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Understanding the Predictors of Posttraumatic Growth Among Those With a History of a Reproductive Trauma

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Understanding the Predictors of Posttraumatic Growth Among Those With a History of a
Reproductive Trauma

by

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Submitted in partial fulfillment of the requirements for the degree Doctor of Philosophy
Department of Professional Psychology and Family Therapy
Seton Hall University
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SETON HALL UNIVERSITY
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APPROVAL FOR SUCCESSFUL DEFENSE

Moshe Winograd, has successfully defended and made the required modifications to the text of the doctoral dissertation for the Ph.D. during this Spring Semester 2017.

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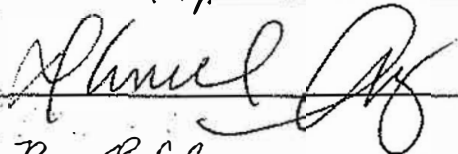
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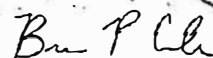
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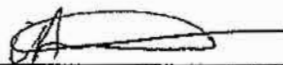
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Abstract

Pregnancy loss, from early miscarriage through full-term stillbirth, is a problem that affects a significant percentage of child bearing women. Such a loss can lead to varied negative psychological outcomes such as depression, anxiety, PTSD, and other adjustment disorders. Posttraumatic growth, the ability to make meaning through the processing of a trauma, is a concept that, while well researched among other trauma populations, has barely been considered in relation to pregnancy loss. This study examined posttraumatic growth among 103 women who had experienced a pregnancy loss. Using a hierarchical regression it examined the role that perinatal grief, family processes, hope, and coping styles uniquely play in predicting posttraumatic growth. Results supported the idea that a significant amount of such women do experience posttraumatic growth. Other than hope, all variables uniquely predicted posttraumatic growth. It is recommended that clinicians consider including posttraumatic growth as a therapeutic goal when working with women who have experienced a pregnancy loss.

Keywords: Pregnancy Loss, Posttraumatic Growth, Family Process, Miscarriage, Stillbirth

Dedication

To the angel babies and their special mothers whose story forms the tapestry of this study.

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Chapter 1

Introduction

Introduction to the Problem

In 2013, the year with the most recent data report available, there were 3,932,181 babies born in the United States (Martin et al., 2015). Despite the number of successful live births, a significant number of pregnancies do not result in the birth of a baby. It is reported that there were an estimated 1,118,000 fetal losses in the year 2008, representing about 17% of total pregnancies (Ventura, Curtin, Abma, & Henshaw, 2012). This number does not include the estimated 1,212,000 induced abortions for the same year, accounting for about 18% of all pregnancies. Total, early, and late fetal mortality rates did not generally change in the United States from 2006 through 2012 (Gregory, MacDorman, & Martin, 2014). It is likely that the number, though, is even higher given the evidence of underreporting of fetal deaths in the early part of the reporting period (at or near 20 weeks of gestation; Martin & Hoyert, 2002).

Although pregnancy loss can happen to anyone who is pregnant, fetal mortality rates are substantially higher for non-Hispanic Black and American Indian or Alaska Native women than for non-Hispanic White women. Also, compared with the U.S. average, fetal mortality rates are higher for teenagers and for women aged 35 years and over, for twin and higher order pregnancies, and for women with more than two previous pregnancies (MacDorman & Kirmeyer, 2009).

Multiple pregnancies have a higher risk in part due to increased rates of preterm labor, fetal growth restriction, maternal hypertension, and placental and cord problems (Goldenberg, Kirby, & Dulhane, 2004). Assisted reproductive technologies have also led to a rise in multiple pregnancies, which may increase fetal mortality risk (Wright, Chang, Jeng, & Macaluso, 2008). Teenagers have a higher risk possibly due to less favorable socioeconomic and behavioral conditions among pregnant teenagers, although biologic immaturity may also play a role, particularly for the youngest teenagers (Bateman & Simpson, 2006). Maternal age of 35 years and over appears to be an independent risk factor for fetal death, even after adjusting for medical conditions that are more common among older women, such as hypertension, diabetes, placental problems, and multiple gestation (MacDorman & Kirmeyer, 2009).

Pregnancy loss and *fetal/perinatal mortality* are general terms, and they can be understood more specifically by the different kinds of losses. Stillbirths account for 26,000 of such annual losses with an additional 600,000 miscarriages. Further, there are 64,000 ectopic pregnancies and 6,000 molar pregnancies, which happen when tissue that normally becomes a fetus instead becomes an abnormal growth in the uterus (Pregnancy Statistics, n.d.).

There are a number of medical consequences that can arise amidst dealing with pregnancy loss such as vaginal bleeding, lower abdominal pain, breast discomfort, uterine infection, and various surgical procedures. In addition to the medical complications that may result, there is a wide range of psychological sequelae that can appear after such a fetal loss. While not everyone who has such a fetal loss will be affected on a

psychological level, especially if the loss was very early in the pregnancy, and the mother (and/or partner) had ambivalent or negative views toward the pregnancy, there are still a significant number of people who, after experiencing such a loss, will go on to develop psychological symptomology (Swanson, Chen, Graham, Wojnar, & Petras, 2009). This can include relatively minor or just short-term symptoms as well as chronic and longstanding mental illnesses such as posttraumatic stress disorder (PTSD; Turton, Evans, & Hughes, 2009). These problems can affect both the woman gestating the baby as well as the partner or father figure (Johnson & Baker, 2004).

The overwhelming majority of research to date has understandably focused on the negative outcomes from such events. As noted above, this includes the medical complications from a pregnancy loss as well as the deeply impacting and wide-ranging adverse psychological outcomes. However, despite pregnancy loss possibly representing an absolute tragic outcome and traumatic event, it is important to recognize that benefit finding and positive gains can also result from working through the experience.

Posttraumatic growth (PTG), the psychological construct that addresses this type of outcome, has been examined in a wide range of clinical populations ranging from illnesses like cancer (Canavarro, Silva, & Moreira, 2015) to natural disasters such as earthquakes (Marshall, Frazier, Frankfurt, & Kuijer, 2015). It has also been shown in interpersonal traumas like rape (Ullman, 2014) as well as emotionally traumatic events such as bereavement (Taku, Tedeschi, & Cann, 2015).

To date, despite a large corpus of literature that has examined PTG in almost every conceivable traumatized population, a thorough literature review revealed that not a

single study exists to date that has examined PTG in the population that has experienced a pregnancy loss. Given the distinct possibility that the findings of such a study would help this population navigate the potentially traumatic aftermath of a pregnancy loss, it would be tremendously helpful to understand the possibilities of achieving PTG after a pregnancy loss. It is also important to further understand the mechanisms through which PTG is achieved.

Research findings suggest that the relationship between trauma, grief, and the growth that can happen as one processes this trauma is complex. An individual's level of social/interpersonal and familial support and positive coping has been documented to benefit grief responses (Benzies & Mychasiuk, 2009; Jia, Ying, Zhou, Wu, & Lin, 2015; Yu et al., 2014). It has also been shown that those with high hope have an increased ability for sophisticated cognitive processing that is productive (as it can be evaluated against worthwhile goals), better problem solving, and improved psychological adjustment, which are important components in developing PTG (Snyder, 2002).

Given the results of these findings, level of perinatal grief, coping mechanisms, Snyder's hope construct, and family relational patterns will shed further light on the relationship between trauma and PTG. The remainder of this chapter will include a background of the problem, a brief description of posttraumatic growth, coping mechanisms, statement of the problem, purpose of the study, discussion of the significance of the study, definition of variables, research questions, hypotheses, as well as the anticipated limitations of the study.

Background of the Problem

Pregnancy loss is quite common, with as many as 15–20% of confirmed pregnancies lost (Bardos et al., 2015). The number is likely higher given that many pregnancies are lost before they are confirmed. Pregnancy loss has existed as long as humans have been reproducing, likely in even higher numbers, but has become a greater issue with changing reproductive and lifestyle patterns in the 20th century as well as increased technology (Jaffe & Diamond, 2011).

Pregnancy, as it takes place concealed inside of a woman's body, does not become obvious to the observer (and perhaps in some cases even for the expectant woman) until a few months into the pregnancy. Various methods of earlier testing for pregnancy, such as urinating on wheat and barley seeds, mixing urine with wine, or noting daily physical symptoms, have been around since 1350 BCE (Vaitukaitis, 2003). Most of these methods were inconsistent and not reliable. Further, even if a woman were to know that she was pregnant, there was not much to be done without the current state of knowledge regarding optimal prenatal care. In fact, despite many advances in understanding the importance of prenatal care, nearly one fifth of women in the United States do not seek prenatal care during their first trimester (Winston & Oths, 2000). Although popular childbirth books started encouraging women in the 1930s to go to physicians for confirmation of pregnancy, it was not until 1976 that a pregnancy test was available for home use making it widely popular (Vaitukaitis, 2003) and quickly becoming among the most widely used test in medicine. Thus a woman can know she is pregnant with such a urine test as soon as a few days after she expects the onset of her

menstrual cycle, while a blood test can detect results even sooner, at about 7–12 days from possible conception (Berger & Sturgeon, 2014).

In addition to the increased use of early pregnancy tests, making it fairly common that a woman knows whether she is pregnant within the first month or two of pregnancy, there has been an increase in technology that allows the parents to feel a connection with the fetus. A parent can now have the option to receive the following experience in one package: 25-minute elective 3D/4D ultrasound sessions, DVD of ultrasound session set to lullaby music, CD included with all of the 3D images captured during the session, live 4D ultrasound video segments saved to CD, gender determination, and listen to your baby's heartbeat (Golden View Ultrasound, 2017). According to Pearson (2014) this is done sometimes in the context of parties where people come together to celebrate this ultrasound. All of these options can anchor the not-yet-born fetus as a very real part of the expectant parent's life in a way that was likely unimaginable in previous generations. In addition, despite a range of prenatal care that has been around for a few decades already as part of a women's routine preparation for delivering a healthy baby, there are ever more standard and sophisticated tests offered to women especially for genetic testing (Farrell, 2013). In addition to the formal medical testing there has been explosive growth in other prenatal care such as prenatal massages (Adams, 2012), prenatal yoga (Bonura, 2014), and prenatal shakes ("Mommi Launches," 2014). An additional factor that can increase the importance of pregnancy for about 10% of people is the rise in infertility treatments (Christensen, 2014). These treatments offer

many couples the ability to have a child where it was previously not medically possible. These treatments typically involve a range of procedures and decision points regarding starting a family. All of this is likely to make the experience of pregnancy more thought out, tangible, and perhaps associated with increased emotional investment. Given the extensive nature of the addition of these prenatal care items and reproductive endocrinology interventions to the prenatal experience, it is reasonable to expect that the points of connection to the fetus have increased in ways that make the attachment and connection to the fetus much stronger than in early years.

Additionally, there have been a number of lifestyle changes that may contribute to this increased attachment. Although some form of celebrating a baby's birth has existed for centuries, these events took place after the baby was born. Only in the 1950s and onward have there been celebrations, called baby showers, that celebrate the upcoming birth of the child (Clarke, 2004). It has also become very popular to go to elaborate lengths to decorate baby nurseries and equipping one's house with smart nurseries, which allow parents to track their baby's sleeping habits through various wearable devices (Wood, 2014), and this like the new tradition of holding baby showers is seemingly connected to the economic and consumer material-driven culture that began immediately after WWII.

Given the increased visibility of the expectant fetus, its greater than ever chances for survival, and Western culture's many ways of celebrating its pending arrival, it is understandable that the psychological connections to one's fetus is likely

much stronger. Stormer (2003) notes that both medical science and society now envision the maternal–fetal relationship as beginning at a much earlier stage in fetal development due to the rise of imaging available to view the fetus and its movements. A woman who had ultrasound would be likely to show increased maternal–fetal attachment than if she did not (Righetti, Dell'Avanzo, Grigio, & Nicolini, 2005). Losing such a baby should be a more significant and traumatic event than in previous times where the loss was possibly not even recognized in a meaningful way by the medical staff involved with care at the time of the loss (Leff, 1987). Moe (1997) notes that up until recent times, grief from pregnancy loss was not recognized by the helping professions, and it was equated with “tissue loss.” This experience is not limited to the expectant mother. There is a new body of research exploring the growing understanding of the father’s attachment to his child (Vreeswijk, Maas, Rijk, & van Bakel, 2014).

There has been a significant amount of research surrounding pregnancy loss, with the overwhelming body of this research focused on the medical domain in trying to reduce the number of pregnancies lost every year. There is an added focus on preventing recurrent pregnancy loss, as approximately half of such patients have no explanation for their miscarriages (Shahine & Lathi, 2015). Additionally, there has been a growing corpus of research focused on examining the psychological impact of such loss. These studies have investigated depression, anxiety, and PTSD among other disorders primarily in women who have experienced such a loss (e.g., Robertson Blackmore et al., 2011; Giannandrea, Cerulli, Anson, & Chaudron, 2013; Reardon et al., 2003). Some of this

research has also explored the way a miscarriage affects the father as well (Kong, Chung, Lai, & Lok, 2010). Although many people who experience such a trauma will return to a psychological baseline either through the passage and distance of time or through professional help, one study found that a significant number of women will continue to show distress a year later (Lok, Yip, Lee, Sahota, & Chung, 2010). It has been reported that men as well can show distress at later points, albeit it may be expressed less intensely (Johnson & Puddifoot, 1996). There has been a call for increased attention to the psychological effects even for first trimester miscarriages (Borrell & Stergiotou, 2013).

The overwhelming majority of psychological research regarding pregnancy loss has focused on disorders and other negative symptoms. Despite a wide range of psychological constructs emerging from the positive psychology literature such as various character strengths and signs of resilience, the pregnancy loss population has not been studied in ways that utilize these constructs. As noted earlier, a thorough review of the literature revealed that no study has explored this area. In particular, there has been no examination of PTG in this population. Given the highly traumatic nature of this event, for a significant number of those who experience pregnancy loss, this would be an appropriate target population to which PTG research could be extended. When utilized properly by a sensitive clinician, the construct of PTG is an important one to keep in mind when working with a client who experienced a traumatic event. From the vantage point of the clinician acting as an expert guide, he or she is now able to gently help the client try to make meaning out of this tragic event and grow from it. To do so would be to take the client past just ameliorating negative psychological symptoms and actually

helping the individual thrive not in spite of but because of the trauma. This can be a very empowering experience for a significant amount of trauma clients and as such would be one important tool to have in one's clinical toolbox.

To further develop the role of PTG, it is important to gain greater clarity regarding the mechanism toward achieving growth. Coping in all of its varied forms is a promising area to explore in its possible role in predicting PTG. The way a family grieves both together and as individuals can have a significant impact on the future psychological trajectory (Avelin, Rådestad, Säflund, Wredling, & Erlandsson, 2013). Thus as a further level of depth to examine coping and routes toward PTG it is important to understand the role of the family and their relational style.

Family processes are a significant factor to examine in the context of trauma. This is particularly true for a trauma such as pregnancy loss whose very meaning and implication are so strongly defined in the context of family. When a person experiences a traumatic event, family support can be very significant. It has been shown that when a woman experiences a stillbirth, the support of her spouse, family, and friends through sympathizing can be helpful for her in performing everyday activities and to escape loneliness (Allahdadian, Irajpour, Kazemi, & Kheirabadi, 2015). Zeanah and Harmon (1995) report that for both men and women who experienced a pregnancy loss the quality of the marital relationship and social support were more significant predictors of adaptation than information such as age, education or socioeconomic status. One study found that even when taking into account individual-level characteristics that could

influence anxiety and depression, family support is the only form of social support that reduces levels of maternal anxiety and depression (Cacciatore, Schnebly, & Froen, 2009).

In regards to posttraumatic growth specifically, family variables have been also shown to be significant. It has been demonstrated that instrumental and emotional support from the family can lead to PTG (Svetina & Nastran, 2012). In a study with breast cancer patients it was reported that family factors such as cohesion, flexibility, satisfaction, and communication were able to predict PTG above and beyond such factors like coping mechanism and various demographics (Svetina & Nastran, 2012). Further, in a study examining predictors of PTG in survivors of the 2004 Indian Ocean tsunami it was found that these family factors of flexibility and communication were uniquely predictive of PTG (Augustine, 2014).

Statement of the Problem

Although there is a significant amount of research being performed and public health initiatives to reduce infant mortality, there is a paucity of research regarding the psychological symptoms exhibited by those who have lost a baby in utero. The research that does exist has either been limited to small ethnographic studies (McCreight, 2008; Murphy & Philpin, 2010) or stayed focused on negative symptoms experienced by such individuals (Condon, 1986; Herz, 1984). There is currently no published research investigating benefit finding or personal growth in the aftermath of a pregnancy loss. The specific problem is that only a little is known about poor mental health outcomes and absolutely nothing in terms of positive outcomes in the form of PTG. Posttraumatic growth is a heavily researched area and has been examined in almost every other trauma

population, while this population has been completely ignored. This study utilized self-report measures to examine the relationship between PTG, grief after a perinatal loss, coping strategies, hope, and family processes.

Purpose of the Study

The purpose of this exploratory study was to examine the relationship between perinatal grief after a pregnancy loss and PTG. Possible pathways leading to PTG, such as coping strategies and mechanisms as well as family factors, were investigated. The focus of this study is on those women who have experienced a pregnancy loss at any point in the pregnancy ranging from early miscarriage (technically referred to as a chemical pregnancy) to late-stage stillbirth. Research has shown that there is not necessarily a difference in the level of grief between those who experience miscarriage versus those who experience a stillbirth as increased gestational period alone is not likely a significant factor in forming an attachment to the fetus and pregnancy (Shreffler, Greil, & McQuillan, 2011). Hutti, Armstrong, and Myers (2013) found that there were no differences in grief intensity between the miscarriage and stillbirth groups. They note that health care providers often expect that a parent who experiences a longer gestation and has a stillbirth always will grieve longer and more intensely when compared with a parent who has been pregnant for a few weeks or months and then experiences a miscarriage. Thus while it *is* common for parents of stillborn neonates to grieve intensely, many studies have demonstrated that women and men who experience early pregnancy loss may, and often do, exhibit significant grief as well (Hutti, dePacheco, & Smith, 1998; Swanson et al., 2009; Swanson, Connor, Jolley, Pettinato, & Wang, 2007). What is

ultimately likely more significant for forming an attachment to the fetus is viewing the fetus as a real entity, and this can be as true for a woman with an early miscarriage as it is for those who experience stillbirth (Côté-Arsenault & Dombeck, 2001).

Given the current focus of the literature on medical or negative psychological outcomes of this population, this study will add an additional lens to this field by adding in a hitherto ignored aspect of post trauma psychosocial functioning.

Significance of the Study

As noted earlier, fetal loss occurs in over a million pregnancies each year in the United States, and these losses are a source of traumatic stress for both mothers and fathers. A meta-analytic review of the literature (Helgeson, Reynolds, & Tomich, 2006) revealed that benefit finding after a trauma was associated with better mental health outcomes when such outcomes were operationalized as depression and positive well-being. Benefit finding is defined by Helgeson et al. as positive effects that result from a traumatic event. This has been shown in multiple populations as well. Benefit finding has been linked to less negative affect in cancer patients (Wollman & Felton, 1983); less psychological distress in women with fertility issues (Abbey & Halman, 1995); and less mood disturbance and intrusive thoughts in mothers of acutely ill newborns (Affleck, Allen, Tennen, McGrade, & Ratzan, 1985). Benefit finding can also have long-term health benefits as has been shown in a population recovering from heart attack (Affleck, Tennen, Croog, & Levine, 1987). For the pregnancy loss population this could lead to improved marital satisfaction and more effective parenting of current and future children, both significant and important gains. Clinically, this will help shed light on how and

under what circumstances such a population achieves PTG. This can help clinicians incorporate PTG interventions into their work with clients where appropriate, in accord with the range of factors that Calhoun and Tedeschi (1999) have outlined for therapists to keep in mind as they guide their clients toward the possibility of experiencing PTG. These mechanisms can likely also shed light on how PTG unfolds in other trauma populations as well, thereby providing a valuable addition to the burgeoning study of PTG. On a broader advocacy level this study can serve to open public discussion to the silent trauma of pregnancy loss by focusing on a positive aspect that may be more comfortable for people to talk about, thereby allowing more people to discuss their experience of such a loss with those around them. Ultimately this could expand the focus of care for this vulnerable and underserved population. Lastly, PTG, which broadens the focus of research from negative symptoms to the whole person and an empowerment perspective, is a signature feature of the discipline of counseling psychology.

Definition of Terms

The following terms have been defined for the purposes of this study. These terms will be referred to throughout the dissertation.

Coping: Coping is a widely studied construct by clinical and social psychologists as well as personality psychologists. Regardless of how the coping process is defined, it generally involves appraising the event as stressful, feeling rather overwhelmed, and behaviorally responding to specific components of an event (Snyder, 1999). Coping is a response aimed at diminishing the physical, emotional, and psychological burden that is linked to stressful life events (Snyder & Ford, 1987). Snyder notes that the effectiveness

of the coping strategy rests on its ability to reduce immediate stress, as well as to contribute to more long-term outcomes such as psychological well-being. This latter idea that coping predicts psychological well-being is important for the study of mechanisms toward PTG, as one of the ways PTG has been conceptualized is as a form of psychological well-being (Joseph et al., 2012). There are a variety of ways to measure coping, and it would seem appropriate to rely on measures that draw on an understanding of conscious processes (Stone & Neale, 1984).

As described by Folkman and Lazarus (1985), there is typically a primary appraisal process to coping, during which a person judges whether the situation is potentially harmful, threatening, blocking of a goal, creating a void, or presenting a challenge. There is then a secondary appraisal, wherein the available resources for coping are examined (Folkman & Lazarus, 1985). Based on the primary appraisal, the person then employs one of two major coping strategies. Emotion-focused coping strategies, which are more often employed when the individual does not perceive that the problem itself can be effectively addressed with her or his available resources, are directed at managing emotional responses to the stressor (e.g., wishful thinking, seeking emotional support, social comparison). Problem-focused coping includes attempts that are directed at controlling or modifying the sources of the stress (e.g. learning new techniques, reducing barriers, generating other solutions; Snyder, 1999). Coping strategies refer to intentional cognitive or behavioral attempts by the individual to manage a stressor (Affleck & Tennen, 1996). Coping has already been conceptualized as an avenue toward growth. This study explored which coping mechanisms and styles predict PTG in a

population that has sustained a pregnancy loss. For the purposes of this study coping was measured using the Brief COPE developed by Carver (1997).

Posttraumatic growth: Posttraumatic growth (PTG; Tedeschi & Calhoun, 2004b) posits that an individual can grow in a variety of ways in the aftermath of a traumatic event. PTG is measured across five domains of growth: greater appreciation of life and changed sense of priorities; warmer, more intimate relationships with others; a greater sense of personal strength; recognition of new possibilities or paths for one's life; and spiritual development (Tedeschi & Calhoun, 1996). PTG does not mean that the event was not experienced as horrible, but that the person, by working through and processing various aspects of the trauma, can achieve personal growth in the five domains. Also, not everyone will report PTG, and as such it is not expected of any one particular individual. This construct has been heavily researched (Michael & Cooper, 2013) and well validated (Tedeschi & Calhoun, 1996) across many studies in a wide range of populations. For the purpose of this study posttraumatic growth was measured using the Posttraumatic Growth Inventory developed by Tedeschi and Calhoun (1996).

Hope: Hope is defined for the purposes of this study as a type of thinking that involves three main things: goals – approaching life in a goal-oriented way, pathways – finding different ways to achieve your goals, and agency – believing that you can instigate change and achieve these goals (Snyder, 2002). Snyder characterized hopeful thinkers as people who are able to establish clear goals, imagine multiple workable pathways toward those goals, and persevere, even when obstacles get in their way. Hope was measured by the revised Adult Hope Scale developed by Shorey and Snyder (2004).

Pregnancy loss: A pregnancy loss is when a woman who was confirmed to be pregnant loses the fetus. For the purposes of this study it will include both natural loss and deliberate loss such as termination. It will also include the full temporal range from miscarriage, which is until 20 weeks in the pregnancy through stillbirth, which is from 20 weeks through full term (Chara, Montvilo, & Chara, 2015).

Family processes: This will be defined as level of family cohesion and flexibility, using the Family Adaptability and Cohesion Evaluation Scales (FACES IV; Olson, Gorall, & Tiesel, 2006). This will also include two scales used to measure family communication and family satisfaction.

Research Questions

The current study addressed the following research questions:

Research Question 1: How does the level of stress and grief, as reported in the Perinatal Grief Intensity Scale, predict posttraumatic growth?

Research Question 2: How do cohesion, flexibility, and communication in family processes relate to posttraumatic growth development?

Research Question 3: How does hope amongst those who endured a pregnancy loss relate to posttraumatic growth?

Research Question 4: How do coping strategies relate to posttraumatic growth for the population of those who experienced a pregnancy loss?

Hypotheses

The hypotheses that will be tested in this study are as follows:

H1: While a significant amount of research on PTG has suggested a linear relationship (Frazier, Conlon, & Glaser, 2001; Stockton, Hunt, & Joseph, 2011) between PTG and level of psychological distress, recent emerging studies have discovered a non-linear function for PTG and level of psychological distress (McLean et al., 2013; Tomich & Helgeson, 2012.). Given the mixed findings in the literature, prior to testing the hypothesis, a curve estimation regression analysis will be executed to confirm linearity or non-linearity of relationships as reported in Kunst (2010). Based on recent research regarding levels of grief and posttraumatic growth (Taku et al., 2013) it was expected that people with moderate levels of grief will demonstrate higher posttraumatic growth than those with low or high levels of grief.

H2: Based on research (Corbet-Owen, 2003; Khic-Houy, Berecki-Gisolf, & Newnam, 2015) that showed that family support is important in psychological well-being after a loss, it was expected that certain family processes such as cohesion, flexibility, and good communication would predict posttraumatic growth in individuals who have experienced a pregnancy loss. This is based on research that has shown that cohesion, flexibility, and good communication can predict PTG (Augustine, 2014).

H3: Based on research (Snyder, 2002) that demonstrated that higher levels of hope consistently are related to better outcomes in psychological adjustment, it was expected that hope would demonstrate a positive correlation with posttraumatic growth. This is further supported by studies showing that benefit finding can be uniquely predicted by hope (Affleck & Tennen, 1996).

H4: In accordance with previous findings (Greenberg, 1995), that demonstrate the importance of cognitive processing of the trauma, active adaptive coping strategies that support such processing would predict posttraumatic growth. Such coping strategies include active, positive reframing, planning, acceptance, seeking support, venting, and self-distraction (Bellizzi & Blank, 2006).

Limitations

There are several limitations to the present study, which are related to the methods. First, the use of self-report measures presents a limitation. Participants in the study may have responded to some of the measures in ways that are not congruent with their feelings or experiences. For example, individuals may have under- or over-estimated their grief experiences, or they may not feel comfortable fully disclosing their experiences. Moreover, there may be a monomethod bias, as online surveys will be the only source of data, which will be collected during a single time, and therefore cannot fully explain the ongoing and longitudinal trajectory of how posttraumatic growth develops. As with all human-subjects research, this study may be limited by self-selection bias, as those who choose to participate may be different in significant ways from those who chose not to participate. This effect may be increased given the sensitive nature of the topic.

There are a number of potential confounding variables that will be examined in the current study. For example, a woman's reproductive history such as prior losses and prior infertility may exacerbate grief (Freda, Devine, & Semelsberger, 2003). Secondly,

age is a factor accounting for variability whereby a woman who is younger is more likely to have a stronger grief reaction as she may lack the maturity and growth gained through broader contextual experiences that accompany aging (K. [Bevilacqua, personal communication, June 15, 2015](#)). Older couples with and without a mental health treatment history are also more likely than average age couples to feel guilt (Huffman, Schwartz, & Swanson, 2015) perhaps because they have more limited time to try to conceive again. Another factor that is important to consider is whether the woman is currently pregnant as this may raise her anxiety or limit her bonding with the fetus, and as such, currently pregnant women were excluded (Côté -Arsenault & Donato, 2011). These variables were appropriately controlled for when conducting the statistical analyses.

Chapter 2

Literature Review

This literature review will address the following areas: reproductive trauma and its psychological components, trauma, posttraumatic growth, coping and help-seeking, hope, and family processes.

Reproductive Trauma

Reproductive trauma occurs when “the stressors of infertility [and all other negative reproductive events] occur in existential, physical, emotional, and interpersonal realms and may be beyond the average person’s usual coping abilities” (Gerrity, 2001, p. 152). While these events in many ways more directly affect women, typically men will also be involved in each of these events as romantic partner/spouse. The outcome of each of these events is different both in terms of the general type of event and for the people uniquely experiencing them. However, all of these events can lead to lingering and chronic psychological distress that could meet the criteria for a diagnosis of posttraumatic stress, posttraumatic stress disorder, or other psychological disorders (Jaffe & Diamond, 2011). In this sense they are similar to traumas in general, and much of what is known regarding psychological trauma should apply to this population as well.

A pregnancy loss can fit the *DSM–5* criteria for trauma in the following manner. The mother could potentially face threatened death or witness, along with a possible partner, the demise of the fetus, which could qualify as a medical catastrophe involving one’s child. The mother could then experience the terror of the birth experience through

dreams and flashbacks (O'Leary, 2005). These individuals may then try to avoid stimuli associated with their loss. Blaming oneself for the loss and what one could have done to prevent it is a common experience for those who have experienced pregnancy loss (Jaffe & Diamond, 2011).

Overview of Psychological Trauma

What makes something traumatic and worthy of psychological research as a trauma is both the event's intensity and its potential long-term impact. Psychological distress following exposure to a traumatic or stressful event is quite variable. Some individuals will develop posttraumatic stress disorder (PTSD). The *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (*DSM-5*; American Psychiatric Association, 2013) lists the debilitating symptoms that define PTSD, and they can include recurrent and intrusive memories of the event, recurrent distressing dreams, dissociative reactions where the person feels they are reliving the traumatic event, intense or prolonged psychological distress at exposure to cues that resemble the traumatic event, and marked physiological reactions to these internal and external cues. Additional symptoms of PTSD are: avoidance of distressing memories and thoughts about the traumatic event, avoidance of reminders associated with the traumatic event, negative alterations in cognition and mood associated with the traumatic event, and marked alteration in arousal and reactivity associated with the traumatic event. Finally, some people show combinations of these symptoms patterns (*DSM-5*; American Psychiatric Association, 2013).

The *DSM-5* (American Psychiatric Association, 2013) notes that in the United States, the projected lifetime risk for PTSD using *DSM-IV* criteria at age 75 years is 8.7%. The 12-month prevalence among U.S. adults is about 3.5%. Lower estimates are seen in Europe and most Asian, African, and Latin American countries, clustering around 0.5%–1.0%. Acute Stress Disorder (ASD) may present with symptoms that are very similar to PTSD, but the symptom pattern in ASD is restricted to a duration of 3 days to 1 month following exposure to the traumatic event (American Psychiatric Association, 2013). These conditions can be triggered by a wide variety of traumatic events. The typical clinical presentation of an individual with such a disorder is typically an anxiety response, although some people can experience a dissociative reaction or a strong anger response. People experiencing trauma of an interpersonal nature, such as assault, rape, and witnessing a mass shooting, have the highest prevalence rates (20%–50%) for ASD (American Psychiatric Association, 2013).

Another significant disorder that can arise after a traumatic or stressful event is Adjustment Disorder. This disorder's emotional and behavioral symptoms start within 3 months of the identified stressor. To qualify for this diagnosis, an individual must report such symptoms, and they must cause marked impairment in social, occupational, or other important areas of functioning. These symptoms must also be out of proportion to the severity or intensity of the stressor (American Psychiatric Association, 2013). The stressor can include a variety of circumstances. *DSM-5* specifically notes that adjustment disorders can be diagnosed after the death of a loved one so long as the intensity, quality, or persistence of grief reactions exceeds what normally might be expected, when cultural

and religious norms are taken into account (American Psychiatric Association, 2013). Thus, this disorder could be an appropriate diagnosis for someone mourning the loss of a pregnancy loss if it meets the above criteria. This disorder is quite common. *DSM-5* notes that in an outpatient mental health treatment setting about 5–20% of individuals will have this disorder as their principal diagnosis (American Psychiatric Association, 2013).

Uniqueness of Reproductive Trauma

Although a reproductive trauma, such as a pregnancy loss, can be a traumatic event and represents a loss like many other traumatic events that individuals experience, there are many details that make this population unique in ways that justify a closer study that focuses on this trauma. Pregnancy loss as such represents a distinct form of trauma with its own unique contextual factors. If the loss was early on (less than 12 weeks) typically it will not be physically evident that the woman was pregnant, and as such this may be a silent loss leaving many people, who may otherwise be a strong source of social support, not even aware of their friend or family member's loss (Cacciatore, 2013). Also, for the father of the child, who does not show signs of pregnancy throughout the whole 9 months, many people will not know that he was expecting a child even if the loss occurs much later, thus making him even more vulnerable to the absence of social support in the aftermath of such a loss (Samuelsson, Rådestad, & Segesten, 2001).

Another aspect that is different about this population is that this is in many ways the loss of potential. The bereaved individual is not mourning something that one already had and has a multitude of life experiences that cemented this relationship and left many

memories. With pregnancy loss one is mourning the loss of a potential child, boy or girl, and all the dreams, yearnings, and aspirations associated with that. This makes the loss qualitatively very different than the normal death of a loved one. There is almost nothing tangible over which to mourn or create mourning rituals out of.

Further, although there is often no medical connection between a woman losing a pregnancy and her ability to conceive another child (Carp, 2007), many women will now have heightened anxiety about their ability to conceive and sustain another pregnancy, giving rise to the phenomenon of the negative feelings associated with subsequent ultrasound examinations (O'Leary, 2005). This occurs when in the pregnancy after the loss the couple can experience traumatic flashbacks to the previous loss, as an ultrasound is usually what confirmed their loss the previous time. These factors create an ambiguous loss, which has been noted to be one of the most difficult kinds of losses and trauma (Boss, 1999). All of these factors make it more likely that the general public, once informed of this person's loss, is often less sensitive to this trauma as it is poorly understood and appreciated by those who have not experienced it firsthand. This is often even true of medical professionals involved with the couple's care (O'Leary, 2005).

Paucity of Research on Reproductive Trauma

There is a paucity of empirical research in the established literature regarding pregnancy loss and its psychological experience. Much of the research that would qualify as part of the domain of social sciences has been done by social workers, midwives and nurses, and other assorted professionals (Barr, 2012; Côté -Arsenault & Donato, 2011; Mann, McKeown, Bacon, Vesselinov, & Bush, 2008; Murphy & Philpin, 2010; Peterson,

1994). Thus, although they are addressing this very important area, much of the research lacks a comprehensive and robust focus on the psychological components of this trauma. Such a focus might include a deeper understanding regarding the way the trauma is experienced in those who experience such a loss. It could include looking at various psychological variables such as personality type to see if a certain personality is more prone to experiencing pregnancy loss in a way that leads to PTSD or other psychological disorders. Many of these studies utilize various qualitative approaches, which has added important information regarding some of the parameters involved in pregnancy loss. However, it is also important to build on this by engaging in more quantitative research with this population. Lastly, considering how posttraumatic growth has been examined in almost every trauma population, it is important to consider how it may be exhibited in this population. There is thus a gap in the literature that this study aims to help fill.

Select Research on Reproductive Trauma

Select constructs have been examined in the pregnancy loss population. Major depression was found to be significantly more common among women with recurrent pregnancy loss than in those trying to conceive naturally (Kolte, Olsen, Mikkelsen, Christiansen, & Nielsen, 2015). An ultrasound during pregnancy is normally supposed to be a reassuring experience where the expectant couple gets to hear the rhythmic “woosh woosh” of the baby’s heartbeat and hear a report about healthy levels of amniotic fluid and fetal growth. Yet for those who have experienced pregnancy loss, it has been shown that they can experience anxiety and PTSD-like symptoms upon ultrasound exams in postpregnancy loss pregnancies (O’Leary, 2005). Another area that has been studied is

whether a speedy subsequent pregnancy after a loss disrupts the mourning process. It has been shown that parents with a shorter time elapsed toward the next pregnancy may in fact still display intense grief alongside an improved sense of self (Franche & Bulow, 1999).

Further, the reproductive process and its associated traumas have not really been viewed as a whole. Rather, discrete aspects of the traumas associated with infertility and pregnancy loss have been examined without properly viewing them in the larger context of the reproductive process and its attendant reproductive story/narrative that each person has. As such it has been difficult to develop a line of research that focuses on this process as a whole and deals with the nuances of this population without often fitting it into a broader developmental and reproductive health framework. There are likely multiple reasons for this gap in the literature.

Reasons for the Dearth of Research on Reproductive Trauma

Reasons for the relative lack of research in the area of reproductive trauma include various factors such as: physician priorities, clinical setting, shadow aspect of obstetrics, and contemporary contextual issues.

Physician. Physicians and medical teams that treat the range of reproductive patient populations have become highly specialized as technology has advanced. People trying to conceive are referred out to a reproductive endocrinologist who treats women throughout the infertility process (if the male needs treatment he will be seen by a urologist), but as soon as the woman has successfully conceived and is a few weeks along in the pregnancy she is usually referred back to the obstetrician notes Dr. Kris

Bevilacqua, a psychologist specializing in reproductive trauma (personal communication, June 16, 2015). During a pregnancy the woman is monitored by the obstetrician through the delivery. As soon as the baby is born the care moves on to a pediatrician. Thus, it is clear that through the range of the reproductive process there can be a minimum of three types of physicians who work in very different settings and with different priorities and points of focus. The reproductive endocrinologist's focus is to aid the woman in conceiving a viable fetus; there may not even be a partner (male or female) in the picture given the capabilities of technology. The obstetrician's patients include both the mother and the fetus, although it has been opined that from an ethical perspective the fetus is not a separate patient (Babbitt, Bailey, Coverdale, Chervenak, & McCullough, 2014). The pediatrician's focus shifts away from the mother to the baby. If the couple were to need extra care for the baby in utero due to a high-risk pregnancy, there would be a new specialist, the maternal fetal medicine physician, who focuses on the fetus's prenatal needs.

Given these specializations and the attendant compartmentalization, it is not surprising that research shows a tension among the various medical specialties that care for the mother and the fetus during the pregnancy as to whether their professional responsibility is to focus primarily on fetal well-being (Brown et al., 2014). Over half a century ago (1950) Taylor and Lubchenco had already warned about the dangers of pediatrics and obstetrics working as completely separate disciplines, and since then there has been the addition of reproductive endocrinology and maternal fetal medicine. As a whole, however, this population's losses have not really been viewed as a unique kind of

trauma. Overall there is a specialization of care, for very important medical reasons, but the results are also a fragmentation of care that leaves a void regarding treating the emotional and mental health components of pregnancy loss. Where there is a stillbirth, the focus of care is not the grief components involved as seen in the following medical text, “If the patient is already in labor, then minimizing obstetric trauma to the mother is of prime concern. If the patient is not in labor, then plans regarding the induction of labor are made” (Chang, 2015, p. 1). Although this text refers elsewhere to the importance of helping the woman and her family cope with the loss, the explicit message and treatment information pertains to the medical components of this event.

This fragmentation of care creates systemic and contextual factors that enable the woman and man’s mental health needs when facing a pregnancy loss to go uncared for. No one practitioner is likely to see this patient from the beginning of their reproductive journey through the point of their loss and the aftermath. Also, there can be a diffusion of responsibility, as introduced to psychology by Latane and Darley (1970), when multiple people are witnesses to the same incident. In the context of this care where there are multiple providers with their own narrow and focused academic and clinical training, this can too easily occur. Thus the responsibility of properly screening for a mental health issue and following through with an appropriate referral may get lost in the greater and more urgent medical course of care and treatment.

Clinical setting. Another factor that may be at hand is the overall context of the care that is provided for the patients outlined above. As each physician and her or his specialty is differentiated, so too is the setting in which they practice. A reproductive

endocrinologist will often practice in a standalone office setting that focuses exclusively on treating infertility. While most of these settings do have psychosocial support and services, the staff is a very small proportion of the number of staff in these settings, thereby providing only limited mental health service access to all of the patients being seen in this center.

The typical obstetrician's office can focus exclusively on childbearing or can also extend to the much broader domain of gynecological and women's health. These offices, although they can be housed in a university medical center setting, operate as their own medical offices with a working partnership with one or more local hospitals to provide the infrastructure and support services for their patients to deliver their babies. The larger the practice the more likely it is that they have a greater influence in how they use the hospital facilities. For the actual delivery, although home birth and birthing centers remain options for some patients, over 99% of women choose to give birth in hospitals for the quality of medical care they can provide for the routine and emergency complications that can arise for the mother and fetus (MacDorman, Mathews, & Declercq, 2012).

Hospitals generally have their own departments, labor and delivery units, where patients give birth, and aside from the obstetricians with admitting rights are staffed entirely by hospital staff. This staff will not usually meet the delivering patient prior to the delivery and is unlikely to interact with the patient after she is admitted to the postpartum unit, typically a few hours after the delivery. A recent special report by the Society for Maternal Fetal Medicine notes how complex the model of care can be in a

labor and delivery setting (Sciscione et al., 2014). As part of their report they outline several systems that can be used to more properly integrate the maternal fetal medicine specialist into the overall obstetrical care. The level of depth that this report explores indicates that poor communication across these specialties can be a real concern. It is even more likely that this is true for the mother and her partner's emotional state, which is not as easily communicated as lab values on charts.

The postpartum floor is often a unique hybrid where medical care is provided simultaneously for the postpartum mother and the newly born infant. There are thus two overlapping medical teams treating two patients now. The pediatrician's office is usually its own medical office where care is provided for children ranging from age zero through late adolescence. In the case of a child with congenital or other medical conditions there will likely be a separate specialist physician who also will generally operate out of an office. All of these very varied medical settings ensure that it is highly unlikely that from a research perspective one would consider investigating the reproductive process as a whole.

Shadow aspect of obstetrics. Another possible reason why the obstetrical community does not want to fully engage this issue is that pregnancy loss represents a professional defeat. The *raison d'être* for the obstetrical discipline is to nurture the fetus along toward a healthy delivery; when the fetus dies the profession has failed. It is also plausible that the typical doctor who enters this specialty is likely motivated by the more positive nature of this job in comparison to most other medical areas. One can see this in the following statement from a prominent obstetrician reflecting on his career choice,

“When you do go home, you worry, sleep uneasily and wake up early the next morning. Yet the payoff is always there: you help patients and bring life into the world” (Friedman, 2005, p. 1). Whereas other medical professions have an acknowledgement, to varying degrees, that death or serious illness is part of the job, it would seem within obstetrics that this is not as openly acknowledged. Yet this places a higher demand on the obstetrician, and it has been suggested that obstetricians be provided with training that addresses emotional intelligence (Pilkington, Hart, & Bundy, 2012). A prominent obstetrician specializing in work related to pregnancy loss has noted that there is a “conspiracy of silence that surrounds stillbirths” despite the fact that stillbirth is 10 times more common than Sudden Infant Death Syndrome (Heazell, para. 8. 2011). Heazell asserts that the reason for this is the medical community has not really reduced the number of stillbirths and as such is reluctant to shine a light on it. Further, despite the incidence of stillbirth and difficulty it causes, he notes that in the United Kingdom only about 40% of maternity units have a specialist, a trained midwife to help parents cope.

Where there is research around the issue of pregnancy loss, it is usually in terms of how to improve the medical outcomes of pregnancies and understanding their epidemiology (see Bukowski et al., 2014; Farrow, Goldenberg, Fretts, & Schulkin, 2013; Warland & Mitchell, 2014). A last point to consider is that the incidence of pregnancy loss in proportion to the number of live births is so low that in 2011 approximately “.61% of pregnancies in the United States resulted in a stillbirth ” (Chang, 2015, p. 1). Thus it is something that can be more easily overlooked by any single obstetrical provider.

Contemporary context. There are reasons why elements of this trauma have only come into existence in more recent times. Fertility treatment is a very recent field with 1978 being the year that the first baby was born through In Vitro Fertilization (IVF). The field has dramatically grown in recent years; even to the point of absurdity, with a researcher trying to have a woman conceive a Neanderthal in her womb (Lecher, 2013).

Additionally, since in the last few decades women have delayed having children (Wu & MacNeill, 2002) as a combined influence of the popularity of birth control, spending time developing a career, ensuring financial security, and searching for an appropriate parenting partner (O'Loughlin & Anderson, 2001), this has led to increased fertility issues. As such, there is a lot more nuance to what it means to be a woman or man struggling with infertility. It is precisely this massive influx of intervention available to artificially assist those who want with reproductive technology that perhaps gives people a greater sense of control over their reproductive process and outcomes (Erwin, 2005). As such, when there is a pregnancy loss, it is met with that much greater shock that the perceived control is not as complete as believed.

Also, in terms of pregnancy loss, many women and their partners until recently would not really have the opportunity to monitor their pregnancy beyond a pregnancy test and invasive procedures. Now with the advent of 3D color ultrasounds becoming routine, all sorts of smartphone “apps” and email listservs that constantly update one on how the fetus is developing in utero, and a wealth of do’s and do not’s overtaking the couple’s life to ensure optimal fetal development, the pregnancy experience is much more tangible than in previous times. As such for people experiencing infertility or pregnancy loss these

events are likely to be significantly more traumatic than in times past. The sense of how real the fetus and one's attachment to it is one of the factors leading to increased grief post a pregnancy loss (Hutti et al., 2013). Thus many of these technological advancements enable a couple to become more connected to the fetus and as such increase their sense of attachment and perception of it being real. This could explain why as an area of trauma research this is a fairly new field.

Reproductive Story

Overview. Despite the general lack of research in this area, there have been a few dedicated researchers (each often spurred on by their own reproductive traumas) who after working extensively with the full range of the reproductive trauma population have developed a general psychological theory. Jaffe and Diamond (2011) have coined the term *reproductive story* (RS), and they posit that every single man and woman has one. It is assumed that every person develops a reproductive story that includes hopes and dreams about having a family, visions of what children will be like (physical and otherwise), and how one will parent them. This story is developed from early on in a person's life and is influenced and shaped by a variety of factors such as family history, family lore, cultural influences, ethnic and religious background, peer-group norms, impact of medical technology, and the role of media (Jaffe & Diamond, 2011). These will be elaborated on later. The decisions as to when to have children and other factors influencing delayed parenthood likely also fit into this theory.

Theoretical basis. Although Jaffe and Diamond (2011) devoted a whole book to the issue of reproductive trauma, they only devote one chapter to the theoretical basis of

their material. The material they present remains at the theoretical level, and they do not present any empirical research that supports this theory. Much of their support comes from ideas developed in other adult identity theories that they try to apply to the reproductive story. A few of the theories they reference include Markus and Marius's possible self as parent, Levinson's the dream, Bloom's possible self as parent in college students, Marius's possible self one is afraid of becoming, and Hooker et al.'s possible self as parent in men (as cited in Jaffe and Diamond, 2011). The possible self refers to ideas people have about what they could become or do in life. They note that the possible self is influenced by a wide array of sources such as an internalized sense of self, early relationships with one's parents, society, environment (culture norms, peer-group standards, media, medical technology). From a systemic point of view this fits squarely within Bronfenbrenner's ecological systems theory of development in which the five different levels interact with each other to shape a person's life story (1979).

Jaffe and Diamond (2011) discuss a few other sources of influence on one's reproductive story that are relevant to this review of reproductive trauma. They note, based on their clinical experience, that trauma in one's family of origin (divorce, death of parent or sibling) can affect people's ideas about their reproductive story. Thus for a family that has experienced the loss of young children or multiple miscarriages, the children may have an idea of the fragility of childbearing. Birth order and the number of siblings in a family can directly affect the ideas one has about how many children to have; people will either want the same as they grew up with or the opposite. There is also the role of family lore with accepted statements in the family such as "all women got

pregnant on the wedding night,” and “all women have nice wide hips for having babies.” Branching further out into surrounding systems, there is the role of cultural influence with many societies adhering to ideas that childlessness is considered abnormal and is associated with being selfish and nonconformist (Rubin, 2002). Another strong source of influence is that of one’s ethnic and religious background and self-identification and their views on family (Jaffe & Diamond, 2011).

One’s peer group and the accompanying place of education can be strong factors in the development of one’s reproductive story. The peer group is a powerful socializing crucible, and its views on family including those that are implicit can present a strong latent force that exerts a hold on someone’s decision when to have children. Also, the further along one goes in pursuing an education and specialized career path, the more natural it becomes to delay having children until the career path has been solidly embarked on allowing for greater perceived flexibility toward family building (Sandford, 2013). Another factor that Jaffe and Diamond (2011) deem important is one’s knowledge of assistive reproductive technology. Individuals are likely to feel more secure in the choice to delay parenthood if they are aware of the multiple technological and medical options that exist to support them should they need it. This can create (perhaps falsely as noted earlier) a greater sense of security in the decision to delay starting a family. This may also work in conjunction with the role of peers as it is likely helpful to have personal experience with seeing the successes of assistive reproductive technology.

Lastly, Jaffe and Diamond (2011) discuss the role of media. This is a factor that cannot be overemphasized in its importance. The media and the ways in which they

present their versions of the reproductive story are often very different than the way it actually may be for the average couple. There are also different streams of media to consider. While many newspapers may report quite accurately on the details of various procedures and the difficulties and costs associated with them, some of the more popular celebrity magazines can completely gloss over this. Instead these magazines may focus on glossy images of older and pregnant actresses merely noting that they used in vitro fertilization. This does not convey the full picture of how many attempts they may have made or the \$10–20,000 costs associated with each attempt. To many a typical reader this creates an illusion of being able to have a child at will when this simply is not true. In terms of stillbirth the media's almost complete silence on this issue can also convey the implicit idea that this is not a part of people's reproductive story. Yet this, too, is far from the truth, as a significant percentage of couples trying to raise a family will experience a pregnancy loss at some point.

Like fingerprints, no two people's reproductive stories are completely alike, but everyone has one. For most people this story develops latently without an explicit sense that they have such a story that is developing. It starts becoming more conscious as the adult starts dating with marriage in mind. Talks of having children and the kind of home one wants to build may start to figure into a couple's conversations. This may include the size of the anticipated family, the style of parenting, and discipline in one's home. The story's most explicit form takes place when the couple sets about trying to start a family by having children. It is only when a reproductive trauma occurs, and the reproductive story now goes awry in some of the most unexpected and horrible ways, that the couple is

now fully conscious that they actually do indeed have a reproductive story and its current chapter is not remotely similar to what they had envisioned or assumed would happen.

Reproductive Story and Reproductive Trauma

Pregnancy loss is usually a trauma that is an unexpected feature of an individual's reproductive story. Given the reasons discussed earlier for why this is often a silent loss, it is something that many people have very little familiarity with even from a popular or lay level perspective (Leon, 2001). Further, the primary focus one has once learning that one is pregnant is highly future-oriented, ensuring that the fetus is growing properly and is well nurtured. A loss can now destroy all of this in a very short time period. The reproductive story has now taken on much more salience than ever before, and it has risen out of the latent shadows.

Reproductive Story Integrated with Reproductive Trauma

The reproductive story has now gone through a significant change of direction in a downward spiral. The couple's worldview of what having a family would look like has now likely been dramatically shaken. As such this experience can fit the classic definition of trauma, asserted by Janof-Bulman (1992), which is when there is a seismic affront to one's worldview. One's assumptive worldview has been shaken, and the old view of the world being a benevolent and meaningful place does not seem to fit with the new trauma. One is left facing the potentially serious psychological sequelae of this trauma. What does one do when their life story has possibly been so significantly altered? Given that the reproductive story develops from such an early age, it is a worldview that is very deeply ingrained at the core of one's sense of self. Similar to the way attachment theory

places special emphasis on early relationships having increased significance on one's life, so, too, the reproductive story can have such an influence on a person. Further, given the multiplicity of sources that feed and nurture the reproductive story as outlined above, it likely is integrated in many aspects of a person's psychological functioning. General culture, family, friends, religion, and so on are interwoven throughout a person's psyche and way of relating to the world in a series of interlocking ecosystems. These factors make a blow to the narrative of one's reproductive story likely a more significant trauma.

Clinical Manifestations of Reproductive Trauma

Reproductive trauma can lead to a variety of grief reactions. Many of these, although intense, can be transitory and subside within a short period of time after the traumatic event. It is important to remember that aside from the psychological aspects of this trauma there is often a medical component to the trauma. This can involve multiple painful procedures, surgeries, and often severe bleeding. As such there is at least a recovery period of at least a few days after such procedures. Thus it is important to realize that although there may be overwhelming and very real grief in the early days after the loss, it is likely intermingled with pain, weaknesses, and general malaise. A number of women experiencing such a reproductive trauma will develop more severe psychological conditions, with some lasting for longer than the immediate few weeks after the loss. These can include depression, anxiety, and posttraumatic stress disorder. These conditions, aside from their own destructive power, can lead to further complications in future pregnancies, childbirth, and even parenting (Peterson, 1994).

Anxiety. A recent study noted that women with a history of pregnancy loss had higher rates of undergoing medical tests (other than routine tests), calling medical professionals, and visiting an obstetrician more than once per month (Yilmaz & Beji, 2013). This likely indicates a heightened sense of anxiety surrounding subsequent pregnancies after their loss (Côté-Arsenault & Donato, 2007). Their previous assumptive view that pregnancy is a normal life cycle event and that the fetus will carry through to term with standard prenatal care has been shattered. This worldview is no longer sufficient in the face of the loss they experienced, a loss they did not believe happens and certainly not to them. There is now a hypervigilant need to fastidiously stay on top of the minutiae of details that can signal an issue in utero. Each fluctuation demands a reassurance response by calling the doctor or following up with a test. This likely feeds into a classic behavioral anxiety cycle. The woman who goes to the doctor or checks in about these changes and finds out she is fine can now tell herself that the fetus is only safe and healthy because she took such precautions. This conditions her to continue acting this way when faced with future issues.

One interesting study showed that women with a prior loss actually appreciate when subsequent pregnancies are labeled high risk, as opposed to the average woman who does not like this label (Simmons & Goldberg, 2011). They liked this because the high-risk label allowed them to have access to better care and more vigilance on the part of the medical staff. This study can thus be seen as supporting the idea that there is increased anxiety during subsequent pregnancies following a pregnancy loss.

This anxiety can be quite overwhelming and not allow women to enjoy what could otherwise be a very pleasant time as they appreciate another opportunity to build their family. A significant percentage of women will even develop posttraumatic stress disorder, as one study reported that 29% of women who had a stillbirth experienced posttraumatic stress disorder in the next pregnancy (Turton, Hughes, Evans, & Fainman, 2001). Additionally, this anxiety may possibly negatively impact the pregnancy itself. A review of prospective studies (Alder, Fink, Bitzer, Hösli, & Holzgreve, 2007) has shown that pregnant women experiencing anxiety during their next pregnancy had lower pain relief in labor and an increased rate of preterm childbirth and low-birth-weight infants. Thus aside from the significant psychological distress caused by such anxiety, it can also have deleterious health outcomes for the very child they so yearn for.

Depression. Depression is significantly higher among pregnant women who have previously experienced a pregnancy loss (Gong et al., 2013). It was found that a short interpregnancy interval and the first trimester were the greatest risk factors for depression. It is possible that this is because the woman has not had much time to recover yet from the previous trauma, and the new pregnancy is not as settled in her mind. As such she has not yet fully accepted the reality of the new pregnancy *and* is still in the throes of her previous loss. A variety of other factors, such as baseline depression and personal and family history of mental illness, put one at higher risk for depressive symptoms following a pregnancy loss (Mann et al., 2008). Women experiencing a late miscarriage are at higher risk for a depressive disorder, even years later, than women with healthy children (Cougle, Reardon, & Coleman, 2003). Another study reported that

increasing age and participation in organized religious activities was also protective against post-pregnancy loss grief (Mann et al., 2008). Older age is likely a protective factor as with age comes life experience and the ability to realize that one can survive and get past difficult situations.

Although the trauma more directly involves women, Puddifoot and Johnson (1996) reported that men also can show clinical symptoms of grief on equal levels as women when experiencing a miscarriage. Overall there have been varied and seemingly contradictory reports in studies about the existence and similarity of men's and women's grief. Likely, based on further studies, it is the case that men do experience grief but its expression looks different than it does in women (Brier, 2008). This may be similar to the idea that men often exhibit depressive symptoms in qualitatively different ways than women and are also more likely to underreport mental health symptoms (Cole, 2013). Thus many of the studies may not have properly surveyed men in ways that would be sensitive to their symptomatology. Also, based on my literature search, many of the studies examining pregnancy loss have not directly looked at men and their experiences with such loss.

Grief and adjustment. Grief can be defined as the affective, physiological, and psychological reaction to the loss of an emotionally significant figure (Brier, 2008). There have been very few empirical studies looking at the incidence of grief for those experiencing pregnancy loss. Brier, reporting on an empirical study of 125 women who experienced a miscarriage with a matched community control group, did report on incidence. The participants were assessed at three points, right after the loss and then

again at 6 and 12 months. Twenty percent of the women who had experienced a miscarriage had only a grief reaction, 12% had a depressive reaction, 20% had a combined depressive and grief reaction, and 48% had no change in their emotional reactions. It would seem from this study and other qualitative studies that a significant percentage of women experience a grief reaction following a miscarriage. Another researcher reported that 16.7% of women who had experienced a pregnancy loss were diagnosed as having a manifest psychiatric disorder according to *DSM-IV* (Kersting et al., 2007). In a study that examined women who had a termination due to fetal anomaly, at 4 months after termination 46% of women showed pathological levels of posttraumatic stress symptoms (Korenromp, Page-Christiaens, van den Bout, Mulder, & Visser, 2009). Regarding general anxiety, miscarrying women are at increased risk for anxiety symptoms immediately following miscarriage and continuing until approximately 4 months post loss (Geller, Kerns, & Klier, 2004). A recent study noted that for the majority of women with no history of depression, a significant association between stillbirth and depression remained after adjustment for confounders such as education, number of significant life event factors, body mass index, and method of payment for health insurance (Hogue et al., 2015).

Despite this research documenting the presence of mental health and emotional issues, some of which can even negatively affect the physical health outcome of the next pregnancy, for people who have experienced a pregnancy loss there is not enough attention to this by care providers (perhaps for the reasons described above). A recent study noted that women and families who have experienced a miscarriage report low

levels of satisfaction in the presence of perceived negative attitudes from healthcare providers, insufficient provision of information, and inadequate follow-up care that did not focus on emotional well-being (Geller, Psaros, & Kornfield, 2010).

This stands in sharp contrast to the attention that postpartum depression screening has received. Some states, such as New Jersey, have even gone so far as to mandate such screening for mothers at delivery (Farr, Denk, Dahms, & Dietz, 2014). This is despite the fact that there is no clear evidence that such screening improves postpartum depression outcomes (Thombs et al., 2014). There is clearly a need for more mental health research and intervention for pregnancy loss as well as advocacy work in bringing this hidden trauma out of the shadows.

Cultural Variables and Stress

When examining stress in the context of pregnancy loss, it is important to consider the role of contextual stressors such as racial discrimination and minority status that may add an additional layer of premorbid stress to individuals with minority status, especially African Americans (Bryant, Wickrama, Bolland, Cutrona, & Stanik, 2010). It has been shown that chronic stressful conditions have detrimental effects on overall welfare and marriage (Brock & Lawrence, 2008). These stressors can include monetary strain, negative work conditions, family responsibilities (including children), racial discrimination, and minority stress (Bryant & Wickrama, 2005; Cutrona et al., 2003). These added stressors could possibly further exacerbate this trauma's subsequent psychological impact on such individuals.

Posttraumatic Growth

One of the many constructs emerging from the positive psychology literature is posttraumatic growth. Although this construct draws on various philosophical traditions dating back thousands of years, it has only been operationalized in social science in the last 30 years. This has occurred for a number of reasons.

Transition from Negative Symptomology to Posttraumatic Growth

When faced with a trauma, many people suffer terribly from the stress placed on them. As noted earlier this can be at the level of a clinical disorder such as PTSD or ASD, or it can manifest itself in a range of other ways that do not meet the threshold for a diagnosable disorder. Much attention has been given by the mental health community to the way trauma afflicts people. There has been a wealth of research spanning the entire mental health community and from the complete breadth of the biopsychosocial perspective (Bulin & Zawalski, 2012; Johnson, 2013). PTSD in particular has received a wave of recent attention due to the rising cost of the wars that America has engaged in overseas and its devastating impact on the mental health of returning veterans. What was in previous wars dismissed as evidence of a lack of courage or malingering is now more appropriately getting diagnosed as PTSD and many and varied initiatives have been set up by the military and the Veterans Administration to deal with this rising cost and increased demand for services. Some of these include preventative programs trying to build resilience (Seligman, 2002) as well as a range of treatment programs for those with PTSD including some very high tech virtual reality and online programs (Brief et al., 2013).

Growth of Positive Psychology

In the last few decades a number of advances made in the field of trauma have broadened its research aims to include the study of living well and flourishing. Part of the reason for this shift has been the burgeoning growth and popularity of positive psychology so aptly described by Seligman (2002). Positive psychology, while building on various work already in process, developed many new ideas and enabled researchers interested in these ideas to work within a central theoretical framework and to have a shared professional space in which to collaborate. Researchers and clinicians could come from a variety of backgrounds within psychology and investigate those elements of psychology that contributed to optimal functioning.

One of the key pieces of research to come out of positive psychology is Barbara Fredrickson's broaden-and-build theory (2001). The broaden-and-build theory claims that when one feels positive emotions, they enlarge a person's momentary thought-action repertoires, which can build their lasting personal resources, ranging from physical and cognitive resources to social and psychological ones (Fredrickson, 2001). Positive psychology's focus on positive traits is being used to promote mental health in a variety of ways including in the public health domain (Kobau et al., 2011; Schrank, Brownell, Tylee, & Slade, 2014). Positive psychology has also taken a strong interest in promoting healthy and positive institutions. They have applied their theory and empirical findings to many institutions ranging from educational systems to the military and healthcare (Eubank, 2012; Matthews, 2008; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009).

Posttraumatic growth, a construct that rests within the positive psychology literature, is the variable of interest in this study.

Role of Counseling Psychology

Counseling psychology as a distinct discipline comes from a strengths-based perspective that includes focusing on the positive side of mental health as well as preventative work. The counseling psychologist was said to look for people's strengths and build on them, taking the stance that even profoundly troubled persons have strengths, assets, and coping abilities, and that it is valuable as a therapist to assess for these (Gelso, Nutt Williams, & Fretz, 2014). Counseling psychologists have historically been those more likely to work with clients from a strengths-based approach (Boswell, Castonguay, & Pincus, 2009). Thus counseling psychology seamlessly integrates with research and clinical interventions stemming from the positive psychology movement.

Overview of Posttraumatic Growth

This recent area of inquiry has a few different names, depending on the academic backgrounds of the researchers, including: thriving (O'Leary & Ickovics, 1995), discovery of meaning (Bower, Kemeny, Taylor, & Fahey, 1998), stress-related growth (Park, Cohen, & Murch, 1996), and flourishing (Ryff & Singer, 1998). However the term that has gained widespread consensus is *posttraumatic growth* (PTG). PTG's origins and the researchers who coined this term are Lawrence G. Calhoun and Richard G. Tedeschi at the University of North Carolina, Charlotte. They have continued to produce a prolific amount of research expanding on this construct, its underlying theory, and applications (cf. Baker, Kelly, Calhoun, Cann, & Tedeschi, 2008; Calhoun, Tedeschi, Cann, & Hanks,

2010; Cann et al., 2011; Danhauer et al., 2013; Taku & Cann, 2014; Taku et al., 2014).

This term is often misunderstood, and some people superficially assume that this means that one views the trauma as a positive thing and as such have a hard time understanding this idea. However, the emphasis is on the word *post* in the term *posttraumatic growth*. It is not the trauma itself that is positive; the trauma was and always will be a horrible event and likely would not be chosen were the individual given the choice. Rather it is the work that is done by individuals after the trauma as they attempt to rebuild their world that can lead to growth. Thus it is not the trauma itself that leads to growth but the trauma can initiate a process that leads some individuals toward growth trajectories that can dramatically change their lives in ways that they define as positive. It is precisely this growth path that this study seeks to further understand.

Five Domains of Posttraumatic Growth

PTG has been extensively studied in a variety of settings and represents a robust psychological construct, which has spawned a whole line of research within positive psychology. PTG has been measured along five different domains that indicate different areas of life in which one notices improvement and attributes this improvement to their struggle with their trauma. These five domains are: (a) relating to others, (b) new possibilities, (c) personal strength, (d) spiritual change, and (e) appreciation of life. Relating to others is when people have closer, more intimate, and more meaningful relationships with other people. The experience of an increased sense of compassion, particularly for others who now share the same difficult fate, is another way in which the greater connection to others occurs (Tedeschi & Calhoun, 2004b). New possibilities is

where people identify new possibilities for one's life or the possibility of taking a new and different path in life (Tedeschi & Calhoun, 2004b). Personal strength, the recognition of possessing personal strength, seems to be a combination of the clear knowledge that bad things can and do happen and the discovery that "if I handled this then I can handle just about anything" (Tedeschi & Calhoun, 2004b). Spiritual and existential change involves a greater engagement with fundamental existential questions and that engagement in itself may be experienced as growth (Tedeschi & Calhoun, 2004b). Appreciation of life in general, and many smaller aspects of it, along with a changed sense of what is important, is a common element in the experience of many persons who have struggled with major difficulties (Tedeschi & Calhoun, 2004b).

It should be noted here that these domains represent deeper and perhaps more existential domains of life and do not at face level match up with other domains such as anxiety or depression. In part this ties into the discussion regarding this construct's theoretical explanation, which will be explored later. As mentioned, PTG has been studied in a variety of trauma populations. Additionally, a number of variables have been explored to investigate how they are related to PTG.

Review of Posttraumatic Growth Studies

A wide range of populations with very diverse traumas has been studied. In general, traumas can be divided into the following categories: (a) transportation accidents, (b) natural disasters, (c) interpersonal experiences, (d) medical problems, and (e) other life experiences such as relationship breakdown, parental divorce, bereavement, and immigration (Janoff-Bulman, 1992). PTG has been studied in populations that would

be categorized in every single one of these categories. These multiple studies provide significant support for the construct of PTG across a variety of traumas. As such this construct is certainly one that is well established in the academic and clinical psychology community.

A plethora of studies have shown PTG in people experiencing bereavement (Currier, Mallot, Martinez, Sandy, & Neimeyer, 2013; Ho, Chu, & Yiu, 2008; Nerken, 1993), HIV infection (Murphy & Hevey, 2013; Schwartzberg, 1993), cancer (Cordova, Cunningham, Carlson, & Andrykowski, 2001; Wilson, Morris, & Chambers, 2014), heart attacks (Affleck et al., 1987; Senol-Durak & Ayvasik, 2010), transportation accidents (Joseph, Williams, & Yule, 1993; Nishi, Matsuoka, & Kim, 2010), fires (Felix et al., 2015; Thompson, 1985), sexual assault and sexual abuse (Burt & Katz, 1987; Draucker, 1992; McElheran et al., 2012; Silver, Boon, & Stones, 1983; Ullman, 2014), infertility (Paul et al., 2010), divorce (Engstrom, 2014), earthquakes (Marshall et al., 2015), and combat (Elder & Clipp, 1989; Gallaway, Millikan, & Bell, 2011; Marotta-Walters, Choi, & Shaine, 2015). The wide range of traumas that have been linked to posttraumatic growth make it clear that it is not a phenomenon isolated to a limited or specific kind of traumatic experience. Rather it is the shattering of core worldview assumptions that a trauma causes, regardless of the kind of trauma, that leads to the process of rebuilding one's worldview in a way that can lead to such personal growth. The process of rebuilding likely involves a variety of variables that facilitate this cognitive reconstructive process.

Personality and Social Support

A variety of variables have been studied in relation to PTG. Extraversion is one personality variable that has been examined in its relation to PTG (Jia et al., 2015).

Tedeschi and Calhoun (1996) demonstrated that extraversion, openness to experience, and optimism positively related with the PTG domains of new possibilities and personal strength. Other studies though were unable to find a link between optimism and PTG (Bostock, Sheikh, & Barton, 2009). Recent research further supported the link between conscientiousness, agreeableness, and openness to experience and the total PTG and most of the domains (Karanci et al., 2012). These variables make one more open to experiencing life differently and hopefully in ways, which can lead to PTG. Another recent study showed that hope and self-esteem predicted positive growth in the aftermath of a traumatic experience (Besser, Weinberg, Zeigler-Hill, & Neria, 2014). It is likely that these variables, hope in particular, allow one to generate alternative ways of understanding the world one lives in. Some interpersonal sources of resilience that have been found to be linked to positive outcomes are perceived social support from family, friends, and significant others); sources of resilience would have unique associations with acute symptoms after traumatic experiences (Besser et al., 2014).

Coping Variables

Coping is a profoundly important predictor variable to consider in regard to PTG. Coping has a very well-developed base of literature, and there is much research that has fully fleshed out the nature of the coping process. Coping has been examined in a variety of ways to explore associations between various methods of coping and PTG. Positive

coping has been positively linked to PTG in a study of mothers of children with autism spectrum disorder (Zhang, Yan, Du, & Liu, 2013). Positive coping could include psychosocio-spiritual resources, religious coping, social support, and so forth. Anticipated posttraumatic growth can also be seen as a coping mechanism and has been shown to be a precursor of later PTG (Tallman, 2013). Religious coping has also been looked at in a number of studies. It has been shown that negative religious coping led to reduced PTG (Thomas & Savoy, 2014). Acceptance as a form of coping has also been looked at to see whether it is linked to PTG. In a study of adjustment of sexual assault survivors, it was shown that acceptance coping was associated with PTG (Cole & Lynn, 2010).

Positive reframing, altering one's thinking to find something positive in stressful situations, has been associated with PTG and lower psychopathology (Hegelson et al., 2006). In a study looking at women with breast cancer, it was shown that in the process of coping with such cancer, women who engaged more in cognitive strategies either by planning their actions, accepting life circumstances, attempting to reframe breast cancer in a more positive light, or having a humorous approach showed higher levels of PTG during the treatment phase in terms of finding positive changes in their personal resources and skills to deal with the stress (Silva, Crespo, & Canavarro, 2012). It is clear that adaptive coping plays a strong role in the development of PTG.

Clinical Applications of Posttraumatic Growth

There is a variety of work that highlights the clinical applications of posttraumatic growth for mental health practitioners, especially for those specializing in trauma work (Tedeschi & Calhoun, 2004b). This work has also generated best practice guidelines for

those trying to help their clients make meaning of their traumatic experiences. Perhaps the most important guideline is the careful emphasis that not everyone who experiences a trauma will experience PTG and that a clinician should not have PTG as an a priori goal for any particular trauma client (Calhoun & Tedeschi, 2006). Further, clients should not in any way be made to feel lacking or less mentally healthy for not having reported PTG or even wanting to work toward PTG as a goal (Wortman, 2004). For many clients it will be sufficient, and of supreme therapeutic value, to work through the trauma and reduce the negative symptoms both on the subclinical and clinical levels. It is important to add that clinicians as well should not in any way feel inferior in their therapeutic work with any client if PTG is not reached even when the client sets this as a goal.

Posttraumatic growth's pathway and predictors are still not understood precisely enough, and it is also not guaranteed for every client. As such it is not reasonable to expect that it is simply a matter of applying a therapeutic manualized intervention, and a set amount of weeks later scores in PTG will have risen as a direct result of the therapist's and client's work. The above ideas have been important and significant responses to those who have leveraged criticism against posttraumatic growth as a theory and clinical means of practicing (Coyne & Tennen, 2010; Wortman, 2004).

Given these caveats, there still are many ways in which to try to create a framework for a client to achieve some PTG in the context of their therapy after a trauma. These recommendations are driven by research that has demonstrated some predictors for PTG. Once a therapist is aware of the psychological constructs that predict PTG, she or he can work toward integrating these with the client's way of living. This can facilitate

the necessary cognitive work to achieve PTG in one's life. Social support is one of the constructs that has been linked to PTG in part because it is an active coping strategy that leads to the cognitive work posited to lead to PTG.

Calhoun and Tedeschi (2006) emphasize the notion of the therapist as a facilitator of the PTG process and as being an expert companion. In this role the clinician facilitates growth by listening carefully to how the trauma survivors' descriptions of events include ways they showed strength and capability before, during, and after the traumatic experience. This technique is also very compatible with the approach of counseling psychology and many post-modern approaches in therapy that aim to reduce the power of the therapist. Another technique clinicians can use is to help clients reconstruct their narrative (Neimeyer, Keesee, & Fortner, 2000). This is another technique that is well accepted in counseling psychology and constructivist schools of thought that believe that people create their own meaning in life and are their own agents of change based on their unique strengths. Narrative work has had a lot of success with people who have experienced a trauma and as such supports the idea that this can be helpful to facilitate PTG (Snyder, 1999). A key question to still address is what is the mechanism and theory that explains PTG.

Functional Descriptive Theoretical Model of Posttraumatic Growth

The primary model for how PTG works is the functional descriptive one proposed by Tedeschi and Calhoun (2004b). This psychological theory aside from rooting itself in many philosophical and Judeo-Christian ideas also heavily bases itself on earlier trauma-related theories of Janoff-Bulman (1992). In her theory Janoff-Bulman tries to explain

why a trauma is a trauma, to clarify what makes a traumatic event qualitatively different than life's daily and more routine stressors. When someone is faced with a traumatic event, there is a seismic blow to her or his worldview. What a person envisioned her or his world looking like has now been tragically altered. These individuals are left with the opportunity and challenge to attempt to rebuild a new meaningful view of themselves and the world (or they can simply ignore the discrepancy between their ideal worldview and reality). The trauma has to be significant enough to cause such a seismic disruption. Also, there needs to be enough distress such that one is motivated to process this experience and reconstruct.

Thus it is asserted by Tedeschi and Calhoun (2004b) that individuals will engage in a cognitive restructuring process where the intrusive thoughts that they have (and which are at times linked to negative constructs like depression) are less automatic and made more conscious as part of their rebuilding process. The next step is that they have to recognize that they have changed for the better in some significant manner such as having more appreciation for other people or more patience with others. Lastly, they need to attribute this positive change to the challenges they went through so that it can be clear that the growth occurred as a result of the trauma and the subsequent processing of it. When reflecting on this theory, the point raised earlier is abundantly clear that it is not the trauma itself that directly leads to PTG; rather, it is the work one does in its aftermath. Also, one can see that this theory places a heavy emphasis on the cognitive component, and a lot of the subsequent research has tried to model this (Stockton et al., 2011).

Challenges to Posttraumatic Growth Theory

As the theory of PTG has developed, various researchers have attempted to further refine and clarify its central ideas. At times though it would appear that their critiques stem from misunderstandings regarding the original theorists' intentions (Tedeschi & Calhoun, 2004b); Tedeschi, Addington, Cann, & Calhoun, 2014; Tedeschi, Calhoun, & Cann, 2007). Tedeschi and Calhoun have devoted a significant portion of their writing clarifying their theory through a methodical and rigorous programmatic line of research. Although they have refined their theory and added numerous nuances to it including a better understanding of the cognitive pathway leading to PTG, the core theory has not actually changed and appears robust enough to remain worthy of further elucidation, expansion, and exploration.

One of the critiques is that people are only experiencing illusory perceived growth and are not in fact experiencing actual growth. To achieve actual growth one would need to measure the outcomes associated with PTG both before and after trauma has happened. Further, it is asserted that the growth reported is really a self-enhancement explanation—motivations to reaffirm significant aspects of one's self-concept to feel good and confident about oneself—and suggests that posttraumatic growth reflects reappraisal of the situation to reduce a sense of victimization following a traumatic event (Jayawickreme & Blackie, 2014). If this is true, the critics argue, then the notion of PTG does not rest on a base of true personal growth. Rather these positive illusions protect people from the initial threat and may eventually allow them to accept their situations (Taylor & Armor, 1996). McFarland and Alvaro (2000) have attempted to demonstrate the veracity of this claim through an experimental procedure. They created a series of

experiments where people were asked to rate events as being either mildly negative or more seriously traumatic. They were also asked to rate their standing on a variety of attributes both from before the event and in the year since the event. Based on their research they claimed that participants derogated their past selves to be able to perceive growth, suggesting that people may falsely perceive posttraumatic growth by misremembering what they were like prior to the event. They claim that people are motivated to exaggerate self-improvement as a way to relieve some of the distress of such a trauma.

Despite these findings in laboratory settings with various experimental manipulations, given the range of longitudinal PTG studies that have been conducted in the last few years, these experimental findings remain limited. There have been a number of recent longitudinal studies examining PTG, which have attempted to respond to some of the sharpest critiques to tease out the differences between illusory and genuine growth. These studies have concluded, using various longitudinal designs as suggested by those reviewing and critiquing PTG research, that PTG represents real growth and not illusory growth (Chen, Zhou, Zeng, & Wu, 2015; Danhauer et al., 2013; Siqueland, Nygaard, Hussain, Tedeschi, & Heir, 2015). Thus whereas most of the previous PTG studies were cross-sectional, these longitudinal studies provide further support for many of the theory's ideas. One study showed that examination of one's core beliefs may play a role in the development of PTG over time (Danhauer et al., 2013). This is an important point, as rebuilding one's worldview and beliefs is a central component of the theory behind

PTG. Further studies like this can continue to provide support to the various variables posited to predict PTG.

Another critically important point to consider is that from the perspective of a therapist, especially when working from post-modern and narrative frameworks, it may not really matter whether this growth is real or actual. Posttraumatic growth in the clinical context is not some abstract or objective philosophical idea trying to ascertain whether people have grown in a concrete behavioral manner. If the patient is reporting positive growth and attributes this to the trauma, then the patient is likely in a better place for thinking this way. They have found their own way of rewriting their story such that they can now deal with their life better (Chang & Nylund, 2013; Combs & Freedman, 2012). To debate whether this growth is real may not matter if these patients are happy and satisfied with where they are. In consonance with Janoff-Bulman's (1992) original theory, people's core assumptive worldview has been shattered. They need to find a way to move forward in the world and integrate their old assumptions with the new information they have learned from their traumatic experience. Thus, if they report growth and attribute it to their trauma and the processing of it, they now have a way to effectively and safely think about their past trauma by looking at the more meaningful or enhanced life they believe they are living now. When thinking about the trauma, aside from painful memories, they can also reflect appreciatively about the positive changes in their life as they have rebuilt a new and integrated worldview. Further, even if growth is illusory in the sense that they did not make these changes, or if they did make these changes it was not because of their cognitive processing of the trauma, it is still possible

for this perception to lead toward objective growth. Once one has a personal image of herself or himself doing a certain kind of thing or thinking a certain way, it can possibly lead to actually acting this way, perhaps in the way that Ellen Langer has discussed in her mindfulness research (Djikic, Langer, & Stapleton, 2008).

There is likely a split in thinking happening between different disciplines of psychology. The researchers, often personality psychology researchers, who critique the veracity of the growth, are assuming that only objective growth is important here. Yet for clinical and applied psychologists who are dealing with people and their very complex lives and trying to help them rebuild, this is not as relevant. It may serve many clients well and help them heal from the trauma to be able to think they experienced growth. There are a variety of contextual layers that would benefit from such thinking. Thus a client may feel more comfortable sharing their story of being raped with others in their lives if they can report not just being a victim but how they now have a stronger sense of faith or volunteer more in their community. Considering that this theory is ultimately about helping clients live a better life post trauma, this is an intriguing and significant idea and effectively dispels these doubts about objective PTG.

Stress/Distress and Posttraumatic Growth

There seems to be an inverted U curve for the relationship between posttraumatic stress and PTG (Taku et al., 2015). Individuals with low or high stress reactions are likely to report lower PTG than those with moderate levels of stress responses (e.g., Kleim & Ehlers, 2009; Levine, Laufer, Stein, Hamama-Raz, & Solomon, 2008; McLean et al., 2013). This is because PTG likely needs some stress to cause the ruminative thinking that

spurs PTG, so when there is not enough significant stress this does not happen. Further, the stressor needs to be severe enough to shake a person's fundamental assumptions (Calhoun, Cann, & Tedeschi, 2010). Also, when there is too much stress the person is simply overwhelmed and cannot engage in the cognitive work necessary for PTG to happen. Multiple studies showed support for such a curvilinear relationship between PTSD symptoms and posttraumatic growth such as in populations of military medical personnel in the U.S. (McLean et al., 2013), university students in Sri Lanka (McCaslin et al., 2009), and adolescents in Israel (Levine, Laufer, Stein, Hamama-Raz, & Solomon, 2008).

Gender Differences in PTG

Vishnevsky, Cann, Calhoun, Tedeschi, and Demakis (2010) report, in a meta-analysis, a small to moderate gender difference with women reporting more posttraumatic growth than men. Although a variety of variables were looked at to try to understand the source for this difference, the only significant moderator was age. Women reported incrementally more posttraumatic growth as the mean age of the sample increased. The authors consider a few explanations for this finding. One idea is that there may be cohort differences (Vishnevsky et al., 2010). Women in older cohorts may perceive events as more intense or "seismic," which, based on the way PTG is conceptualized, may be related to more self-reported growth (Tedeschi & Calhoun, 1996). Another way of understanding the age factor is that women are more likely to face events that involve perceived loss (and subsequent growth) as they age (Vishnevsky et al., 2010).

Cross-Cultural Validity of Posttraumatic Growth

There have been studies of PTG done with a variety of populations including: Chinese (Ho, Chan, & Ho, 2004), South African (Peltzer, 2000), Turkish (Dirik & Karanci, 2008), Japanese (Taku et al., 2007), Bosnian (Powell, Rosner, Butolo, Tedeschi, & Calhoun, 2003), Israeli (Laufer & Solomon, 2006; Lev-Wiesel & Amir, 2003), and Palestinian (Salo, Qouto, & Punamäki, 2005). Despite these varied populations in which PTG was studied, there have been questions raised regarding the universal applications of PTG (Splevins, Cohen, Joseph, Murray, & Bowley, 2010). They note that there exists a basic distinction between Eastern versus Western cultures especially along the lines of self versus others and broader community. They examined the constructs of PTG for indication that it is more self-oriented in a way that would not accurately capture the experience for those from Eastern cultures. The authors of this study were careful to use the term *benefit finding*, an atheoretical term, rather than *growth*, which they believe describes an internal actualizing process that stems from humanistic thinking (Joseph & Linley, 2006).

After thoroughly reviewing the two primary theories explaining PTG, functional descriptive and organismic valuing process, Splevins et al. (2010) note that overall these theories *are* indeed sensitive enough to these Eastern ways of thinking or are broadly enough defined that they could allow for Eastern culture to be well represented. Splevins et al. found that the idea of growth after adversity seems universally acceptable, and more specifically the understanding that growth is a biological process of actualization would seem to be in accord with Buddhist and Taoist perspectives. Although the role of a

trauma survivor can be different across cultures, thereby leading to different core beliefs, both PTG theories do not detail the specific nature of these assumptions and hence are culturally neutral. Weiss and Berger (2010) note that across cultures PTG seems to be related to cognitive processes, coping strategies, spirituality, and social support. Splevins et al. make a few recommendations about constructing instruments to study PTG, pushing for more qualitative work, that would allow more cultural nuances to be examined. Overall, this critique is rather minimal and does not represent a serious concern for continuing to study PTG in the way it has been; all they recommend is enhancing our study of it with varied investigative and research methods without any detailed core changes.

Integration of Posttraumatic Growth and Reproductive Story

It is interesting to consider the previously unexplored connection between the theory of the reproductive story and PTG. The core idea in the reproductive story is that the individual has an implicit story around setting up a family with children. When a reproductive trauma occurs, this story is abruptly interrupted and requires a shift in focus. It needs to be rewritten to accommodate for the new and often uncertain reality. It is the therapist's role to help facilitate this narrative process for the client. In PTG as well what is proposed is that the client's view of self and the world has been dramatically and tragically altered with the impact of the trauma. PTG happens when the worldview is constructively rebuilt. These two theories, proposed in different but to some extent parallel contexts, likely are correlated, and it is reasonable to assume that PTG can be demonstrated in the reproductive trauma population. Thus far PTG has only been

examined with infertility (Paul et al., 2010), in complicated childbirth (Sawyer, Ayers, Young, Bradley, & Smith, 2012), and when premature infants die (Büchi et al., 2009), and in only one recent study in the miscarriage/stillbirth population (Krosch & Shakespeare-Finch, 2016). This study found that women with a pregnancy loss reported moderate levels of PTG, and core belief disruption and perinatal grief were predictors of this growth. It also has not been studied through the lens of the RS and seeing the trauma as falling within the theoretical construct of the RS and the rewriting of this narrative.

Coping

Coping can be defined as a response aimed at diminishing the physical, emotional, and psychological burden that is linked to stressful life events and daily hassles. Thus coping strategies are those responses that reduce an undesirable psychological burden (Snyder & Ford, 1987). Coping has a long history in psychological conceptualization ranging from Freudian viewpoints of coping as a defense mechanism (Snyder, 1999), to later changes made by Anna Freud that viewed coping as devices that people use to handle external threats to the self (Vaillant, 1994). Since then coping has become a much studied construct with the shift spearheaded by Lazarus and his colleagues at Berkeley (1966), focusing coping as how a person appraises the situation and not seeing it as trait oriented. They discuss coping as involving a primary appraisal (where a person decides whether and how a situation is a threat) and a secondary appraisal (where the person evaluates what to do to deal with the situation). Only if the person decides that the stimulus is a threat do they enter the second appraisal stage where they examine what resources they have to deal with the situation.

Types of Coping

Once the person decides that he or she needs to draw on coping resources, Snyder (1999) posits that there are two types of coping: problem focused and emotion focused. Problem-focused coping includes efforts that are directed at controlling or changing the sources of the stress (e.g., learning new skills, removing barriers, generating alternative solutions). Emotion-focused coping strategies are attempts at managing emotional responses to the stressor (e.g., wishful thinking, seeking emotional support, social comparison). Given the above definition of coping as attempts to reduce the physical, emotional, and psychological burden of an event, both problem- and emotion-focused coping could be a part of the response (Lazarus & Folkman, 1984). It seems important to distinguish between traumas that may be preventable versus those which are less amenable to change given that it may change the style of coping. Snyder (1999) notes that for situations determined to be not changeable, the person who adopts emotion-focused strategies is likely to encounter more psychiatrically positive outcomes, such as less depression and anxiety.

Depending on the form of coping, notes Miller, one could be classified as a monitor or blunter (as cited in Nikcevic, Tinkel, Kuczmierczyk, & Nicolaides, 1999). This could serve as an indication of whether the person is attempting to deal with the issue on a cognitive level (monitor) or is trying to ignore it or cover it up (blunter). Various adaptive coping strategies such as working with a therapist or meeting with a member of the clergy could be descriptive of a monitoring style, while using drugs or

burying oneself in work could be indicative of a blunting style. This would be another clue as to whether this person is engaging in the cognitive process that facilitates PTG.

Avoidant Coping

Avoidant coping behaviors are largely those that enable people to avoid dealing with the psychological implications and effects of the traumatic event that they experience. Avoidant coping involves directing cognitive and emotional processes away from a perceived personal threat in order to keep from experiencing negative symptoms associated with the threat (Brandt et al., 2015). These behaviors that enable one to avoid (at least in the short term) can be categorized as positive or negative in of themselves. The positive behaviors would be those that do not hurt the person and perhaps even offer some added benefit (perhaps even extending into the domain of the trauma). This can include exercise, vacation, and listening to or playing music. These behaviors can help the person by providing them with a healthier body, which has been shown to relieve depressive symptomatology.

However, it can also allow the person to avoid dealing with the trauma, which can have other negative repercussions. As such the perspective of why these behaviors are engaged in is important in evaluating whether it should be viewed as a help-seeking behavior or an avoidant one. The negative behaviors would include things like excessive alcohol drinking, smoking, and other forms of substance use/abuse. These behaviors serve no redeeming value and if continued have the potential to put the person at risk for very serious mental and physical difficulties.

It could be that these behaviors have an adaptive element to them in that they can serve as an ego cast, allowing the ego to replenish its resources by not exerting self-control (Snyder, 1999). Although it can help in regards to replenishing depleted ego resources, it can also create further problems when it turns into substance abuse. Snyder (1984) has described this as a Faustian bargain, where rewards are gotten in the short term, but in the long term the cost is too great. Overall, avoidant coping has been identified as the best predictor of the development of PTSD symptoms (Dörfel, Rabe, & Karl, 2008). Also, avoidant coping has frequently been linked to greater levels of depressive symptoms, anxiety, and general psychological distress (Moskowitz, Hult, Bussolari, & Acree, 2009; Taylor & Stanton, 2007).

Help-Seeking

In the context of posttraumatic growth it is of interest to learn more about help-seeking behavior. PTG's mechanism taps into different components of help seeking. One possible way this occurs is explained by the functional descriptive model of PTG's development. As noted earlier, this model proposes a cognitive restructuring process that leads to PTG. Help-seeking can involve the opportunity to talk about the trauma and actively work through it. It is possible that this process actively engages that cognitive restructuring process. Thus it is possible that those forms of help-seeking that enable more of this cognitive process to develop would lead to increased PTG.

Professional. When faced with difficulty, people may try to seek or engage in help in a variety of ways. Some people will go directly to a mental health professional. This help-seeking involves a wide range of professions including psychiatrists,

psychologists, social workers, and couple and family therapists, and so forth. Their care may involve medication, psychotherapy, and/or support groups. Primary care physicians often serve as primary providers of basic mental health care, in that people will often turn to them for such help, or these providers screen for mental health issues during physical exams. This can be evinced in the number of antidepressant medications that are prescribed by primary health care providers to the point of overuse (Franx et al., 2014). People turn to physicians for their mental health needs for a variety of reasons. Physicians are someone they already see anyway (especially for a medical trauma like reproductive trauma) in a confidential relationship. Also, there is likely reduced mental health stigma as the visit is housed within a medical context, and the medication they will be prescribed may be viewed as a quicker fix than longer term therapy.

Clergy are also viewed as a first line of care for many people with mental health needs (Vilhjalmsson & Gudmundsdottir, 2014). The reasons are often similar to the ones outlined above for physicians, with the added benefits that many clergy will not charge for the pastoral counseling, and the client may feel more comfortable because the clergy is more familiar with the individual's religious and cultural/communal life. However, the types of pastoral counseling training that clergy receive vary widely, and as such the support that clergy can provide will range in quality.

Social. Other sources of help-seeking and support come from social and family contexts. Both friends and family can be proximate sources of support (Tedeschi & Calhoun, 2004a). Support from others is incredibly important after a traumatic event for a variety of reasons. It is reasonable to assume that the closer and more intimate the

premorbid relationship was the more important it is for there to be support coming across this relationship in the aftermath of the trauma. A significant component to dealing with a trauma is being able to verbalize one's feelings (Nachar, Lavoie, Marchand, O'Connor, & Guay, 2014). This is evidenced by the finding that behavior inhibition, such as not talking, can lead to an increased physiological response in the short term and to stress-related disease in the long term (Pennebaker, 1997). Thus having friends and family for support is of strong importance. An added and important component is that these supports can actually provide a framework for the bereaved person to be able to talk about their loss. It has been shown, for example, that unwillingness of the father to discuss a stillborn infant with the mother was related to subsequent maternal depression (Surkan, Radestad, Cnattingius, Steineck, & Dickman, 2009). A place to talk may further trigger the requisite cognitive processing that can lead to PTG.

Self-Help. There has been a significant rise in the opportunities available for people to avail themselves of help in the aftermath of a trauma, including reproductive trauma, with the rapid rise in Internet options and its widespread use throughout much of the world. The Web has increased the amount of options available for help. It has also reduced barriers to access for many people.

The Web has a wide variety of resources available for people to make use of that would help heal after a trauma. These can be divided into the following kinds of resources: (a) psychoeducational that would include material, mostly created by mental health professionals that would explain and educate in varying levels of detail what one can expect after a trauma. Further, this would include what people should/can do to deal

with the trauma. (b) Discussion forums are where people can post specific questions or start conversations (threads) around particular issues related to the trauma. (c) Support groups are usually created around specific types of trauma and often have a moderator who may be a mental health professional. These can be ongoing or as a one-time opportunity. (d) Referral resources are available for professional help, which would usually involve links to different websites that have more information about the provider, what services they offer, and how to connect to these services. (e) Meaning-making opportunities are various forums that either offer ways to create meaning out of the trauma offline or provide the opportunity directly on the website. An offline method may be to write a letter to the deceased. An online method could be to post a poem about the trauma to a virtual wall where other people have done so. There are clearly a varied and robust group of opportunities for people to seek help online after a trauma, and it is likely that an individual that has Internet access has used at least one of these options after a traumatic event.

Online options for reproductive trauma. Reproductive trauma patients have all of the above options available to them (Geller, Psaros, & Kerns, 2006). Some of the sites are maintained by professional organizations like the American Pregnancy Association and the American Society for Reproductive Medicine. Others are sites run by lay-level groups like SHARE, which offers bed-side companions, phone counseling, face-to-face support group meetings, resource packets, private online communities, memorial events, and training for caregivers. A new and very recent addition that seems to offer some very promising support is a site based on the movie *Return to Zero* (Andrusko, 2014; Victoria,

2014) directed by Sean Hanish. This film, based on a true story, is the first film that has taken stillbirth as its central theme. As part of the release of this film, a website was dedicated to people posting stories and pictures of this loss. This seemed to be a real healing opportunity for people with many people posting stories of their loss from many years ago. A discussion guide to the film has also been made available, free of charge, which people can use as a means to discuss the implications and personal reflections of their loss. Many other sites also offer opportunities for people to have professional pictures taken of their stillborn baby right after the delivery or to post poems about their child and other therapeutic and healing activities.

The Internet and the myriad websites on it has been an amazing tool to remove barriers to access to all sorts of care especially mental health. Aside from the possibilities of telemental health and Internet treatment, which while being a new modality promises much opportunity (Kersting, Kroker, Schlicht, Baust, & Wagner, 2011), there is also the massive amounts of material available online. Many people, prior to this, did not have this access to these resources. The Web has allowed people to access all of this information, in a user-friendly way, from the comfort *and* privacy of their home. Reproductive trauma can be something that people want to keep private, certainly before experiencing therapy, and as such the opportunity to look up information online without others watching can be very helpful. Also, many people are not ready to participate in a live support group often because of privacy concerns. Women report that these sites and forums allow them to feel less isolated in their loss and grief, and they appreciated unique aspects of Internet communication such as convenience, access, anonymity, and privacy

(Gold, Boggs, Mugisha, & Palladino, 2012). Being able to go online and receive the support from other people can help these individuals receive the support and caring that they need (Andersson, 2009). Lower cost is another factor as to why online options reduce barriers to access. Paying for a professional support group, books, or even travel to a group can be too much for some people, and as such the Internet, which often offers free material, can help these people. There are, however, limitations to these groups such as misinterpretation, anger, fraud, and difficulty managing crises, and they should best be seen as a supplement to professional support (Pector, 2012).

Help Seeking and Coping in Reproductive Trauma

According to a recent study (Surkan et al., 2009), mothers reported receiving support after a stillbirth from social workers (41%), midwives (20%), physicians (20%), psychologists (6%), and priests (4%). What is of note here is that mental health professionals only comprised 47%. If midwives and physicians are counted together as medical professionals, that is 40%, which is almost as much as mental health professionals, making it important that these medical professionals are adequately equipped to be of support to these patients and know how to refer to mental health professionals where necessary.

As noted earlier there are two personality styles in regard to how people deal with information during a stressful situation. Monitors prefer to have as much information as possible concerning a stressful situation, while blunterners try to avoid such information. When pregnancy loss patients were studied, no significant difference was found in terms of distress between the different coping styles, so long as there was some mental health

follow up after the loss (Nikcevic et al., 1999). Another study found that emotion-focused coping was significantly more strongly associated with PTSD severity in mothers than fathers (Christiansen, Olff, & Elklit, 2014).

Hope

Hope as a construct in psychology dates back to the 1950s (Magaletta & Oliver, 1999). Although it has been explored by a range of theorists, the most prevalent theory has been developed by Snyder et al. (1991). He conceptualized hope as “goal-directed thinking in which people perceive that they can produce routes to desired goals (pathways thinking), and the requisite motivation to use those routes (agency thinking)” (Lopez, Snyder, & Pedrotti, 2003, p. 94). In this theory, goals are seen as “the targets of mental action sequences” (Snyder, Rand, & Sigmon, 2002, p. 258). Snyder asserts that goals are the cognitive basis for the theory, and they must fulfill several points: (a) they must hold some value to the person; (b) they must be attainable; and (c) they must possess a degree of uncertainty (i.e., they cannot be a sure thing). People that are high in hope tend to clearly define their goals, whereas people with lower levels of hope are often uncertain about their goals (1994). Pathways thinking is a person’s perceived capability to create routes to reach their desired goal. These pathways should be flexible and adaptable as obstacles are met. People who are elevated in hope usually have less trouble coming up with a number of ways to desired goals (Snyder, 1994). Lastly, agency thinking is the measure to which a person believes they can use the pathways they have developed to achieve their goals. It is this motivational thinking that reinforces the

creation and selection of alternative pathways to goals when barriers occur (Snyder et al., 2002).

There are both cognitive and emotional components to hope. Past experiences interact with current emotions to set the stage for goal pursuit. As such if a goal is of significant value, pathways and agency thinking begin. These thoughts regarding the motivation and means to reach a certain goal interact with each other throughout the process of goal attainment. Emotions play several roles in this process (Cole, 2013). They can exist in the form of obstacles that may necessitate the development of additional pathways and agency. Emotions also exist within a feedback loop that has an impact at every stage of the process. If one is making progress toward one's goal, then this can fuel the rest of the journey. Also, if one is experiencing negative emotions, this can dampen one's ability to engage in pathways and agency thinking. In addition to changing mood, positive and negative emotion can alter the schemas for hope by changing our knowledge of what does and does not work (i.e., specific pathways and agency techniques; Lopez et al., 2003).

Trait hope has been reported to be related to a variety of factors that make it relevant to consider how it might be able to predict posttraumatic growth. It has also been shown to exist across a variety of cultures, although it may lead to different outcomes across various cultures (Chang & Banks, 2007; Feldman & Sills, 2013). Snyder showed that it is related to psychological adjustment (2002). He also reported that students who are high in hope report more confidence, energy, and self-worth than their low-hope peers (Snyder et al., 1991). In community and inpatient samples, individuals with high

hope report fewer symptoms of depression (Gilman, Schumm, & Chard, 2012; Thio & Elliott, 2005). It is theorized that hopeful thinking counteracts depressive symptoms by decreasing rumination, social withdrawal, and self-criticism, while increasing adaptive coping skills and positive thinking (Chang & DeSimone, 2001; Cheavens, 2000; Coduti & Schoen, 2014). Given that high hope can lead to improved coping, better social engagement, and healthier and more creative cognitive skills, it is important to explore the relationship between hope and posttraumatic growth.

Family Processes

Family processes are very important factors to consider when considering trauma from a systems perspective (Walsh, 1996). This is particularly true when considering reproductive trauma such as a pregnancy loss, which by its very nature takes place in the context of family and attempting to build the next generation of family. Every family will respond differently when faced with an unexpected trauma such as a pregnancy loss. Yet some of them will respond better than others and will find ways to deal valiantly with the new crisis and marshal their resources to steer the family through this tragic event (Walsh, 1998, 2003b).

A variety of family factors have been shown to be helpful to families in weathering a crisis and even fostering positive growth. These factors include the following: family structure, family cohesion, supportive parent–child relationships, positive emotional climate in the family, parental warmth, and attention (Masten et al., 1999; see review by Benzies & Mychasiuk, 2009; Walsh, 1998, 2003a). It has also been shown in a growing body of research that family resilience is critical for the family in the

face of a trauma and in dealing with life stressors (Walsh, 2003a). Some of these dynamic processes involved in increasing family resilience are family flexibility, family cohesion, family problem-solving skills, family communications, and family beliefs.

Most of these constructs have been primarily defined by Olson and Gorall (2003) in their family circumplex model. Family flexibility is the “amount of change in its leadership, role relationships, and relationship rules” (Olson & Gorall, 2003, p. 519). Leadership, negotiating styles, role relationships, and relationship rules are the specific indicators of family flexibility. Family cohesion is defined as “the emotional bonding that couple and family members have toward one another” (Olson & Gorall, 2003, p. 516). This can be demonstrated by the individual family member’s emotional bonding with others, decision-making capacity, family boundaries, and coalitions. Olson and Gorall assert that families who are balanced in family cohesion and family flexibility tend to exhibit optimal family functioning. Although there has been much data highlighting the importance of family processes in affecting positive outcomes (Walsh, 1998, 2003a), there has been little research directed toward exploring these processes in understanding how they may predict posttraumatic growth. Given that the family is the central system and context for reproductive trauma, it is important to understand how family functioning and processes contribute toward posttraumatic growth. This study aims to look at the role of family flexibility, family communication, family cohesion, and family satisfaction in predicting posttraumatic growth.

Family process and not couple process will be the focus of this study for a few reasons. It is certainly possible for people to experience a pregnancy loss or to still be

dealing with such a loss and not be in a partnered relationship. The woman could have conceived through a sperm donor and not be in a committed relationship, or the couple could subsequently have separated, and as such it is not necessarily relevant to ask about a couple's relational processes. Family support overall has also been linked to resilience (Walsh, 2012), and this study seeks to capture family support at the broadest level.

Chapter 3

Methodology

This chapter will provide an outline of how the study was conducted. The study design, study participants, data collection method, and procedure will be described. Additionally, there will be a review of the measurement instruments. The validity and reliability of each instrument will be discussed. Finally, the proposed hypotheses and statistical analysis for each hypothesis will be explained.

Study Design

This study used a cross-sectional quantitative research design to collect data. An exploratory cross-sectional design was employed to answer the study research questions and hypotheses. The purpose of this exploratory study was to measure levels of specific constructs (coping, hope, family processes, and PTG) and examine what relationships exist. Since there is no manipulation of variables needed, the best fitting methodology was a correlational design. The demographic and open-ended questions were used to gain further understanding as to what may impact people experiencing a pregnancy loss to guide future research. It will also be used to control for the confounding variables listed in Chapter 1. The study instruments were administered through the online survey platform, Qualtrics.

Instrumentation

Participants were asked to complete six self-report assessments. The study instruments include the following: (a) demographic questionnaire (Appendix A); (b) Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996); (c) Revised Snyder

Hope Scale (HS-R2; Shorey et al., 2008); (d) Brief COPE Inventory (Carver, 1997); (e) Perinatal Grief Intensity Scale (PGIS; Hutti et al., 1998); and (F) FACES IV (Olson et al., 2006);

Posttraumatic Growth Inventory. The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1995, 1996) was developed to measure growth-related changes reported by individuals who experienced a trauma. The prompt and items can be referenced to the specified traumatic event, and in the present case it reads: “Indicate for each of the statements below the degree to which this change occurred in your life as a result of the pregnancy loss(es).” The 21-item scale yields a total score and five subscale scores: New Possibilities (5 items), Relating to Others (7 items), Personal Strength (4 items), Spiritual Change (2 items), and Appreciation of Life (3 items). Participants read potential change items and rate them on a 6-point Likert-type scale, ranging from: *not at all* to *a very great degree*. Sample items include, “I can better appreciate each day,” or “I discovered that I'm stronger than I thought I was,” and “I have a greater sense of closeness with others.” The PTGI has internal consistency of .90 and test–retest reliability of .71 (Tedeschi & Calhoun, 1996). This instrument was normed on an undergraduate sample of 199 men and 405 women with 92% ranging in age from 17 to 25 (Tedeschi & Calhoun, 1996). The authors do not give further demographic information on this population. Reliability for this scale in the current study was .941. Permission was granted to use the instrument for this study (see Appendix B).

Revised Snyder Hope Scale. The Revised Snyder Hope Scale (HS-R2; Shorey et al., 2008) is an updated version of the original Trait Hope Scale (Snyder et al., 1991).

This scale was reworked to allow for a scale that was more congruent with the operational definition of hope and was more psychometrically rigorous (Shorey et al., 2008). The original scale did not directly measure goals. As well it did not utilize reverse-scoring and had fewer items on each subscale (Shorey et al., 2008). The revised scale has 18 items with 10 of the items being reverse-scored, and it includes a separate Goals subscale. The authors conducted four studies of the revised scale to provide support for the convergent and discriminant validities of each of the subscales. Cronbach's alpha for the total HS-R2 ranged from .88 to .91 and test-retest reliability ranged from .71 to .83 (Shorey et al., 2008). Sample items from the new scale include, "I prefer easy goals over hard goals" (Goals subscale), or "I have difficulty finding ways to solve problems" (Pathways subscale), or "I'm not very motivated" (Agency subscale). The four studies utilized college students from a large Midwestern university, and there was only a small amount of minority/ethnic groups represented (Shorey et al., 2008). Reliability for this scale in the current study was .909. Permission was granted to use the instrument for this study (see Appendix C).

Brief COPE Inventory. Coping strategies will be measured with the 28-item Brief COPE (Carver, 1997), which includes subscales that assess 14 different types of coping: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, emotional venting, positive reframing, planning, humor, acceptance, religion, and self-blame. This measure is partially based on the Lazarus and Folkman model of coping (1984), and Carver and Scheier model of behavioral self-regulation (as cited in Carver, 1997). Participants are

asked to rate each item (1 = *I haven't been doing this at all* to 4 = *I've been doing this a lot*) in relation to how they have “been coping with the stress in (their) life, including stress related to the pregnancy loss” during the past week. Sample items include, “I've been turning to work or other activities to take my mind off things” (Self-Distraction subscale), or “I've been concentrating my efforts on doing something about the situation I'm in” (Active Coping subscale), and “I've been saying to myself this isn't real” (Denial subscale). All the subscales except for Venting, Denial, and Acceptance exceeded .60 for alpha reliability, despite the fact that each subscale is only two items (Carver, 1997); other psychometric characteristics have not been reported. This measure was normed on 168 people of which about 66% were female. The participants were largely non-Hispanic Whites (40%), 34% African American, 17% Hispanic, and 5% Asian. Reliability for this scale in the current study was .825. Positive Coping subscale reliability was .842 and it was .989 for the Negative Coping subscale. Permission was granted to use the instrument for this study (see Appendix D).

Perinatal Grief Intensity Scale. The Perinatal Grief Intensity Scale (PGIS) was developed to measure the intensity of a woman's grief after a miscarriage, stillbirth, or neonatal death. The theoretical framework for the PGIS was based on Dougherty's model of cognitive representation (cited in Hutti et al., 2013) and was prepared for use in a perinatal loss population based on work conducted by Hutti (1992). The PGIS is a 14-item self-report questionnaire that was tested initially in a sample of 186 women who had experienced a miscarriage. Scoring of the PGIS is based on a 4-point Likert-type scale (1 = *strongly agree*, 4 = *strongly disagree*). Sample items include, “At the time [of] my

pregnancy loss/baby's death the pregnancy did not seem real to me," or "I felt satisfied with the way my loss experience unfolded, given that I had to go through it," and "In later weeks after my pregnancy loss/baby's death I was able to resolve problems if something happened that I did not like." The Cronbach's alphas for the PGIS total scale and subscales were high: 0.75 (PGIS total), 0.80 (Reality), 0.82 (Confront Others), and 0.80 (Congruence), indicating good reliability (Hutti et al., 2013). Two hundred twenty-seven women completed this scale, and no other demographic information is provided on this population. Reliability for this scale in the current study was .689. Permission was granted to use the instrument for this study (see Appendix E).

FACES IV. To measure family cohesion and flexibility, the Family Adaptability and Cohesion Evaluation Scales (FACES IV) was used. FACES IV is a self-administered, 42- item questionnaire that assesses family cohesion and flexibility, based on the circumplex model of marital and family systems (Olson & Gorall, 2003). This instrument includes two balanced scales (Balanced Cohesion and Balanced Flexibility) and four unbalanced scales (low and high extremes of the two dimensions, referred to as Disengaged and Enmeshed for the cohesion dimension, and Rigid and Chaotic for the flexibility dimension) with 7 items each. The items are answered using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items include, "Family members are involved in each other's lives," and "There are strict consequences for breaking the rules in our family." In addition to these six scales, the questionnaire consists of two other scales with 10 items each, used to measure family communication and family satisfaction. On the Family Communication subscale sample items are,

“Family members are very good listeners,” and “Family members are able to ask each other for what they want.”

Olson (2011) reports reliability of the six FACES IV scales as follows: Enmeshed = .77, Disengaged = .87, Balanced Cohesion = .89, Chaotic = .86, Balanced Flexibility = .84, Rigid = .82. More than 250 studies, most using the FACES-IV self-report scale to compare clinical families with various emotional symptoms and problems to nonclinical families, have supported the central hypothesis of the circumplex model: Balanced couples function more adequately than couples at extremes on adaptability and cohesion (Lebow & Stroud, 2012). The majority of the sample (80%) from which FACES IV was normed were Caucasian, with smaller percentages that were Asian American (7%), African American (6%), Hispanic (2%), or Native American (2%). Reliability for this scale in the current study was .785 on the Flexibility subscale, .864 on the Cohesion subscale, and .943 on the Communication subscale.

Procedure

Potential participants were recruited using a solicitation post that was placed on public Internet forums and groups related to pregnancy loss and women’s health. These forums are frequented by women who have lost a pregnancy and are looking for medical or psychosocial information (as well as miscellaneous information) or a place to share how they are feeling with each other. This post also contained a link to the study whereby participants had access to read informed consent materials and subsequent to consent to the study instruments as well. The survey was posted through the electronic survey tool Qualtrics. Online recruitment was the only means of recruitment for this study. Online

recruitment is a method that can ensure anonymity, and it is also a natural place where many people are turning to in discussing their loss-related issues or for seeking information.

Protection of Human Subjects

This research study received Seton Hall University Institutional Review Board (IRB) approval prior to initiation. The study was not expected to have any negative consequences for participants. It is possible that some participants would feel distress over revisiting this past painful experience. Participants were provided referral information to a crisis hotline in the event of distress and were also encouraged to talk with a trusted friend or counselor. They were also offered the option of finding a professional clinician to talk to through the American Psychological Association's professional locator. Information transmitted from the questionnaires was imported into Statistical Package for Social Sciences (SPSS, 24), formatted, and stored on a USB memory key, which will be kept in a locked and secure location in the principal investigator's office. This information will be stored for a minimum of 3 years.

Participants

There were 103 female study participants with a required minimum of 92 women (based on a power analysis using G Power). They were 18 years of age and older and identified as having experienced the prior loss of at least one pregnancy between 6 months ago until 2 years ago so that growth can properly be attributed to the processing of the trauma (Richard Tedeschi, personal communication, July 26, 2015). This limited timeframe allowed for a more accurate retrospective self-report of PTG thereby

increasing the likelihood that the reported growth is related to posttraumatic growth. Individuals who did not self-identify as having experienced such a loss or who were currently pregnant were excluded from participation.

Data Preparation

Participant data were automatically entered into Statistical Program for the Social Sciences (SPSS; Version 23.0) through the Qualtrics tool. Upon transferring data, standard data validation procedures were conducted prior to formal statistical analysis. Specifically, the Explore function within SPSS was employed to generate statistics on extreme data points, potential outliers, and missing data. Furthermore, the Frequency function within the SPSS-23 analysis package was used to generate frequencies distributions and measures of skew and kurtosis in order to establish the distribution of primary study variables and their appropriateness for parametric statistical testing. If data were not normally distributed, the proper statistical measures were employed to appropriately transform data into a format that is suitable for non-linear analysis.

A varimax rotation was performed to determine the factors in the BCOPE scale. Two factors were extracted based on eigenvalues greater than one and scree plot results. Only items with a factor loading greater than 0.35 and cross-loadings less than 0.2 were retained. This resulted in a Positive Coping Style Scale consisting of Items 2, 5, 7, 9, 10, 14, 15, 16, 23, and 25. The Negative Coping Style Scale consisted of Items 4 and 11. Reliability for the Positive Coping Style Scale (PCOPE) was .84, and reliability for the Negative Coping Style Scale (NCOPE) was .99.

Descriptive Statistics

Descriptive statistics were calculated in the form of frequencies, percentages, means, and standard deviations, as well as a correlation matrix for all quantitative study variables. Descriptive statistics were generated to describe demographic characteristics of participants and aggregate response on all measures. Tables of demographics were developed and aggregated by respondent type to summarize the characteristics of the participants in this study, as well as overall total scores.

Power Analysis

In order to reduce the likelihood of Type II error and optimally assess study hypotheses, an a priori statistical power analysis was conducted to determine the number of participants required for this study. Publically available freeware, G*Power, was used for this purpose (Faul, Erdfelder, Buchner, & Lang, 2009).

A hierarchical regression was used to evaluate the relationship between the predictor variables hope, perinatal grief intensity, family cohesion, flexibility and communication, coping strategies and the criterion variable posttraumatic growth. The number of participants was determined based on a G*Power analysis (Faul, Erdfelder, Lang, & Buchner, 2007). The analysis for this study is based on the following assumed values of α error probability 0.05, power of 0.80, effect size f^2 0.15, and 5 predictors, for a hierarchical regression. Given this analysis, an overall minimum sample size of 92 was required for this study. Given that previous studies did not report effect sizes, it is prudent to expect a smaller predicted effect.

Statistical Analysis

The following is a list of the statistical analysis that were used for each hypothesis:

Hierarchical regression analysis was conducted using a multistep process.

- Step 1: A regression analysis was run using the SPSS curve estimation function, selecting a linear model and related plots for visual inspection of patterns. The results for a linear model fit were assessed using the F statistic and respective p value.
- Step 2: If model fit was appropriate with linear function, a hierarchical regression analysis was run to further assess the variables
- Step 3: If the model fit was not optimally fitted by a linear regression, then a curve estimation function would be utilized with quadratic and cubic transformation functions selected. Model fit would be reviewed using a nonlinear function.
- Step 4: A nonlinear regression analysis would be run.

Hypothesis 1

1. Due to mixed results in previous studies, the results of the current study would be evaluated for a nonlinear relationship based on initial data screening. Individuals who experienced a pregnancy loss and report moderate levels of grief would demonstrate higher posttraumatic growth than those with low or high levels of grief.

Hypothesis 2

2. Family process variables (high cohesion, flexibility, and good communication) would be positively related to posttraumatic growth in individuals who experienced a pregnancy loss.

Hypothesis 3

3. Hope would exhibit a positive relationship with posttraumatic growth in individuals who experienced a pregnancy loss.

Hypothesis 4

4. There would be a positive relationship between active adaptive coping strategies and posttraumatic growth in individuals who experienced a pregnancy loss.

Hypotheses 1–4 were analyzed using a hierarchical regression in which the predictor variables were entered in the following order based on previous research support that indicates them being predictors of PTG: (1) perinatal grief, (2) family relational style, (3) hope, and (4) coping styles. The criterion variable was posttraumatic growth.

Summary

This chapter was dedicated to providing information pertaining to the methodology of the proposed study. This study is a non-experimental, non-randomized cross-sectional study for which the independent and dependent variables under study have been specified and were analyzed by conducting a hierarchical regression. The population of interest for this proposed study, women who have experienced a pregnancy loss, has been detailed along with the methods of recruitment and collection of data. Moreover, the proposed instruments of use have been outlined, providing data pertinent

to the validity and reliability of each psychometric scale. The four hypotheses of the study were also defined, as well as the statistical analysis needed to examine each one.

Chapter 4

Results

The primary purpose of this study was to examine whether factors such as level of perinatal grief, hope, coping style, and family processes predict posttraumatic growth after a pregnancy loss. This study focused on women who self-identified as having experienced a pregnancy loss (miscarriage or stillbirth) between 6 months and 2 years ago. Women completed instruments that measured their levels of posttraumatic growth, perinatal grief, hope, coping style, and family processes. Findings from this study can facilitate mental health professionals and other allied health care providers when working with women after a pregnancy loss in facilitating posttraumatic growth where deemed appropriate. In this chapter, the design of the study will be reviewed, the procedure for data screening will be presented, the descriptive statistics of the sample will be described, and the findings from each of the tested study hypotheses will be presented and discussed.

Statement of Design

A hierarchical multiple regression was used for this study. The four dependent variables of this study were (a) level of perinatal grief, measured by the Perinatal Grief Intensity Scale (PGIS; Hutti et al., 1998); (b) hope, measured by the Hope Scale Revised (HSR; Shorey & Snyder, 2004); (c) coping style, measured by the Brief COPE Inventory (Carver, 1997); and (d) family processes, measured by the FACES IV (Olson et al., 2006). The dependent variable of this study was posttraumatic growth as measured by the

Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1995, 1996). These instruments were administered through the online survey program Qualtrics.

Descriptive Statistics

There were 103 female participants recruited for the present study. A priori power analysis, described in Chapter III, indicated that 92 participants were required to adequately power the study. Participants were women who self-identified as having experienced a pregnancy loss between 6 months ago and 2 years ago and were not currently pregnant.

Table 1 presents demographic data for the overall sample. Participants were between the ages of 18 and 46. The mean age of participants was 32.7 years. The participants identified their educational status, with most reporting at least some college credit. Participants were predominantly White/Caucasian (86%). Participants reported relationship status with an overwhelming majority being currently married and living with partner (90%).

Table 1

*Demographic Characteristics of the Sample**(N = 103)*

	<i>M</i>	<i>f</i>	<i>%</i>
Current Age	32.7	-	-
Week of gestation at loss	20.5	-	-
Relationship Status			
Married and living with partner	-	93	90.3
Single and living without partner	-	2	1.9
Living with partner	-	7	6.8
Divorced	-	1	1.0
Race/Ethnicity	-	-	-
White/Caucasian	-	89	86.4
Hispanic/Latina	-	6	5.8
Asian/Pacific Islander	-	2	1.9
Mixed Race/Other	-	6	5.8
Educational status			
Some high school	-	1	1.0
H. S. graduate or the equivalent	-	7	6.8
Some college credit	-	27	26.2
Bachelor's degree	-	35	34.0
Graduate degree	-	33	32.0
Annual Household Income			
Less than \$25,000	-	6	5.8
\$25,000 to \$45,999	-	13	12.6
\$46,000 to \$74,999	-	23	22.3
\$75,000 to \$99,000	-	21	20.4
\$100,000+	-	33	32.0
Prefer not to answer	-	7	6.8

Information regarding the relationship between variables is presented in Table 2. There was no significant relationship between the Confront subscale of the PGIS and PTGI. This was the only predictor variable not significantly related to PTGI. Confront others is the ability to confront others when necessary during the pregnancy loss experience. When this is high, it is assumed that the individual will have less grief (Hutti et al., 2013). This would explain why the confront others variable is not significantly related to PTGI. Another point that is interesting to consider is the lack of a significant relationship between family communication and positive coping. Positive coping was positively correlated with both of the other variables on the FACES (cohesion and flexibility) but not with family communication. It is unclear why family communication did not have a significant relationship with positive coping.

Table 2
Correlations Between all the Variables in Study Sample

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Prior Infertility Treatment	—										
2. Weeks of Gestation	-0.34	—									
3. PGIS Reality	.013	.336**	—								
4. PGIS Confront	-.052	-.043	-.167	—							
5. PGIS Congruence	.089	.029	-.014	.276**	—						
6. Cohesion	.121	-.155	-.045	.111	.416**	—					
7. Flexibility	.164	-.049	.097	.138	.331**	.767**	—				
8. Family Communication	.168	-.101	-.018	.082	.439**	.827**	.775**	—			
9. Hope	.196*	.088	-.049	.205*	.253**	.337**	.309**	.273**	—		
10. Positive Coping	-.056	.183	.166	.265**	.358**	.301**	.236*	.190	.302**	—	
11. Negative Coping	.098	.217*	.111	-.268**	-.277**	-.189	-.088	-.083	-.063	-.294**	—
12. PTGI	.244*	.293**	.233*	.126	.247*	.240*	.417**	.268**	.274**	.508**	-.132

Note. PGIS = Perinatal Grief Intensity Scale; PTGI = Posttraumatic Growth Inventory.

* $p < .05$. ** $p < .01$.

Prior to conducting inferential statistics, descriptive statistics for the primary variables of the study were also obtained. The statistics of the following variables are presented in Table 3: level of perinatal grief (as measured by the PGIS), coping (as measured by the Brief Cope), hope (as measured by the HSR), family processes (as measured by the FACES-IV), and posttraumatic growth (as measured by the PTGI). These measures are briefly summarized below.

The participants' level of perinatal grief was measured by the PGIS (Hutti et al., 1998). A total score was calculated using a formula provided by the instrument's author. High scores for the Reality subscale indicated feeling that the fetus was more of a baby. High scores on the Congruence subscale indicated a post-loss experience with medical professionals that was in accord with what the participant wanted. High scores on the Confront subscale indicated a stronger ability to confront others when needs were not met after the perinatal loss. Lastly, high scores for the total scale (Perinatal Grief) indicated a stronger grief reaction. Reliability for this scale was .689

Participants' coping was measured by the Brief COPE Inventory (Carver, 1997). Positive and Negative Coping subscales were created using factor analysis. Higher scores on the Positive Coping subscale indicated a stronger ability to use more positive coping styles. Higher scores on the Negative Coping subscale indicated a stronger tendency to use negative coping mechanisms. Reliability on the Total Coping scale was .825. Reliability for the Positive Coping subscale was .842, and reliability for the Negative Coping subscale was .989.

Participants' level of hope was measured by the Hope Scale Revised (HSR; Shorey & Snyder, 2004). Higher scores for the total scale indicated a higher level of hope. Reliability on this scale was .909.

Participants' family process levels were measured by the FACES IV (Olson et al., 2006). Scores were calculated using an Excel file provided by the instrument's developers. A high score on the Flexibility subscale indicated a higher degree of flexibility in the family. A high score on the Cohesion subscale indicated a greater degree of cohesiveness in the family. A high score on the Family Communication subscale indicated a greater degree of good family communication. Reliability for the subscales was as follows, Flexibility was .785; Cohesion was .864; and Communication was .943.

The participants' level of posttraumatic growth was measured by the PTGI (Tedeschi & Calhoun, 1995, 1996). The overall mean score is calculated. High scores indicated greater posttraumatic growth. Reliability for this scale was .941.

Table 3

Descriptive Statistics for Primary Variables

	<i>M</i>	<i>SD</i>
Perinatal Grief	3.40	.327
Coping		
Positive Coping	2.802	.627
Negative Coping	1.421	.812
Hope	94.07	19.20
Family Processes		
Cohesion	28.10	5.37
Flexibility	24.32	5.25
Communication	37.95	8.67
Posttraumatic growth	74.63	23.29

Hypotheses Testing

Demographic variables. Various demographic variables were entered into Step 1 of the hierarchical multiple regression to determine which ones were significant. These variables were chosen based on prior research that indicated that factors could be related to the cognitive processing involved in posttraumatic growth or the shattering of one's assumptive worldview that is a precondition for posttraumatic growth (Janoff-Bulman, 1992; Tedeschi & Calhoun, 2004b). Infertility was chosen as it has been linked to increased difficulty of a subsequent pregnancy loss (Schwerdtfeger & Shreffler, 2009). Weeks of gestation was chosen, as some past research has shown it to be linked to increased severity of negative symptoms in a subsequent pregnancy loss, but the data are still mixed as to whether weeks of gestation relates to level of grief (Hutti et al., 1998; Swanson et al., 2009; Swanson et al., 2007). Even if weeks of gestation does not predict level of grief, it could still independently predict PTG, which was why it was included in the demographic variables being measured. Once this was determined, the analysis was run again including only those demographic variables that were significant. A history of prior infertility treatment as well as the week of gestation in which the pregnancy was lost were both significant variables in predicting posttraumatic growth. History of infertility treatment and weeks of gestation were entered in Step 1 and can be seen in Table 4. The sample multiple correlation coefficient was .40, indicating that these two factors explained 16% of the variance in posttraumatic growth, $F(2, 96) = 9.07, p < .001$. The $R^2\Delta$ for this step is .159.

Table 4

Results of Hierarchical Regression Predicting Posttraumatic Growth

Predictor Variables	<i>B</i>	β	<i>t</i>
Step 1			
Prior Infertility Treatment	15.840	.256	2.730**
Weeks of Gestation	.590	.307	3.275***
Step 2			
PGIS Reality	6.987	.178	1.844
PGIS Confront	4.423	.119	1.265
PGIS Congruence	7.130	.187	1.987*
Step 3			
Cohesion	-.375	-.87	-.516
Flexibility	2.100	.474	3.184**
Communication	-.283	-.105	-.622
Step 4			
Hope	.130	.105	1.115
Step 5			
Positive Coping	16.953	.453	4.892***
Negative Coping	-2.829	-.098	-1.155

Note. $R^2\Delta = .159$ for Step 1, $p < .001$; $R^2\Delta = .086$ for Step 2, $p < .05$; $R^2\Delta = .107$ for Step 3, $p < .01$; $R^2\Delta = .009$ for Step 4, $p > .05$; $R^2\Delta = .158$ for Step 5, $p < .001$.

* $p < .05$, ** $p < .01$, *** $p < .001$

Hypothesis 1. Due to mixed results in previous studies, the results of the current study were evaluated for a nonlinear relationship based on initial data screening. A curve estimation regression analysis was executed to confirm linearity or nonlinearity of relationships. Assuming a nonlinear relationship, it was predicted that individuals who experienced a pregnancy loss and report moderate levels of grief will demonstrate higher posttraumatic growth than those with low or high levels of grief. However, several nonlinear models were run using the SPSS curve estimation function. The nonlinear models for quadratic and cubic functions were not significant; therefore, the analysis proceeded with the standard linear model, which was supported by the linear model analysis. This was also supported by the scatterplot of the data and significant bivariate correlation between the two variables.

Following the entry of the demographic variables in Step 1, Step 2 of the hierarchical multiple regression was run to predict posttraumatic growth from a woman's level of perinatal grief, after accounting for the effects of the demographic variables (prior infertility treatment and week of gestation). Table 4 shows that the set of independent perinatal grief variables significantly predicted the dependent variable, $F(3, 93) = 3.515, p < .05$. The sample multiple correlation coefficient was .49, indicating that approximately 8% of the variance of the posttraumatic growth in the sample can be accounted for by perinatal grief intensity. The $R^2\Delta$ for this step is .086.

Table 4 shows the standardized coefficients, which indicate how much the dependent variable varies with an independent variable when all other independent

variables are held constant. Only the level of congruence was significant ($p < .05$). This analysis suggests that the strongest predictor of PTG is the level of congruence, and level of reality and confront do not add unique variance.

Hypothesis 2. The second hypothesis predicted that there would be a positive relationship between family process variables (high cohesion, flexibility, and good communication) and posttraumatic growth in individuals who experienced a pregnancy loss.

Family process variables (cohesion, flexibility, and communication) were entered into Step 3 of the hierarchical regression. Table 4 shows that the set of independent family process variables significantly predicted the dependent variable, $F(3, 90) = 4.927$, $p < .01$, after accounting for the effects of the two demographic variables. The sample multiple correlation coefficient was .59, indicating that approximately 10% of the variance of the posttraumatic growth in the sample can be accounted for by family process variables. The $R^2\Delta$ for this step is .107.

Table 4 shows the standardized coefficients, which indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant. Only flexibility was significant ($p < .01$). This analysis suggests that the strongest predictor is flexibility.

Hypothesis 3. The third hypothesis predicted that there would be a positive relationship between hope and posttraumatic growth in individuals who experienced a pregnancy loss.

Hope was entered into Step 4, and the hierarchical multiple regression was run to predict posttraumatic growth from a woman's level of hope. Table 4 shows that the independent variable did not significantly predict the dependent variable, $F(1, 89) = 1.243, p > .05$. The $R^2\Delta$ for this step is .009.

Hypothesis 4. The fourth hypothesis predicted that there would be a positive relationship between active adaptive (positive) coping strategies and posttraumatic growth in individuals who experienced a pregnancy loss.

Coping type was entered into Step 5 of the hierarchical regression. Table 4 shows that the independent variable (positive coping) significantly predicted the dependent variable, $F(2, 87) = 14.290, p < .001$. The sample multiple correlation coefficient was .72, indicating that approximately 16% of the variance of the posttraumatic growth in the sample can be accounted for by positive coping, after accounting for the effects of the variables entered in prior steps. The $R^2\Delta$ for this step is .158.

Table 4 shows the standardized coefficients, which indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant. Only positive coping style was significant ($p < .001$). This analysis suggests that the strongest predictor is positive coping.

Summary

The results of the statistical analyses provided partial support for the hypotheses of the study. First it was hypothesized that women with moderate or higher levels of grief would report higher levels of posttraumatic growth. The results of the preliminary analyses indicated that weeks of gestation as well as prior infertility treatment

significantly predicted posttraumatic growth. The results of the hierarchical regression analysis indicated that the level of perinatal grief intensity significantly predicted a higher degree of posttraumatic growth, although the level of congruence was the only significant predictor variables. This analysis suggested that women will exhibit more posttraumatic growth when they have a post loss medical experience that is more congruent with their expectations.

Secondly, it was hypothesized that women who report balanced cohesion, flexibility, and good family communication will report higher levels of posttraumatic growth. The analysis showed that balanced family flexibility significantly predicted posttraumatic growth.

The third hypothesis predicted that women who are high in hope would score higher on posttraumatic growth. This was not a significant step in the model. This indicated that the variable of hope does not contribute any unique variance to the model when all other variables are accounted for.

Lastly, it was hypothesized that women who can utilize active adaptive (positive) coping strategies and styles will report a higher level of posttraumatic growth. Consistent with previous research, the results indicated that women with high levels of positive coping strategies significantly predicted posttraumatic growth. The analysis indicated that women who utilize positive coping styles will experience more posttraumatic growth. Negative coping style was not a significant predictor of posttraumatic growth. Additional insights regarding these findings are discussed in Chapter 5.

Chapter 5

Discussion

This chapter will discuss and interpret the findings of this study, discuss the study's limitations, share clinical implications, and highlight some areas for future research. The present study investigated multiple factors related to women after a pregnancy loss and whether they predicted posttraumatic growth. These factors included: demographic variables such as prior infertility and weeks of gestation; level of perinatal grief; family processes such as cohesion, flexibility, and communication; hope, and coping style such as positive or negative. This study concentrated on women who self-identified as having experienced a pregnancy loss between 6 months and 2 years ago and were not currently pregnant. The purpose of investigating these factors was to develop empirical support for clinicians interested in fostering posttraumatic growth in women who experience a pregnancy loss by providing a deeper and richer understanding of what predicts such growth.

Interpretation of Findings

A preliminary analysis first examined whether demographic factors would predict posttraumatic growth in women who had experienced a pregnancy loss. A variety of such variables were considered for their possible importance in predicting posttraumatic growth. These demographic variables included: age of mother, number of prior miscarriages or stillbirths, history of prior infertility treatment, and weeks of gestation when the pregnancy was lost. These variables were chosen based on previous research

that suggested that (a) the loss has to be of significant magnitude for posttraumatic growth to occur (Janoff-Bulman, 1992), (b) cognitive processing is the primary means through which posttraumatic growth develops (Tedeschi & Calhoun, 2004b), and (c) a view of the fetus as an actual baby increases the magnitude of perinatal grief (Hutti et al., 2013).

The results of a hierarchical regression supported only two demographic variables as significantly predicting posttraumatic growth in this study's model. These were a history of prior infertility and weeks of gestation. Prior infertility is a significant additional challenge for couples experiencing a current pregnancy loss. There has been significant research documenting the increased stress, anxiety, grief, and psychological disorders that prior infertility adds to the burden of a pregnancy loss (Schwerdtfeger & Shreffler, 2009). Those individuals with a history of infertility are more likely to experience a significant blow to their worldview when faced with a pregnancy loss, even if from a medical perspective they are viewed as two discrete problems: one an issue in conception and the other a complication in gestation. This increased level of grief is enough to contribute toward PTG's development. Interestingly, a history of infertility was not significantly correlated with PGIS Reality. Thus people with a history of infertility, although there is more intense early scrutiny and monitoring by medical staff and increased anticipation of the child being planned for, are not more likely to see their pregnancy as a more real baby. Infertility likely creates a split for the prospective parents in that the pregnancy itself is perceived as more real with all the medical monitoring and testing, and this being the culmination of a long-awaited for child. However, the anxiety

and many letdowns in the marathon journey toward this pregnancy make the prospective parents unlikely to attach too strongly to the idea of the pregnancy as a real baby. This is potentially supported by the finding that pregnant mothers with prior infertility have more anxiety, avoidance behavior, and are less prepared for taking home a newborn (Bernstein, Lewis, & Seibel, 1994)

Weeks of gestation was also significantly related in the first step of the hierarchical regression. This can be understood from a number of perspectives. The many methods of increased attention and focus on the fetus that were described earlier will more likely occur in the later stages of pregnancy, as both medical monitoring is increased and society and the prospective parents increase their preparation, both practical (purchasing or creating wish lists for baby and nursery supplies) and celebratory (baby showers). Therefore, when a loss occurs at this later stage it is also more likely that the baby will be perceived as real. This was in fact supported by the significant positive correlation in this study for PGIS Reality and Weeks of Gestation.

The first research question examined by this study asked if level of perinatal grief would be associated with posttraumatic growth after accounting for the effects of the two demographic variables. Prior research by Tedeschi and Calhoun (2004b) has supported the relationship between level of grief and posttraumatic growth. This is assumed to be true because prior research has found that posttraumatic growth only occurs after a tragedy of a proportion that is significant enough to shake a person's benign worldview (Janoff-Bulman, 1992). Therefore, the first hypothesis predicted that women with higher

levels of perinatal grief would report a higher level of posttraumatic growth when compared to women with lower levels of perinatal grief.

The results of a hierarchical regression found that when women reported higher levels of perinatal grief they also reported higher levels of PTG. Specifically, of the three grief subscales, only the level of congruence of medical care with the participants' desires was significant in this step. In relation to posttraumatic growth it could be understood as leaving women with an experience that allows them to move forward in the cognitive processing of the trauma because they are satisfied with how the details of the loss experience and the associated medical care and social support unfolded in the *immediate* aftermath of the loss. It is possible that level of reality did not explain unique variance because it had already been captured by weeks of gestation in the first step of the model. Additionally, the level of ability to confront others when their needs were not being met did not explain unique variance in this model; perhaps because once women have an experience that is congruent with their expectations, they do not have the need to confront others. This is supported by findings from earlier validation studies of the Perinatal Grief Intensity Scale (Hutti et al., 2013). Thus, a substantial percentage of people can have high levels of congruence without needing to confront others (medical staff or family/friends). These results should be interpreted with some caution as the instrument used to assess perinatal grief yielded marginal reliability in this study ($\alpha = .69$).

The second research question was whether there would be a relationship between family process variables such as cohesion, flexibility, and good communication and

posttraumatic growth among women who had experienced a pregnancy loss after accounting for the prior variables in the model. Resilience in the face of trauma is an important component to what allows families to navigate a trauma (Walsh, 2003a). Resilience is composed of many qualities of family functioning (Walsh, 1998, 2003a). Given previous research (Augustine, 2014) that showed that family process variables were positively related to posttraumatic growth, it was assumed that participants in this study with higher levels of these factors would report higher levels of posttraumatic growth. Therefore the second hypothesis predicted that women who reported higher levels of cohesion, flexibility, and family communication would report higher levels of posttraumatic growth when compared to women with lower levels of these family process variables.

The results of a hierarchical regression analysis showed that family process variables overall were related to posttraumatic growth. Specifically, flexibility predicted posttraumatic growth after the effect of the two demographic variables and level of grief was accounted for. This is consistent with earlier research done with tsunami survivors, in which family flexibility predicted posttraumatic growth (Augustine, 2014). Families with flexibility are more likely to be able to view the tragedy as setback to be dealt with, be able to support each other, and grow together by working through the crisis as noted by Olson and Defrain (as cited in Augustine, 2014). It is unclear why family cohesion and communication did not predict unique variance in this study. It is possible that cohesion, which is the emotional connection of a couple (Olson & Gorall, 2003), is not that important in the development of posttraumatic growth. While it can be important in

finding the necessary support in facing the grief and traumatic stress symptoms, it may not be as necessary for the deeply internal and reflective cognitive process proposed for posttraumatic growth's development. This may also be true for family communication nonsignificant relationship in this step of the hierarchical regression model. It appears that the grieving process and meaning making for women after a pregnancy loss is a highly individualized one. There are many contextual factors, such as religion and culture, that will deeply influence the ways in which women will relate to their pregnancy and baby and will also shape the ways in which they will find meaning and be comfortable exploring unique ways of memorializing a baby that society has not yet provided a more structured mourning approach as with a death. Thus, a family being flexible, as the woman navigates her grief and attempts to make meaning, may be a key factor in this PTG developing.

The third research question for this study looked at the relationship between hope and posttraumatic growth. There has been significant research with individuals who are high in hope, and this has demonstrated that those with high hope have an expanded ability for productive cognitive processing, improved problem solving, and better psychological adjustment (Snyder, 2002). Based on this research, the third hypothesis predicted that women who reported higher levels of hope would report higher levels of posttraumatic growth than would women who reported lower levels of hope. While hope was significantly positively related to posttraumatic growth as a bivariate correlation, it did not uniquely predict posttraumatic growth in the hierarchical regression analysis once the demographic, level of grief, and family process variables were accounted for. It is

possible that the construct of hope is too focused on goals and developing alternate paths toward these goals when initial paths meet with resistance and obstacles to be of unique relevance in predicting posttraumatic growth in this model. PTG is not about goals and finding new pathways. If a family's goal was to have a baby, and they lost their baby, then high hope may be relevant toward them finding a new means to conceive and successfully gestate a baby, or even adopt. However PTG is a construct that works differently than simple goal setting and multiple pathways toward the goal.

The final research question queried whether coping style would have a relationship with posttraumatic growth. There has been ample research in the posttraumatic growth literature to support the idea that a positive or active adaptive coping style would be associated with posttraumatic growth (Hegelson et al., 2006; Silva et al., 2012; Zhang et al., 2013). Based on this research, it was hypothesized that women with higher levels of positive coping styles would report higher levels of posttraumatic growth than women with lower levels of positive coping styles or with negative coping styles. The results of the hierarchical regression support this finding, indicating that positive coping is associated with posttraumatic growth among women with a pregnancy loss history. Positive coping can support women in the cognitive flexibility to engage in the sophisticated cognitive processing necessary to achieve posttraumatic growth.

Results from the research questions indicate that when women report higher levels of perinatal grief (congruence), higher levels of family processes (flexibility), and positive coping, they increased their likelihood of developing posttraumatic growth. The

findings suggest that these variables play a weighty role in a woman's development of posttraumatic growth after experiencing a pregnancy loss.

Limitations

There are several limitations to this study. First, the participants in this study were mostly White, married, had at least some college credit, and were middle to upper class in regards to socioeconomic status. Therefore, the results of this study may not be as generalizable to women who do not fit into these categories. Additionally, while from a theoretical perspective men may be able to develop posttraumatic growth after the loss of a pregnancy that they were involved with, given that this study did not enroll any men due to feasibility constraints, the current results cannot be generalized to men.

The second limitation is the possibility of a self-selection bias. The participants of this study were primarily recruited through websites and online forums that were chiefly designed to offer some form of support after a pregnancy loss. As such, these women may have different styles of coping, levels of perinatal grief, levels of family process, and hope than those who chose not to participate or do not even use such forums as a resource. Thirdly, all participants were currently not pregnant due to pregnancy being a potential confound. This excluded a substantial number of potential participants from this study, given that many women between 6 months and 2 years after a pregnancy loss may be pregnant during this time period (indeed the largest group of people who were automatically closed out of the study by Qualtrics were those who endorsed being currently pregnant).

Clinical Implications

There are several clinical implications that can be inferred from the results of this study. The findings suggest that the path toward posttraumatic growth is achieved by a significant amount of women who experience a pregnancy loss. In this regard a pregnancy loss, although not deemed by the mainstream medical community as an actual death or loss of human life, is still a serious enough traumatic event to be experienced like other traumas, and this event can therefore lead toward posttraumatic growth. Thus, as therapists can guide patients who have experienced other traumas toward posttraumatic growth, with the caveats suggested by Calhoun and Tedeschi (1999), they can do so with women who have experienced a pregnancy loss. These caveats include making sure that clinicians and clients understand that posttraumatic growth comes about through struggle, takes time, does not eliminate distress or even stress symptoms, and posttraumatic growth leads to greater resilience, but resilience does not lead to posttraumatic growth. As well, initially there would be an emphasis on assisting bereaved women regulate emotions and manage their considerable distress (Triplett, Tedeschi, Cann, Calhoun, & Reeve, 2012). The treatment need not only focus on the symptoms of psychopathology such as complicated bereavement, anxiety, depression, and PTSD. Rather, the treatment can also work from a strength-based approach and a positive psychology frame, and when relevant and appropriate, posttraumatic growth can be one of the goals explored with the grieving patient (Calhoun & Tedeschi, 1999).

Another important layer of these findings is the possibility that a clinician may assess whether posttraumatic growth is worth exploring with a patient and how to

develop this. This would be a robust example of psychotherapy technique following closely from theory and empirical investigation, which is an ongoing point of contention between academic psychology and psychology in professional practice. In particular, the results of this study suggest that a woman may not be appropriate for a PTG framework if she does not have a sufficiently high level of perinatal grief. This can be quickly assessed utilizing the PGIS to determine the level of perinatal grief, paying particular attention to the reality and congruence subscales. Given that higher levels of perinatal grief indicate a more serious blow to one's worldview, PTG may be a relevant framework for such a patient. This can also easily be administered within a few weeks of the loss. It is worth noting that an app for smartphones is being finalized so that the complicated scoring procedure will be done automatically, thereby generating timely results and not adding an increased burden in a short therapeutic encounter (Hutti, et al., 2016).

Additional factors to consider would be a history of prior infertility, as well as weeks of gestation. These are two simple data points, likely available in the patient's medical record that, based on the findings of the present study, may yield useful information about the prospective patient. Thus, clinicians who specialize in perinatal loss and may work in close proximity to or are embedded in a medical facility's obstetrical department can, in a timely fashion, get a sense of the possible trajectory of longer term outpatient psychotherapy and the range of possibilities.

Further parsing of the results of this study lead to specific guidance once a clinician has established, in collaboration with the patient and at an appropriate time in the course of the therapy, that PTG is an appropriate and agreed upon goal. For many

women, this is a trauma and a loss that takes place precisely in the context of family. While the focus of the full range of the medical care in managing the complications of a pregnancy loss will likely focus wholly on the woman, the psychological aspects of the loss typically take place in the context of the family within which this family-building process was unfolding. That over 97% of the participants in this study reported being married or currently living with a partner supports this idea that for most women, pregnancy loss is a family event and loss. From a psychotherapy perspective, especially from a family systems approach, it would be prudent to offer the therapy to the couple as a family unit wherever possible. Where this is not practical, the trauma can still be understood in the broader family context. In relation to facilitating PTG, family flexibility is something that a therapist can help a patient work toward improving. This would be particularly useful for any patient, and it will also serve the additional value of facilitating the PTG process.

Additionally, the information gleaned from this study about positive or active adapting coping styles will be beneficial for therapists to keep in mind. While there is much research that supports such coping styles for a range of outcomes, this study specifically supports the idea that these coping styles are positively associated for the development of PTG in women after a pregnancy loss. A therapist working to aid a patient in developing positive coping skills and minimizing avoidant or negative coping behaviors would be doing much good in reducing the likelihood of depressive symptoms, anxiety, and general psychological distress (Moskowitz et al., 2009; Taylor & Stanton,

2007). Based on this study, there would now be the added understanding that this could be yet one more means of creating and nurturing the pathway toward PTG.

Lastly, the findings of this study can support those parents, both men and women, in reducing stigma and the pervasive silence around pregnancy loss, providing hope amidst the depths of a painful loss, and in advocating for a range of needs that the field of pregnancy loss needs. There is much silence and stigma surrounding the loss of a pregnancy (Layne, 1997). Many of the reasons for this were discussed earlier. With the knowledge that many women can also experience growth after such a loss across a range of domains perhaps some of the stigma will be reduced as people can, in addition to feeling uncomfortable around the depression and anxiety that can result, *also* connect with the deeply meaningful growth these women could be experiencing. For women in the throes and depth of losing “a part of them and their future and wondering how I will ever go on to trust trying to have another baby” (female participant, age 32, personal communication, December, 2016), knowing that not only can they move forward in life but that they may actually become someone positively transformed by this experience may provide a modicum of hope (this could be true even if they do not in actuality go on to experience PTG).

Lastly, the field of pregnancy loss has been relatively neglected in medical research and serious psychotherapy focus, and the incidence of pregnancy loss, especially late-stage stillbirth has barely been addressed in decades (Blencowe, et al., 2016). While a cause can be found in some cases, many stillbirths happen without any known cause, making prevention efforts difficult. Additionally, society often does not recognize these

losses in ways that acknowledge the depth of many parents' suffering. One example of this would be that in many states parents are not provided a certificate similar to a birth or death certificate when one has a pregnancy loss, nor is this seen as a birth defect that would qualify for further research. According to S. Libsack of the StarLegacy Foundation, while some states have started providing this option, it is still something that women and men in many other states would like to see (personal communication, April 6, 2017). Perhaps research findings such as those from this study could provide support toward helping legislators understand that although not born in the traditional sense, stillborn babies are *still* born in the sense that that they had the ability to profoundly impact the parents' (and friends' and family's) lives in a positive sense, and families have created a legacy around this shadow child.

Recommendations

The goal of the current study was to gain an understanding of some of the predictors that lead to PTG among women who have experienced a pregnancy loss. While this study gives insight into some of these factors, multiple fields of investigation remain. As noted in the limitations, future research could try to recruit a more diverse sample that would allow these results to apply to a broader population, as pregnancy loss cuts across all demographics. Another significant area of future research would be to study men who have experienced a pregnancy loss in their lives. This would be a significant contribution to this field as men have been largely ignored in this area (Bonnette & Broom, 2012), despite the fact that most pregnancy losses occur in the context of a male father. Finding out more about the male experience would be crucial in

helping therapists support men during this difficult time. Men underutilize psychotherapy (Cole, 2013), and it certainly does not help if therapists do not have a comprehensive understanding of how they experience this grief. As one colleague noted, “Many therapists, primarily female therapists, struggle to engage the male partners of those experiencing a pregnancy loss” (L. Chameides, personal communication, March 26, 2015). Engaging men in such research would provide valuable data for all therapists in trying to provide support, including psychotherapy if needed, to men after a pregnancy loss.

Future research could also try to study negative symptoms alongside PTG to better understand the relationship between disorders such as anxiety, depression, and PTSD after a pregnancy loss and PTG. While this research has been done extensively with other trauma populations (McCaslin et al., 2009; McLean et al., 2013), it has only been done in one pregnancy loss study (Krosch & Shakespeare-Finch, 2016). This could provide a more comprehensive picture of both the negative and positive ramifications of a pregnancy loss.

Additionally, future research could put more focus on studying relational components such as cohesion and family communication to more clearly delineate the ways in which they are significant in such a loss. This may be of particular value when doing research with men. Additionally, future research could be conducted using a qualitative methodology, which may lead to better results in including minority women and also more accurately capturing their lived experience. Qualitative research, especially

when conducted in ways that are appropriately designed, can significantly enhance the research outcomes in minority communities (Few, Stephens, & Rouse-Arnett, 2003).

This would be a significant addition to the literature as minority women have higher rates of birth complications due to reduced access to care and institutional and structural racism. This can be seen in research linking structural racism and income inequality with small-for-gestational-age babies (Wallace, Mendola, Danping, & Grantz, 2015). Further research supports this, showing that Hispanic immigrant mothers may, because of acculturation-related processes, and via the process of fetal programming, change the susceptibility for noncommunicable chronic diseases (Fox, Entringer, Buss, DeHaene, & Wadhwa, 2015). It has also been shown that Mexican American women may experience heightened anxiety during pregnancy due to acculturative stress (Preciado & D'Anna-Hernandez, 2016). Lastly, it has been demonstrated that African American infants die at more than twice the rate of European American infants during their first year of life, and stress from racism has been indicated as a factor in the disparate health outcomes (Giscombé & Lobel, (2005).

Lastly, the results of this study can be used to extend the existing research literature in PTG with the full range of trauma populations. What has been learned in this study regarding the role of family process variables, coping style, and level of grief can be used to further develop the conceptual model of how PTG develops after a trauma. These findings may prove of particular value in trauma populations that fit under the umbrella of ambiguous loss such as a family member who was reported missing in action or those who have a family member with a traumatic brain injury. Some of the

psychological factors in these cases are similar to the ambiguity of a pregnancy loss, and as such the mechanism researched in this study could be useful when applied to such ambiguous loss populations.

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Appendix A. Demographics

Do you consider yourself...

- ☐ Caucasian
- ☐ Hispanic or Latino
- ☐ African American
- ☐ Native American or American Indian
- ☐ Asian / Pacific Islander
- ☐ Other _____

Education: What is the highest degree or level of school you have completed? *If currently in school, what is the highest degree you have received at this time?*

- ☐ Some high school, no diploma
- ☐ High school graduate, diploma or the equivalent (for example: GED)
- ☐ Some college credit, no degree
- ☐ Bachelor's degree
- ☐ Graduate degree

Marital status: Are you currently....

- ☐ Married and living with partner
- ☐ Single and living without partner
- ☐ Single and living with partner
- ☐ Divorced

Gender: female _____ male _____

Age: _____ years old.

What was your total household income before taxes during the past 12 months?

- ☐ Less than \$25,000
- ☐ \$25,000 to \$45,999
- ☐ \$46,000 to \$74,999
- ☐ \$75,000 to \$99,999
- ☐ \$100,000+
- ☐ Prefer not to answer

How many total times have you been pregnant? _____ How many total deliveries have you had? _____

How many living children do you have? ____ How old in years is/are your living child(ren)? _____

Did you have living children at the time of the most recent loss? How many?

DEFINITIONS: (The length of a pregnancy is usually 40 weeks)

Miscarriage: Early pregnancy loss/death of a fetus or baby before 20 weeks gestation (includes ectopic pregnancy losses)

Stillbirth: Late pregnancy loss/death of a baby after 20 weeks gestation – but before birth

Neonatal death: baby is born alive but passes away within the first 28 days of life

Together, miscarriage, stillbirth, and neonatal death are considered “perinatal losses”

Considering the perinatal loss you most recently experienced:

What week of pregnancy was it when the loss occurred? _____

In what month and year did the loss occur? _____

Was it a miscarriage? ____ Stillbirth? ____ or a Neonatal death? ____

NOT INCLUDING the loss you most recently experienced:

How many miscarriages have you had in your life? ____

How many stillbirths have you had in your life? ____

How many neonatal deaths have you had in your life? ____

What is your religious affiliation (if any)?

Did you experience the loss between 6 months and 2 years ago?

Have you received psychological counseling or other professional support related to this loss?

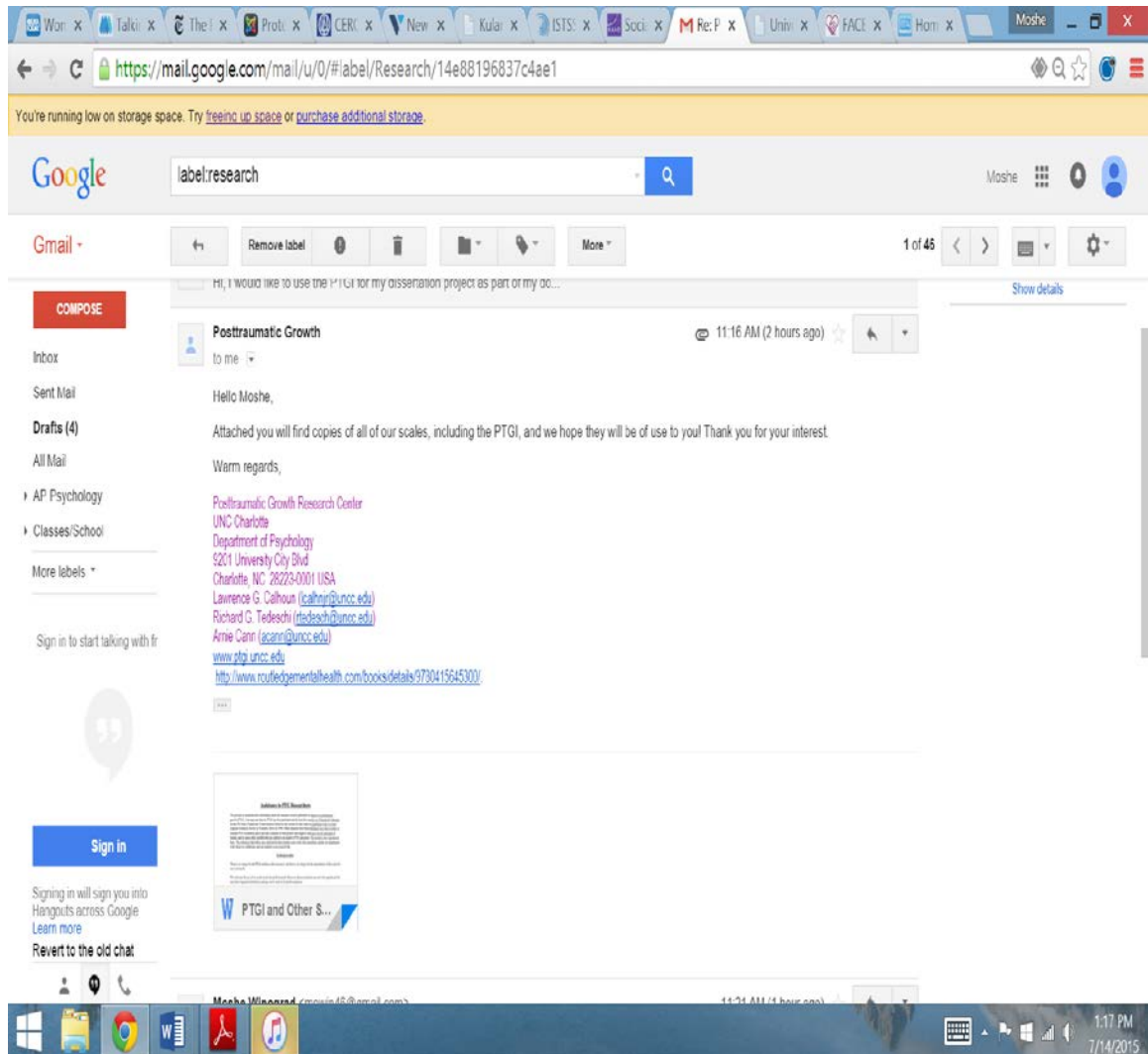
What services did you make use of? (Psychiatrist, Psychologist, other therapist or mental health worker, clergy, other)

Definition

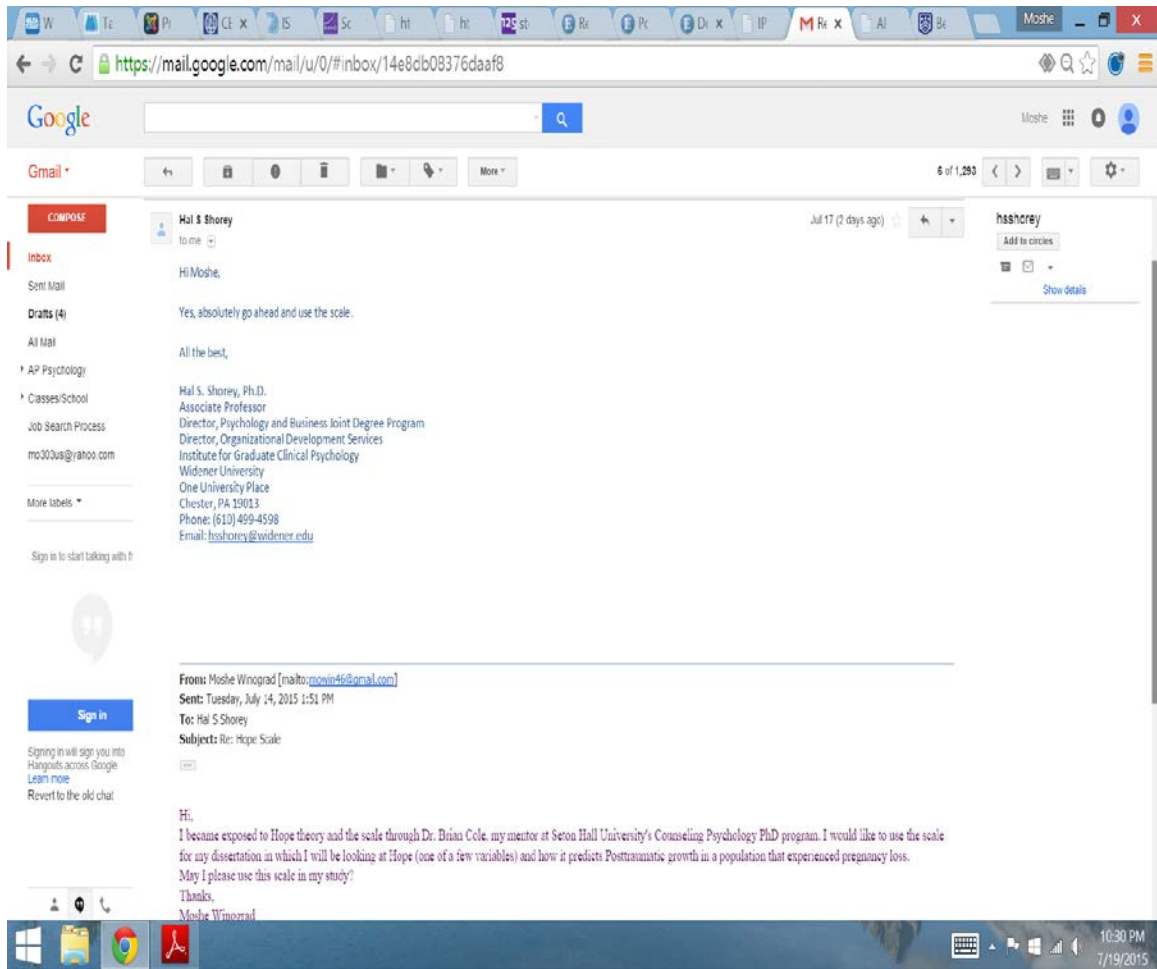
Infertility is defined as the inability to conceive children naturally while trying to do so for a minimum of 12 months

Have you ever received treatments for infertility with this or any other pregnancy?

Appendix B. Permission to Use PTGI



Appendix C. Permission to Use HS-R2



Appendix D. Permission to Use Brief COPE

The screenshot shows a web browser window with the address bar displaying www.psy.miami.edu/faculty/ccarver/sclBrCOPE.html. The browser has multiple tabs open, including 'Wor', 'Talk', 'The', 'Pro', 'CER', 'New', 'Kul', 'IST', 'Soc', 'M Re', 'Uni', 'FAC', 'Hor', 'Uni', and 'Moshe'. The main content area of the browser displays the following text:

We created the shorter item set partly because earlier patient samples became impatient at responding to the **full instrument** (both because of the length and redundancy of the full instrument and because of the overall time burden of the assessment protocol). In choosing which items to retain for this version (which has only 2 items per scale), we were guided by strong loadings from previous factor analyses, and by item clarity and meaningfulness to the patients in a previous study. In creating the reduced item set, we also "tuned" some of the scales somewhat (largely because some of the original scales had dual focuses) and omitted scales that had not appeared to be important among breast cancer patients. In this way the positive reinterpretation and growth scale became positive reframing (no growth); focus on and venting of emotions became venting (focusing was too tied to the experiencing of the emotion, and we decided it was venting we were really interested in); mental disengagement became self-distraction (with a slight expansion of mentioned means of self-distraction). We also added one scale that was not part of the original inventory—a 2-item measure of self-blame—because this response has been important in some earlier work.

You are welcome to use all scales of the Brief COPE, or to choose selected scales for use. Feel free as well to adapt the language for whatever time scale you are interested in.

Citation: Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4, 92-100. [\[abstract\]](#)

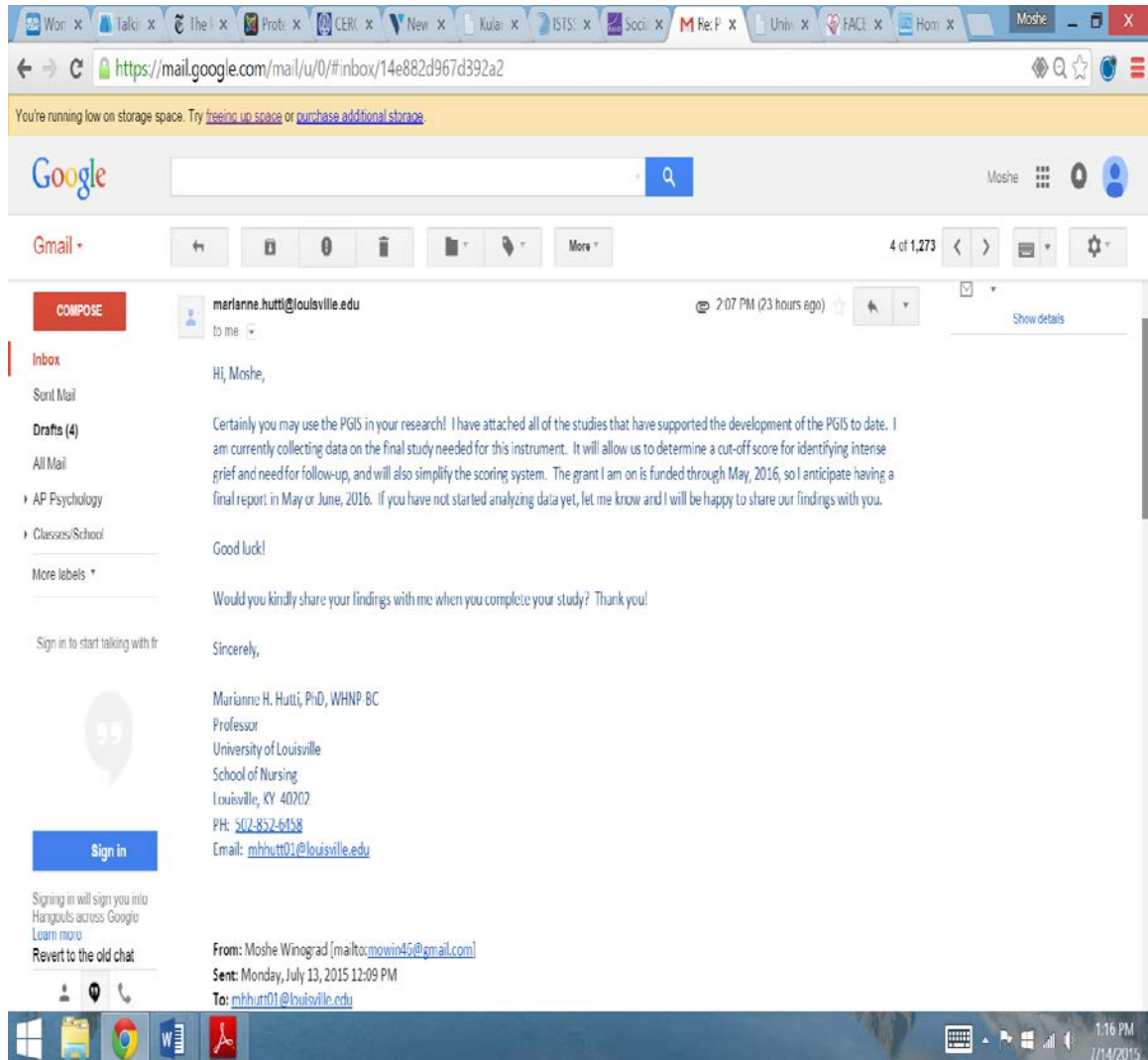
Following is the BRIEF COPE as we are now administering it, with the instructional orientation for a presurgery interview (the first time the COPE is given in this particular study). Please feel free to adapt the instructions as needed for your application.

Scales are computed as follows (with no reversals of coding):

- Self-distraction, items 1 and 19
- Active coping, items 2 and 7
- Denial, items 3 and 8
- Substance use, items 4 and 11
- Use of emotional support, items 5 and 15
- Use of instrumental support, items 10 and 23
- Behavioral disengagement, items 6 and 16

The Windows taskbar at the bottom shows icons for the Start menu, File Explorer, Google Chrome, Microsoft Word, Adobe Reader, and iTunes. The system clock in the bottom right corner indicates 1:19 PM on 7/14/2015.

Appendix E. Permission to Use Perinatal Grief Intensity Scale (PGIS)



Appendix F. IRB Approval



October 10, 2016
Moshe Winograd
1620 Ave I Apt. 220
Brooklyn, NY 11230

Dear Mr. Winograd,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "Understanding the Predictors of Posttraumatic Growth Among Those with a History of Pregnancy Loss". Your research protocol is hereby approved as revised under full review.

Enclosed for your records is the signed Request for Approval form.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final discussion and the vote.

Sincerely,

A handwritten signature in cursive script that reads "Mary F. Ruzicka, Ph.D.".

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Pamela Foley

Office of Institutional Review Board

Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079 • Tel: 973.313.6314 • Fax: 973.275.2361 • www.shu.edu

REQUEST FOR APPROVAL OF RESEARCH, DEMONSTRATION OR RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS

All material must be typed.

PROJECT TITLE: Understanding the Predictors of Posttraumatic Growth among Those with a History of Pregnancy Loss

CERTIFICATION STATEMENT:

In making this application, I(we) certify that I(we) have read and understand the University's policies and procedures governing research, development, and related activities involving human subjects. I (we) shall comply with the letter and spirit of those policies. I(we) further acknowledge my(our) obligation to (1) obtain written approval of significant deviations from the originally-approved protocol BEFORE making those deviations, and (2) report immediately all adverse effects of the study on the subjects to the Director of the Institutional Review Board, Seton Hall University, South Orange, NJ 07079.

Moshe Winograd

Moshe Winograd, M. A.
RESEARCHER(S)

6/17/16

DATE

****Please print or type out names of all researchers below signature.
Use separate sheet of paper, if necessary.****

My signature indicates that I have reviewed the attached materials of my student advisee and consider them to meet IRB standards.

Pamela Foley, PhD

Pamela Foley, PhD
RESEARCHER'S FACULTY ADVISOR [for student researchers only]

6/7/16

DATE

****Please print or type out name below signature****

The request for approval submitted by the above researcher(s) was considered by the IRB for Research Involving Human Subjects Research at the Sept 2016 meeting.

The application was approved ☒ not approved ☐ by the Committee. Special conditions were ☐ were not ☒ set by the IRB. (Any special conditions are described on the reverse side.)

Mary J. Ruzicka, Ph.D.

Mary J. Ruzicka, Ph.D.
DIRECTOR,
SETON HALL UNIVERSITY INSTITUTIONAL
REVIEW BOARD FOR HUMAN SUBJECTS RESEARCH

10/19/16

DATE