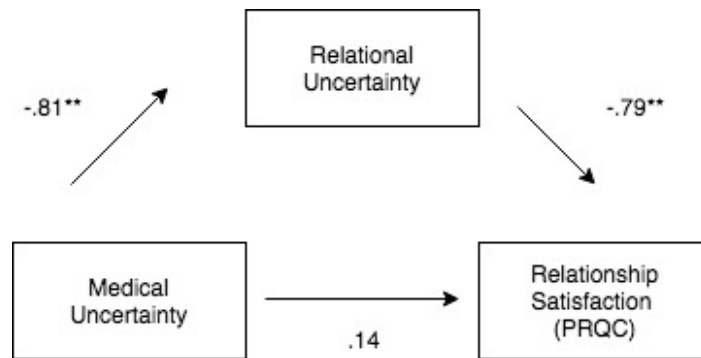
Figure 3: Indirect Effect of Medical Uncertainty on Relationship Satisfaction (MOQ)



H18 PRQC Satisfaction Subscale. I also analyzed whether relational uncertainty mediated the relationship between medical uncertainty and relationship satisfaction, as measured by the satisfaction subscale of the PRQC. The model was significant, $R^2 = .085$, $F(2, 218) = 10.11$, $p = .0001$. Relational uncertainty completely mediated the relationship between medical uncertainty and relationship satisfaction, $b = .63$, $SE = .16$, $LLCI = .36$, $ULCI = .97$. Medical uncertainty was inversely associated with relational

uncertainty, which in turn was inversely associated with relationship satisfaction. Medical uncertainty did not directly predict relationship satisfaction. All paths are shown in Figure 4.

Figure 4: Indirect Effect of Medical Uncertainty on Relationship Satisfaction (PRQC)



SUMMARY OF MAIN ANALYSES

Through the main analyses, evidence of support for several hypotheses was indicated. These included Hypotheses 7, 11, 12, 15, 18, and 19. Several other hypotheses were not supported with evidence of significant associations. These included Hypotheses 1, 2, 3, 4, 5, 6, 8, 9, 10, 13, and 14. Hypotheses 16 and 17 were proposed mediations, and presupposed significant association between variables that did not exist, as explored in the preliminary analysis. Therefore, the decision was made to exclude them from further analysis. Finally, although Hypothesis 2 was not supported, there was a significant association between the variables, however in the opposite direction. See Table 30 for a

list of all hypotheses and whether they were supported through main analyses. The implications of these findings will be discussed in the following chapter.

Table 30: Summary of Main Analyses

Hypothesis or Research Question	Evidence of Support for Hypothesis through Main Analysis
H1: Extent of fertility troubles is positively associated with medical uncertainty.	No
H2: Medical uncertainty is positively associated with relational uncertainty.	No
H3: Medical uncertainty is positively associated with personal uncertainty.	No
H4: Medical uncertainty is inversely associated with intent to pursue various fertility treatments.	No
H5: Medical uncertainty is inversely associated with the amount of money that one is willing to spend on fertility treatments.	No
H6: Medical uncertainty is inversely associated with the amount of time that one is willing to pursue fertility treatment.	No
H7: Extent of fertility troubles is positively related to personal uncertainty.	Yes

Table 30 (continued)

H8: Extent of fertility troubles is positively associated with relational uncertainty.	No
H9: Relational uncertainty is positively related to personal uncertainty.	No
H10: Interpersonal communication satisfaction is negatively associated with relational uncertainty.	No
H11: Interpersonal communication satisfaction is negatively associated with personal uncertainty.	Yes
H12: Relational uncertainty is inversely associated with intent to pursue various fertility treatments.	Yes
H13: Relational uncertainty is inversely associated with the amount of money that one is willing to spend on fertility treatments.	No
H14: Relational uncertainty is inversely associated with the amount of time that one is willing to pursue treatment.	No
H15: Relational uncertainty mediates the association between medical uncertainty and intent to pursue various fertility treatments.	Yes

Table 30 (continued)

H18: Relational uncertainty mediates the association between medical uncertainty and relationship satisfaction.	Yes
H19: Relational uncertainty is inversely associated with relationship satisfaction.	Yes

SUPPLEMENTAL ANALYSIS

One of the main purposes of this study was to investigate how the experience of different types of uncertainty during infertility might be associated with people’s behavioral intent to pursue fertility treatments in the future. In critically examining the significant relationships among the tripartite uncertainty variables, there was one behavioral outcome that was associated with more than one type of uncertainty: Willingness to pursue treatment was correlated with both personal uncertainty ($r = .26, p < .01$) and relational uncertainty ($r = -.20, p < .01$), such that people with higher levels of personal uncertainty also reported higher levels of intention to pursue fertility treatment, and people with higher levels of relational uncertainty reported lower levels of intention to pursue treatment. (The bivariate association between medical uncertainty and intent to pursue fertility treatment was nonsignificant, $r = -.04$).

Because this project was grounded in the tripartite model of uncertainty, we were curious to know the relative predictive value of the different types of uncertainty on intention to pursue fertility treatments. Knowing this might help us to theorize more deeply about whether certain types of uncertainty were more or less pertinent, or operated more independently, on important relational and health outcomes in this fertility context. Thus,

a supplemental multiple linear regression analysis was conducted, regressing intent to pursue fertility treatments onto both personal and relational uncertainty. As shown in Table 31, when entered into the model simultaneously, both personal and relational uncertainty were significant predictors of intent to pursue fertility treatments.

Table 31: Regression of Intent to Pursue Fertility Treatments onto Personal and Relational Uncertainty

	B	SE B	β	R^2
				.11
Personal Uncertainty	8.32***	2.14	.26***	
Relational Uncertainty	-4.83***	1.65	-.19***	

Note: *** significant at the .001 level.

Chapter Five: Discussion

The goal of this study was to examine patterns in how people experience uncertainty when they have fertility troubles. One research question was posed and nineteen predictions were made to investigate ways that uncertainty is associated with the way people experience relationship satisfaction, interpersonal communication satisfaction, and behavioral outcomes such as spending time and money pursuing fertility related treatment in the future. This study also explored how the perceived severity of the participants' fertility troubles influenced their uncertainty, their relationships, and the quality of communication with their romantic partners. The following section reviews the main findings of this dissertation and explores theoretical frameworks that may help researchers and others further explore people's experience with fertility troubles. Implications, future direction, and limitations are also highlighted to capture the main findings of this study.

MAIN FINDINGS

The objective of this study was to create a more nuanced understanding of how uncertainty is experienced in the infertility context, and to explore how communication may contribute to how individuals feel better or worse about their interactions with their romantic partners, and their overall happiness in those partnerships during what is for many such a difficult situation. I wanted to know more about how different sources of confusion and ambiguity surrounding the ability to have a child are related to one another, and what that means for the person going through the experience. Would the presence of these different forms of uncertainty make a person more or less likely to

invest their precious resources of time, money, and energy? Would it create a stronger bond between partners weathering the storm together, or tear them apart? There seemed to be an opportunity to advance knowledge on infertility and uncertainty in ways that may be theoretically and practically meaningful.

One specific goal of this study was to explore how the tripartite forms of uncertainty in illness may be connected to one another. Previous work (Donovan, et al, 2014a) investigated the prevalence of each of the three sources of uncertainty from the tripartite model of uncertainty, and demonstrated that they can occur concurrently and in various combinations within naturally occurring messages about cancer. I sought to extend our knowledge of this model further by measuring if these different forms of uncertainty were in actually connected to one another according to participants' self-reported perceptions of them. This study found that some forms of uncertainty are connected in meaningful ways. A second goal of this study was to explore how the experience of uncertainty was related to the participants' relationship quality, looking at their relationship satisfaction and their happiness with how they communicate with their romantic partner regarding their fertility, interpersonal communication satisfaction. A third goal was to explore how the experience of uncertainty may be related to future behavioral outcomes relevant to the infertility context, including willingness to seek treatment, spend time, and money in the future on fertility-related expenses. Next, I will discuss what I learned about each of these three overarching lines of inquiry by discussing the picture that emerged about each concept; medical, relational, and personal

uncertainty, communication satisfaction, relationship satisfaction, and behavioral outcomes.

Medical uncertainty. The first question posed in this study asked how medical uncertainty is related to relationship satisfaction (and by extension, if they are significantly related to one another in the first place). Data from the participants of this sample indicated that their experience of uncertainty surrounding their fertility diagnosis, treatment options, and prognosis was related to their overall relationship satisfaction. As medical uncertainty increased, relationship satisfaction increased as well. Even those who had a lot of medical uncertainty also reported quite happy relationships. This may be explained methodologically. There is the possibility that there was some sampling bias. The individuals who participated in this research all identified as having fertility troubles, but also that generally that they had high satisfaction with their relationships. Perhaps these participants have partners who are very supportive, so the fertility troubles that they are facing are perceived as an opportunity to grow together, rather than question the happiness of their union.

We could also understand this connection between medical uncertainty and their satisfaction with their relationship as a hopeful and “bright side” finding. As individuals navigate a murky and complex situation like fertility troubles, they may find themselves in a state of questioning and reconsidering what their future holds in terms of parenthood. Amidst this uncertainty, they may find that their romantic relationship is something they can count on, something they are certain about. This is in keeping with what we already know to be true in terms of how people will look for things that they can control in times

of stress and uncertainty (Donovan-Kicken & Caughlin, 2011; Thoits, 2006). I interpret this finding to indicate that those who are going through such medical turmoil may find a sense of comfort and gratitude for their relationship, and feel high satisfaction about it. The struggles of infertility may give people an opportunity to appreciate the stability or support provided by their romantic partner. The difficulties they face in terms of reproductive health might throw the positive aspects of their life into comparative relief. Individuals may not be sure they can successfully have a child, but they are sure that they have a partner by their side who is on the journey with them.

Relational uncertainty. There are some discoveries related to relational uncertainty that inform how medical uncertainty and relationship satisfaction are connected. First of all, the data indicated that relational uncertainty and relationship satisfaction were inversely associated, meaning that as a person questioned the nature of their relationship, or either person's commitment to one another, their happiness with that relationship diminished. Hypothesis 19 predicted this relationship and was supported. This builds on previous work that indicated that higher levels of relational uncertainty would be associated with lower levels of happiness in people's romantic relationships (Theiss, Knobloch, Checten, & Magsamen-Conrad, 2009). I predicted that the less certain a person feels about their commitment to their romantic partner, their partner's commitment to them, or their desire to maintain the relationship itself, the less satisfied they would be with their romantic relationship in general. The data from research question one and Hypothesis 19 followed this pattern in the current sample. This tells us that in relation to how happy people are with their relationship, ambiguity surrounding

their fertility prognosis is accompanied by more happiness, and questions about how strong the commitment to the relationship is accompanied by less happiness.

Secondly, Hypothesis 18 predicted that relational uncertainty would mediate the relationship between medical uncertainty and relationship satisfaction, offering a more complete understanding of how this process occurs. Medical uncertainty and relational uncertainty shared a significant, negative relationship. This finding points to the next logical question to investigate; why is medical uncertainty inversely associated with relational uncertainty, and not a direct correlation? What other mediators or moderators might influence or explain this association? There is always the possibility that this finding was a result of a type 1 error, but if this negative relationship is robust and replicated, I would argue that it is worthwhile to find out more. Given what we know about how medical uncertainty and relationship satisfaction are connected in this sample, and how relational uncertainty and relationship satisfaction are connected as well, we can begin to unpack these relationships. It may seem unusual that medical uncertainty was positively related to relationship satisfaction. One could anticipate that any form of uncertainty experienced would be a source of stress and reduced overall satisfaction, especially given that goal interference in relationships can lead to increased reactance (Knobloch & Solomon, 1999). These data seems to say that people struggling with fertility troubles actually feel happier in their relationship, when it would not be surprising if infertility wore them and their relationship down. However, the results from this study gave support for the opposite.

How can we understand this slightly contradictory finding? Through including the mediating relationship of relational uncertainty. The positive relationship between medical uncertainty and relationship satisfaction is explained (at least partially according to the Perceived Relationship Quality Components Satisfaction subscale, or completely according to the Marital Opinion Questionnaire) by relational uncertainty. Recall that two measures of satisfaction were used, and both mediation analyses found that relational uncertainty explains this relationship (see Figures 3 and 4). Essentially, the results indicate that the more medical uncertainty a person had, the more satisfaction they also reported. This relationship is explained by relational uncertainty. The more medical uncertainty reported, the less relational uncertainty. Perhaps those who are in the midst of grappling with the challenges of fertility issues are able to do so because they are sure about their partner and their relationship. Additionally, relational uncertainty is inversely associated with relationship satisfaction. The more certain one is about their relationship, the happier they feel about it. Therefore, those experiencing a lot of medical uncertainty are not having many doubts and questions about their romantic relationship, and subsequently feel quite satisfied with their romantic partnerships. Following this mediated path model, the associations between medical uncertainty, relational uncertainty, and relationship satisfaction tell a happy story. Despite having to face fertility troubles and hardships, people can still feel sure of their love for their partner and vice versa. Their relationships are still a source of happiness, despite the inherent challenges that infertility presents.

Additionally, we learned that doubts about the relationship may inform their future behaviors related to infertility. Relational uncertainty also played a mediating role between medical uncertainty and participants' willingness to seek fertility treatments in the future. Initially, it appeared as though medical uncertainty was not significantly associated with willingness to seek treatments. This was unexpected, since ambiguity surrounding diagnosis, treatment, and prognosis seems logically related to a person's intention to pursue medical treatments in the future. I had predicted an inverse relationship, supposing that the more confusion surrounding their treatment options or their effectiveness, the less likely someone would be willing to try new treatments. However, while these two variables didn't share a direct relationship of significance, there was a mediated model that showed the two were related through relational uncertainty. Medical uncertainty was inversely related to relational uncertainty, which in turn was inversely associated with willingness to seek treatments in the future. Therefore, when a person experienced a lot of confusion about their medical options and outcomes, they felt quite solid in their relationship. The more confusion about their romantic commitment, the less people intended to pursue additional treatment. Those who had less security and assuredness about their romantic relationships may not have felt that the relationship could withstand additional rounds of what can be expensive, time-consuming, and invasive fertility treatments. This mediated relationship helps explain why medical uncertainty and willingness to seek treatment are still relevant to one another, when you take their relational uncertainty into account.

Hypothesis 12 predicted that relational uncertainty would be inversely associated with the intent to pursue various fertility treatments, and that appeared to be true for this sample. There was reason to suspect that part of dealing with fertility problems is negotiating and renegotiating shared goals with romantic partners (Steuber & Solomon, 2008), especially if there is disagreement between them about their family planning, and this relational uncertainty can actually jeopardize their future relationship. If an individual's commitment to their partner or their relationship is unclear, they may be less willing to go through with additional fertility treatments or to invest their time and financial resources in order to pursue treatment. Results indicated that as people had more ambiguity surrounding their (or their partner's) commitment to the relationship, or the nature of the relationship itself, they were less willing to pursue fertility treatments in the future, and this makes sense when we consider the extant literature on decision-making during times of stress and uncertainty.

People become less favorable towards decisions with unclear success odds (such as fertility treatment which may or may not work) during situations characterized by uncertainty (Platt & Huettel, 2008). If people are not feeling completely solid about their partnership, or about the likelihood of any given fertility treatment to be accessible, effective, and affordable, they will indicate less willingness to pursue those treatments. This too, can be interpreted through a "light-side" lens. Perhaps people coping with a lot of relational uncertainty are simply making a protective decision to focus on the present, or to narrow their attention to repairing the state of their relationship, before adding additional treatments into their lives.

Personal uncertainty. The data also provided some insight into the third prong of tripartite uncertainty during infertility. Participants reported that the more severe their fertility troubles were, the more they questioned their own identity. These findings supported Hypothesis 7. This tells us that the worse fertility issues were for people, the more questions swirled about their self-concept. This corroborates past research that describe the sense of loss, shame, and failure that follow infertility (Chochovski, Moss, & Charman, 2013). Parenthood is profoundly impactful to one's identity. For example, Wirtberg, Moller, Hogstrom, Tronstad, and Lalos (2007) found that involuntary childlessness was a major life theme even twenty years after the unsuccessful treatment. That is why I predicted this relationship between the severity of fertility troubles and questioning your own identity. However, the story may not be as simple as very severe fertility challenges causing people to completely lose their sense of self.

Somunen, Aanesen, Fossum, Karigren, & Westerbotn (2018) found that for some people dealing with fertility troubles (15% of their sample), they reported that they had actually grown as person in a positive way during their period of fertility troubles. One interpretation is that perhaps not all questions of identity are experienced negatively, either at the time or later on in retrospect. Some challenges are opportunities for growth to become a newer, stronger, better version of yourself, as documented in other research on coping with health conditions (e.g., Park, Edmondson, Fenster, & Blank, 2008). One flaw of my data collection is that I do not know whether any questions of identity were experienced as a positive event, but I do hope that was the case for some. Perhaps it is the case that the personal uncertainty they experienced during their fertility troubles will later

be recognized as something painful at the time, but ultimately rewarding. Asking questions pertaining to the affective experience of personal uncertainty is one direction I would suggest as an area of future research and further exploration. Additionally, longitudinal data could offer insights into the arc of identity work that the current study cannot capture.

The data also indicated that the better their conversations were with their romantic partner, the less personal uncertainty they had. We know from previous research that difficulty in marital communication was a strong predictor of high stress for people coping with infertility, and with actively avoiding their spouse (Schmidt et al., 2005). On the other hand, Checton, Greene, Magsamen-Conrad, and Venetis (2012) found that those who were able to share with their partner about a chronic health condition were better able to manage it. There is also evidence that marital communication is associated with relationship satisfaction and general life quality (Miller & Kannae, 1999), for both the positive and the negative. This provides evidence that conversations with your romantic partner are impactful in a variety of ways. In fact, Sormunen and colleagues (2018) found that some individuals (7% of their sample) felt unable to discuss fertility-related subjects with their spouse at all. Effectively, they had to turn to others outside the marriage or deal with the situation alone. This could become burdensome for a person facing fertility troubles. Thus I predicted that good conversations might be associated with less personal doubts, and Hypothesis 11 found support through these findings. This is also cheering, indicating that perhaps for those who are able to turn to their romantic partner and have open, effective, supportive communication, they will feel less doubt about their own

sense of self. Unfortunately, I cannot comment on what communication features actually made the participants consider the conversations good, or more satisfying. This points to an obvious next step in data collection; to identify what makes some conversations more or less satisfying than others when having fertility-related discussion.

Summary of main findings. In general, this study sought to explore tripartite uncertainty within the infertility context, and to investigate whether various forms of uncertainty covary with one another and with communication and relationship satisfaction, and intentions about future fertility-related behaviors. The data suggest some incremental steps forward in how we can understand the tripartite model of uncertainty in the context of infertility. The main findings of this study indicate that there was some evidence to support the idea that the experiences of medical uncertainty and relationship satisfaction may be related to one another, and change together in a positive direction.

This relationship may be explained by relational uncertainty, which had an inverse relationship to both medical uncertainty, relationship satisfaction, and intention to seek fertility treatments in the future, and which acted as a mediator in the sample. Therefore, medical uncertainty and relationship satisfaction did not only have a direct relationship in these results, but were also explained by the extent of relational uncertainty the individual was facing. When people had doubts surrounding the nature of their relationship, or their commitment to their romantic partner, they seemed less willing to pursue additional fertility treatments in the future as well.

There was some evidence in my data to suggest the uncertainty of infertility diagnosis and prognosis did not make people reconsider their commitment to their

relationship, which was a hopeful finding. Sormusen and colleagues (2018) found that some people facing fertility troubles actually ended up valuing their marriage or their partner even more, and I hope that the current study supports this idea and may also be true for some of these participants. Another encouraging finding was that while the severity of fertility troubles did make people call their own sense of self and identity into question, have good communication with their partner was associated with less personal uncertainty. Ultimately, there is potentially some good news here, despite the difficult nature of the topic.

UNANTICIPATED FINDINGS

Notably, some unanticipated finding emerged from this dissertation along with the significant relationships of the main findings. As discussed in the main findings, I had anticipated that medical uncertainty would be positively related to relational uncertainty (Hypothesis 2). However, findings showed the opposite in that medical uncertainty was negatively related to relational uncertainty. As previously discussed, this unanticipated finding gives rise to deeper questions about the relationship between medical uncertainty and relational uncertainty.

Additionally, another significant relationship appeared to emerge that contradicted what I expected to find. Hypothesis 8 proposed that the extent of fertility problems would be positively associated with relational uncertainty. This was not supported; however the data did suggest that these two concepts covaried with one another in the opposite direction. Upon consideration, it makes sense that these two

hypotheses have the same pattern. Both medical uncertainty and the severity of fertility problems share associations with relational uncertainty, but as it turns out within this data set, the more medical uncertainty one had or the greater the severity of their fertility troubles, the less relational uncertainty they reported.

One way of interpreting this may be that medical uncertainty and the severity of fertility troubles are both related to the very complex health experience of dealing with fertility troubles, including the diagnosis, treatment options, and odds of a successful pregnancy. While they did not support the associated hypotheses, they seemed to disagree in the same way. One ripe area for future research could include further investigation into the nature of the individual's fertility troubles and medical prognosis. Raque-Bogdan and Hoffman (2015) note that the experience of primary and secondary infertility presents its unique challenges. There is evidence, for example, that women with primary infertility experience greater levels of depression and distress than women with secondary infertility (Epstein & Rosenberg, 2005). In terms of emotional outcomes, women with primary fertility report more distress than those with secondary infertility (Greil et al., 2011). The current sample did not demonstrate large enough differences between people who had living children and those who did not to make it a control variable, but that does not mean that primary and secondary fertility is not experienced differently for the larger population, or that the present study's measures failed to tease out such differences, especially as they applied to the participants emotional world.

NON-SIGNIFICANT FINDINGS

Other unanticipated results also occurred in the analyses. In particular, several associations that I anticipated to occur did not share relationships. The results from this sample indicate that the tripartite sources of uncertainty may not share the straightforward associations I initially anticipated. While a majority of the hypotheses I proposed were not ultimately supported, this is still valuable knowledge for the deeper conceptualization of the uncertainty in illness model, if only to point to questions that still do not have answers. This is important because previous research has demonstrated repeatedly that uncertainty is multifaceted in origin (Brashers, et al., 2003). Additionally, there is evidence that the various forms of tripartite uncertainty may occur simultaneously (Donovan et al, 2014a). This study sought to explore these forms of uncertainty in terms of their relationships to one another, and to other relevant factors such as relationship and communication satisfaction and behavioral outcomes. Many of these relationships did not occur within this sample, and by discussing these non-significant findings, I hope to clarify some of the limitations and future directions implicated by these results. Therefore, I will discuss several non-significant findings below.

Medical uncertainty. Contrary to what I expected to find, medical uncertainty did not appear to be related to personal uncertainty in a meaningful way. It was also not significantly related to how severe the participants' fertility problems were, or their intention to spend fertility-related time and money in the future. This was probably a failure of my measures. Infertility is such a sprawling health condition that simply identifying as currently having fertility troubles could include an enormous variety of

actual physical and personal sources of fertility issues. For example, one person who has severe fertility problems may be able to clearly identify the cause and treatment prescription for their condition.

A person with no sperm viability whatsoever is faced with very serious fertility challenges, but is also perfectly clear on his inability to impregnate his partner. Another person with severe fertility troubles, however, may not even be technically diagnosed as infertile or have even consulted a medical specialist. Indeed, the onus of the issue may rest with them or their partner and they are in the dark about it, in this scenario. The first person would have little ambiguity surrounding their medical choices, and would plan on spending no time or money at all since it is not an issue that can be solved through alternative treatments. Meanwhile, the second would have great ambiguity and unlimited possibility to spend time and money in the future, depending on what emerges. The nature of this health context may simply require more nuanced groupings of types and stages of infertility.

Personal uncertainty. Another relationship I expected to find was a positive association between relational and personal uncertainty. In this sample, these two forms of tripartite of uncertainty were not significantly associated. This may be a methodological flaw as well. I created the measure for personal uncertainty, and while this scale had acceptable reliability and appeared to be unidimensional, it did not support the connections to the two other prongs of uncertainty that previous research seems to suggest. It could be related to the way I worded individual items. On the other hand, perhaps personal uncertainty is not experienced in the way I expected it to be by those

who are dealing with fertility troubles. I developed this scale based off of the research done with adolescent and young adult cancer survivors. There were some individuals in the AYA cancer population who cited fertility issues, but perhaps the reality is that the two populations are fundamentally different.

Adolescence is marked by development of identity and self-concept, figuring out who they are. Perhaps by the time people have arrived at the point of experiencing fertility troubles as a full-blown adult, their sense of self is simply more solidified, regardless of what health challenges they face. One of the inclusion criteria of this sample was that the participant had to be in a committed romantic relationship with a partner they were actively trying to have a child with. Based off of previous literature on having a sense of being a “whole person” (Nemeth, 2000), I anticipated that people may feel as though they haven’t fully achieved adulthood until they have also had a child. Perhaps people of child-bearing age simply do not define themselves using this marker. There could be a generational cohort effect. Xu, Johnson, Bartholomae, O’Neill, and Gutter (2015) found that many adults in their twenties are deferring traditional milestones of adulthood such as home ownership. Budig and Lim (2016) found similar results regarding millennials and parenthood. They do not seem to be defined by the same markers of success or adhere to the same life cycle pattern as previous older generations. This larger societal shift may be reflected in the results of this study as well. Perhaps those facing medical and relational uncertainty surrounding their ability to have a child simply do not question their own sense of self the way previous cohorts might have. Future research may benefit from interviewing individuals coping with fertility troubles

to learn more about the ways that personal uncertainty manifests in their lives, which could lead to the development of scale items that would complement the ones that I developed.

Relational uncertainty. Finally, there were some connections I expected to find between relational uncertainty and behavioral outcomes such as willingness to spend money on fertility-related costs, and willingness to spend time in the future seeking fertility assistance. These relationships did not occur in this sample. One explanation for why there was not a significant relationship between relationship uncertainty and these behavioral outcomes is that their perceived effectiveness probably varies widely from person to person. On the one hand, a person who had a lot of doubt surrounding their relationship may simply be unwilling to plan on sinking additional resources of time and money into the attempt to have a child with their partner. Why invest further into a relationship that is already on shaky ground? On the other hand, a person may be even more motivated to do so if they perceive the cause of their relationship issues to be their fertility troubles in the first place. If the relationship would otherwise be solid, one may be willing to invest any amount of time or money in order to achieve the dual accomplishment of getting the relationship back on solid footing and having a child. The myriad paths couples take on their fertility journey simply cannot be predicted in clear, linear connections between how they feel about their partnership and what they are willing to do to address their fertility troubles.

THEORETICAL CONTRIBUTIONS

The tripartite model of uncertainty includes medical, social, and personal uncertainty. Through the present research, I learned that some forms of uncertainty may in fact operate together with other forms of uncertainty, under certain conditions, and other forms of uncertainty seem to operate more independently within this particular context. Specifically, medical uncertainty and relational uncertainty had a significant, inverse relationship to one another. Relational uncertainty also explained some of the relationship between medical uncertainty and other outcomes such as relationship satisfaction and willingness to seek treatment. Personal uncertainty seemed to be independent of these two other forms of uncertainty in the infertility context, however it was meaningfully associated with communication satisfaction.

One contribution of the current study in this area is the operationalization of social uncertainty as relational uncertainty from the Relational Turbulence Model. The literature indicated that these two constructs are related, and I argued that by using the more focused relational uncertainty (which pertains to romantic partnerships specifically), I could investigate the tripartite model in a health context that is inherently dyadic and central to romantic relationships. This research demonstrates that medical uncertainty and relational uncertainty do share a significant relationship (H2) when social uncertainty from the tripartite model is operationalized by relational uncertainty from the relational turbulence model. I anticipated the opposite direction of what I found; namely, I hypothesized that as medical uncertainty increased, so would relational uncertainty. While the hypothesis involving these two prongs of tripartite uncertainty was not

ultimately supported, the data demonstrated evidence that they may be associated. This makes a small contribution to bodies of literature on uncertainty in illness and relational turbulence.

This dissertation sought to make a theoretical contribution to the tripartite model of uncertainty by helping communication scholars to better understand how people experience medical, personal, and relational uncertainty during fertility troubles by exploring what these constructs mean to people, how they covary with one another, and how they may be associated with communicative, behavioral and relational outcomes. I believe the next logical step in developing our theoretical understanding is to see how various forms of uncertainty operate in conjunction with one another and independently across a variety of contexts, and to determine mediating and moderating factors that may influence the magnitude of uncertainty experienced, as well as what influences individuals to perceive the presence of uncertainty as a negative or positive influence.

APPLIED CONTRIBUTIONS

The result of the current study may be useful for clinicians and fertility-related medical professionals who diagnosis, treat, and consult with individuals who are experiencing fertility troubles. One take-away that may be helpful is that while infertility does cause doubts and questions, not all forms of uncertainty are linked in a clear, straightforward manner, and not all uncertainty should be heralded as bad news. For example, people who have a lot of confusion surrounding their diagnosis and treatment options and odds of success may feel surer than ever about their love for their partner.

One element that seems important in this silver lining is good conversations between the couple regarding fertility. Therefore, clinicians may consider how they can facilitate effective communication between romantic partners. The ability to speak openly in a supportive manner may assist these individuals in terms of how they experience the myriad uncertainties that arise from their infertility experience.

LIMITATIONS AND FUTURE DIRECTIONS

This study faced several limitations, which can be considered research challenges to address in the future. Firstly, it faced all of the usual limitations of using an online survey to collect data (Wright, 2005). There is the potential that using an online survey could result in sampling issues (Andrews et al., 2003; Howard, Rainie, & Jones, 2001). Selection bias may have influenced the data (Stanton, 1998; Thompson et al., 2003). Some individuals are more likely than others to have access to and interest in completing an online survey. For example, people who were especially uncomfortable answering questions about their fertility troubles may have been less likely to respond. Also, those who may feel in control and certain of the situation might consider this line of inquiry is irrelevant or intrusive. These sampling issues inhibit the ability to generalize about my findings to people beyond my sample. Because all data were collected at one point in time through, I can make no claims of causality. The cross-sectional study design is a limitation in that it is carried out at one point in time and does not allow for the analysis uncertainty in the infertility context over an extended period.

Secondly, this data collection did not include several different concepts that would have made analysis more informative. I have no information, for example, about what participants were actually saying to make their conversations more satisfying. I only know that more satisfying conversations occur together with feeling happy with their relationship. Further investigation into what makes a fertility-related conversation between romantic partners more or less satisfying is an obvious next step in order for the current finding to be useful in an applied way.

Thirdly, I did not ask questions of my participants to capture how they were feeling, how stressful their fertility problems were, or whether they were experiencing depression or anxiety. Because I did not measure affective elements such as psychological distress, I can only speculate here how that may have played a role. Infertility is psychologically challenging (Greil, McQuillan, Lowry, & Shreffler, 2011), for both those who finally conceive and those who remain infertile. The results of this study seem to cohere with this presumption, yet I cannot comment directly about the participants emotions because I did not collect data directly pertaining to this. I would like to ask more questions about the emotional experience of fertility troubles, and how affective differences may be connected to the experience of uncertainty. Related to psychometric items, I would also inquire about participants specific coping methods for dealing with various forms of uncertainty. A logical follow-up study would include more coping inquiries, as that may be a differentiating factor in how people experience fertility troubles and the wherewithal to respond.

Additionally, the data from this sample indicated that there was not a significant difference between those who had primary and secondary infertility. People who had had a successful pregnancy already reported no more or less uncertainty than people who had never had a child in this sample. This can be understood by considering that infertility is hard for everyone to deal with, regardless of whether they have had a successful pregnancy in the past or not. However, even though these two groups did not seem to differ meaningfully in terms of their reported amount or type of uncertainty, it does not mean that these various degrees and forms of uncertainty were experienced in the same way. Extant research (Sormunen, et al., 2018), found that there were significant differences between women with primary and secondary infertility in their coping ability and choices. While the data set from this dissertation did not evince a similar pattern of significant differences between these two groups, further investigation into various forms of primary and secondary infertility should be explored. For example, those experiencing secondary infertility, but who did not struggle to achieve their earlier successful pregnancies, may have more in common in terms of medical uncertainty with those who are experiencing primary infertility than with those who also report secondary infertility and who struggled the first time around. Both categories (of primary infertility and secondary infertility where it is the first instance of fertility troubles) involve the first time that couples have confronted challenges to conceive.

Another challenge in this dissertation was evaluating infertility issues at multiple stages. In other words, grouping all people who are experiencing fertility troubles may have prevented me from discovering evidence of the real experience of uncertainty

surrounding fertility troubles. One thing to consider as this line of research moves forward is to tease apart these stages and sources of fertility troubles. For example, women who have experienced infertility for a short period of time compared to those that may have ongoing infertility issues for several years could report a similar amount of medical uncertainty, yet have a very different ability to respond. Infertility is very different from one person to the next. In the future, focusing on one type or stage of infertility may yield more nuanced information. The nature of infertility as a health context is inherently complex, because it encompasses a variety of physical and lifestyle factors. Identifying where participants are within their own infertility trajectory may allow us to capture more nuanced information about what the infertility means to them, how stressful it is at that particular moment, and how their uncertainty experiences are associated with what has occurred thus far.

Finally, some behavioral outcomes were challenging to capture, such as how much money a person would be willing to spend in the future on fertility related treatments and costs. Many people opted to answer this in an unquantifiable manner, rather than providing a dollar amount or estimate, they provided evidence of their commitment or ability to spend money. For example, one participant said “I will spend anything it takes,” and another said “I don’t know how much longer I can do it. It depends on if the in vitro takes.” These sentiments provide rich insight into the experiences of these participants; however their responses could not be translated in a quantifiable data point that was included in this analysis. This was an issue with the

measure I used to collect this data, and one of the drawbacks of using a survey rather than an alternative method such as a semi-structured interview.

The current research made an attempt to contribute to the theoretical and practical understanding of how uncertainty operates in the infertility context, and how individuals faced with fertility troubles experience uncertainty. While it accomplished in adding some additional insight, it raises many questions and points to the additional work that must be undertaken in order to create a deeper understanding of the communicative processes of importance in this particular health context.

Appendices

APPENDIX A

Demographics

Participant Demographic Questions

Please answer the following questions about your personal demographics.

What is your age?

_____ years

What is your sex?

_____ Male

_____ Female

What is your ethnicity? (Please mark all that apply)

_____ African-American or Black

_____ Asian or Pacific Islander

_____ Caucasian/White

_____ Hispanic or Latino/a

_____ Middle Eastern

_____ Native American/ First Nation

_____ Other, please specify _____

What is your highest level of education?

_____ High School/GED

_____ Associate's degree

_____ Bachelor's degree

_____ Graduate degree (Master's, PhD, JD, MD, etc.)

_____ Other, please specify _____

What is your household annual income?

_____ 0-19,000

_____ 20,000-39,000

_____ 40,000-59,000

_____ 60,000-79,000

_____ 80,000-99,000

_____ 100,000-119,000

_____ 120,000-139,000

_____ 140,000-159,000

_____ 160,000-179,000

_____ 180,000-199,000

_____ over 200,000

Romantic Partner Demographic Questions

Please answer the following about your romantic partner demographics.

What is your partner's age?
_____ years

What is your partner's sex?
_____ Male
_____ Female

What is your partner's ethnicity? (Please mark all that apply)

- _____ African-American or Black
- _____ Asian or Pacific Islander
- _____ Caucasian/White
- _____ Hispanic or Latino/a
- _____ Middle Eastern
- _____ Native American/ First Nation
- _____ Other, please specify _____

What is your partner's highest level of education?

- _____ High School/GED
- _____ Associate's degree
- _____ Bachelor's degree
- _____ Graduate degree (Master's, PhD, JD, MD, etc.)
- _____ Other, please specify _____

Romantic Relationship Questions

Please answer the following questions about your romantic relationship.

In total, how long were you (have you been) in your romantic relationship? In other words, please indicate the length of time from when you first started dating until today.

- _____ years
- _____ months
- _____ weeks
- _____ days

How would you characterize your relationship now? Please choose only one.

- _____ We are casually dating.
- _____ We are seriously dating.
- _____ We are in a long-term, committed dating relationship.
- _____ We are engaged.
- _____ We are in a cohabitating domestic partnership.
- _____ We are married.
- _____ We are separated.
- _____ We are divorced.

APPENDIX B

Reproduction Questions

This survey asks you about your experiences with fertility problems. Some questions will ask you to keep your romantic partner and your relationship in mind as you complete the questions. The information you provide will help us better understand people's experiences with dealing with fertility problems. Some questions are sensitive in nature, and may trigger feelings of distress. You may stop at any time. Resources for support are provided at the conclusion of the survey if you find you experience any distress.

In total, how long were you (have you been) trying to conceive? In other words, please indicate the length of time from when you first started trying to get pregnant until today, or the time that you stopped trying.

_____ years
_____ months
_____ weeks
_____ days

Do you have any living children? Yes/ No.

If yes, how many? _____

If you (or your romantic partner) have experienced any of the following, please indicate how many times:

Successful full-term pregnancy _____
Stillbirth _____
Miscarriage _____

Please estimate how much money has been spent to date on fertility related treatments:

The next item asks you to consider overall the extent of your fertility problems.

On a scale of 1-10, I would describe my (and/or my partners') fertility problems as being:

_____ moderate _____
Very Mild Very Severe

On a scale of 1-10, how willing are you to pursue fertility treatments in the future?

_____ moderate _____
Very Willing Very Unwilling

APPENDIX C

Medical Uncertainty Scale

(adapted from Mishel's Uncertainty in Illness Scale)

INSTRUCTIONS: Please read each statement. Take your time and think about what each statement says. Then answer to what extent you agree with the following statements. Please respond to every statement (1 = Strongly Agree to 5 = Strongly Disagree).

1. I am sure of the cause of the fertility problems.
2. I am certain that my partner is the cause of the fertility problems.
3. I am certain that I am the cause of the fertility problems.
4. I understand the odds of my ability to conceive a child.
5. I know exactly what my treatment options are.
6. I am confident that I know what to do to increase the odds of conceiving.
7. I am confident that I am experiencing fertility problems right now.
8. I know why we have been unable to have a successful pregnancy.
9. I am sure I can do something to increase our fertility.
10. I am confident we will successfully have a child eventually.
11. I am sure how far I am willing to go to have a child.
12. I know what is to blame for the fertility problems.
13. I am sure that my chances of conceiving are zero percent.
14. I understand why we are having fertility problems.
15. It's difficult to know if fertility treatments will help me.
16. I'm not sure of the precise cause of my fertility problems.
17. It is not clear if what I have been doing to overcome the situation will help me conceive.
18. I have control over the situation.
19. I can do things that will help resolve the fertility issue.
20. I know when we became "infertile" as compared to trying without luck.
21. It is difficult to know if the treatments [we are] getting are helping the fertility problems.
22. It is unclear how long we can pursue treatment.
23. I can predict how long our fertility problems will last.
24. Because of the unpredictability of fertility problems, I cannot plan for the future.
25. I have a lot of questions without answers.
26. There are so many different types of fertility treatment options; it's unclear what I should pursue.
27. This experience has opened new possibilities for me.
28. I greet each day with more joy.
29. I fear the unexpected more now.
30. I focus more now on what is truly important in life.
31. I am more sure than ever that I want to become a parent.

*Have you consulted with a health care professional about you or your partner's fertility?
If YES;*

32. I know what treatment we are currently pursuing for the fertility problems.
33. The doctors say things to me about fertility problems that could have many meanings.
34. I understand everything explained to me about my treatment options.
35. The purpose of each fertility treatment is clear to me.

*Items 15, 16, 17, 21, 22, 24, 25, 26, 29, 33 are reverse scored.

APPENDIX D

Relational Uncertainty Scale

Relational Uncertainty

Abbreviated version of Knobloch and Solomon's (1999)

General Instructions. Participants were instructed to recall their specific stressful experience when answering these statements. Often times the stressful events were retrospective; therefore, participants were asked to complete these measurements reflecting the stressful experience rather their current relationship state. scale to assess self, partner, and sources of relational uncertainty. Individuals will complete a short answer questionnaire containing a 12-item measure of relational uncertainty. Utilizing a six-point Likert scale (1 = Completely or Almost Completely Uncertain, 6 = Completely or Almost Completely Certain), participants will answer items completing the question, "How certain are you about...? Four items were added to address infertility specifically related to the relationship's future for a total of 16-items.

Measurement Instructions. Please answer all items completing the question, "How certain are you about...YOUR OWN INVOLVEMENT and YOUR PARTNER'S INVOLVEMENT in the relationship and YOUR RELATIONSHIP. How certain are you about...?"

Self Uncertainty

1. How you feel about your relationship?
2. Your view of your relationship?
3. How important your relationship is to you?
4. Your goals for the future of your relationship?

Partner Uncertainty

1. How your partner feels about your relationship?
2. Your partner's view of your relationship?
3. How important your relationship is to your partner
4. Your spouse's goals for the future of your relationship?

Relationship Uncertainty

1. How you can or cannot behave around your partner?
2. The current status of your relationship?
3. The definition of your relationship?
4. The future of your relationship?

APPENDIX E

Personal Uncertainty

Created by Sarah Tardif

Based on Brashers, 2003; Donovan et al, 2014a; Donovan et al., 2014b

INSTRUCTIONS: Please read each statement. Take your time and think about what each statement says. Then answer to what extent you agree with the following statements. Please respond to every statement*

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

Personal Identity Uncertainty items

1. I'm not sure what my fertility troubles means in terms of how I see myself.
2. If I am not able to have biological children, I am not sure who I am.
3. At this moment, I am uncertain about my identity.
4. In general, I have questions about what my roles are because of my fertility troubles.
5. Whatever happens with my fertility problems, I know exactly who I am.
6. I have always thought that "parent" would be a central part of my identity.
7. If my fertility problems are not resolved, I will feel lost.

APPENDIX F

Relationship Satisfaction

Marital Opinion Questionnaire (Huston, McHale, & Crouter, 1986)

Marital Opinion Questionnaire

Please think about your life with your partner over the last two months, and use the following words and phrases to describe it. For example, if you think that your relationship with your partner has been very miserable, put an X in the space right next to the word "miserable." If you think it has been very enjoyable, put an X in the space right next to the word "enjoyable." If you think it has been somewhere in between, put an X where you think it belongs. Put an X in one space on every line.

- 1. miserable: _____ :enjoyable
- 2. helpful: _____ :harmful
- 3. hopeful: _____ :discouraging
- 4. empty: _____ :full
- 5. interesting: _____ :boring
- 6. rewarding: _____ :disappointing
- 7. doesn't give me _____ brings out the
much chance: _____ :best in me
- 8. lonely: _____ :friendly
- 9. worthwhile: _____ :useless

All things considered, how satisfied or dissatisfied have you been with your relationship with your partner? Place an X in the space that best describes how satisfied you have been.

_____ completely _____ neutral _____ completely
dissatisfied satisfied

APPENDIX G

Perceived Relationship Quality Component (PRQC) Inventory

This measurement consists of 18 items. Each perceived relationship quality component (e.g., relationship satisfaction, commitment, intimacy, trust, passion, and love) is assessed by three questions. Each statement is answered on a 7-point Likert-type scale (ranging from 1 = not at all to 7 = extremely) Instructions are to rate the current partner and relationship on each item. Component categories are shown as subheadings (which are omitted when the scale is administered).

Relationship Satisfaction

1. How satisfied are you with your relationship?
2. How content are you with your relationship?
3. How happy are you with your relationship?

Commitment

4. How committed are you to your relationship?
5. How dedicated are you to your relationship?
6. How devoted are you to your relationship?

Intimacy

7. How intimate is your relationship?
8. How close is your relationship?
9. How connected are you to your partner?

Trust

10. How much do you trust your partner?
11. How much can you count on your partner?
12. How dependable is your partner?

Passion

13. How passionate is your relationship?
14. How lustful is your relationship?
15. How sexually intense is your relationship?

Love

16. How much do you love your partner?
17. How much do you adore your partner?
18. How much do you cherish your partner?

APPENDIX H
Health Behavior Intentions

Treatment

1. What treatment options have you tried previously and are no longer pursuing?
2. What treatment options are you currently pursuing?
3. What treatment options are you willing to try in the future on a scale of 0-100, with 0 = Not at all and 100 = Completely?

Treatments options for items 1-2

Behavioral

- give it more time to happen unassisted
- tracking ovulation

Medical treatment (common drugs used to treat infertility)

- Clomiphene citrate (Clomid®*)
- Human menopausal gonadotropin or hMG (Repronex®*; Pergonal®*)
- Follicle-stimulating hormone or FSH (Gonal-F®*; Follistim®*)
- Gonadotropin-releasing hormone (Gn-RH) analog medicines
- Metformin (Glucophage®*)
- Bromocriptine (Parlodel®*)

Assisted reproductive technology

- In vitro fertilization (IVF), meaning fertilization outside of the body
- Zygote intrafallopian transfer (ZIFT) or tubal embryo transfer
- Gamete intrafallopian transfer (GIFT), involves transferring eggs and sperm into the woman's fallopian tube
- Intracytoplasmic sperm injection (ICSI) is often used for couples with male factor infertility
- Use of donor eggs
- Use of donor semen
- Use of fertilized donor embryo
- Use of surrogacy
- Use of a gestational carrier
- Adoption
- Voluntary childlessness

Money

1. How much money have you spent on treatment so far (please estimate)?
2. Please explain.
3. How much money you are willing to spend in the future on treatment (please estimate)?

4. Please explain.
5. How much of a burden has money or financial strain affected you?
6. How much of a burden has money or financial strain affected your partner?
7. How much of a burden has money or financial strain affected your relationships?

Time

1. For approximately how long do you expect to pursue your current treatment plan?
Months _____ and years _____
2. For approximately how long do you expect to pursue fertility treatment in general?
Months _____ and years _____

APPENDIX I
Interpersonal Communication Satisfaction Inventory
Hecht, 1978

On the next few pages you will be asked to react to a number of statements. Please indicate the degree to which you agree or disagree that each statement describes your conversations with your romantic partner regarding your fertility. The 4 or middle position on the scale represents “undecided” or “neutral”, then moving out from the center, “slight” agreement or disagreement, then “moderate,” then “strong” agreement or disagreement.

For example, if you strongly agree with the following statement you would circle 1;
The other person moved around a lot.

Agree : 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

-
1. My romantic partner let me know I was communicating effectively.
 2. Nothing was accomplished.
 3. I would like to have another conversation like this one.
 4. My romantic partner genuinely wanted to understand me.
 5. I was dissatisfied with the conversation.
 - *6. I had something else to do.
 7. I felt that during the conversation I was able to present myself as I wanted the other person to view me.
 - *8. My romantic partner showed me that they understood what I said.
 9. I was very satisfied with the conversation.
 10. My romantic partner expressed a lot of interest in what I had to say.
 11. I did NOT enjoy the conversation.
 12. The other person did NOT provide support for what they were saying.
 13. I felt I could talk about anything with my romantic partner.
 14. We each got to say what we wanted.
 15. I felt that we could laugh easily together.
 16. The conversation flowed smoothly.
 - *17. The other person changed the topic when their feelings were brought into the conversation.
 18. My romantic partner frequently said things which added little to the conversation.
 19. We talked about something I was NOT interested in.

*The three items not included in the 16-item version of the measure are indicated by an asterisk.

Scoring Key: For items 1, 3, 4, 7, 8, 9, 10, 13, 14, 15, 16: Strongly agree = 7, Moderately agree = 6, Slightly agree = 5, Neutral = 4, Slightly disagree = 3, Moderately disagree = 2, Strongly disagree = 1.

For items 2, 5, 6, 11, 12, 17, 18, 19: Strongly agree = 1, Moderately agree = 2, Slightly agree = 3, Neutral = 4, Slightly disagree = 5, Moderately disagree = 6, Strongly disagree = 7.

APPENDIX J

Debrief

Thank you for participating in this survey. Your responses will help us better understand people's experiences dealing with fertility problems. If reflecting on these issues triggers intense sadness or distress, you may wish to seek out additional support. Sources for support are listed below.

American Society for Reproductive Medicine (ASRM)

Call 205-978-5000 or visit www.asrm.org

This professional organization for infertility specialists publishes guidelines and hosts meetings about the medical management of infertility. Its Mental Health Professional Group focuses on the psychological and emotional aspects of infertility treatments.

RESOLVE: The National Infertility Association

Call 703-556-7172 or visit www.resolve.org

This organization provides education, support, publications, and advocacy for women and men facing infertility.

APPENDIX K
Code Book (Donovan et al., 2014a)

Sources of Uncertainty in Adolescents and Young Adults with Cancer

Defining Uncertainty: Perception that one lacks the ability to explain, predict, or establish meaning of illness-related circumstances (Brashers, 2001; Mishel, 1988).

I. Medical Uncertainty

a. Insufficient Info and Diagnosis (e.g., beginning cancer process)

This process occurs typically as a reaction to patient-provider discussion

- i. Ambiguity of diagnosis
- ii. Unclear meaning of diagnosis
- iii. Unknown probability of opportunistic infections
- iv. Diversity of opportunity infections

b. Ambiguous Symptom Patterns (present tense orientation)

- i. Unfamiliar symptoms
- ii. Diverse and unpredictable symptom patterns
- iii. Unknown etiology of symptoms

c. Systems and Processes of Treatment and Care (e.g., Uncertainty about Cancer)

- i. Insufficient information on experimental medications (e.g., safety and efficiency)
- ii. Complexity of treatment regimens
- iii. Variable individual responses to medications

- iv. Complex health maintenance behaviors (e.g., food and water consumption)
- v. Potential alternative treatments
- vi. Medical decision ownership - Who is making the decision(s)? Who is in charge of making the ultimate choice in treatment and care?
- vii. Post-treatment
- d. Unpredictable disease progression or prognosis (future tense orientation)
 - i. Variable outcomes
 - ii. Reversible illness progression (revival)
 - iii. Possible illness recurrence or treatment failure

II. Personal Uncertainty (e.g., Uncertainty about to feel about Cancer)

Focuses on reflection, complementation, and/or intrapersonal communication

- a. Complex or Conflicting Role and Identity Challenges
 - i. Role fluctuation (e.g., sick vs. well, adult vs. child role, patient vs survivor) (e.g., Carnett, Stone, Scott, & Brashers, 2010).
 - ii. Global affective change —Not a direct medical symptom (i.e., Not forgetfulness associated with chemo as a medical symptom) rather an emotional experience of highs and lows
- b. Unclear Financial Consequences
 - i. Disability status
 - ii. Long term financial consequences
 - iii. Educational, career, unemployment concerns

III. Social Uncertainty. Focus on interpersonal relationships and communication as interaction

a. Unpredictable Interpersonal Reactions

i. Stigma versus affirmation

ii. Rejection versus acceptance

b. Unclear Relational Implications

i. Possible social isolation

ii. Unknown impact on non-romantic relationships (e.g., work, friendship, and/or family)

iii. Unknown impact on romantic relationships (e.g., dating or marriage)

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