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An Investigation of Posttraumatic Growth Experienced By Parents After a Miscarriage

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AN INVESTIGATION OF POSTTRAUMATIC GROWTH EXPERIENCED BY PARENTS

AFTER A MISCARRIAGE

by

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ABSTRACT

AN INVESTIGATION OF POSTTRAUMATIC GROWTH EXPERIENCED BY PARENTS
AFTER A MISCARRIAGE

Barbara Elizabeth Powell Boyd
Old Dominion University, 2019
Chair: Dr. Christopher Sink

This quantitative study examined relationships between demographic and pregnancy loss related predictors and scores on the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). Participants included 355 women and men who had experienced at least one miscarriage before January 1, 2018. Data were collected through an online survey that consisted of the 21-item PTGI and a demographic and pregnancy loss related factors information sheet. Demographic information collected included gender, age, ethnicity, race, annual household income, and relationship status. Pregnancy loss related factors collected included number of pregnancies, number of miscarriages, length of gestation, assistance with conceiving, and whether the participant sought formal mental health support after the loss. Data analysis included descriptive statistics related to demographics and pregnancy loss related factors, correlations, validity and reliability analyses, and multiple regression analyses. Findings indicate several relationships between factors and PTGI scores, as well as predictions made through multiple regression analyses. Finally, limitations and implications for future research are discussed.

Keywords: posttraumatic growth, miscarriage, grief

This dissertation is dedicated to my two beautiful children, Brooklyn Elizabeth and Curtis Andrew, as well as my four angel babies who live in my heart.

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CHAPTER ONE

INTRODUCTION

In this chapter the researcher introduces the study by providing a brief overview of research and theory related to miscarriage and posttraumatic growth, respectively. This includes definitions of terms as they will be used throughout the study. The chapter ends with a statement of the problem and the research question.

Overview

Miscarriage, the spontaneous loss of a pregnancy before the twentieth week of gestation, is the most common pregnancy complication in the United States. Miscarriages, considered traumatic events, occur in 10-25% of clinically recognized pregnancies (American Pregnancy Association, 2017; Bardos, Hercz, Friedenthal, Missmer, & Williams, 2015; Krosch & Shakespeare-Finch, 2017). In a national survey ($N = 1,084$), one third of the participants, regardless of whether they had experienced a miscarriage themselves, considered the experience of a miscarriage as upsetting as the loss of a child (Bardos et al., 2015). Even though the occurrence of miscarriage is extremely common, it is often a lonely, isolated experience for women (Bardos et al., 2015). In a study of privacy expectations in interpersonal conversations, the first of three societal-level rules identified suggested that miscarriages should not be discussed openly (Bute, Brann, & Hernandez, 2019). The participants who had experienced miscarriages did not feel as though they should discuss their loss openly. This idea was supported by their friends who had similar experiences. The aftermath of a miscarriage was described as joining a secret type of club that just is not talked about. Participants even indicated that waiting to announce the pregnancy in order to avoid conversations about miscarriage was an unspoken rule (Bute et al., 2019). Because of these social norms, many expectant parents

choose to wait until after the first trimester to announce the pregnancy. Therefore, miscarriage is often unacknowledged. Furthermore, the societal stigma surrounding miscarriage may contribute to a woman's desire to keep the experience private. In particular, misconceptions about miscarriage contribute to the negative stigma many women face. For example, Bardos et al. (2015) found that 55% of participants in their study believed that miscarriages occur in less than 6% of populations and 22% of participants believed that miscarriages were most often caused by drug, alcohol, or tobacco use during pregnancy. These beliefs do not match the reality of miscarriage, as it is more prevalent than many believe and the causes are often unknown and unrelated to the mother's behaviors. The misconceptions and stigma associated with miscarriage have been permeated through society for many years. One of the goals of this dissertation is to begin to break down the stigma related to miscarriage by educating individuals and communities about the phenomenon of miscarriage. In essence, this dissertation research will provide the groundwork for future studies that will continue the effort to educate communities and reduce the stigma associated with perinatal losses. More specifically, this study will investigate parents' experiences with posttraumatic growth after a miscarriage.

Overview of Posttraumatic Growth

Lawrence G. Calhoun and Richard Tedeschi proposed the construct of Posttraumatic Growth (PTG) in 1996. According to Tedeschi and Calhoun (2004), PTG is the "positive psychological change experienced as a result of the struggle with highly challenging life circumstances" (p. 1). Five primary domains in which people experience change are identified as relationship with others, new possibilities, personal strength, changes to spiritual or religious beliefs, and appreciation of life. Much of the literature related to PTG focuses on the loss of a person with whom the bereaved had a longstanding relationship (Black & Wright, 2012;

Calhoun, Tedeschi, Cann, & Hanks, 2010; Paul et. al, 2010; Tedeschi, Shakespeare-Finch, Taku, & Calhoun, 2018; Winograd, 2017). The loss of a child through miscarriage is different in that the parents never had the opportunity to meet the child. Instead of grieving the relationship, oftentimes the parents are grieving the loss of their hopes, dreams, and aspirations for the child.

To date, researchers have investigated the relationships between PTG and infertility (Paul et al., 2010), reproductive trauma (Winograd, 2017), and miscarriage or stillbirth (Krosch & Shakespeare-Finch, 2017). These studies all found similar results; specifically, two studies found that parents who have living children at the time of the loss were more likely to experience higher levels of PTG (Krosch & Shakespeare-Finch, 2017; Paul et al., 2010). Winograd (2017) and Krosch and Shakespeare-Finch (2017) measured grief intensity related to PTG, finding that higher levels of grief intensity typically indicated lower PTG levels. This phenomenon suggests that an individual may not experience growth immediately after a loss; instead growth tends to occur as people are able to process and move forward in their grief. Similarly, Bassin (2017) interviewed six bereaved parents who had experienced the death of a child between 24 weeks gestation and four years old. Although not asked explicitly about PTG, each participant mentioned growth in at least one of the five domains of PTG.

Research on perinatal loss is becoming more widespread as researchers work to counter the "invisible loss" stigma. Similarly, there is a plethora of research on PTG. Although research in both areas is abundant, there is minimal research on the topics combined, or PTG experienced by parents after a miscarriage. With the lack of overall research, it is not surprising that there is insufficient research related to cultural influences on PTG. Gender is one of the only cultural considerations that has been studied at this point in time, as women report higher levels of PTG than men after traumatic experiences (Black & Wright, 2012). This study attempts to identify

individual factors, such as gender, that contribute to higher levels of PTG, which counselors may be able to use as a guide when working with perinatally bereaved individuals.

Research Aim and Question

This research study investigated the extent to which parents experience PTG after a miscarriage in the first 20 weeks of gestation. For the purpose of this study, research related specifically to miscarriage focused on gender considerations, support systems (medical professionals, friends and family, and support groups), and the overall emotional impact on bereaved parents. This quantitative study examined relationships between demographic and pregnancy loss related predictors and scores on the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996). Demographic factors included age, gender, ethnicity, race, household income, and relationship status. Pregnancy loss related factors included the total number of pregnancies, total number of miscarriages, length of gestation, whether participants have living children, if participants required conception assistance, and whether the participant sought mental health support related to their miscarriage(s). Mental health support includes one or more session with a mental health professional in an individual or group setting. The overall aim of this study was to provide a better understanding of factors related to PTG and miscarriage. Ideally, the information derived from the investigation can be used by mental health professionals to determine the helpful ways to support perinatally bereaved individuals, potentially using strategies to encourage PTG. As such, the principal research question guiding this investigation is: Do the predictor variables (age, ethnicity, race, household income, relationship status, total pregnancies, total miscarriages, length of gestation, living children, conception assistance, and mental health support) explain additional variance in Posttraumatic Growth Inventory (PTGI) total score and the PTGI subscale scores over and above the variance accounted for by gender?

To summarize, this research study expands on previous research related to miscarriage and identifies individual factors related to PTG in the aftermath of a miscarriage. Ultimately, this research supports two overarching goals: (1) to provide support and guidance to counselors who are working with the under recognized and underserved population of the perinatally bereaved, and (2) continuing the social justice movement to destigmatize miscarriage throughout communities through education and resources.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides background information and a synthesis of the research related to posttraumatic growth and miscarriage. First, a synopsis of the theory of posttraumatic growth and the five related domains will be provided. Next a general definition and important facts and figures related to miscarriage are described. Factors such as gender and support will be reviewed particularly as they relate to the experience of a miscarriage, followed by a summary of the overall impact of a miscarriage on functioning. Research related to PTG and grief will also be summarized, before going into the limited research available specifically related to PTG and miscarriage. Finally, research gaps are identified, followed by the aim and research question associated with this study.

Theoretical Orientation

The major theoretical construct guiding this study is PTG following a traumatic event. As defined earlier, PTG refers to the "positive psychological changes experienced as a result of the struggle with highly challenging life circumstances" (Tedeschi & Calhoun, 2004, p. 1). The theory posits that a traumatic event disrupts an individual's world assumptions or beliefs. After a traumatic event, an individual questions their core beliefs. The disruption to beliefs, along with the distress the individual experiences, leads to the desire to create new beliefs in order to seek understanding. The cognitive process involved in understanding the experience is critical to the formation of new world assumptions or beliefs and the individual's growth.

While the term posttraumatic growth was coined by Tedeschi and Calhoun in the mid-1990s, the concept of PTG goes back much further. Writings of the ancient Hebrews, Greeks, and early Christians and teachings of Hinduism, Buddhism, and Islam suggest that suffering and

distress could be sources of positive change (Tedeschi & Calhoun, 1995). More recently, Maslow (1970) insisted that psychologists should focus more attention on researching people who are not struggling emotionally. Maslow's assertion supports the even more recent emphasis on positive psychotherapy. Positive psychotherapy shifts the focus of therapy sessions from problems and pathology to strengths and resources (Overholser, 2015). A counselor practicing positive psychotherapy works to assist clients in finding their strengths and positive assets, even within negative situations (Rashid, 2015). The positive concepts such as those noted above support the concept of PTG. Research on PTG began in the 1980s and has been slowly gaining popularity since. Although research in PTG has increased over the past few decades, there are still many areas to explore.

Janoff-Bulman (2004) suggested three distinct models to explain PTG: Strength Through Suffering, Psychological Preparedness, and Existential Reevaluation. A person may experience changes in all models, but PTG can be experienced within each model. Strength Through Suffering implies that people become stronger as they work through difficult life events. The model Psychological Preparedness suggests that after successfully coping with a traumatic experience, individuals are better prepared to cope with future traumatic events. In ways, Psychological Preparedness is a sort of protectant for the individual. Finally, Existential Reevaluation tends to be less obvious and unexpected. After working through a traumatic event, a person might indicate a greater appreciation for life or find meaning related to the event. This model shares several striking similarities with Tedeschi and Calhoun's five domains. The researcher chose to continue with Tedeschi and Calhoun's domains as their research directly supports the PTGI.

Meichenbaum (2016) emphasizes the positive change that is needed to foster posttraumatic growth and identifies cognitive thoughts and behaviors that lead to this growth. A person who is working towards growth will look for benefits for themselves and others through the situation. The person should also maintain a focus on the future and adjust priorities as needed based on the event. Finally, the person who has experienced trauma should find ways to construct meaning in order to attempt to make something good from the loss. In addition, In addition, Meichenbaum (2016) emphasizes the difference between non-negative thinking, which is a counseling tool used to help trauma survivors create new cognitions, and positive thinking, which tends to gloss over the true impact of the event(s). Non-negative thinking promotes resiliency in clients.

Although the focus of this theory is "growth," researchers emphasize that traumatic events initially elicit negative emotions and distress and this should not minimize the importance of attending to these negative responses to trauma (Calhoun et al., 2010). In fact, a significant amount of research exists around the idea that traumatic events can serve as a catalyst for significant psychiatric disorders. Trauma is experienced differently by each individual and therefore it should be recognized that not every person who experiences trauma will exhibit growth. However, Tedeschi and Calhoun (2004) have found that more individuals experience growth after a traumatic event than those who experience the onset or exacerbation of psychiatric disorders. Although individuals do not typically seek out ways to make meaning or experience growth after traumatic events, PTG often occurs as an individual works through the psychological distress of the trauma and is likely related to an individual's survival instinct (Tedeschi & Calhoun, 2004). A person may simply be trying to find a way to survive after the traumatic experience, which leads to personal growth. Individuals who have characteristics such

as openness to new experiences, extraversion, and optimism are slightly more likely to experience growth than those who do not possess those specific traits. The guiding framework for this study is that individuals may become stronger because of the trauma they have encountered (Calhoun et al., 2010).

Tedeschi and Calhoun (1996) identified five broad domains, or factors, in which changes can be seen as a result of posttraumatic growth. These areas are assessed through the PTGI and include personal strength, relationships with others, new possibilities, appreciation of life, and existential elements such as changes in spiritual and religious beliefs and practices (Tedeschi & Calhoun, 1996). While these areas do not cover every type of change a person may experience, they do capture a wide range of changes that are common among many circumstances. The five domains of PTG are described as follows.

Relationships with Others

The first domain is relationship with others. A person experiencing PTG may report increased positive relationships with others. Most often this relates to close family members and friends, as they may serve as supports to one another through the traumatic event but the experience of a greater connectedness with others may extend beyond close family and friends (Calhoun et al., 2010). For example, a woman who miscarried may join a support group as a means to share about her experience. The shared experience of everyone in the room may be comforting to her, which gives her feelings of closeness to people she has just met.

New Possibilities

The new possibilities domain refers to the responsibilities and relationships left behind by the deceased. The bereaved person is left to find new ways to fill those roles, which opens him or her up to new possibilities of relationships (Calhoun et al., 2010). For example, a person who has

been the primary caretaker for their aging parents may find a lot of extra time for new interests and hobbies after their deaths.

Personal Strength

The third domain, personal strength, refers to the recognition and acknowledgment of living through the traumatic experience. The death of a loved one is a reminder regarding how vulnerable we can be in the face of tragedy. With that in mind, a person may also recognize the strength and courage they have exhibited by continuing on, which may lead to higher levels of self-confidence in all situations (Tedeschi & Calhoun, 1996). Personal strength does not take away from the negative aspects of loss. A person can experience sadness, shock, and other symptoms of distress, while also gaining confidence and strength (Calhoun et al., 2010).

Spiritual Changes

The fourth domain relates to spiritual changes. After a traumatic event, people often seek meaning for the occurrence. In the United States this occurs most often through religion or spirituality. People who have experienced trauma or loss may also desire to reexamine their lives and how they are living (Calhoun et al., 2010).

Appreciation of Life

Appreciation of life, the fifth domain, is exhibited best when people live deliberately and soak in every moment. When a loved one dies, especially unexpectedly, it reminds the bereaved of just how short life can be. While routines may still play a role in daily life, people with an increased appreciation of life are more willing to live spontaneously (Calhoun et al., 2010). Sometimes the loss of a loved one gives the bereaved a reminder to set time aside for the things that are important to them.

In the following section, the research pertaining to miscarriage, PTG and grief, PTG and miscarriage will be discussed.

Literature Review

Miscarriage

Miscarriage is the most common pregnancy complication in the United States (American Pregnancy Association, 2017; Bardos et al., 2015). There are two factors that have been studied extensively and seem to consistently influence the way a person processes the experience of a miscarriage: gender and support. In the next section gender considerations will be discussed, followed by support. Research related to support has generally fallen into three categories: support from medical professionals, family and friends, and support groups.

Gender considerations. Parents report the experience of a miscarriage differently based on gender. The female, or carrying mother, typically attaches to the pregnancy sooner than the father, thanks to early pregnancy symptoms, making the attachment stronger at an earlier stage (Hutti, Armstrong, & Myers, 2013). During this early stage of pregnancy, the mother often views the fetus as an extension of herself (Broquet, 1999). When a pregnancy ends in an early miscarriage, the expectant mother may feel as though she has lost part of herself. Since this feeling of attachment is often isolated to the woman carrying the baby, her partner does not usually exhibit the same level of emotional response to the loss (Broquet, 1999; Nelson, Robbins, Andrews, & Sweeny, 2015). Women tend to have more intense levels of grief following a miscarriage than men (Brier, 2008). Rates of depression and anxiety are higher in women following miscarriage as compared to the general public. Broquet (1999) found that women are most likely to experience symptoms of depression and/or anxiety within 1-12 weeks after the loss. Multiple perinatal losses are positively associated with increased symptoms of

depression (Janssen, Cuisinier, de Graauw, & Hoogduin, 1997; Nelson et al., 2015). As compared with women, men experiencing a miscarriage tend to cry less, be less impacted by other pregnant women, and have less of a need to talk about the miscarriage. Men reported putting their feelings aside to help their partner deal with grief (Brier, 2008). Additionally, men feel as though they should not talk about miscarriage as it is an emotional topic and the societal expectation is that men do not show much emotion (Bute et al., 2019). Grief after a miscarriage is similar to grief after any significant loss in that it typically reduces in intensity, and levels of anxiety and depression return to that of the general public within a year of the loss (Brier, 2008; Krosch & Shakespeare-Finch, 2017).

Support. The importance of emotional support after a miscarriage is often overlooked. From a review of the literature, common support systems that bereaved parents rely on include medical professionals, family and friends, and support groups.

Medical professionals. Bassin (2017) interviewed six bereaved parents who had lost their children between 24 weeks gestation and 4 years old. All of the participants indicated that the emotional support provided by the hospital staff was crucial in helping them process their grief. Several participants believed that the medical professionals did not acknowledge the magnitude and gravity of their loss, therefore leaving parents wondering if their own responses were overreactions. Bardos et al. (2015) reported that only 45% of respondents ($N = 160$) who had experienced a miscarriage felt they received adequate emotional support from the medical community. The lack of support can show itself in many ways, from doctors not reading a chart ahead of time to know about the loss to having a bereaved patient sit in an obstetric waiting room with pregnant patients.

Admittedly, all parents do not need or desire the same level of emotional support. Bassin (2017) emphasized how important it is for medical professionals to allow the bereaved to guide their responses. In addition to overall increased empathy and awareness, bereaved parents offered several suggestions to increase support from the medical community. One suggestion was that hospitals create community rooms specifically for bereaved parents. This would give bereaved parents a private, comfortable space to begin processing their grief in the moments after the death. It is also important to consider that mothers of late-term miscarriages or stillbirths often need to remain under hospital observation for a few days after delivery. Parents mentioned the pain associated with rooming next to families celebrating new life and being surrounded by the cries of newborns after their loss. Providing rooms away from the mother-baby unit is recommended to make the bereaved parents' hospital stay more comfortable. Gestures such as pictures, footprints, or other keepsakes from hospital staff were very important to the bereaved parents of infants, providing a comforting validation of their child's life (Bassin, 2017).

Family and friends. While Bardos et al. (2015) found that respondents did not feel supported by the medical community, most reported being satisfied with the emotional support they received from close friends and family members after their miscarriage. In fact, Bute et al. (2019) found that participants who experienced multiple miscarriages relied greatly on their friends and family members for support through subsequent pregnancies. Although participants felt supported, friends and family members are often not sure how to best support the bereaved parents (Law, 2014). In an effort to help friends and family members best support loved ones, Law recommends implementing psychoeducational support groups for the loved ones of the bereaved parents. These sessions could help friends and family members better understand the

loss and suggest ways to support the parents, from cleaning the house or watching the children to simply being a listening ear (Law, 2014).

   Support groups. Many women also find emotional support through miscarriage support groups. Law (2014) used Facebook support groups for her research and notes the large number of groups available for women who have experienced perinatal losses. This alone suggests that many women seek social support from others with shared experiences. Many women found comfort in sharing their stories through research, blogs, and personal contact (Law, 2014). Bassin (2017) reported similar results in that women appreciated the support found through online forums, blogs, and social media. Half of the participants ($N = 6$) in Bassin's (2017) study attended in person support groups regularly after the loss of their child. The participants in both studies noted the importance of the emotional support from people who were going through similar bereavement and indicated it helped them to feel less isolated.

Overall impact. Bardos et al. (2015) found that one third of the participants in their study, regardless of whether they had experienced a miscarriage themselves, would consider the experience of a miscarriage as upsetting as the loss of a child. Similarly, in a study of mothers who have experienced a perinatal loss, Krosch and Shakespeare-Finch (2017) established that most people view the death of their unborn child as a traumatic event. With miscarriage defined and factors related to the way a person processes the experience explored, the next section summarizes research related to the relationship between PTG and grief.

Posttraumatic Growth and Grief

   Tedeschi and Calhoun (1996) posited that distress occurs when assumptive beliefs are challenged (see Figure 1). Assumptive beliefs are personal to individuals and are typically formed based on a combination of cultural influences and previous life experiences. These

beliefs help individuals understand the impact of different events and how the individual can influence the events (Calhoun et al., 2010). Using the death of a loved one as an example, a person will experience distress and find the loss to either align with or challenge their assumptive beliefs. A person who believes that death is a natural part of life will find the loss to be consistent with their world view. Currier, Holland, and Neimeyer (2006) reported that bereaved individuals are able to find meaning more quickly after the death of someone close to natural causes, as opposed to violent circumstances. The natural death of someone older who has lived what was perceived to be a full life may also be more consistent with a person's assumptive beliefs. When the loss is consistent with a person's assumptive beliefs, they are able to use their beliefs to lessen their emotional distress and return to a state of well-being with relatively little cognitive work.

Conversely, a person who struggles to understand death may feel that their beliefs are being challenged. Relating this to the current study, a parent who has miscarried may struggle to understand why this happened to them, especially if they possess a core belief that children should not die before their parents. These individuals have to work through the challenges to their world views and construct new ones, while also working through the distress directly related to the loss (Calhoun et al., 2010; Tedeschi & Calhoun, 2006). Individuals who are struggling with understanding the death of a loved one will ruminate in two distinct ways. Initially, ruminations will consist of intrusive, often uncontrolled, thoughts and images. As an individual begins to process and accept the life change, ruminations become more intentional and reflective. Higher levels of PTG are reported by individuals who engage in deliberate, constructive ruminations, as they are able to establish new assumptive world beliefs. Individuals

who struggle to establish a new assumptive world view often experience continued intrusive thoughts and lower levels of PTG (Calhoun et al., 2010).

The *Core Beliefs Inventory* (CBI: Cann et al., 2010) is an instrument used to assess the degree to which a stressful event leads to the reexamination of core assumptions. Research conducted with the CBI has found that the level of disruption to core beliefs is the best predictor of PTG. The more disruption to core beliefs that a person experiences, the greater the opportunity for PTG. Ultimately, the more effort an individual has to put in to processing grief and reevaluating their world views, the greater the likelihood, and extent, of posttraumatic growth (Calhoun et al., 2010; Tedeschi & Calhoun, 2006).
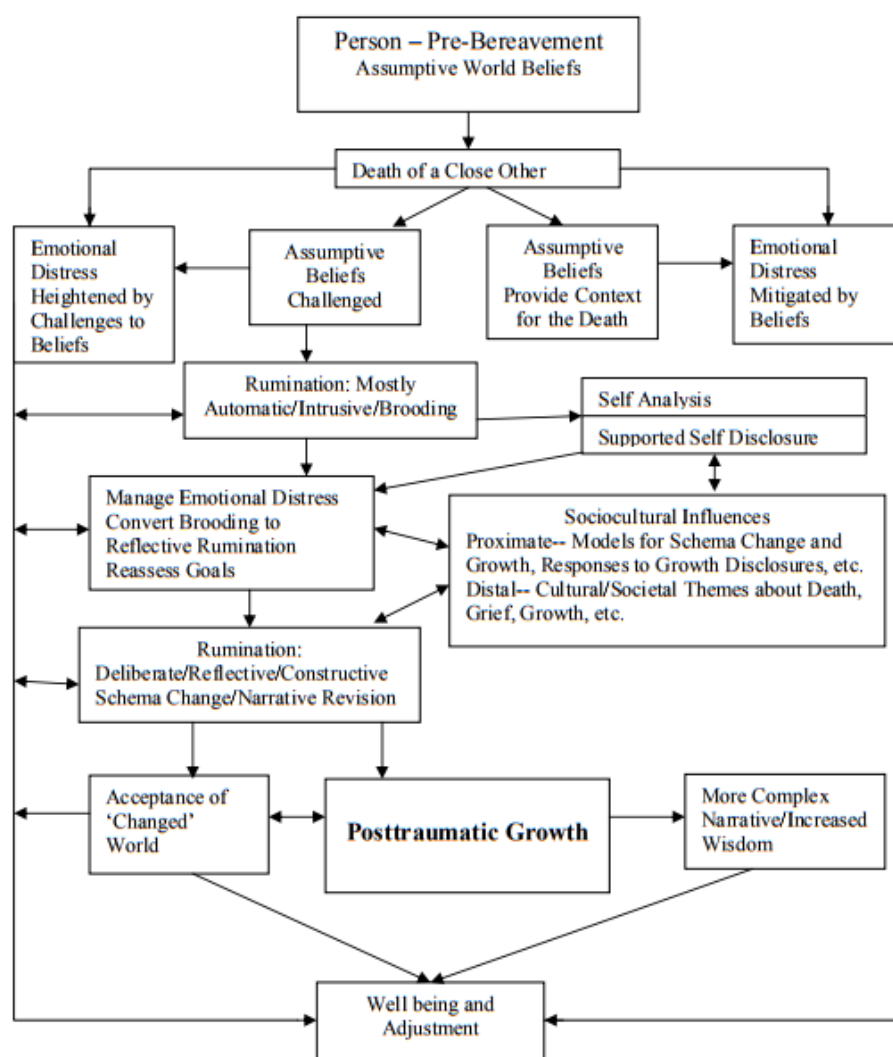
Figure 1. A model of growth in grief (Calhoun et al., 2010).

Posttraumatic Growth and Miscarriage

Much of the literature related to PTG focuses on the loss of a person with whom the bereaved had a longstanding relationship (Black & Wright, 2012). However, very little research exists related to PTG after a perinatal loss, making this an ideal area for study. The relevant literature is summarized here. Paul et al. (2010) conducted a study with 121 individuals who were experiencing infertility. The researchers used a cross-sectional design to measure levels of PTG and found that individuals struggling with infertility can experience PTG. Live births were

positively associated with PTG, as men and women who have live children, either before or after the loss, were more likely to experience PTG than those who do not (Paul et al., 2010). A miscarriage is not always an indication of infertility, but the sense of loss and loneliness experienced by the bereaved parents is similar.

Additionally, Krosch and Shakespeare-Finch (2017) conducted a study of 374 women who had a miscarriage (before 20 weeks gestation) or stillbirth (20+ weeks gestation). The researchers employed a hierarchical regression to analyze the variance between predictors. Loss context factors, such as the length of gestation and having children prior to the loss were weakly, but positively, associated with PTG. These factors accounted for 6.5% of the variance in PTGI scores. Additionally, greater core, or assumptive world, belief disruption was associated with higher PTGI scores, explaining an additional 5.15% of the variance in PTGI scores. Lastly, the higher the perinatal grief scores as measured by the Perinatal Grief Scale (PGS; Toedter, Lasker, & Alhadeff, 1988), the lower the PTGI scores. More intense grief explained an additional 12.53% variance in PTG. Overall, the researchers found that women reported moderate levels of PTG after a perinatal loss. The factors that were most impacted were appreciation of life, personal strength, and relating to others. The factor least impacted by pregnancy loss was spiritual change (Krosch & Shakespeare-Finch, 2017). This may be related to individual reactions to loss, as some people seek understanding through spirituality and religion after a loss while others may question or reassess their beliefs (Cowchock, Lasker, Toeder, Skumanich, & Koenig, 2010).

Research Gaps

While there is much research in the literature on PTG as well as perinatal loss, there are few studies that examine the impact of perinatal loss on PTG. Additionally; further research is

needed to validate the use of the PTGI to assess growth after a perinatal loss, to include different types of losses (e.g., miscarriage, stillbirth, abortion). With the lack of overall research, it is not surprising that there is insufficient research related to cultural influences. Gender differences related to PTG is the only cultural consideration reported in the literature. Women report higher levels of PTG than men after traumatic experiences (Black & Wright, 2012).

Research Aim, Question, and Null Hypothesis

To reiterate, this quantitative study identified key relationships between demographic and pregnancy loss related predictors and the PTGI total score, along with the scores from each of the five domains, or factors. Results of this study may provide mental health professionals with a better understanding of factors related to PTG and miscarriage. With the information, these professionals may be able to determine effective ways to best support perinatally bereaved individuals.

In terms of the overall research question, the following was explored in the study: Do the predictor variables (age, ethnicity, race, household income, relationship status, total pregnancies, total miscarriages, length of gestation, living children, conception assistance, and mental health support) explain additional variance in Posttraumatic Growth Inventory (PTGI) total score and the PTGI subscale scores over and above the variance accounted for by gender? Concomitantly, the null hypothesis was: none of the demographic and pregnancy loss related variables that serve as predictors (independent variables or IVs) explain a significant portion of variance over and above gender in total PTGI and scale scores. The next section, chapter 3, discusses the research method used in the dissertation.

CHAPTER THREE

METHOD

As aforementioned, the purpose of this quantitative study was to provide mental health professionals a fuller appreciation of factors linked with PTG and miscarriage. With this information, researchers, practitioners, and educators can collaborate to create well-informed best practices for working with patients who have experienced a miscarriage. The following sections review the study's method, detailing the research design and associated variables. Additionally, more information about the participants, instrumentation, procedures, and data analyses are provided.

Research Design and Variables

This study employed a predictive/correlational research design. A correlational research design was appropriate as this study examined multiple variables at one point in time (Field, 2009). The correlational research design allowed researchers to investigate the relationship between two or more variables (Creswell, 2014).

The predictor variables in this study were largely demographic in nature, including age, gender, ethnicity, race, household income, and relationship status. Variables related to the loss were also used as predictors. These included: total number of pregnancies, total number of miscarriages, length of gestation, whether participants have living children, if the participants required assistance conceiving, and whether the participant sought mental health support related to their miscarriage(s). For the purpose of this study, mental health support includes one or more session with a mental health professional in an individual or group setting. The session(s) could occur either online or in person and must be directly related to the miscarriage. The criterion variables in the study were the overall PTGI score and the score of each of the five factors:

personal strength, relationships with others, new possibilities, appreciation of life, and spiritual change. The researcher looked for significant relationships between the predictor and criterion variables.

Population, Sample/Sampling, and Participants

It is estimated that between 750,000-1,000,000 of clinically recognized pregnancies end in miscarriage in the United States annually (Bardos et al., 2015). The researcher used a cluster sampling design to identify informal miscarriage support groups, through social media outlets including Facebook, Reddit, Instagram, and WordPress. Once potential groups were identified, the researcher used online, informal support groups on the social media sites to form a nonprobability, or convenience, sample. Nonprobability sampling is based on the convenience and availability of the respondents (Creswell, 2014). The survey link was posted in seven Facebook groups and two Reddit pages, as well as tagged in a WordPress blog and three Instagram posts and stories. Snowball sampling was used to recruit additional participants in order to reach an adequate sample size. Specifically, the researcher recruited participants from personal social media outlets and invited others to share the survey request. The survey link was posted publically four times on the researcher's personal Facebook page and the posts were shared a total of 48 times by others. In addition, three pregnancy loss support group facilitators were contacted and asked to distribute information about the study to the participants of their in-person support groups. One support group was local to the researcher, while the other two were national organizations.

A statistical power analysis using a-priori sample size calculator for hierarchical multiple regression was conducted based on the assumed values of α error probability 0.05, power of 0.8, and an effect size of 0.4. The statistical power analysis suggests that a minimum of 55

participants were needed for this hierarchical regression (UCLA, 2018). After screening, cleaning, and accounting for outliers and missing data, the total sample size for this study was 355.

Participants for this study consisted of men and women who have experienced the death of a child through miscarriage before the twentieth week of pregnancy. All participants were at least 18 years old. There were no restrictions on ethnicity, race, or other demographic factors. Demographic information collected from each participant included: age, race, ethnicity, gender, household income, and relationship status. In addition, participants were asked to identify how many pregnancies and miscarriages they have experienced, the length of gestation related to the miscarriage, whether they have living children, whether they required assistance conceiving, and whether or not they sought mental health support related to their miscarriage(s). The population sample consisted mostly of non-Hispanic/Latino(a), white, married females with an average age of 33.52. See tables 1- 12 for demographics of the sample.

Table 1

Participant Gender

	Frequency	Percent
Female	337	94.9
Male	7	2.0
Missing	11	3.1
Total	355	100.0

Table 2

Participant Age

	Frequency	Percent
18-29	89	25.1
30-33	89	25.1
34-37	82	23.1
38-59	82	23.1
Missing	13	3.7
Total	355	100.0

Table 3

Participant Ethnicity

	Frequency	Percent
Not Hispanic or Latino/a	317	89.3
Hispanic or Latino/a	21	5.9
Missing	17	4.8
Total	355	100.0

Table 4

Participant Race

	Frequency	Percent
American Indian or Alaska Native	1	.3
Asian	3	.8
Black or African American	4	1.1
White	314	88.5
Missing	33	9.3
Total	355	100.0

Table 5

Participant Household Income

	Frequency	Percent
Up to $49,999	93	26.2
$50,000-$99,999	117	33.0
$100,00 and up	120	33.8
Missing	25	7.0
Total	355	100.0

Table 6

Participant Relationship Status

	Frequency	Percent
Single	9	2.5
Married	282	79.4
Committed Relationship	45	12.7
Divorced	7	2.0
Missing	12	3.1
Total	355	100.0

Table 7

Participant Total Pregnancies

	Frequency	Percent
1	33	9.6
2	63	17.7
3	90	25.4
4	65	18.3
5	38	10.7
6+	53	14.9
Missing	13	3.7
Total	355	100.0

Table 8

Participant Total Miscarriages

	Frequency	Percent
1	156	43.9
2	85	23.9
3	56	15.8
4+	44	12.4
Missing	14	3.9
Total	355	100.0

Table 9

Participant Length of Gestation

	Frequency	Percent
3-6 weeks	73	20.6
7-8 weeks	80	22.5
9-10 weeks	79	22.3
11-19 weeks	90	25.4
Missing	33	9.3
Total	355	100.0

Table 10

Living Children

	Frequency	Percent
Yes	257	72.2
No	90	25.4
Missing	8	2.3
Total	355	100.0

Table 11

Participant Conception Assistance

	Frequency	Percent
No	301	84.8
Yes, resulting in miscarriage	28	7.9
Yes, resulting in live birth	15	4.2
Missing	11	3.1
Total	355	100.0

Table 12

Participant Mental Health Support

	Frequency	Percent
Yes	68	19.2
No	270	76.1
Missing	17	4.8
Total	355	100.0

Instrumentation

This section will describe the instruments used to gather data from participants. Data were collected for this study through the PTGI and a demographic and pregnancy loss related factors survey. Participants read the informed consent sheet before opting in to the study. In addition, all participants reported that they were 18 years of age or older and had experienced a miscarriage before January 1, 2018.

PTGI

After choosing to participate in the study, participants were presented the PTGI. The PTGI is a 21-item continuous scale that measures growth-related change reported by individuals who have experienced trauma (Tedeschi & Calhoun, 1996). Total PTGI scores range from 0-84. The PTGI includes five subscales: personal strength, relationships with others, new possibilities, spiritual change, and appreciation of life. A principal components analyses (PCA) identified the 21 items and five factors used in the current PTGI (Tedeschi & Calhoun, 1996). More recently,

Taku, Cann, Calhoun, and Tedeschi (2008) conducted the first confirmatory factor analysis

(CFA) with a large sample (N = 926) of American adults. The researchers compared five models

and found the initial five factor model to be the best fit. Internal consistency was found in the 21-

item PTGI and within each factor: 21-item scale (α = 0.90), Relationships with Others (α = 0.85),

New Possibilities (α = 0.84), Personal Strength (α = 0.72), Spiritual Change (α = 0.85), and

Appreciation of Life (α = 0.67) (Tedeschi & Calhoun, 1996). Due to the low alpha coefficient (<

0.80), the researcher recalculated Appreciation of Life (α = 0.72) using the current sample. The

researcher kept the subscale in the analyses since the alpha coefficient was higher in the current

sample than the instrument reliability check. Additionally, the correlations between an individual

item and the remaining 20 items were all in the moderate range, with reliability coefficient

ranging from 0.35 - 0.63 (Tedeschi & Calhoun, 1996). Test-retest reliability was also acceptable

at r = 0.71 for the 21-item PTGI. The test-retest reliability for the factors ranged from r = 0.65-

0.74, except for Personal Strength (r = 0.37) and Appreciation of Life (r = 0.47) (Tedeschi &

Calhoun, 1996). Concurrent validity was established through The Marlowe-Crowne Social

Desirability Scale, the Life Orientation Test (LOT), the NEO Personality Inventory, and a

measure of religious participation. The researchers found that the PTGI was not related to social

desirability, although respondents who reported greater Appreciation of Life did respond in a less

socially desirable fashion (r(318) = -.15, p < .01) (Tedeschi & Calhoun, 1996). The PGTI was

positively correlated with the LOT's measure of optimism (r(449) = .23, p < .01), the religious

participation scale (r(237) = .25, p < .01), and the NEO's subscales of extraversion (r(325) = .29,

p < .01), openness (r(325) = .21, p < .01), agreeability (r(325) = .18, p < .01), and

conscientiousness (r(325) = .16, p < .01).

The researcher received permission to use the PTGI through email on Friday, November 3, 2017. See Appendices A and B for permissions and the PTGI, respectively. All items on the PTGI were set as forced choice by the researcher.

Demographics

Immediately following the 21-item PTGI, participants were presented with the demographic information sheet. Information collected from this form included age, gender, ethnicity, race, income, and relationship status. Pregnancy loss related information such as time since the miscarriage, number of miscarriages, number of living children, and relationship to child was also requested (see Appendix C). Although participants were encouraged to complete the demographic questions, they were optional.

<div align="center">

Procedures

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The researcher conducted a pilot study in June 2018 and December 2018 to assess participants' reactions to the PTGI and demographic sheet, respectively. Participants included seven females and two males who have experienced a miscarriage within the past two years. All participants reported that the PTGI was relatively easy to complete and did not feel that it evoked any negative emotions. Additionally, the participants found the demographic sheet to be straightforward. One participant stated she did not understand the purpose for collecting the demographic information, but was still comfortable responding to the questions. The pilot participants all agreed that providing support resources following the assessment could be beneficial to participants, but none felt they personally needed the resources.

Before collecting data, the research plans were approved by Old Dominion University's Institutional Review Board (IRB). Once approval was granted, the researcher identified and joined, as a researcher, miscarriage support groups on Facebook and Reddit. The researcher

posted information about the study on the group pages with a link to Qualtrics, an online survey tool. The link was also posted on the researcher's personal Facebook and Instagram pages and WordPress blog. The survey link was available from January 23, 2019- February 15, 2019. Once participants clicked the link, they had access to the cover letter and informed consent, the PTGI, and the demographic information sheet. The cover letter included information about the study, as well as informed consent (see Appendix D). Potential negative implications, such as retraumatization, were noted in the cover letter. Participants had the option to participate and were able to opt out of the survey at any time. The researcher included resources at the end of the survey for participants who wanted or needed extra support, such as national miscarriage support group information (see Appendix E). Identifying information, such as name, were not collected in order to maintain confidentiality and anonymity. Additionally, all data collected have been stored on the researcher's password protected computer and will be saved for three years and then deleted.

Data Analysis

The researcher transferred all data collected from the Qualtrics questionnaire to IBM SPSS. Once in IBM SPSS, the researcher screened and cleaned the data. A total of 509 surveys were initiated by respondents. Responses from participants who did not meet the criteria for the study (i.e., 18 years of age or older and have experienced a miscarriage before January 1, 2018), those who did not complete the PTGI, and those who experienced a loss after 20 weeks of gestation were removed. Additionally, 95 responses were removed from the results because the survey was initiated but no items had responses. Qualtrics provided this information. After checking and accounting for missing data and outliers using SPSS functions, the final sample size was 355. Missing values were coded in order to be accounted for throughout the analyses.

Next the researcher prepared the variables for descriptive and inferential analyses. First the researcher combined individual items on the PTGI to obtain the total PTGI score and scores for each of the five factors. See Appendix B for a detailed list of the item/factor matchings. The researcher then renamed variables for clarity, grouped variables for simpler categorization, and dummy coded categorical variables (Field, 2013). Variables that were dummy coded included gender, age, ethnicity, race, income, relationship status, number of pregnancies, number of miscarriages, length of gestation, living children, and mental health support.

Initially the researcher planned to employ a hierarchical multiple regression (HMR) to support the research question, which would allow her to determine the total influence of each variable on the outcome while controlling for gender (Keith, 2015). Using HMR, predictor variables can be listed in a hierarchical order based on research. Relating this to the current study, research suggests that women report higher experiences of PTG than men (Vishnevksy, Cann, Calhoun, Tedeschi, & Demakis, 2010). Additionally, women report stronger emotional reactions after a miscarriage than men. Due to a largely unequal distribution in responses between females ($n = 337$) and males ($n = 7$), the researcher did not use the statistical procedure. The unequal distribution was anticipated by the research team, but the gender variable was retained through data collection due to the importance of the topic. Several other predictor variables were unequally distributed and therefore left out of further analyses. These included ethnicity, race, relationship status, conception assistance, and mental health support.

In consideration of the unequal distributions noted above, the predictor variables used in further analyses included age, household income, number of pregnancies, number of miscarriages, and length of gestation. The researcher identified correlations between these predictor variables and the criterion variables and then employed a simultaneous multiple

regression between the criterion and predictor variables that were correlated. The simultaneous multiple regression analysis provided the overall effect of all the variables and the effect of each variable independently (Keith, 2015). The simultaneous multiple regression analysis allowed the researcher to understand which predictors account for the most variance in each of the criterion variables.

In summary, this chapter described the methodology employed by this study. Included in these descriptions were the research design, population and sampling, procedures, instrumentation, and the first steps of data analysis. The following chapter summarizes the findings of data analyses.

CHAPTER FOUR

RESULTS

The purpose of this study was to identify individual factors related to PTG in the aftermath of a miscarriage. As indicated previously, the researcher largely employed a correlational research design and produced a multiple regression model to address the research question. This chapter includes a report of data analysis techniques, descriptive statistics, correlations, validity and reliability analyses, and multiple regression analyses. All analyses were conducted using IBM SPSS 24 and Amos Graphics.

Data Analysis

Data Cleaning and Assumptions

After transferring the 509 initiated survey responses into IBM SPSS (version 24), the researcher removed partial responses and invalid data. Missing data analysis was conducted, and appropriate measures taken (e.g., recoding). Additionally, all analyses were conducted to exclude cases listwise, so that missing values would not impact the specific analysis. This allowed the researcher to maximize responses (Field, 2013). For example, a participant who did not disclose age or race, but did respond to the rest of the demographic items, the case was used in all analyses except those that include age or race. Next, the researcher employed Mahlalanobis Distance analysis to identify multivariate outliers within four of the predictor variables (age, number of pregnancies, number of miscarriages, and length of gestation). Four cases were identified as outliers based on a Mahlalanobis Distance probability of less than .001 and were transformed. After concluding the aforementioned steps, the final sample size was 355.

To check the parametric assumptions underlying inferential statistical procedures, the researcher computed descriptive statistics on all criterion variables, generating means, medians,

standard deviations, skew indices, and kurtosis indices (Creswell, 2014). See Table 13 for

criterion variable score distributions. It can be noted that the variables have minimal kurtosis and

skew (under $\pm$ 1.00), suggesting they are relatively normally distributed. Similarly, the

researcher checked the frequency distributions of all predictor variables as seen in Tables 1-12

earlier in the chapter.

Table 13

PTGI Score Distributions

Variables	*M*	*Mdn*	*SD*	Kurtosis	Skew
PTGI Total Score	43.34	40	23.02	-.66	.24
Factor 1 Score	15.07	15	9.02	-.89	.19
Factor 2 Score	8.00	7	6.40	-.65	.54
Factor 3 Score	9.84	10	5.14	-.76	-.07
Factor 4 Score	3.36	3	3.37	-.96	.60
Factor 5 Score	7.06	7	3.94	-.91	.60

Note. The *SE* of kurtosis = 0.26; *SE* of skew = 0.13.

Correlational Analysis

Next, the researcher executed a Pearson correlation among predictor and criterion

variables to investigate possible relationships (Field, 2013). Specifically, the goal of this analysis

was to identify significant relationships between all criterion variables and predictor variables

with relatively equal distributions (i.e., age, household income, length of gestation, number of

pregnancies, and number of miscarriages). See Table 14 for the correlation matrix.

Table 14

Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
1. Total PTGI Score	-										
2. Factor 1 Score	.88**	-									
3. Factor 2 Score	.85**	.62**	-								
4. Factor 3 Score	.81**	.59**	.66**	-							
5. Factor 4 Score	.68**	.50**	.49**	.49**	-						
6. Factor 5 Score	.83**	.64**	.70**	.63**	.52**	-					
7. Age	**-.12***	-.09	**-.17***	-.05	-.02	**-.14***	-				
8. Gestation in Weeks	.08	.09	.08	.04	-.02	.10	.10	-			
9. Total Pregnancies	.10	.07	.03	**.12***	.10	**.12***	**.31***	.08	-		
10. Total Miscarriages	.06	.01	.11	.08	-.01	.08	**.13***	-.01	**.72***	-	
11. Household Income	**-.13***	-.04	**-.16***	-.08	**-.17***	**-.17***	**.30***	-.02	.03	.00	-

Note. $N = 308$. Significant correlations between predictor and criterion variables are **bolded**.
*indicates a correlation that is significant at the .05 level
**indicates a correlation that is significant at the .01 level

The correlation matrix suggested several important relationships between criterion and predictor variables. In general, these correlations were significant yet weak in magnitude ($< \pm$ .18). For example, PTGI total scores were weakly correlated with age ($r = -.12$, $p = .04$) and household income ($r = -.13$, $p = .02$). Factor 2 (New Possibilities) correlated with age ($r = -.17$, $p = .004$) and household income ($r = -.16$, $p = .003$). Factor 3 (Personal Strength) correlated with the total number of pregnancies ($r = .12$, $p = .03$). Factor 4 (Spiritual Changes) was related with household income ($r = -.17$, $p = .003$). Finally, Factor 5 (Appreciation of Life) was weakly, yet

signficantly correlated with age ($r = -.13$, $p = .02$), total number of pregnancies ($r = -.12$, $p = .04$), and household income ($r = -.17$, $p = .003$).

In addition, the matrix identifies relationships between a few predictor variables. Age is weakly correlated to the total number of miscarriages ($r = .13$, $p = .02$) and moderately correlated to household income ($r = .30$, $p < .001$) and the total number of pregnancies ($r = .31$, $p < .001$). The total number of pregnancies was strongly correlated to the total number of miscarriages ($r = .72$, $p < .001$).

Finally, the correlation matrix provides evidence of strong relationships between all of the criterion variables. The total PTGI scores are strongly correlated with scores on each of the factors: Factor 1 ($r = .88$, $p < .001$), Factor 2 ($r = .85$, $p < .001$), Factor 3 ($r = .81$, $p < .001$), Factor 4 ($r = .68$, $p < .001$), and Factor 5 ($r = .83$, $p < .001$). Factor 1, Relating to Others, was strongly related to Factor 2 ($r = .62$, $p < .001$), Factor 3 ($r = .59$, $p < .001$), Factor 4 ($r = .50$, $p < .001$), and Factor 5 ($r = .64$, $p < .001$). Factor 2, New Possibilities, was strongly correlated to Factor 3 ($r = .66$, $p < .001$), Factor 4 ($r = .49$, $p < .001$), and Factor 5 ($r = .70$, $p < .001$). Factor 3, Personal Strengths, was strongly related to Factor 4 ($r = .49$, $p < .001$) and Factor 5 ($r = .63$, $p < .001$). Finally, Factor 4, Spiritual Changes, was strongly correlated to Factor 5 ($r = .52$, $p < .001$). These correlations are important to note as they establish criteria for validity testing in the next section.

Reliability and Factorial Validity

Cronbach's alpha was computed on the current sample to estimate the internal consistency for each of the outcome variables. The results were: 21-item scale ($\alpha = 0.93$), Relationships with Others ($\alpha = 0.88$), New Possibilities ($\alpha = 0.82$), Personal Strength ($\alpha = 0.77$), Spiritual Change ($\alpha = 0.79$), and Appreciation of Life ($\alpha = 0.72$). The alpha coefficients from the

current sample were higher for the 21-item scale, Relationships with Others, Personal Strength, and Appreciation of Life when compared to the overall reliability of the instrument as established by Tedeschi and Calhoun (1996). Conversely, the New Possibilities and Spiritual Changes alpha coefficients were slightly lower in the sample than reported as the instrument's reliability.

CFA was used to test the fit of variables into prescribed factors with the goal of further establishing factorial validity with the current sample (Hinkin, Tracey, & Enz, 1997; Mvududu & Sink, 2013; Thompson, 2004). In order to use CFA, the factor(s) and variables must be identified prior to the analysis, as well as which variable loads to which factor. The items and subscales for the PTGI were previously identified by researchers and can be seen in Appendix B (Tedeschi & Calhoun, 1996). Additionally, the factors should be correlated, as seen in the previous section. Based on these requirements, the CFA was an appropriate choice to test the fit of the 21-items to the five factors from the PTGI. The CFA found an inadequate model fit for the sample in the current study, meaning the 21 items did not load onto the five factors as anticipated. Chi-square revealed a weak fit ($\chi^2 = 567.60$, $df = 179$, $p = .000$), so additional indices were investigated. The model had adequate parsimonious fit (RMSEA = .078), but inadequate absolute and incremental fits (SRMR = .166, NFI = .856, CFI = .896). The structural model, including standardized coefficients can be seen in Figure 2. The results of this CFA do not support the factorial validity of the PTGI with the current sample. Although the fit was inadequate with the current sample, based on substantial previous psychometric research on the PTGI, showing the measure to possess construct validity and reliability, the investigator assumed that the CFA findings were an anomaly and further inferential statistics could be conducted.
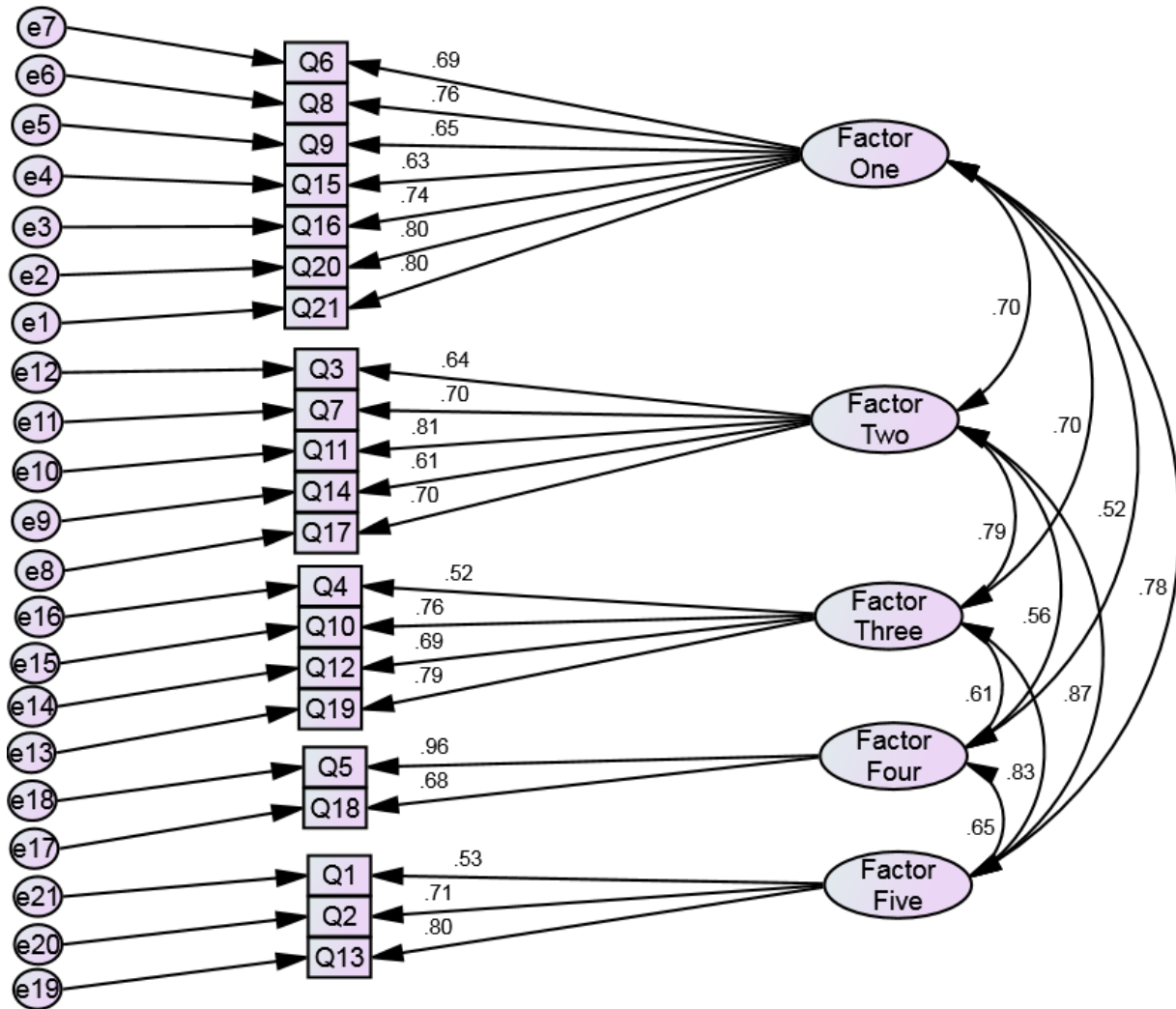
Figure 2. Confirmatory Factor Analysis standardized structural model. Q1-Q21 = items on PTGI scale. See Appendix B for the wording of each specific item.

Hypothesis Testing Results

This section addresses findings that addressed the study's research question: Do the predictor variables (age, ethnicity, race, household income, relationship status, total pregnancies, total miscarriages, length of gestation, living children, conception assistance, and mental health support) explain additional variance in Posttraumatic Growth Inventory (PTGI) total score and

the PTGI subscale scores over and above the variance accounted for by gender? Based on the unequal distribution of responses based on gender, the researcher was not able to analyze for variance over and above the variance accounted for by gender. Consequently, the researcher used the correlation matrix to identify three criterion variables with more than one significant relationship with predictor variables. The PTGI total score, Factor 2 score, and Factor 5 score were all analyzed and significant results are discussed in the following section.

Multiple Regression Analyses

First, a simultaneous multiple regression analysis was used to examine the effects of age and income on Factor 2, or New Possibilities, scores. Age and income together accounted for 4.9% of the variance in Factor 2 (New Possibilities) scores ($F[5,323] = 3.32$, $p = .006$). When controlling for age, participants identifying in the middle income group ($\beta = -.162$, $p = .017$) and participants identifying in the high income group ($\beta = -.147$, $p = .038$) explained additional variance in the Factor 2 scores. Specifically, the difference between the middle income group scores and the lower income group scores was -2.159 and the difference between the high income group scores and the lower income group scores was -1.937. These differences indicate that participants identified in the middle and higher income groups reported lower scores on Factor 2, New Possibilities, than participants who identified in the lower income group. The regression model can be viewed in Table 15.

Table 15

Multiple Regression of Factor 2 Scores on Age and Income

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	SE	Beta	t	p
1	(Constant)	10.371	.777		13.355	.000
	18-29 compared to 30-33 DC	-.193	.992	-.013	-.194	.846
	18-29 compared to 34-37 DC	-1.721	1.026	-.115	-1.678	.094
	18-29 compared to 38-59 DC	-1.926	1.040	-.129	-1.851	.065
	Income DC-lowctmid	-2.159	.898	-.162	-2.404	.017
	Income DC lowcthigh	-1.937	.930	-.147	-2.083	.038

Note. Dependent variable: Factor 2 (New Possibilities); overall $R^2 = .049$.

The second multiple regression model examined the effects of age, income, and total number of pregnancies on Factor 5, Appreciation of Life. Age, income, and total number of pregnancies together accounted for 7.1% of the variance in Factor 5 scores ($F[10,315] = 2.41$, $p = .009$). When controlling for age and number of pregnancies, participants identifying in the middle income group ($\beta = -.165$, $p = .016$) explained additional variance in the Factor 2 scores. Specifically, the difference between the middle income group scores and the lower income group scores was -1.355. The differences indicates that participants identified in the middle income groups reported lower scores on Factor 5, Appreciation of Life, than participants who identified in the lower income group. When controlling for age and income, participants identifying as having two pregnancies ($\beta = .186$, $p = .027$), five pregnancies ($\beta = .174$, $p = .025$), and six or more pregnancies ($\beta = .250$, $p = .003$) explained additional variance in the Factor 2 scores. Specifically, the difference between participants reporting two pregnancies and one pregnancy

was 1.88. The difference between participants reporting five pregnancies and one pregnancy was 2.185. Finally, the difference between participants reporting six or more pregnancies and those reporting one pregnancy was 2.774. These differences indicate that participants identified as having a total of two, five, and six or more pregnancies reported higher scores on Factor 5, Appreciation of Life, than participants who reported having one pregnancy. See Table 16 for the entire regression analysis.

Table 16

Multiple Regression of Factor 5 Scores on Age, Income, and Total Pregnancies

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	*SE*	Beta	*t*	*p*
1	(Constant)	7.214	.762		9.462	.000
	18-29 compared to 30-33 DC	-.876	.625	-.098	-1.401	.162
	18-29 compared to 34-37 DC	-1.182	.657	-.128	-1.799	.073
	18-29 compared to 38-59 DC	-1.252	.675	-.137	-1.855	.065
	Income DC-lowctmid	-1.355	.558	-.165	-2.428	.016
	Income DC lowcthigh	-1.083	.580	-.133	-1.868	.063
	One pregnancy CT two	1.880	.847	.186	2.220	.027
	One pregnancy CT three	1.255	.810	.142	1.550	.122
	One pregnancy CT four	1.053	.861	.105	1.223	.222
	One pregnancy CT five	2.185	.972	.174	2.247	.025
	One pregnancy CT six +	2.774	.919	.250	3.020	.003

Note. Dependent Variable: Factor 5 (Appreciation of Life); overall R^2 = .071.

Summary

This chapter detailed the results of the present study. The researcher reported data cleaning, assumptions, correlations, and tests of reliability and validity. In addition, the

researcher outlined the use of multiple regression to address the research question and the related results. Key findings from the data included a largely normal data set, reliability of the PTGI, and significant relationships identified through multiple regression analyses. Internal consistency was found between the total PTGI score and factor scores, which indicated the reliability of the PTGI. CFA conducted on the measure showed a lack of fit, indicating that the proposed model for the PTGI was not adequately replicated in the current sample.

The first multiple regression analysis indicated that participants who self-reported in the middle and higher income groups had lower Factor 2, New Possibilities, scores than participants who self-reported into the lower income group. The second multiple regression analysis suggested that participants who had experienced two, five, and six or more pregnancies scored higher on Factor 5, Appreciation of Life, than participants who had only experienced one pregnancy. The following chapter discusses these key findings as related to previous research, as well as limitations and implications for future research.

CHAPTER FIVE

DISCUSSION

As mentioned throughout this dissertation, the purpose of this quantitative study was to identify key relationships between demographic and pregnancy loss related predictors and the PTGI total score, along with the scores from each of the five factors. This chapter includes a discussion of major findings related to population demographics and the research question. The researcher then relates the findings from this study to literature on miscarriage and the PTGI. Before concluding, implications for counseling practice are considered. In the last section, the researcher discusses limitations of this study and includes suggestions for future areas of research.

Population Demographics

The survey was distributed through social media outlets, including the researcher's personal pages and groups specifically targeted to populations who have experienced a miscarriage. In addition, a few support group leaders agreed to send the link out to members of their in-person support groups. The researcher expected these data collection techniques would lead to a diverse sample. Nevertheless, the sample was extremely homogeneous in regards to gender, ethnicity, race, and relationship status. Although the researcher anticipated more female respondents than male, the difference between genders was striking as 98% of participants who identified their gender were female and only 2% were male. The distribution of reported ethnicities showed that 93.8% were not Hispanic or Latino/a and 6.2% were Hispanic or Latino/a. Likewise, 97.5% of participants identified their race as White, while American Indian or Alaska Native, Black or African American, and Asian accounted for the additional 2.5%. Finally, 95.3% of participants reported their relationship status as married or in a committed

relationship. Alternately, 4.6% of respondents identified as single or divorced. Nelson et al.

(2015) found a similar distribution in relationship status, as 84.4% of respondents to their study

were married or cohabitating ($N = 429$). Additionally, most participants did not require any

assistance with conception (87.5%) and did not seek mental health support (79.9%).

Bute et al. (2019) found that there were three societal-level rules identified by

heterosexual married couples who had experienced a miscarriage ($N = 40$); the second of which

supports the gender distribution of the current study. The second rule suggested that miscarriage

is something that men do not want to discuss. Similarly, Slauson-Blevins and Johnson (2016)

conducted a multi-actor study involving reproduction to explain gender differences in non-

response patterns. Women were surveyed first and asked to recruit their partners to participate.

The most common reason for men's non-participation in this study was the overarching theme

that reproduction is a woman's topic area. In addition, men reported feeling as though they

needed to stay stoic and strong in order to support their wives (Bute et al., 2019). This rule

supports the lack of male participants in the current study. First, men may not be comfortable

with discussing miscarriage, even through a private venue such as the survey associated with this

study. And further, men are likely not reaching out to join miscarriage support groups as often as

women; which implies men may not have the same level of access to the survey as women. The

researcher did post the survey in men's miscarriage groups on Facebook and Reddit, but the total

members of those groups (208 and 836, respectively) were significantly lower than those in

similar groups for women (29,000+ and 3,900+, respectively). While several women in the Bute

et al.'s (2019) study mentioned that they made a point to defy these societal-rules by speaking

openly about their miscarriage, men did not take the same route. Instead, men felt strongly about

abiding by the gender norms and not discussing the miscarriage and any thoughts or feelings related to the experience (Bute et al., 2019).

Mukherjee, Edwards, Baird, Savitz, and Hartmann (2013) found that Black women were at a greater risk of miscarriage than White women, especially between the 10th and 20th week of gestation. Black women miscarry at rates twice that of White women (Mukherjee et. al, 2013; Van, 2001). With these considerations, the racial profile of this study's sample is surprising. Cultural influences may help to explain the racial breakdown of the participants in this study. While Black women may experience miscarriages at a higher rate than White women, their cultural background may inhibit their desire to share the loss with others (Evans, 2013). Van (2001) found that all 10 African American participants in the study reported that they tried to avoid thinking about their miscarriages. They mentioned that close family and friends did not understand the depth of the loss and made them feel uncomfortable about their grief. These participants also noted the value of knowing that their babies are in a safe place, mostly based on religious or spiritual beliefs.

The Pew Research Center (2018) and Wells and Link (2014), both provide demographic data of Facebook users that help explain the homogeneous sample from the current study. Pew (2018) published the *Social Media Fact Sheet* that provides self-reported demographic data of Facebook users, while Wells and Link (2014) installed meters on home computers of participants ($N = 18,875$) in order to track Facebook usage. Pew (2014) found that 68% of adults in the United States use Facebook, making it the most widely used social media platform. The Facebook user base is also fairly representative of the United States adult population. Women are twice as likely as men to be heavy Facebook users (Wells & Link, 2014). More recently, self-reports indicate that women (74%) use Facebook more than men (62%) (Pew, 2018). Wells and

Link (2014) also found that Black and non-White participants were significantly less likely to use Facebook. It makes sense that since White women are accessing Facebook at significantly higher rates that males and non-Whites, the sample for this study is primarily White women.

As mentioned throughout the literature review, research related to miscarriage is limited. It is difficult to fully understand and create a demographic profile related to miscarriage. The researcher was unable to find documentation of the prevalence of miscarriage by age, race, or ethnicity through the Center for Disease Control and other similar, reputable reporting agents. This alone signifies the dire need for future research related to miscarriage. Next the research discusses the reliability and validity of the PTGI based on the sample from the current study.

PTGI Reliability and Validity

This section describes the reliability and validity of the PTGI, followed by a discussion of generalizability of the PTGI. The researcher calculated the Cronbach's alpha for each of the criterion variables: 21-item scale ($\alpha = 0.93$), Relationships with Others ($\alpha = 0.88$), New Possibilities ($\alpha = 0.82$), Personal Strength ($\alpha = 0.77$), Spiritual Change ($\alpha = 0.79$), and Appreciation of Life ($\alpha = 0.72$). These results indicate adequate levels of internal consistency in the total PTGI score, as well as each of the individual factor scores. This means that similar items (i.e. the items that load into each individual factor) are related, while each item also offers individual information. The reliability measures found in this sample are congruent with those found by Tedeschi and Calhoun (1996) when the PTGI was first developed.

The researcher also conducted a CFA and found the PTGI to have inadequate factorial validity with the current sample. A chi-square of 567.60 ($df = 179$, $p = .000$) indicated a weak model fit. Supplemental indices shared similar results: SRMR = .166, NFI = .856, and CFI = .896. An adequate parsimonious fit (RMSEA = .078) was found, but did not have the support of

any other fit indices. The inadequate model fit of the 21 items to the five factors, as shown in

Figure 2, suggested that the PTGI was not the most appropriate measure of PTG in the current

sample.

While the reliability of the study was encouraging, the lack of factorial validity

confounded the results of the study. This limited the generalizability of the study and deterred the

researcher from recommending the PTGI for use in future studies with similar samples. The

results of the multiple regression analyses are discussed in the next section. Further discussion

related to inadequate factorial validity may be found in the "Limitation" section later in the

chapter.

Research Question

In this section, the investigator discusses the results related to the research question: Do

the predictor variables (age, ethnicity, race, household income, relationship status, total

pregnancies, total miscarriages, length of gestation, living children, conception assistance, and

mental health support) explain additional variance in Posttraumatic Growth Inventory (PTGI)

total score and the PTGI subscale scores over and above the variance accounted for by gender?

The multiple regression of Factor 2, New Possibilities, on age and income indicated a

relationship with a small effect size (R^2 = .049). Lower income levels predicted higher scores on

Factor 2, New Possibilities. Participants who reported earning a household annual income of

$50,000-$99,999 (β = -.162) and those who reported earning $100,000 and up ($\beta$ = -.147) scored

lower on Factor 2, as compared to individuals who reported earning less than $49,999 annually.

These results suggest that individuals who earn less money experience higher levels of PTG as

related to the area of new possibilities. As mentioned in Chapter 2, new possibilities refer to

opportunities that open up as a result of the loss. One possible explanation, albeit speculative, for

this finding is that individuals with higher incomes have more means to access their wants and needs. For example, individuals in a higher income bracket may be able to afford a caregiver to provide care for an aging parent, whereas individuals in the lower income bracket may have to bear the brunt of the care. Therefore, when the aging parent dies, the individuals in the higher income bracket might not experience as many new possibilities because they may not have to give up as much freedom as those in the lower income brackets. With the small effect size, implications for practice must be tenuously drawn.

The multiple regression of Factor 5, Appreciation of Life, on age, income, and total pregnancies also indicated a small effect size ($R^2 = .071$). Participants who reported earning a household annual income of $50,000-$99,999 ($\beta = -.165$) scored lower on Factor 5 than individuals in the lower and higher income groups. Additionally, participants who experienced two ($\beta = .186$), five ($\beta = .174$), and six or more ($\beta = .250$) pregnancies predicted higher scores on Factor 5, as compared to those who reported only one pregnancy. These results indicate that participants who reported incomes in the middle range show lower scores related to appreciation of life than participants in the higher and lower income groups. It is also important to note that overall, the more pregnancies a person has experienced, the higher they score on the appreciation of life scale. It is possible that carrying a life, regardless of how long deepens a person's appreciation for life. Again, the modest effect size should be considered when interpreting the results.

Based on the results of the multiple regression analyses, generally speaking, individuals with lower levels of income indicate higher levels of growth. Similarly, a study conducted among traumatically injured patients found that those whose income was less than $50,000 annually self-reported higher levels of PTG than those who made more than $50,000 annually

(Roden-Foreman et. al, 2017). It also seems that the more pregnancies that a person experiences, the higher their levels of growth. These two points are important for mental health clinicians to consider when working with bereaved parents. A parent who has experienced multiple pregnancies may experience more growth than a parent who has only experienced a single pregnancy. Similarly, a person making less than $50,000 annually may experience more growth than parents making more than $50,000. A mental health clinician may tailor their work with a client to best facilitate growth based on these findings. The researcher discusses additional implications of the current study to counseling practice in the following section.

<div align="center">**Application to Counseling Practice**</div>

The results of the current study offer several suggestions for counselors who are working with clients who have miscarried. In light of the weak fit of the CFA showing the instrumentation may be invalid for the sample under investigation and limited statistically significant multiple regression results, these implications are more tentatively presented and broad. Specific implications for counseling practice are not warranted. First, the researcher discusses trauma counseling, since a miscarriage is a traumatic event. Then the primary method of facilitating PTG, expert companionship, is introduced and explained. The section concludes with a description and rationale for integrated health care.

Trauma Counseling

The American Mental Health Counselors Association Standards for the Practice of Clinical Mental Health Counseling (AMHCA; 2018) recommended that clinical mental health counselors seek training in several areas beyond those required by the Council for Accreditation of Counseling and Related Education Programs (CACREP). Two of the areas included in the recommendations specifically relate to this study: trauma and integrated behavioral health care

counseling. This section addresses recommendations related to trauma counseling. AMHCA

states that counselors should recognize that the symptoms, diagnoses, and treatment plans related

to trauma are not uniform. As related to this study, there will likely be differences in the

symptoms, diagnoses, and treatment plans for a woman who has experienced a miscarriage as

compared to a person who has experienced a natural disaster or other type of traumatic event. A

counselor needs to have the knowledge to be able to identify these differences and the skills to

work with these clients.

Additionally, counselors should understand the importance of promoting resiliency and

other protective factors as a way to minimize the risk of future trauma-related disorders.

Tedeschi and Blevins (2016) emphasize the differences between PTG and resilience, stating that

resilience is the ability to return to the same baseline of functioning that existed prior to the

traumatic event. PTG, as discussed throughout this study, represents development and growth

beyond that baseline of functioning after a traumatic event. It is believed that the more resilient a

person is, the less likely they are to experience PTG. The resilient person is typically able to get

back to the baseline functioning without ruminations and disrupted core beliefs, which are two of

the precursors to PTG as illustrated in Figure 1. A person who does experience PTG is likely to

experience higher levels of resilience. Counselors working with clients who have experienced a

miscarriage should encourage positive coping skills, sense of control, cohesiveness, and

connectedness, which may help nurture the natural process of building resilience (Berger, 2015).

In order to apply their knowledge, counselors should have the skills to use evidence-

based assessments to measure trauma and apply evidence-based theories to trauma related

treatment plans. AMHCA (2018) also specifically mentions that counselors should have the

skills to provide assessments and guidance related to PTG. While the PTGI is currently the best

tool for measuring PTG, this study found that it was not the best tool for this sample of primarily white females who had experienced a miscarriage. Counselors who chose to use the PTGI should do so with caution and not rely solely on the results. In addition, counselors should promote PTG in clients. Tedeschi and Blevins (2016) suggested expert companionship as the primary intervention to promote PTG, which is discussed next.

Expert Companionship

Tedeschi and Blevins (2016) described the primary approach to facilitating PTG as expert companionship. They emphasize that this is a process that is facilitated and not an intervention that is led. An expert companion encompasses many of the positive clinical skills counselors use daily, such as empathy, genuineness, establishing trust, and unconditional positive regard. While counselors can definitely fill the role of expert companion, the role can also be filled by a close friend or relative. The expert companion should be prepared to learn about situations that may be uncomfortable to hear about, including the thoughts, feelings, and emotions associated with the events. The story of the event may be repeated may times, as clients tend to ruminate on the experience early on in the process towards PTG (see Figure 1). Tedeschi and Blevins (2016) found that the more the expert companion allows themselves to learn from the client, the more they are able to really feel the full impact of the story and empathize with the client. Ideally this will give the client more space to explore their emotions and cognitions. Through this the expert companion should promote deliberate ruminations and reconceptualization of belief structures.

A counselor working with women who have experienced a miscarriage will benefit from educating themselves about miscarriage. The more the counselor understands about miscarriage, the less the client will have to explain, which should ultimately hasten the time it takes to establish rapport and build trust. Once the client opens up about her experience, the counselor

should allow the client to discuss the event as often as she would like and should take notice of any changes to the story. These changes could signify the start of creating new cognitions. For example, a woman may tell her counselor every week that she was so surprised when she found out she had miscarried. Then one week she may mention that she had a gut feeling she was miscarrying, but was unsure why. The counselor, or expert companion, should question this change in the story. This could indicate that the woman is attempting to recreate or reflect on the actual events instead of simply allowing the automatic ruminations to cloud her mind. Essentially, counselors facilitating PTG as expert companions should be prepared to listen, encourage, challenge, and accept the experiences shared by women who have miscarried. There may be details that are not pleasant to hear, but these are all important to the individual's story. The ultimate goal is not change, rather is to provide a space where she can determine new, deliberate ruminations and create her own beliefs as related to her experience.

Integrated Health Care

The importance of support from medical professionals as reported by women who had experienced miscarriages was briefly discussed in Chapter 2 (Bardos et. al, 2015: Bassin, 2017). A possible way to increase the support from medical professionals would be to increase the availability of integrated health care for women who have experienced a miscarriage. This could range from a counselor who works directly with and holds sessions in an obstetrics office to a counselor who provides services to bereaved parents on a perinatal unit. AMHCA (2018) recommends that all counselors receive training in integrated health care. Key aspects of the training include understanding the medical condition (i.e., miscarriage) and how to conduct brief interventions at the initial session. Counselors should employ women who have miscarried with coping skills upon finding out about the miscarriage, as this may help the client begin to process

the experience. It is also essential for the counselor to understand the specific roles within the treatment team and how to work together for the holistic care of the client. While AMHCA and most related literature describes integrated health care mostly for primary care facilities and patients with chronic medical conditions (i.e. diabetes, high blood pressure), it seems logical that similar benefits would be derived from services in obstetrics offices or hospitals for women who have miscarried.

Summary

This area addressed several areas for counselors to consider when working with clients, primarily white females, who have miscarried. While the research related specifically to miscarriage and PTG is limited, AMHCA standards provided a useful framework for working with these clients. Specifically, AMHCA provided knowledge and skill suggestions related to trauma and integrated health services, which were related to PTG and miscarriage, respectively. In addition, Tedeschi and Blevins's (2016) concept of expert companionship was described and related to the current study. The next section discusses limitations of the current study.

Limitations

As aforementioned, the factorial validity of the PTGI in the current study was a major limitation. The inadequate model fit indicates that the PTGI was not the best way to measure PTG with the current sample. Hence, the PTGI scores are suspect which may contribute to the lack of significant predictors found through multiple regression analyses. It is possible that results from an instrument with adequate factorial validity would have indicated more, and stronger, relationships between criterion and predictor variables. Although the creators of the PTGI, along with many researchers since, have found factorial validity among different samples,

the PTGI does not appear to be the best instrument to use in assessing PTG in white women who have experienced a miscarriage.

There are a few factors that may have influenced the internal validity of this study. First, the use of a correlational design evaluated the relationship between variables, but was not able to determine causation. It is important to acknowledge that there may be other factors not considered in this study that influenced participant responses. In addition, several groups were not equivalent in terms of response rates, including gender, ethnicity, race, relationship status, conception assistance, and mental health support. Although previous research suggests the importance of these variables as related to PTG, the researcher chose not to analyze correlations related to these groups because of the largely unequal distributions. It is also important to note that participants self-reported responses to the PTGI and demographics, which may have led to biased responses. Participants may have under- or over- represented their experiences of growth following a miscarriage. Participants also had the choice to complete the demographic information, so a complete demographic response set was not available for every participant.

Other possible limitations to this online study are selection bias and the response rate. These are threats to the study's external validity, as they relate to the population. The researcher posted the study on social media outlets and members chose to participate. There was no way to determine if there were differences between those who chose to take the survey and those who did not. Specifically, participation in this study required the participant to have access to a computer and participate in social media and/or be involved in a support group related to the miscarriage. However, the distribution of the survey through social media and snowball sampling allowed the researcher to attempt to collect data from diverse populations.

Finally, an ethical limitation to the study was the possibility of re-traumatizing participants. As seen throughout the literature review, a miscarriage is a traumatic event and this study could have brought unwelcome thoughts and feelings back to the participants. To account for this, a cover letter was provided before participants began the survey explaining potential negative impact. Participants could choose whether or not to continue with the study at that point, as well as throughout the study. The threat of re-traumatization may have potentially created selection bias, as some eligible participants may have chosen not to participate based on this knowledge.

This section discussed limitations related to construct, internal, and external validity. A potential ethical concern was also addressed. The next section gives an overview of recommendations for future research related to PTG and miscarriage.

Future Research

This study provides opportunity for future research related to PTG after a miscarriage. First, as mentioned in Chapter 4 and earlier in Chapter 5, the PTGI lacked factorial validity with the current sample. This indicates a need for another way to measure PTG in similar populations. The PTGI is currently the best instrument available to measure PTG. With this in mind, perhaps a mixed methods approach would allow researchers to compare PTGI scores with the stories and experiences shared by bereaved parents. There are definitely components of this study that would benefit from qualitative research. The full stories of parents who have miscarried cannot be quantified. Employing qualitative techniques would allow researchers to gather more data to enrich the understanding of the experiences.

Beyond attempting to supplement the PTGI scores with qualitative data, researchers could also create an instrument specifically for measuring posttraumatic growth in women who

have miscarried. Researchers could identify items related to posttraumatic growth, have a large, diverse sample of women (and men, if desired) respond to the items, and then determine the items and constructs through an exploratory factor analysis. This would limit, but not rule out, the possibility of inadequate factorial validity in the instrument as long as it is used with the specified population.

Further, the demographic data collected from this study was very homogeneous. Future research may focus on recruiting participants from specific demographic groups, to include ethnicity and race. It may also be helpful to conduct research among participants who attend in-person mental health individual sessions or support groups. Researchers should identify online and in person miscarriage support groups based on specific demographics (i.e., gender, ethnicity, race) to ensure the study is available to a diverse population. It may also be helpful to recruit participants from public and private healthcare settings. The online distribution of this study likely impacted the mental health support factor in that individuals who sought support from an online community may not feel as inclined to seek formal mental health support. To investigate this possibility, research should be conducted using participants from a broader selection of formal mental health support groups. In addition, factors such as the impact of the miscarriage on cognitive and social-emotional functioning may be explored.

Future research could also look across disciplines, to bridge the gap between physical and mental health care. The researcher searched the American College of Obstetricians and Gynecologists Practice Bulletin: Clinical Management Guidelines for Obstetrician-Gynecologist and did not find any mental health implications related to pregnancy loss. Similarly, the researcher did not find any position statements related to pregnancy loss released by the Association of Women's Health, Obstetric, and Neonatal Nursing. A deeper investigation of

these and similar organizations for mental health guidelines and recommendations related to patients who have miscarried would help to create a stronger framework for integrated health care.

Finally, levels of PTG tend to increase as time since the traumatic event increases. Future researchers may consider a longitudinal study. Levels of PTG could be measured in women within a few months of their first miscarriage and then again a year later. Data collected should include information related to any pregnancies and miscarriages since the initial measure.

Conclusion

Research related to PTG experienced by parents who have experienced a miscarriage is limited. This study attempted to expand the literature by identifying demographic and pregnancy-related factors that influence levels of PTG in men and women who had experienced a miscarriage. The researcher used multiple regression analyses to investigate relationships between demographic and pregnancy-related factors and the scores on the overall PTGI, as well as each of the five factors. Relationships were identified between New Possibilities and income, as well as Appreciation of Life and income and the number of pregnancies a person has experienced. Additionally, inadequate factorial validity of the PTGI was found through a CFA. This confounds the results of the multiple regressions, and ultimately brings to question the usefulness of the PTGI for women who have experienced a miscarriage. This study supports the critical lack of research related to PTGI and miscarriage. Additionally, the large sample size ($N =$ 355) is indicative of the need for research in this area.

Counselors working with parents who have lost a child through miscarriage should use the PTGI with caution, if at all, knowing that it may not be the best measure for the population. Future research should focus on identifying the best way to measure PTG in parents who have

miscarried, as well as how to recruit a more diverse sample. In addition, counselors who want to

facilitate PTG may take on the expert companionship role as they work with their client towards

creating new beliefs and deliberate ruminations. Finally, counselors working with clients who

have experienced miscarriages may benefit from training related to both trauma counseling and

integrated health care, as these have implications closely related to miscarriage and PTG.

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Appendix A

Assistance to PTG Researchers

We provide to researchers this information about the measures we have published in relation to posttraumatic growth (PTG). You may note that the PTGI was first published and the term first used by us (Tedeschi & Calhoun) in the 1995 book *Trauma and Transformation.* However, the version we have used was published with a revised response format in *Journal of Traumatic Stress* in 1996*.* Other measures have been published since then in order to research PTG in children, and to provide a measure of both positive and negative outcomes ion the aftermath of trauma, and to assess other variables that are central to our model of PTG processes. That model is also reproduced here. The references that follow are a selected list that includes some work with researchers outside our department with whom we collaborate, and our students in our research lab.

In Reciprocation

There is no charge for the PTGI and these other measures, and there is no charge for the reproduction of the scale for use in research.

We welcome the use of our scales in not-for-profit research. However, these inventories are not to be reproduced for any kind of general distribution and may not be used in for-profit enterprises.

In reciprocation, we would like you to send us a gratis copy of any manuscripts, theses, dissertations, research reports, preprints, and publications you prepare in which our materials, or any version of them, is used. Both R. G. Tedeschi and L.G. Calhoun can be contacted at: **Department of Psychology - UNC Charlotte - Charlotte, NC 28223   USA. Email to rtedesch@uncc.edu.**

Appendix B

<u>Posttraumatic Growth Inventory</u>

Indicate for each of the statements below the degree to which this change occurred in your life as a result of your pregnancy loss using the following scale.

0= I did not experience this change as a result of my crisis.

1= I experienced this change to a very small degree as a result of my crisis.

2= I experienced this change to a small degree as a result of my crisis.

3= I experienced this change to a moderate degree as a result of my crisis.

4= I experienced this change to a great degree as a result of my crisis.

5= I experienced this change to a very great degree as a result of my crisis.

1. I changed my priorities about what is important in life. (V)

2. I have a greater appreciation for the value of my own life. (V)

3. I developed new interests. (II)

4. I have a greater feeling of self-reliance. (III)

5. I have a better understanding of spiritual matters. (IV)

6. I more clearly see that I can count on people in times of trouble. (I)

7. I established a new path for my life. (II)

8. I have a greater sense of closeness with others. (I)

9. I am more willing to express my emotions. (I)

10. I know better that I can handle difficulties. (III)

11. I am able to do better things with my life. (II)

12. I am better able to accept the way things work out. (III)

13. I can better appreciate each day. (V)

14. New opportunities are available which wouldn't have been otherwise. (II)

15. I have more compassion for others. (I)

16. I put more effort into my relationships. (I)

17. I am more likely to try to change things which need changing. (II)

18. I have a stronger religious faith. (IV)

19. I discovered that I'm stronger than I thought I was. (III)

20. I learned a great deal about how wonderful people are. (I)

21. I better accept needing others. (I)

Note: Scale is scored by averaging all responses. Factors are scored by adding responses to items on each factor. Items to which factors belong are not listed on form administered to participants.

PTGI Factors

Factor I: Relating to Others

Factor II: New Possibilities

Factor III: Personal Strength

Factor IV: Spiritual Change

Factor V: Appreciation of Life

Tedeschi, R.G., & Calhoun, L.G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma., *Journal of Traumatic Stress, 9*, 455-471.

Appendix C

Demographic Information

Please respond to the following questions.

1. What is your current age?

2. Ethnicity (select one):

    a. Hispanic or Latino
    b. Not Hispanic or Latino

3. Race (select all that apply):

    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Other Pacific Islander
    e. White

4. Where do you currently live? (City and State):

5. What is your average annual household income?

    a. Less than $25,000
    b. $25,000- $34, 999
    c. $35,000- $49,999
    d. $50,000- $74,999
    e. $75,000- $99,999
    f. $100,000- $149,000
    g. $150,000-$199,999
    h. $200,000 or more

6. What is your gender?

    a. Female
    b. Male
    c. Other, please specify

7. What is your current relationship status?

    a. Single
    b. Married

    c. Committed relationship

    d. Divorced

    e. Widowed

    f. Other (please specify):

8. How many total pregnancies have you experienced?

9. How many miscarriages have you experienced?

10. Do you have living children?

    a. No

    b. Yes   If so, how many?

11. Did you or your partner require any assistance (i.e. In Vitro fertilization, donor eggs, artificial insemination) conceiving any of your pregnancies? (Select all that apply)

    a. No, we conceived naturally

    b. Yes, we had assistance conceiving a pregnancy that ended in a miscarriage (please specify type of assistance)

    c. Yes, we had assistance conceiving a pregnancy that resulted in a live birth (please specify type of assistance)

Please respond to the following questions. If you have experienced more than one miscarriage, please answer the following questions based on your most recent experience.

12. What is your role in relation to the miscarriage?

    a. I carried the child

    b. My partner carried the child

    c. Other (please specify):

13. Date of most recent miscarriage:

14. Length of gestation before miscarriage in weeks:

15. Did you seek formal mental health support, such as visiting a counselor or psychologist, for concerns related to your miscarriage?

    a. No

    b. Yes   If so, how many sessions did you attend? Please note if you are still attending.

Appendix D

<u>Study Background and Consent</u>

Title: An Investigation of Posttraumatic Growth Experienced by Parents after a Miscarriage

Researchers: Chris Sink, Ph.D., Liz Boyd, Ed.S., Emily Goodman-Scott, Ph.D., and Janice Hawkins, Ph.D.

Purpose of Study

The purpose of this study is to expand on previous research related to miscarriage and identify individual factors related to Posttraumatic Growth in the aftermath of a miscarriage. Ultimately, this research will support two overarching goals: (1) to provide support and guidance to counselors who are working with the under recognized and underserved population of the perinatally bereaved, and (2) continuing the social justice movement to destigmatize miscarriage throughout communities through education and resources.

Description of the Study

Miscarriage and posttraumatic growth are two highly researched topics, but little research has been conducted to investigate the relationship between them. This correlational study will begin to fill in this research gap by assessing demographic and pregnancy loss related information, as well as scores on the Posttraumatic Growth Inventory (PTGI).

Participants will be asked to complete the demographic information assessment and the PTGI. The demographic information assessment will collect descriptive data such as age, gender, and race in order to best describe the participants in the study. The demographic information assessment will also collect details related to the participant's most recent miscarriage.

Participants

The criteria for participation in this study is any person currently 18 years or older who experienced a miscarriage before January 1, 2018. Participation in this study is voluntary and as far as can be anticipated, there will be no or minimal mental, social, legal, emotional, or physical risk from participating in the study. Participation in this study may evoke emotions related to the miscarriage experience and each participant will be provided with a list of resources upon exiting the study. There is no penalty for withdrawing participation in this study at any time. Participants also have the right to avoid answering any questions they choose.

Confidentiality

Researchers will take steps to protect participants' confidentiality. No personal or identifying information will be collected throughout the survey.

Contact information

Please direct any inquiries about this study to both Ms. Liz Boyd (bpowe005@odu.edu) and Dr. Chris Sink, (csink@odu.edu) in the Darden College of Education's Counseling and Human Services Program at Old Dominion University.

Appendix E

Miscarriage and Pregnancy Loss Resources

Thank you for participating in this study. The responses you have provided will help researchers better understand the relationship between miscarriage and posttraumatic growth. Ultimately this will help counselors and other mental health professionals learn to best support bereaved parents. Participation in this study has likely evoked feelings, emotions, and/or memories related to your own miscarriage. If you would like support to process anything related to this study, please see the resources below.

- American Pregnancy Association: http://americanpregnancy.org/pregnancy-loss/miscarriage-surviving-emotionally/- Learn more about miscarriage and support resources available.

- March of Dimes: https://www.marchofdimes.org/complications/miscarriage.aspx- Learn more about miscarriage and access information and resources related to grief.

- Resolve: The National Infertility Association: https://resolve.org/support/- Learn more about miscarriage and infertility. Find support groups and experts in your area, as well as other online resources.

VITA

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Education

Doctor of Philosophy, Old Dominion University, Norfolk, VA, May 2019
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Education Specialist, Old Dominion University, Norfolk, VA, August 2016
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Master of Science, Old Dominion University, Norfolk, VA, August 2006
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Publications

- **Boyd, L.**, Bonner, M., & McAuliffe, G. M. (2019). Phase: Assessing psychosocial development and tasks. In G. M. McAuliffe (Ed.), *Positive counseling: A guide to assessing and enhancing client strength and growth* (95-121). USA: Cognella.
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Teaching Experience

Doctoral Graduate Teaching Assistant   August 2016 - present
Department of Counseling and Human Services
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