Posttraumatic Growth Following a Loss:

How to Predict Positive Outcomes through Basic Need Satisfaction and Meaning-Making

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Abstract

The current study examined what factors predict and facilitate posttraumatic growth (PTG; Tedeschi & Calhoun, 1995) following an individual's experience of a loss; including expected or unexpected natural death, homicide, intentional self-harm, and relationship breakup. The introduction of self-determination theory's (SDT; Deci & Ryan, 1985, 2002) basic need satisfaction and meaning-making provides a useful framework for better understanding how individuals cope with a loss and whether there are ways to facilitate PTG. The objectives were to investigate the relationship between self-determination theory and posttraumatic growth in statistically predicting PTG, and to explore the mediating role of meaning-making in explaining PTG. Data collection was conducted through Amazon Mechanical Turk from 504 individuals, however 64 participants were excluded from the analyses (e.g., did not experience a loss; completed less than 50% of the survey), so the final sample size was 440. Consistent with the hypothesis, high basic need satisfaction was significantly and positively associated with higher levels of PTG. Regression analyses indicated that basic need satisfaction is a predictor, accounting for 20% of the variance in PTG. Also, a regression analyses indicated that the three basic psychological needs are predictors, accounting for 25% of the variance in PTG. Also, the presence of meaning-making served as a qualitative supplement to understanding the relationship between basic need satisfaction and PTG. Individuals who experienced meaning-making and focused on more positive elements of one's experience, such as personal strengths or a deeper sense of compassion for others, had higher levels of PTG as a qualitative supplement of growth. These results show the importance of basic need satisfaction and meaning-making, which if incorporated into clinical models may aid clinicians in recognizing and facilitating posttraumatic growth following a loss.

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I would like to thank my faculty advisor Julie Kuehnel, PhD for working with me and pushing me to pursue this thesis. I am grateful for Dr. Julie Kuehnel's support on this topic, which is of great interest to me, because it stems from the pain and sadness of losing my father. So, her openness allowed me to investigate this passion of mine and find ways to help others going through a similar experience. I also want to thank my committee, Jamie Bedics, PhD, ABPP,   and Jodie Kocur, PhD, for their guidance and valuable recommendations. Lastly, I do not think I would be sitting here writing this thesis without the tremendous support from my mother and my brother. Both of you have provided me with so much love and support throughout this journey. You two mean the world to me. Also, I miss and love you dad.

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Introduction

"If there is a meaning in life at all, then there must be a meaning in suffering. Suffering is an ineradicable part of life, even as fate and death. Without suffering and death, human life cannot be complete." - Viktor E. Frankl

Many religions, literature, and philosophies have discussed the idea that when individuals go through negative, stressful, or challenging life experiences, such as a loss, they can potentially find meaning and change in a positive direction. This concept that one can find benefit out of suffering is core to existential-humanistic psychology (Frankl, 1961; Maslow, 1954). However, the empirical study of this belief has only been conducted recently, within the past two decades, and began in the positive psychology movement (Joseph & Linley, 2008).

The current study will examine an individual's experience of a loss, for example sudden or expected natural death, suicide, or romantic breakup, and how or whether they experience posttraumatic growth. There are various domains of posttraumatic growth and its relationship with health outcomes, specifically with development of personal strength, new possibilities, and appreciation of life. It is important to review the purpose of posttraumatic growth after a loss. The introduction of self-determination theory (SDT; Deci & Ryan, 1985, 2002) and meaning-making will provide a useful framework for better understanding how individuals cope with negative life experiences and whether there are ways are to predict PTG. For instance, determining what motivating factors are behind posttraumatic growth, will help clinicians be better able to facilitate coping strategies in their clients. However, there is very little research regarding this topic (Lumb, 2015), thus there is a need for future research in these relationships.

Posttraumatic Growth

There have been multiple terms used to describe growth after a stressful and traumatic life experience: *positive psychological changes* (Yalom & Lieberman,1991)*, thriving* (O'Leary & Ickovics, 1995)*,* and *stress-related growth* (Park, Cohen, & Murch, 1996). While these concepts focus primarily on how negative experiences can lead to a positive change in human strengths and overall well-being, only one theory has proven most successful in exemplifying this thought. Tedeschi and Calhoun (1995) formulated the term *posttraumatic growth (PTG)* that describes how individuals can experience "great suffering and loss, [which] can lead to highly positive changes" (Tedeschi & Calhoun, 2006, p. 3). For those who have experienced trauma, three general domains or change have been identified: changes in the perception of self, changes in the experience of relationships with others, and changes in one's general philosophy of life (Tedeschi & Calhoun, 1995). These domains are also further broken down into five areas: relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. These domains specifically focus on an individual's psychological well-being, not necessarily their emotional states. For instance, following a loss one's perspective can shift, so things that used to not be meaningful may suddenly feel important. Many individuals may shift their focus onto a new emergence of possibilities, such as developing new skills and taking advantage of new opportunities (Tedeschi & Calhoun, 2006). Another significant change is after a loss is that individuals may find growth in certain relationships with others. For instance, many report a change in human relationships and they begin having a greater sense of intimacy, closeness, and empathy towards others (Tedeschi & Calhoun, 2006). Lastly, many individuals also experience a greater appreciation for life, which is the result of their changed philosophy of life. There may be

a greater sense of purpose and meaning in life due to an increased adoption of spiritual or religious values (Tedeschi & Calhoun, 2006).

Even though some report undergoing these positive changes, the question remains: what contributes to someone expressing "good" posttraumatic growth? This is a difficult question to answer because when an individual faces a very difficult loss, they typically first exhibit great suffering. However, when an individual ultimately describes a greater sense of psychological well-being it is typically because their loss fostered an active involvement with existential questions. Research suggests one's struggle turns to growth due to *rumination*. By engaging in this process, individuals will begin to re-examine their beliefs, motivations, and priorities, which ultimately will allow for an individual to cope with the stress of a loss and experience positive growth (Tedeschi, Calhoun, & Cann, 2007). This meaningful engagement with the reality of one's situation can take time, and may not be experienced immediately after a loss occurred. Growth is not necessarily about how much time has passed, but about what the person does with that suffering to affect the consequences of that trauma (Stewart, 1998). Some believe that this may be described as *resilience*, however there is a distinction between posttraumatic growth and resilience. While Lepore and Revenson (2006) argue that they are one in the same, resilience has never been defined as a transformative process. Instead, the dictionary definition is "the power or ability to return to the original form," (Online Etymology Dictionary, n.d.) whereas PTG involves a *transformative* view of the self, others, and philosophy that individuals experience after loss, grief, or suffering. They do not return to the original state of mind, rather they reconstruct their psychological thoughts. This is an extremely important difference, since this is what makes the theory of posttraumatic growth stand out as representing a more intrinsic driven

theme, where individuals must search for a meaning in life and be able to positively shift their experience following a loss.

Much of this approach is based in theoretical and humanistic analysis; however, recently empirical studies have become prominent surrounding the question of whether PTG was/is related to better psychological and physical health results. Helgeson, Reynolds, and Tomich (2006) conducted a meta-analytic review of 87 studies focused around the topic of PTG, stress related growth, and benefit finding to determine if there is substantial evidence of PTG. The researchers discovered that positive growth following a challenging experience is significantly related to better mental health outcomes. This may be due to more intrusive thoughts, which leads to cognitively reprocessing the negative event. Thus, this contemplation and rumination may be a fundamental factor for such growth to occur (Tedeschi et al., 1998). Other important individual factors have been identified as contributing to a higher likelihood of experiencing positive growth, such as being a minority, being younger, and being female. Specifically, this difference between genders is consistent with previous coping literature that has identified women as engaging in more positive reappraisal and positive self-talk compared to males (Tamres, Janicki, & Helgeson, 2002). These coping strategies have also been found to facilitate and promote greater growth following negative experiences (Joseph & Linley, 2004). Another important review of 40 studies conducted by Joseph and Linley (2004) focused on seven different measures of post-adversarial growth, which ultimately lead to the recognition of variables that could predict posttraumatic growth. First, the researchers focused on personality traits from the Big Five and found that extraversion, agreeableness, openness, and conscientiousness were significantly related to growth. Additionally, the researchers found that the personality constructs of self-efficacy, hardiness, high self-esteem, and optimism were also

related to growth. In general, these findings highlight that growth is not necessarily due to the event itself, but one's ability to ruminate and make sense of their experience in relation to their personality characteristics. As suggested by Linley and Joseph (2004), it is important for researchers to begin to identify new variables that contribute to posttraumatic growth because researchers are still unsure what the consistent factors of posttraumatic growth are across different negative life events, and if the domains of posttraumatic growth vary. Also, there needs to be a better understanding of what variables contribute to the promotion, facilitation, and prediction of posttraumatic growth.

All things considered, PTG is a process that leads to psychological well-being due to an individual's active engagement in understanding their place in the world, self-acceptance, environmental mastery, autonomy, and having meaning and purpose in life (Ryff & Singer, 1996). Thus, this human flourishing is especially illustrated by Ryan and Deci's (1985, 2017) theory of motivation, *self-determination theory (SDT)*. This theory is useful for better understanding and predicting PTG because of its framework for individual differences in personal growth abilities in their biological, social, and cultural conditions (Ryan & Deci, 2017). Within this approach of human personality development, the researchers argue that individuals are motivated to be active agents and proactive in their lives, while also integrating ongoing experiences to further develop a coherent sense of self (Ryan & Deci, 2002). Thus, individuals have an inherent tendency to master both inner emotional and outer environmental factors to foster personal growth and psychological well-being. However, the ability for one to actualize their intrinsic nature does not occur immediately and individuals must become motivated to strive for proactive growth within their social environmental.

Self-Determination Theory and Basic Need Satisfaction

By proposing how social and environmental factors can influence one's outcome, SDT specifically defines three *basic psychological needs* that are essential for growth: *autonomy, competence*, and *relatedness*. Like obtaining physical requirements, Ryan and Deci (1985, 2017) believe that to experience and sustain psychological development and wellness one must satisfy the basic psychological needs. The first basic need is *autonomy*, or the ability for an individual's behavior to be intrinsically driven out of personal self-interest. This need for self-regulation is associated with feeling congruent with one's behaviors, interests, and values (Ryan & Deci, 2017). The second basic need is *competence,* which has been one of the most researched topics, and has been identified as a core element for one's motivated actions (Bandura, 1989; Deci, 1975, White, 1959). Competence refers to the perceived ability one has about themselves, to intentionally influence and master their environment in desirable ways. To operate effectively within important or difficult life situations people inherently strive to manipulate and promote intrinsic motivations (Deci & Moller, 2005). Lastly, *relatedness* focuses on the social feelings of belonging, being connected to others, and typically feeling cared for by others. It is equally important that one contributes and gives back to others (Deci & Ryan, 2014). Therefore, the satisfaction of these basic needs promotes the fulfillment of intrinsic motives and the feelings of effectiveness and connectedness (Patrick et al., 2007).

This is consistent with the motivational hierarchical model within SDT (Ryan & Deci, 2000; Vallerand, 1997; Vallerand & Ratelle, 2002), which proposes that an individual tends to fall within three levels of motivation: *autonomous motivation, controlled motivation*, and *amotivation*. Since, individuals are motivated to satisfy the three basic psychological needs, globally determined factors, such as an increased awareness of one's needs, preferences, and goals, are critical to pursue high levels of self-esteem and overall satisfaction (Deci & Ryan,

1985; Hodgins & Knee, 2002). This represents autonomous motivation, which is motivation by one's intrinsic motivations. Whereas, controlled motivation is characterized by extrinsic motivations that arise from specific outcomes, rewards, and the avoidance of punishment. Research has shown that these external pressures will lead to more negative outcomes in behaviors and psychological well-being (Deci & Ryan, 2000; Vallerand, 1997). Lastly, amotivation is the complete absence of motivation, and individuals feel incompetent to engage in specific behaviors and they do not see value in engaging in self-promoting activities.

Only one study has attempted to identify the relationship between posttraumatic growth and self-determination and more specifically, the role of motivation (Lumb, 2015). This study's focus was if the type of motivation, such as autonomous and controlled orientations, impacted one's cognitive appraisals, coping strategies, and facilitation of posttraumatic growth. The research incorporated motivational constructs and determined that autonomous motivation was linked to posttraumatic growth because it may provide a stable resource to help individuals adapt to the negative life event (Lumb, 2015; Vallerand, 1997). Therefore, using self-determination theory as a useful framework for understanding differences between individuals when appraising and coping with a negative life event, the research investigated if this concept can directly predict posttraumatic growth. The hypotheses examined the relationship between motivation and posttraumatic growth, the statistical predictive power of autonomous motivation in explaining posttraumatic growth, and explored the cognitive appraisal and coping factors that may explain the association between autonomous motivation and posttraumatic growth (Lumb, 2015). This was the first study to investigate the contribution of motivation to the understanding of posttraumatic growth through the lens of self-determination theory. Findings indicated that autonomous motivation is positively associated to posttraumtic growth following a negative life

event. Their hypotheses were supported and determined the importance of autonomous motivation when an individual experiences a negative life event. Specifically, that autonomous motivation can foster integration of this experience into self-structures and ultimately help facilitate posttraumatic growth (Lumb, 2015). In summary, the research inspired my own work to incorporate self-determination theory into models of posttraumatic growth following a loss and described the importance of exploring other variables, especially meaning-making. From the self-determination theory's perspective, the self is intrinsically motivated to integrate new elements into the self, and individuals must therefore engage in a meaning-making process to integrate the loss experience into their sense of self (Deci & Ryan, 2000; Lumb, 2015).

Meaning-making

As empirical evidence grows to support the relationship between higher levels of positive coping with autonomous motivation, the question arises: why does basic need satisfaction autonomous motivation predict posttraumatic growth? Many perspectives have emphasized the importance of reconfiguration in our cognitive structures and the critical role that finding meaning plays after a stressful or traumatic life experience (Davis et al., 1998). Although "finding meaning" is difficult to define, Baumeister (1991) suggested that meaning is a "mental representation of possible relationships among things, events, and relationships. Thus, meaning *connects* things" (p. 15). Using this definition, many researchers (e.g. Bonanno & Kaltman, 1999; Davis, Wortman, Lehman, & Silver, 2000; Janoff-Bulman, 1992; Joseph & Linley, 2005; Neimeyer & Sands, 2011) have developed a consensus on the essential elements of the meaning-making process. These elements proposed the following process: (a) People hold to a general orienting system, referred to as global meaning, that provides them a cognitive framework to interpret their

experience and motivations; (b) When experiencing stress that challenges their global meaning, individuals must appraise and give meaning to their situation; (c) As the distress causes discrepancies with their global meaning, a process of meaning-making occurs; (d) Through meaning-making, individuals attempt to reduce the discrepancies and restore the understanding about the world and the self; (e) When successful, meaning-making would lead to better adjustment (Park & Folkman, 1997; Park, 2010).

To summarize, meaning-making refers to the process where individuals try to cognitively reduce a discrepancy between their global meanings and their negative life experience (Joseph & Linley, 2005). In the aftermath of a negative life experience, an individual's schemas, or global meaning, about the world is challenged, which creates discrepancies and distress in their goals, beliefs, behaviors, and expectations. Therefore, they are forced to adjust or reconstruct their beliefs about the world and generate an intense motivation to reduce distress. The meaning-making process is broken into multiple overlapping dimensions; however, it is difficult to make clear distinctions since it encompasses many elements. So, it is important to define the mean-making process as how an individual defines any positive aspects after experiencing a loss and in what ways did their suffering change their identity, goals, and beliefs, which lead to greater posttraumatic growth. Like many other studies, the meaning-making process is assessed by directly asking participants if they have been able to "make sense of" a loss and to what extent do they indicate any positive changes (Davis et al., 1998; Tennen & Affleck, 2002). In general, some quantitative studies have found associations between meaning-making and other measures of positive adjustment following a loss (Afflect & Tennen, 1996; Davis et al., 1998; Zeligman,et al., 2018).

In a recent study, the influence of social support and meaning-making as predictors to posttraumatic growth was investigated on individuals with chronic illness (Zeligman et al., 2018). The interaction between meaning-making and posttraumatic growth had not been explored, even though previous research has identified meaning-making as a central theme for increasing posttraumatic growth in individuals experiencing negative life events (Taylor, 2014). By focusing on the potential meaning-making has following an experience of a negative life event, researchers can determine how it contributes as a significant factor when reappraising, grieving, accepting changes, and ultimately facilitating psychological growth (Zeligman et al., 2018). The results specifically showed that meaning-making was the strongest predictor, when compared with social support, of posttraumatic growth (Zeligman et al., 2018). This suggests that those who are struggling with a negative life event should focus on making meaning when working with clinicians because this will likely encourage greater personal growth. It is important to use the framework of meaning-making, so individuals can create a sense of meaning in life through the processes of rumination and narratives, in order for the development of posttraumatic growth to occur (Neimeyer & Sands, 2011; Zeligman et al., 2018).

The Present Study

The purpose of this study is to investigate factors predicting posttraumatic growth after an individual experiences a loss. Given the findings from previous research, I believe that there is a relationship between basic need satisfaction, meaning-making, and posttraumatic growth. Since there are links between self-determination, meaning-making, and coping with a negative life event, specifically a loss (Afflect & Tennen., 1996; Bonanno & Kaltman, 1999; Davis et al., 1998; Lumb, 2015; Tedeschi & Calhoun, 1995, 2006) these will be viable methods when determining ways to facilitate and predict posttraumatic growth in individuals. This relationship

may not be apparent immediately after experiencing a loss, therefore a retrospective account about this experience may be needed to highlight the connection between posttraumatic growth, basic need satisfaction, and meaning-making. Therefore, the goals of this study are: 1) To further explore the connection between posttraumatic growth and the experience of a negative life event; 2) To investigate the statistical predictive power of basic need satisfaction and meaning-making in explaining posttraumatic growth following a loss. Thus, using this framework, which is based on previous research, I examined two main hypotheses: First, high basic need satisfaction in general and in the three subscales (autonomy, competency, and relatedness), would have a positive association with PTG, whereas low basic need satisfaction in general and in the three subscales would relate negatively to PTG. Second, meaning-making focused on more positive elements of one's experience, such as personal strengths or a deeper sense of compassion for others, would additionally have a strong association to PTG as a qualitative supplement of growth

Method

Participants

Participants were recruited from Amazon Mechanical Turk, which is an online participant recruitment system. They completed a Qualtrics survey comprised of demographics, a slightly revised Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), the Basic Need Satisfaction, General (BNS-G; Deci & Ryan, 2000; Gagné, 2003), and two questions measuring meaning-making. Data was collected from a sample comprised of 504 individuals, however 64 participants were excluded from the analyses (e.g., did not experience a loss; completed less than 50% of the survey). The final sample consisted of 440 (268 females, 168 males, 2 others/rather not say), with ages ranging between 20 years and 79 years ($M = 40.05$,

SD = 12.25) and reported their ethnicity as Caucasian (81.4%), African American (7.3%),

Hispanic (5.0%), Asian (4.3%), and other (2.0%, e.g., Native American). The participants also

reported their religious beliefs as Christian (57.7%), No Affiliation/None (23.2%),

Agnostic/Atheist (11.1%), Spiritual (2.0%), Jewish (2.0%), Buddhist/Hindu (1.6%),   other

(1.4%, e.g., Wiccan) and Islamic (0.9%). All demographic characteristic are reported in Table 1.

Procedures

The data was collected through an online self-report survey hosted on Amazon

Mechanical Turk. Once participants choose this survey and consented to participating, they were

asked "*Have you ever experienced any of the following types of loss?*" Participants who

responded "*none*" to this question were not included in this study. After completion of the

questionnaires, participants were also asked if they were distracted while doing the survey.

Participants who responded "*yes*" to this question were not included in this study. Those who

were included, indicated the type of loss they experienced (e.g., natural, expected), their

relationship to the loss (e.g., parent), and indicated how much time had pass following the loss.

Participants then responded to the subsequent posttraumatic growth and basic-need satisfaction

questionnaires. Following, participants responded to two meaning-making qualitative questions.

It took approximately 15-20 minutes to complete the survey.

Measures

Demographics. Participants were given a questionnaire (see Appendix D) regarding their

age, gender, ethnicity, type of significant loss (e.g., natural, expected, homicide, accident,

intentional self-harm, romantic breakup), relationship to the loss (e.g., daughter, father, cousin),

time since the loss, emotional closeness to the loss, impact of the loss, personal growth

experienced because of the loss, type of support received, and how much time passed between their loss and support. Specifically, closeness to the loss was measured using a 7-point Likert scale to indicate the strength of the participant's relationship to the loss, since at the time the relationship may not have been good. Lower scores on this item indicates that the participant was closer to the loss, whereas higher scores indicates that the participant were not as close.

Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). This is a 21-item inventory (see Appendix E) that measures the positive outcomes following the experience of a loss. It is assessed in five general domains: relating to others (e.g., *I more clearly see that I can count on people in times of trouble*), new possibilities (e.g., *I established a new path for my life*), personal strength (e.g. *I discovered that I'm stronger than I thought I was*), spiritual change (e.g., *I have a better understanding of spiritual matters*), and appreciation of life (e.g., *I have a greater appreciation for the value of my own life*). The original Likert scale was modified to a 5-point Likert scale from 1 (I did not experience change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis) participants responded to these items, which determined the degree to which positive change had occurred in their life as a result of the crisis. The PTGI scale possess good validity and reliability at an alpha coefficient of 0.89, and high internal consistency at 0.91 (Tashiro & Frazier, 2003; Tedeschi & Calhoun, 1996).

Basic Need Satisfaction in General Scale (BNS-G; Deci & Ryan, 2000; Gagné, 2003). This is a 21-item measure (see Appendix F) that assess the three basic psychological needs: autonomy (e.g., *I feel free to be who I am*), competence (e.g., *I feel very capable and effective*), and relatedness (e.g., *I feel a lot of closeness and intimacy with others*). Using a 5-point Likert scale from 1 (Strongly agree) to 5 (Strongly disagree) participants responses to these items

determined how much the needs were satisfied. Then by reversing negatively worded items and averaging the responses, overall need satisfaction was computed, in that higher scores indicate greater basic need satisfaction, whereas lower scores indicate less basic need satisfaction. The BNSG-S possesses acceptable levels of validity and reliability, such that autonomy (7 items, α = 0.69),   relatedness (6 items, α = 0.86), and competence (8 items, α = 0.71) measure the extent an individual satisfies these needs, while it also has high internal consistency (α = 0.89) (Gagné, 2003).

Meaning-making Qualitative Questions Revised (Affleck & Tennen, 1996; Davis, 1998). These two questions (see Appendix G) asked about making sense of the loss and about any positive implications of the loss. First, participants were asked: *"Do you feel that you have been able to make sense of the loss?"* Following, participants were then asked: *"Sometimes people who have experienced a loss can find some positive aspect in the experience. For example, some people feel they learn something about themselves or others. Have you found anything positive in this experience?"* Likewise, this question is posed to determine any positive outcomes from this construal meaning. Responses to these questions were not quantitatively coded, instead they were used to as a supplement for describing participants reasoning and possible associations with posttraumatic growth.

Data Analysis Plan

All analyses for this study will be performed using R environment for statistical computing and visualization, which is an open-source dialect of the S statistical computing language. To investigate the primary research question, a Pearson *r* correlation will be conducted to assess the relationship between posttraumatic growth and basic need satisfaction. Correlation will also be conducted to assess the relationship between posttraumatic growth and other

variables, such as emotional closeness. This is a bivariate measure of strength to determine the

relationship between two variables. By identifying a correlation of the variables, I would be able

to determine if the interaction is positively correlated then high basic need satisfaction can allow

for the facilitation of posttraumatic growth. Correlation coefficients, *r*, vary from 0 (no

relationship) to 1 (perfect positive relationship) or -1 (perfect negative relationship). Cohen's, *d*

standard will be used to evaluate the correlation coefficient, where 0.10 to 0.29 represents a low

association between the two variables, 0.30 to 0.49 represents a moderate association, and 0.50

or larger represents a strong association.

In a secondary analyses we will use a single linear regression to investigate whether or

not basic need satisfaction predicts posttraumatic growth. A linear regression is used to assess

the extent of an association and, in this case, if basic need satisfaction is a predictor variable of

posttraumatic growth. The following regression equation will be used: $y = \alpha + b1*x$; where y =

estimated dependent variable, α = constant, b = regression coefficient and x = independent

variable. The *F*-test will be used to assess whether basic need satisfaction predicts posttraumatic

growth. The *t*-test will be used to determine the significance of the predictor and beta coefficients

will be used to determine the magnitude and direction of the association. The assumptions of a

linear regression, linearity and homoscedasticity, will be assessed. Linearity assumes a straight

line relationship between the predictor variables and the criterion variable and homoscedasticity

assumes that scores are normally distributed about the regression line. Linearity and

homoscedasticity will be assessed by examination of a scatter plots.

Procedures for analyzing the qualitative meaning-making data has been described by

Davis et al. (1998) and were employed. The statements given to the two questions will be

thoroughly read to obtain an understanding of the data. Each participant's response will be

organized together per question to simplify the coding process. The statements would be first coded into like categories, specifically the commonalities and themes will be categorized as either "no," "yes," "ambiguous or partly," or "respondent not interested in the issue." Ambiguous or partly responses were statements that confirmed that the issue was under consideration, but they gave no further indication that their meaning-making process had been resolved. Second, the statements would be categorized in terms of specific meaning reported by the participant and a coding scheme was developed. For the make-sense question, eight categories were identified: predictable, accept it/part of the life cycle, god/fate, patient accepted death, just happens, experienced growth, and other. Then for the positive growth question, seven categories were identified: growth in character, gained perspective, brought family together, support from others positive, others will benefit, better that it is over, and other. This data will not be turned into a quantitative variable. Instead, it will be assessed as a supplement to understanding the association between basic need satisfaction and posttraumatic growth.

Results

PTG and BNS Correlation and Regression Analysis

A correlation and simple linear regression analyses were conducted to examine the association between posttraumatic growth and basic need satisfaction. Descriptive statistics and analysis of results for posttraumatic growth and basic need satisfaction are reported in Table 2. A Pearson (r) correlation was computed between posttraumatic growth and basic need satisfaction total scores. As seen in Figure 3 there was a moderate, significant and positive correlation between posttraumatic growth and basic need satisfaction, meaning that as satisfaction of basic psychological needs increase, posttraumatic growth also increased, (N = 440, r = 0.45, $p < 0.00$, $d = 1.01$). The effect size for this analysis ($d = 1.08$) was found to exceed

Cohen's (1988) convention for a large effect ($d = 0.80$). Also, a simple linear regression using basic need satisfaction as a predictor indicated that higher satisfaction of autonomy, competence, and relatedness explained 20% of the variance in posttraumatic growth ($R^2 = 0.20$, $F(2, 438) = 108$,

$p < 0.00$).

Pearson (r) correlations were also conducted to examine the association between posttraumatic growth and basic need satisfaction subscales of autonomy, competence, and relatedness. Descriptive statistics and data analyses results for PTGI outcomes, BNS-G outcomes, and subsequent subscales are reported in Table 3. A moderate significant and positive correlation was found between posttraumatic growth total score and each of the three basic need satisfaction subscales, indicating that as satisfaction of autonomy, competence, and relatedness needs increased, posttraumatic growth also increased (Autonomy: $N = 440$, $r = 0.32$, $p < 0.00$, $d = 0.68$; Competence: $N = 440$, $r = 0.46$, $p < 0.00$, $d = 1.04$; Relatedness: $N = 440$, $r = 0.44$, $p < 0.00$, $d = 0.98$). The effect size for autonomy was found to be at a Cohen's (1988) convention for a moderate effect ($d = 0.30$-0.49), and the effect sizes for competence and relatedness was found to be at a Cohen's (1988) convention for a large effect ($d = 0.80$). Also, a multiple linear regression using the three basic needs (autonomy, competence, and relatedness) as predictors, indicated that higher satisfaction of autonomy, competence, and relatedness explained 25% of the variance in posttraumatic growth ($R^2 = 0.25$, $F(4, 436) = 47.5$, $p < 0.00$).

Hypothesis 1 was supported in that basic need satisfaction and its subscales were positively associated with posttraumatic growth. Meaning that individuals who reported high basic need satisfaction in general and in the three subscales (autonomy, competency, and

relatedness), had higher levels of PTG. Also, these variables emerged as significant statistical predictors of posttraumatic growth.

Meaning-Making Qualitative Analysis

A pattern began to emerge in the two qualitative questions used to prompt notions of meaning-making. Findings indicated that individuals who identified as making-sense, were able to explain why, and discussed positive aspects following the loss, typically benefited and had greater posttraumatic growth. Those who reported that they had learned something from it, about themselves (e.g., that they had the strength to cope with the loss), or about the meaning of life (e.g., the value of their social support systems) tended to find greater benefits. Also, those who further explained the reasoning behind why they had a greater benefit typically focused more on positive aspects of the experience. One participant, who lost someone following an accident, explained:

> "Yes. A lot of time has [passed]. I have done a lot of reflection and become a
> mother myself. I see how it has changed so many people. [In] some ways it will
> always feel senseless. But in another way I see that if it made me better then it
> made a lot [of] people better and there is some beauty in that."

This individual was able to make sense of their loss after a lot of time and through a lot of reflection. In most cases, those who took time to reflect on their experience explained more positive aspects and had great posttraumatic growth. Also, those who had longer time between their loss and reporting their benefits appear to grow stronger with time. Along with previous research, this suggests that rumination is an important process for people who report finding benefit to promote greater personal growth following a loss (Tedeschi et al., 1998). Specifically, those who were able to make sense of their loss typically themed around "that death is a part of

life", "everything happens for a reason", or it was "meant for a greater purpose." Individuals who were able to focus on these positive aspects typically experienced greater posttraumatic growth because they were able to re-examination their beliefs and focus on their values, which ultimately allowed for them to explain their experience of positive growth (Deci & Ryan, 1985; Tedeschi, Calhoun, & Cann, 2007).

Hypothesis 2 was supported that meaning-making focused on more positive elements of one's experience, such as personal strengths or a deeper sense of compassion for others, had higher levels of PTG as a qualitative supplement of growth.

Exploratory: Emotional Closeness and PTG Correlation Analysis

A correlation was also conducted to examine the association between posttraumatic growth and participants emotional closeness to the person (or other) they lost. Data analysis results for PTGI outcomes, BNS-G outcomes, participants emotional closeness to the person (or other) they lost, impact of the loss, and personal growth experienced are reported in Table 4. A Pearson (r) correlation was conducted between posttraumatic growth and participants emotional closeness to the person (or other) they lost. There is a small significant and positive correlation between posttraumatic growth total score and participants emotional closeness to the person (or other) they lost, indicating that the closer the participant emotionally felt to the person (or other) they lost, posttraumatic growth was reported (N = 440, r = 0.22, $p < 0.00$, $d = 0.45$). The effect size for this analysis ($d = 0.45$) was found to be at a Cohen's (1988) convention for a moderate effect

($d = 0.30\text{-}0.49$).

This finding was expected because previous research has suggested that the level of connection between the participant and the individual they loss would be important, since proximity does not always mean emotional closeness (Weiss, 2001).

Discussion

The current study attempted to determine the association between posttraumatic growth and basic need satisfaction following a loss. Using Self-Determination Theory (Deci & Ryan, 1985, 2002) as a framework, it was hypothesized that basic need satisfaction would be related to facilitating posttraumatic growth. Findings supported this hypothesis and results showed that there was a moderately significant and positive association between posttraumatic growth and basic need satisfaction following a loss. Also, after conducting a single linear regression, this hypothesis was further supported to find that this association has a predictive value of posttraumatic growth. In addition, there is a moderately significant and positive correlation between posttraumatic growth total score and basic need satisfaction subscales. Although previous research described the association between posttraumatic growth and SDT's motivational theory (Lumb, 2015), the current research went beyond to determine how SDT's three basic psychological needs (autonomy, competence, and relatedness) can potentially act as a resource to help promote and predict posttraumatic growth following a loss.

Individuals who were able to make-meaning and focused on more positive elements of one's experience, typically experienced greater levels of PTG. In contrast, there was a strong distinction when individuals were not able to make sense of the loss, specifically in the explanations. Individuals who were not able to find something positive in the experience reported that there was "nothing to make sense of," that they had "accepted it/moved on," or that

they "turned to God for answers," typically had lower levels of posttraumatic growth. One participant, who lost a parent through natural, expected causes, explained:

> "No, I have not made sense of my loss. I have accepted it. Mentally I know
>
> everyone dies eventually but have I made sense of my loss? No."

This individual almost perfectly captures the difference between just accepting a loss and rumination. Through rumination and satisfaction of basic needs, an individual can begin to focus on their values, which will allow them to integrate this loss into their new view of the world and self. Therefore, by just accepting a loss logically, as a fact, but not diving into the depth of explaining the impact and aftermath the loss had on oneself suggests that they have experienced less posttraumatic growth. Instead, many reported feeling distressed and became defensive when explaining the ways they have not made meaning following a loss. Those who reported not being able to make sense of the loss also were more likely to report more negative aspects in their experience, which, again, corresponded with lower levels of posttraumatic growth.

This is an important finding because it reveals that meaning-making and rumination, may be an important factor for promoting posttraumatic growth. Individuals must engage in a meaning-making process, so they can integrate the experience of the loss into a coherent sense of self. The ability for one to think deeply, reflect, and contemplate how their beliefs, motivations, and priorities have shifted following a loss is necessary for growth to occur (Tedeschi & Calhoun, 1998).

These findings provide further support to the theoretical assumptions and research indicating that there is a cognitive element to PTG and that basic need satisfaction plays a facilitating role in promoting posttraumatic (Lumb, 2015; Ryan & Deci, 2017). Given that those who have greater satisfaction of basic needs have an awareness about their social and

environmental factors , their emotional openness to their experience may allow them to integrate this loss in their existing self-schema, so they can further develop a coherent sense of self (Hodgins & Knee, 2002; Ryan & Deci, 2002). High satisfaction on autonomy, competence, and relatedness suggests that individuals can maintain focus on promoting the fulfillment of their intrinsic motives and their feelings of connectedness with others (Patrick et al., 2007). Therefore, this can act as a motivational buffer following a loss because individuals can appear to be more willing to focus on their values and proprieties (Deci & Ryan, 1985). Individuals who had high basic need satisfaction and reported meaning-making focused on positive elements experienced greater posttraumatic growth following a loss.

Clinical Implications

Following the investigation of the primary research questions and exploratory analyses, I determined that there are possible clinical implications from these findings. It is clear from the current research that high basic need satisfaction can promote and facilitate posttraumatic growth. For clinicians, these findings are extremely important and relevant to understanding ways we can create a better environment to facilitate posttraumatic growth following a loss. To begin, clinicians can help clients to develop a sense of need satisfaction, which are autonomy, competence, and relatedness. This will allow for the individual to foster autonomous motivation that will help them develop an intrinsic and coherent sense of self (Lumb, 2015). By creating a supportive environment the clinician can encourage a sense of autonomy, competence, and relatedness in their client, which may foster posttraumatic growth (Joseph & Linley, 2005; Ryan & Deci, 2000). Furthermore, my findings supplement previous research suggesting that

clinicians should help their clients develop meaning-making because this will encourage ways to ruminate, explore, and integrate this loss (Zeligman et al., 2018). The process of meaning-making may benefit clients in therapy since it will help identify coping strategies, such as positive re-interpretation, to additionally promote greater posttraumatic growth.

Also, results revealed that there was a significant association between emotional closeness to the person (or other) and posttraumatic growth. This shows that no matter the relationship to the person (or other) lost or type of loss, individuals foster greater posttraumatic growth the closer they are to the person (or other) they lost. It is suggested that the bond between the participant and the person they lost is essential, but proximity does not always mean closeness (Weiss, 2001). This is an important finding because in order to help individuals integrate this loss into their new sense of self clinicians should be sensitive to an individual's emotional closeness to the person (or other) they lost. By determining an individual's level of emotional closeness, clinicians can broaden their understanding about what other factors contribute to posttraumatic growth. For instance, previous research determined that greater closeness to their social support system, such as friends and family, is associated with a greater sense of meaning and posttraumatic growth following a loss (Krause, 2007). A close social system may share a similar experiences, can provide feedback, and offer guidance when an individual is finding a sense of meaning in life. Thereby serving as a role model, social support can lead to enhanced self-efficacy and increased belief in others (Linley & Joseph, 2004).

The positive relationship between meaning-making and social support also highlights the most important finding of acceptance following a loss. Many individuals who reported not making sense of the loss and focused on "having to accept" and "move on" following a loss also experienced less posttraumatic growth. This may indicate a discrepancy between their social

system, their ability to cope, and their search for meaning-making. When someone is grieving following a loss it can be difficult for those around them to know what to say or do. Speaking from personal experience, many individuals began to avoid me and rather than trying to understand my grief they awkwardly asked, "How are you?" I began to feel very isolated, uncomfortable, and judged by those around me because many people also said, "You are going to be fine! Just get over it and move on!" But, how could I move on when I could not talk about my experience, work through the pain, or create a sense of meaning following the loss? Even though many of those around me were well-intentioned, what I needed the most was to be able to speak to someone and just have them listen. Thankfully I had and still have an incredible support system; however, many participants, who did not make meaning and experienced less posttraumatic growth, indicated not having a social system they could rely on. This is an important discovery because a lot of research found that talking about their experience following that loss helps individuals find meaning, heal, and experience positive growth (Neimeyer, 2000). Particularly, Viktor Frankl (1959/1985) highlighted the profound role meaning-making plays in experiencing positive growth and emphasized that life is motivated by a search for meaning. Therefore, his theory can help inform clinicians about ways to facilitate posttraumatic growth, especially because posttraumatic growth involves an individual to actively engage in rumination. By allowing a client to re-examine their beliefs, motivations, and priorities following a loss, they may be able to identify how their struggles can lead toward a positive growth. Therefore, it is important for clinicians to identify the client's need to obtain a sense of meaning and to encourage rumination, so they can assist them on their journey towards greater posttraumatic growth and psychological well-being.

Considering these findings, self-determination theory and meaning-making has the potential to be a useful framework that can benefit clients in developing motivation strategies and facilitating posttraumatic growth.

Limitations and Future Research

Limitations must be considered when interpreting these results because these will offer insightful ways to improve future research on this matter. First, this study was primarily correlational in nature, which means that it can determine an association between variables, but it cannot prove a causal link. Although this is the case, the results are an important first step in better understanding of what factors promote and facilitate posttraumatic growth. Another limitation is that the findings are based on self-report measures and were collected from online participants. Even though, this is a reliable and easy way to collect data, satisfaction of basic psychological needs, posttraumatic growth and meaning-making scores can vary daily, which may possibly influence the data based on the participant's current mood. Also, using online data collection sites can be biased because participants make their way through the different studies as quickly as possible, since money is their motivation. Even though some evidence (Hauser & Schwarz, 2015) has suggested that the rate of failing attention on MTurk is no higher than other formats (e.g., lab, other internet survey), researchers should be aware that participants can become easily distracted. Lastly, the data collection was conducted at only one point in time and future research could benefit from using a longitudinal design in order to measure participants at different points in time following a loss. It would also be optimal to develop a longitudinal because researcher can use an experimental design to access direction of causality. This design would be beneficial in determining if fostering greater basic need satisfaction and meaning-making truly promotes greater posttraumatic growth. Therefore, it would be important to

measure participants immediately following a loss, although this may be difficult, since we cannot determine when individuals will experience a loss. By doing so it would help future researchers take into consideration how basic need satisfaction and meaning-making change over time, and how these variables promote posttraumatic growth.

This study revealed many different statistical data points to explore, however due to limited time and resources there was no way to mine the data further. The findings suggest that basic need satisfaction and meaning-making are associated with posttraumatic growth and are essential variables to take into account. But these concepts are merely theoretical and remain complex, therefore further research is needed to investigate these variables to better understand the association among basic need satisfaction, meaning-making, and posttraumatic growth.

One exploratory variable that I was extremely interested in investigating was what type of support the participant received and the amount of time that had passed between the loss and receiving such support. Previous research has determined that social support is positively correlated with posttraumatic growth and can possibly be an important predictor when facilitating growth following a loss (Sim et al., 2015; Zeligman et al., 2018). Speaking from personal experience, when my father died by suicide my family immediately found a trauma center to help us cope and as a support system. Without that resource I do not believe I would be here today writing this paper and wanting to share my experience, so I can continue to help others. There is limited research on whether the type of support and amount of time passed between receiving such support impacts an individual's psychological growth. Therefore, in future research I hope that there is a greater emphasis on the type of support individuals received following a loss and if immediate support facilitates greater posttraumatic growth and overall well-being. In addition, because this is the first study of its kind to explore the association

between self-determination theory, meaning-making, and posttraumatic growth, in both a quantitative and qualitative design, future research should continue to build on these results, so we can better understand ways clinicians can promote and facilitate growth in their clients following a loss.

Conclusion

In summary, self-determination theory and meaning-making appears to be promising frameworks for supplementing, understanding, and promoting posttraumatic growth. This study is a valuable contribution to the growing literature on posttraumatic growth and the positive association self-determination theory and meaning-making has on facilitating posttraumatic growth and overall well-being. It is my hope that this study will continue to inspire future research to explore how basic need satisfaction impacts posttraumatic growth and in what ways qualitative meaning-making can supplement these findings. As the first study to investigate the interaction of these variables there is still a long way to go in understanding ways we can help individuals develop greater basic need satisfaction and engage in positive meaning-making, in order to facilitate posttraumatic growth. In addition, I hope that this research will help clinicians develop better techniques to promote posttraumatic growth for individuals who experience a loss. It is important that researchers begin to identify ways we can best support individuals and help them comprehend, integrate, and achieve personal growth following a loss.

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Table

Table 1

Demographic Characteristics (N = 440)

Variable	Frequency	Percent
Gender		
Male	167	38.0%
Female	271	61.6%
Other	2	0.5%
Ethnicity		
Causian	358	81.4%
African American/Black	32	7.3%
Hispanic	22	5.0%
Asian	19	4.3%
Other	9	2.0%
Religion		
Christian	254	57.7%
No Afflation	102	23.2%
Agnostic/Atheist	49	11.1%
Spiritual	9	2.0%
Judaism	9	2.0%
Buddhism/Hinduism	7	1.6%
None	6	1.4%
Islam	4	0.9%
Type of Loss		
Natural, Expected	126	28.6%
Natural, Unexpected	124	28.2%
Relationship Breakup	92	20.9%

Accident	46	10.5%
Suicide	23	5.2%
Other	16	3.6%
Homicide	13	3.0%

Relationship to Loss		
Parent	148	33.6%
Significant Other	104	23.6%
Extended Family	92	20.9%
Sibling	44	10.0%
Other	32	7.3%
Acquaintance	19	4.3%
Stranger	1	0.2%

Table 2

Descriptive Statistics for Posttraumatic Growth and Basic Need Satisfaction

Variable	Minimum	Maximum	*M*	*SD*	N
Basic Need Statisfaction	1.93	7	5.03	0.98	440
Posttraumatic Growth	21	105	68.51	18.81	440

Table 3

Correlations between PTGI scores, BNS-G scores, and subsequent subscales

	Variable	2	3	4	5	6	7	8	9	10	M	SD
1.	PTGI	0.445**	--	--	--	--	--	0.323**	0.459**	0.435**	68.51	18.81
2.	BNS-G		0.427**	0.316**	0.464**	0.191**	0.411**	--	--	--	5.03	0.98
3.	PTGI Factor I: Relating to Others	--	--	--	--	--	--	0.286**	0.402**	0.508**	22.79	7.46
4.	PTGI Factor II: New Possibilities	--	--	--	--	--	--	0.230**	0.3343**	0.232**	12.44	4.35
5.	PTGI Factor III: Personal Strength	--	--	--	--	--	--	0.372**	0.503**	0.408**	14.00	4.03
6.	PTGI Factor IV: Spiritual Change	--	--	--	--	--	--	0.125*	0.214**	0.184**	5.57	2.84
7.	PTGI Factor V: Appreciation of Life	--	--	--	--	--	--	0.336**	0.438**	0.365**	11.03	3.01
8.	BNS-G Factor I: Autonomy	--	0.286**	0.230**	0.372**	0.125**	0.336**	--	--	--	5.10	1.09
9.	BNS-G Factor II: Competence	--	0.402**	0.342**	0.503**	0.214**	0.438**	--	--	--	4.95	1.15
10.	BNS-G Factor III: Relatedness	--	0.508**	0.232**	0.408**	0.184**	0.365**	--	--	--	5.05	1.09

Note: Pearson correlations for participants (N = 440) are presented above. Means and standard deviations for the participants are presented in the horizontal rows for each variable. For all scales, higher scores are indicative of more responding in the direction of the construct assessed. Correlation is significant at the *.01 or **.001 level (2-tailed).

Table 4

Correlations between PTGI scores, BNS-G scores, and other variables

	Variable	2	3	4	5	M	SD
1.	PTGI	0.445**	0.221**	0.276**	0.537**	68.51	18.81
2.	BNS-G	--	0.100**	0.121**	0.294**	5.03	0.98
3.	Emotional Closeness	--	--	0.736**	0.185**	6.19	1.19
4.	Impact	--	--	--	0.215**	6.27	1.07
5.	Personal Growth	--	--	--	--	4.85	1.52

Note: Pearson correlations for participants (N = 440) are presented above. Means and standard deviations for the participants are presented in the horizontal rows for each variable. For all scales, higher scores are indicative of

more responding in the direction of the construct assessed. Correlation is significant at the [*].01 or [**].001 level (2-tailed).

Figure Captions

Figure 1. Histogram for posttraumatic growth total scores.

Figure 2. Histogram for basic need satisfaction total scores.

Figure 3. Correlation between posttraumatic growth and basic need satisfaction total scores.

Figure 4. Bar graph for type of loss.

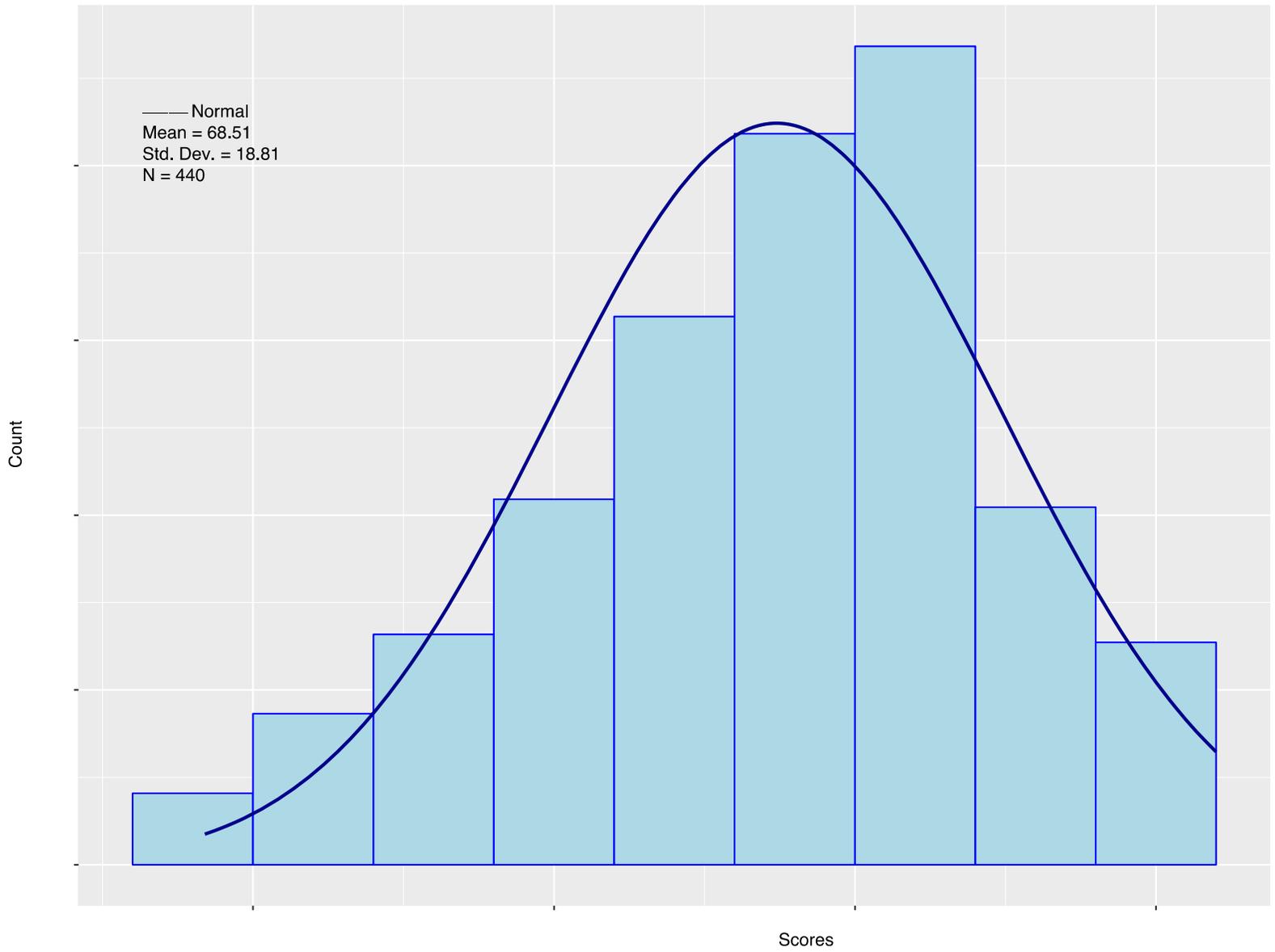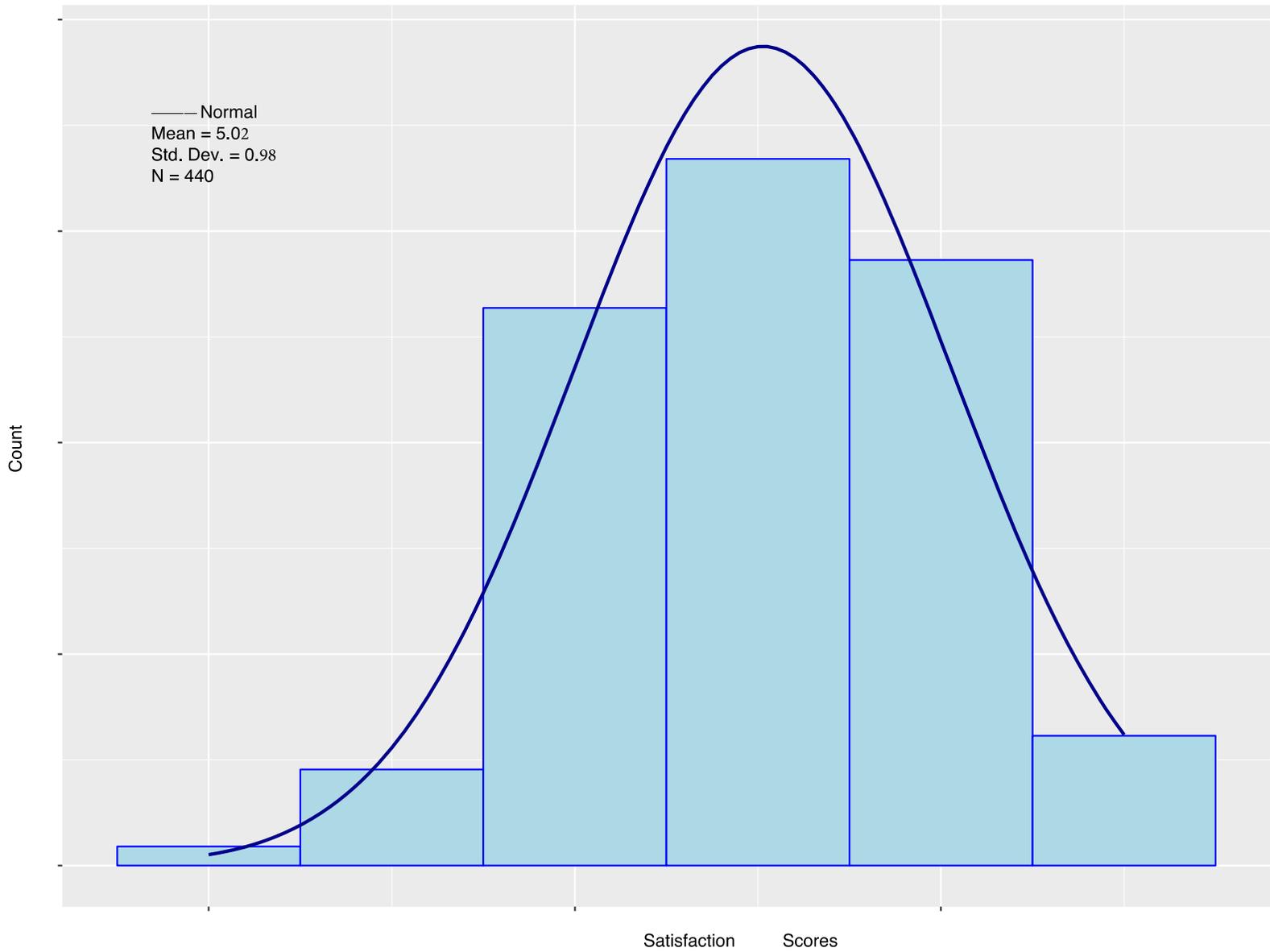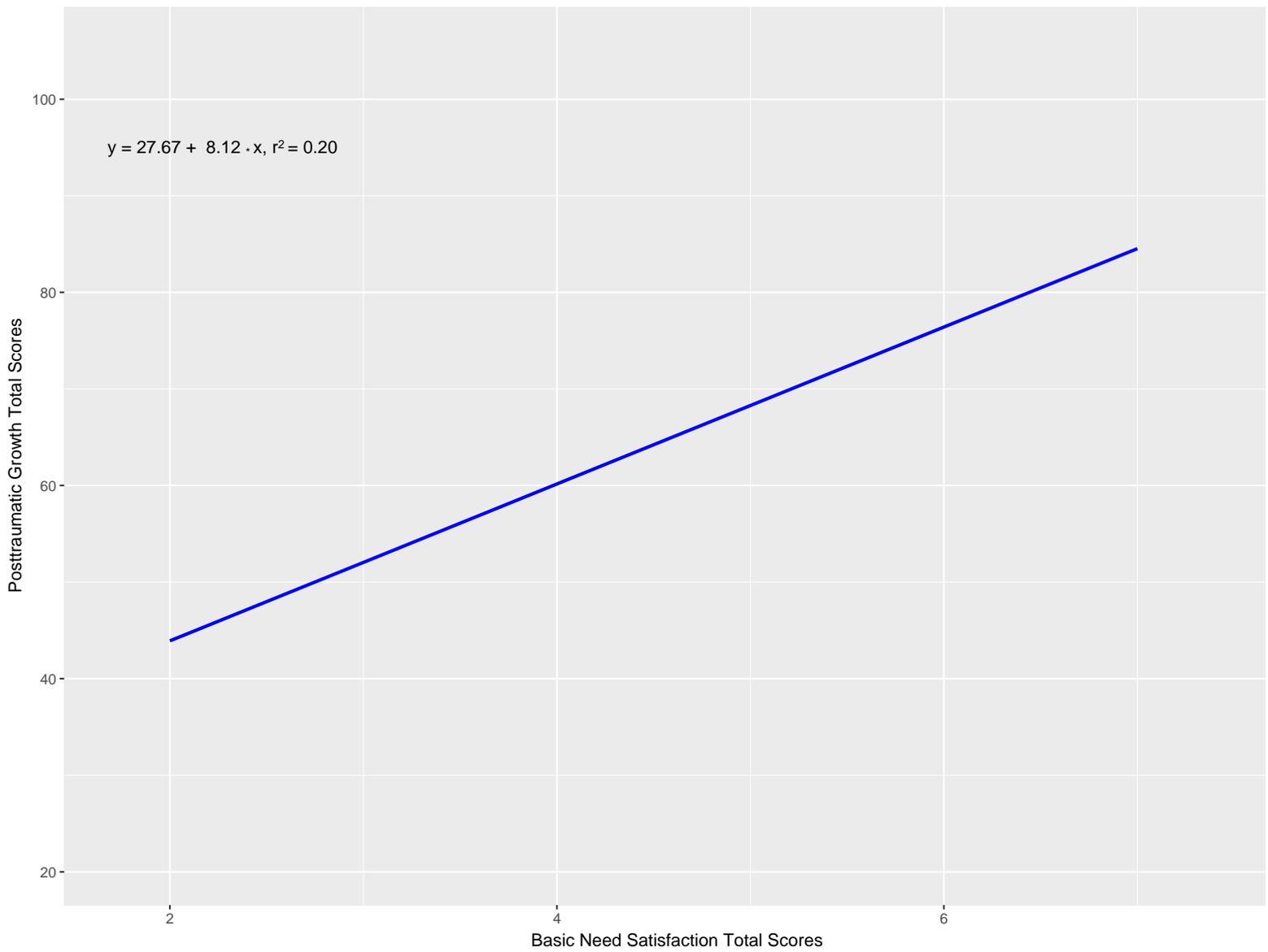*Figure 5.* Bar graph for relationship to loss.

Figure 1.

Figure 2.

Normal
Mean = 5.02
Std. Dev. = 0.98
N = 440

Count

Satisfaction   Scores

Figure 3.

$y = 27.67 + 8.12 * x$, $r^2 = 0.20$
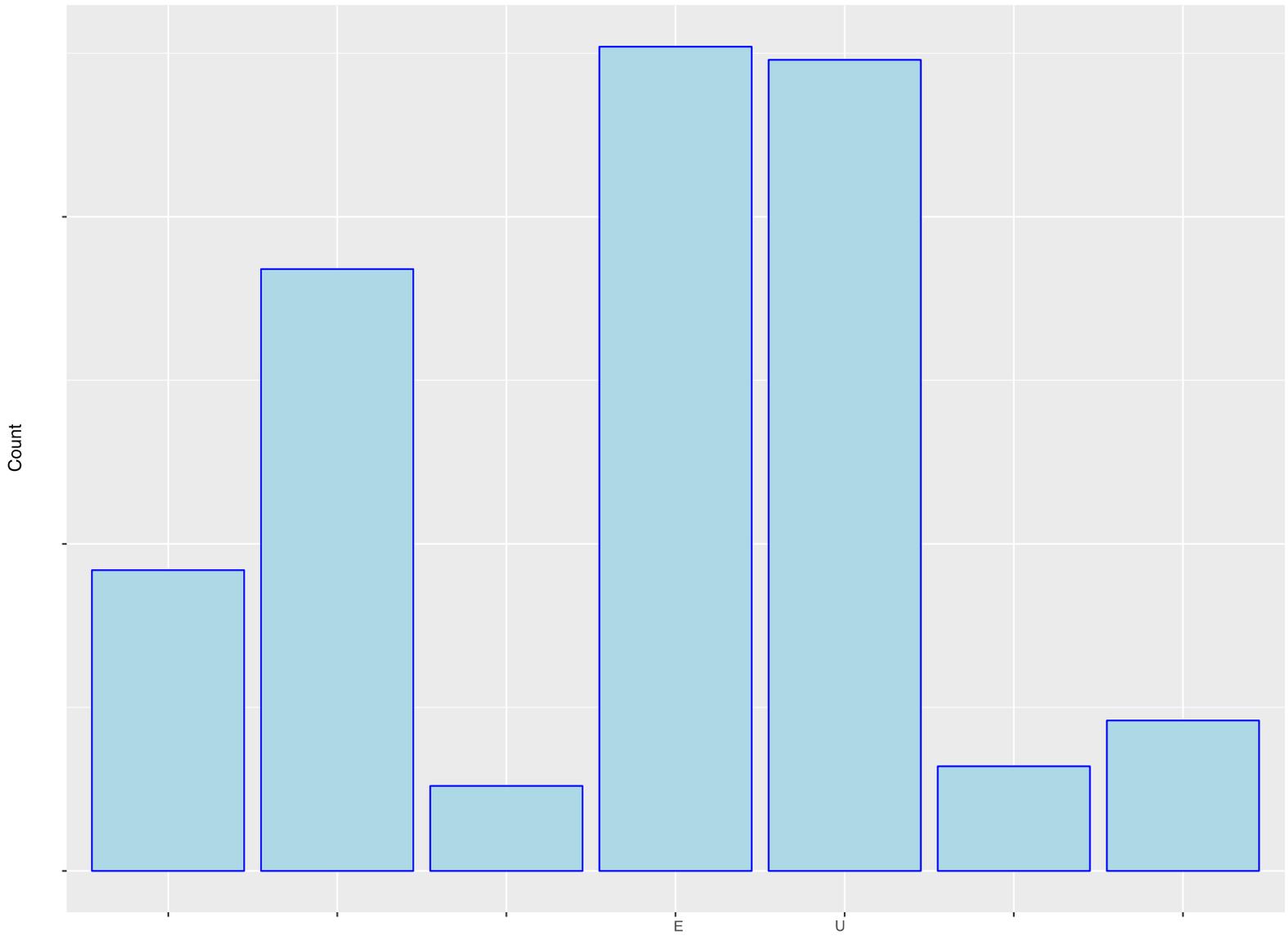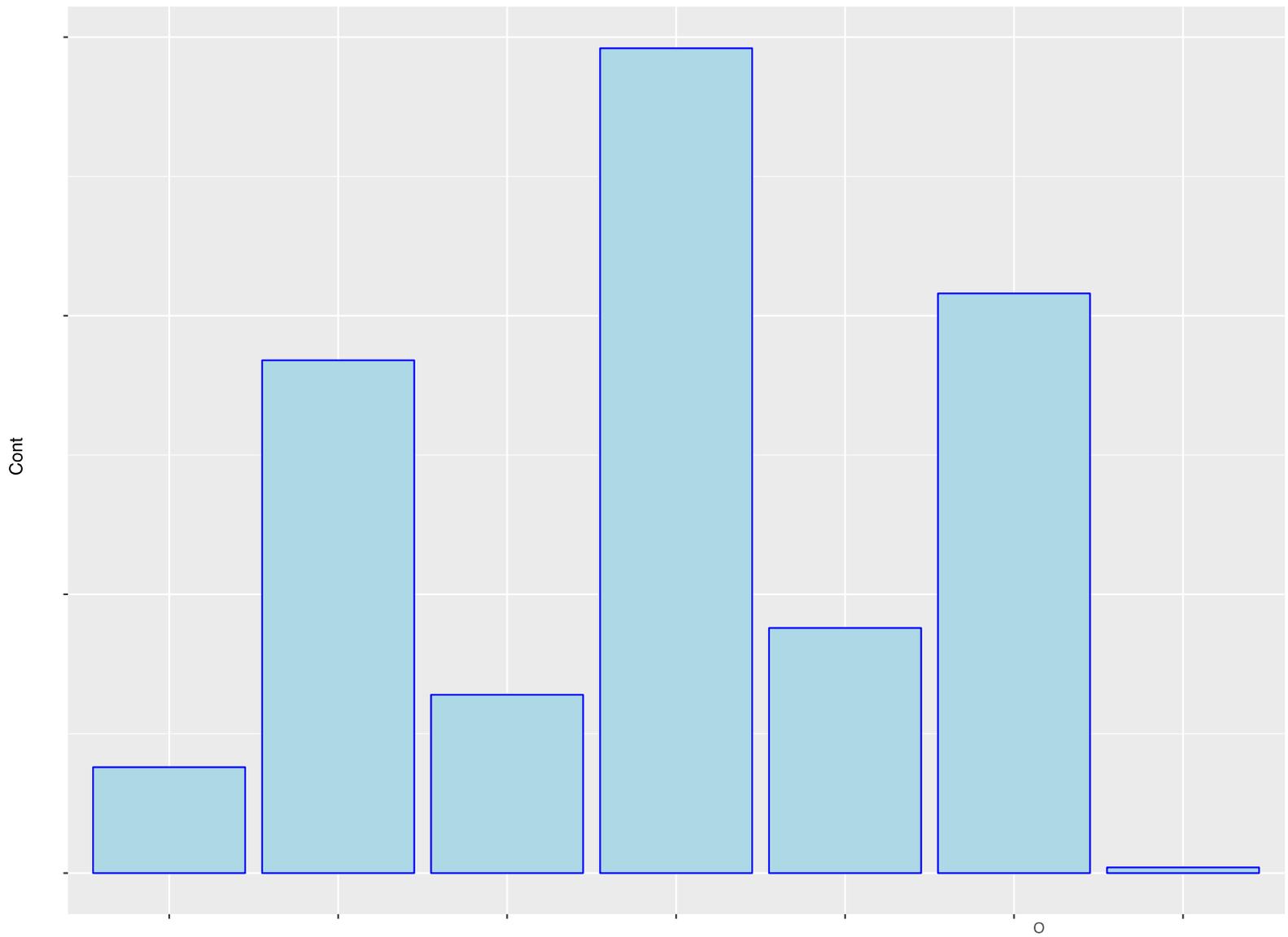
Figure 4.

Figure 5.

Appendix A
Online Consent Form

Posttraumatic Growth Following a Loss:
How to Predict Outcomes through Basic Need Satisfaction and Sense-Making

Please take as much time as you'd like to read this document.

If you have any questions before beginning or at any time, please contact the researchers at
arubinow@callutheran.edu and/or kuehnel@callutheran.edu.

WHY

You are being invited to take part in a research study about how a negative life experience, specifically a loss, can impact one's ability of meaning-making. We are investigating how the type of negative life experience, posttraumatic growth and basic need satisfaction can affect reports of positive life changes as a result of the struggle to cope with this challenging life event. If you volunteer to take part in this study, you will be one of about 500 people to do so. If you choose not to participate, it will not affect your standing with the Mechanical Turk program, in any way.

The purpose of this research is to investigate how individuals following a loss can develop posttraumatic growth through facilitation of their basic need satisfaction and engagement in creating meaning about the event. It is our hope that the general outcomes of this research will be presented at the Cal Lutheran Festival of Scholars and possibly the Western Psychological Association Conference in the Spring 2018.

WHO

The people in charge of this study is Allie Rubinowitz of California Lutheran University, Department of Psychology. I am a student conducting Undergraduate Honor Thesis research with supervision from Dr. Julie Kuehnel of California Lutheran University, Department of Psychology. You can reach the researchers via email at arubinow@callutheran.edu and/or kuehnel@callutheran.edu.

WHERE AND HOW LONG

The research procedures will be conducted on the Amazon's Mechanical Turk (MTurk) website. It will last for about 20-25 minutes; most people will finish the survey in under 20 minutes.

TASKS

If you participate in this study, you will be asked to complete two 21-item surveys about posttraumatic growth and basic need satisfaction. Following the surveys, you will be asked to response to two open-ended questions regarding how you have or have not created meaning about the event.

REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY

You will be excluded from participation in this study if you cannot devote at least 25 minutes to participate in this study. You will be excluded from this study if you are not at least 18 years of age.

POSSIBLE RISKS AND DISCOMFORTS

To the best of our knowledge, the things you will be asked about have no more risk of harm than you would experience in everyday life. Some possible discomforts may include; recalling a difficult negative experience. Remember that you can take breaks, or end participation at any time without penalty.

BENEFITS AND REWARDS

Benefits: You will receive no direct benefit from your participation in this study other than a cash compensation and a better understanding of behavioral science research and knowledge about how such research is conducted. Your willingness to take part, however, may, in the future, help society as a whole better understand this research topic.

Rewards/Incentives: You will receive $0.70 cash compensation for participating in this study. When you finish the survey, you will get a completion code to enter into Amazon MTurk. You must enter the correct completion code to receive the participation incentive.

DATA COLLECTION AND STORAGE

Data collected for this study will not be identifiable. Upon the start of the program, participants will be coded with a subject number that will not be associated in any way with the participant's name or other identifiable information. The consent page at the beginning of the experiment will not ask for the person's name or any other identifiable information. IP addresses will not be collected or stored by the Qualtrics program, however, they may be collected and stored by Amazon's Mechanical Turk program.

Please be aware, while we make every effort to safeguard your data once received from the online survey/data gathering company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still on the survey/data gathering company's servers, or while en route to either them or us. It is also possible the raw data collected for research purposes may be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies. This survey is being hosted by Amazon.com and involves a secure connection. Terms of Service, addressing confidentiality, may be viewed at https://www.mturk.com/mturk/welcome

VOLUNTARY NATURE

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering. You may also skip questions for any reason without any repercussions. If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. If you feel uncomfortable answering any questions, you are certainly in your rights to refuse to answer any question. No one will think badly of you or treat you differently if you decide to stop taking part in the study. If you decide to end participation early there will be no penalty, however you will not receive the randomly generated code from Amazon MTurk to receive cash compensation.

The individuals conducting the study may need to withdraw you from the study. This may occur if you are not able to follow the directions they give you or if they find that your being in the study is more risk than benefit to you.

COSTS

There are no costs associated with taking part in the study.

CONFIDENTIALITY

We will make every effort to keep private all research records that identify you to the extent allowed by law. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, this will never include your name or other identifying information.

Your name will not appear on any form. The information that you give us will only be identified with a code number generated randomly by the computer. The program will not collect any type of identifying information. Therefore, there will be no way to link your data to your name making your participation totally confidential. As such, we want you to feel completely comfortable answering all questions as honestly as possible.

QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now by emailing Allie Rubinowitz, arubinow@callutheran.edu. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the supervisor, Dr. Julie Kuehnel at kuehnel@callutheran.edu or at the address: 60 West Olsen Road, #3800, Thousand Oaks, CA 91360. If you have any questions about your rights as a volunteer in this research, contact the staff in the Institutional Review Board at California Lutheran University at irb@callutheran.edu.

_____ I agree to participate, and I am 18 years old or older.
_____ I do not wish to participate, or I am not yet 18 years old.

Appendix B
Description Posted on Amazon MTurk

Short List Description:

Survey about personal growth following a loss. 20-25min. Seventy-cents. 18+only.

Long Description:

In this study, you will answer questions a negative life experience, specifically about a loss. This research is being done to understand more about how a loss can impact one's ability of meaning-making, which could ultimately facilitate personal growth. It should take between 20 and 25 minutes. Most people will complete it in less than 20 min. You will receive seventy-cents, US $0.70 for completing this study. You must be at least 18 years old to participate. If you have any questions about the study before accepting the HIT, please email the primary researcher at arubinow@callutheran.edu.

Appendix C
Debriefing Form

Thank you for taking part in our research study. This research is being done to determine ways to facilitate and promote posttraumatic growth following a loss. Specifically, using the frameworks of self-determination theory and meaning-making this research could give insight for the field of psychology in better understanding how individuals cope with this significant negative life event. In this study, you were asked to recall a traumatic or distressing life event and respond to a couple of scales and follow up questions.

If you have any questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Allie Rubinowitz via email at arubinow@callutheran.edu. Or please contact the faculty advisor, Dr. Julie M. Kuehnel via email at kuehnel@callutheran.edu. If you have any questions about your rights as a participant in this research, contact the staff in the California Lutheran University Institutional Review Board at irb@callutheran.edu.

If you are concerned about your mental health or want to be connected to resources, please call these hotlines:
- Adolescent Crisis Intervention & Counseling Nineline: 1-800-999-9999
- After Loss (Bereavement): 1-800-423-8811
- Drug & Alcohol Treatment Hotline: 1-800-662-HELP (4357)
- Gay & Lesbian Trevor HelpLine Suicide Prevention: 1-800-850-8078
- National Alliance on Mental Illness: 1-800-950-NAMI (6264)
- National Youth Crisis Hotline: 1-800-448-4663
- Suicide Prevention Lifeline: 1-800-273-TALK (8255)

Appendix D
Demographics Questionnaire

1. Gender: Male_____ Female _____ Other _____

2. Age: _____

3. What is the ethnic/racial group that you most identify with? (e.g., Caucasian, Asian, African

    American, etc.): _____

4. What is your religious affiliation? (e.g., Christianity, Judaism, No Affiliation, etc.): _____

5. Have you ever experienced any of the following types of loss? (please select one from the

    menu)

    a. Natural, expected (e.g., chronic illness)

    b. Natural, unexpected (e.g., heart attack)

    c. Accident

    d. Homicide

    e. Intentional self-harm (suicide)

    f. Relationship breakup

    g. None

    h. Other (explain): _____

6. What is your relationship to the loss? (please select one from the menu)

    a. Parent (e.g., mother, father)

    b. Sibling

    c. Extended family (e.g., aunt, nephew, cousin)

    d. Significant Other (e.g., spouse, partner)

    e. Acquaintance

    f. Stranger

g. None

h. Other (explain): _____

7. How much time has passed since you experienced this loss? (please provide for the closest

known year and month): _____years and _____months

8. How emotionally close were you to the person (or other) that you lost?

1   2   3   4   5   6   7

Not at all   Very close

9. Overall, how would you describe the impact of the loss?

1   2   3   4   5   6   7

Not at all   Extremely impacted

10. Please indicate the amount of "personal growth" you experienced because of this loss.

1   2   3   4   5   6   7

Not at all   Significant growth

11. What type of support did you receive following the loss? (Check all that apply)

a. Family

b. Friends

c. Religious or spiritual advisor

d. Therapist

e. Social Worker

f. Hospital

g. Community group

h. None

i. Other (explain): _____

11. Roughly, how much time passed between your loss and the support you received?

Type of Support   Year(s)/month(s)/week(s)/day(s)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Appendix E
Posttraumatic Growth Inventory (Calhoun & Tedeschi, 1996; *Revised*))

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

1 = I did not experience this change as a result of my loss.
2 = I experienced this change to a small degree as a result of my loss.
3 = I experienced this change to a moderate degree as a result of my loss.
4 = I experienced this change to a great degree as a result of my loss.
5 = I experienced this change to a very great degree as a result of my loss.
Revised Likert scale

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

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

3. I developed new interests.

4. I have a greater feeling of self-reliance.

5. I have a better understanding of spiritual matters.

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

7. I established a new path for my life.

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

9. I am more willing to express my emotions.

10. I know better that I can handle difficulties.

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

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

13. I can better appreciate each day.

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

15. I have more compassion for others.

16. I put more effort into my relationships.

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

18. I have a stronger religious faith.

19. I discovered that I'm stronger than I thought I was.

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

21. I better accept needing others.

Post Traumatic Growth Inventory Scoring. The Post Traumatic Growth Inventory (PTGI) is scored by adding all the responses. Individual factors are scored by adding responses to items on each factor. Factors are indicated by the Roman numerals after each item below. Items to which factors belong are not listed on the form administered to clients.

PTGI Factors
Factor I: Relating to Others
Factor II: New Possibilities
Factor III: Personal Strength
Factor IV: Spiritual Change
Factor V: Appreciation of Life

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. (Ill)

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. (Ill)

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. (N)

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)

Appendix F
Basic Need Satisfaction in General Scale (Ryan & Deci, 2000)

Based on the feelings you have…

Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond:

1	2	3	4	5	6	7
not at all			somewhat			very
true			true			true

1. I feel like I am free to decide for myself how to live my life.

2. I really like the people I interact with.

3. Often, I do not feel very competent.

4. I feel pressured in my life.

5. People I know tell me I am good at what I do.

6. I get along with people I come into contact with.

7. I pretty much keep to myself and don't have a lot of social contacts.

8. I generally feel free to express my ideas and opinions.

9. I consider the people I regularly interact with to be my friends.

10. I have been able to learn interesting new skills recently.

11. In my daily life, I frequently have to do what I am told.

12. People in my life care about me.

13. Most days I feel a sense of accomplishment from what I do.

14. People I interact with on a daily basis tend to take my feelings into consideration.

15. In my life I do not get much of a chance to show how capable I am.

16. There are not many people that I am close to.

17. I feel like I can pretty much be myself in my daily situations.

18. The people I interact with regularly do not seem to like me much.

19. I often do not feel very capable.

20. There is not much opportunity for me to decide for myself how to do things in my daily life.

21. People are generally pretty friendly towards me.

Scoring information. Form three subscale scores, one for the degree to which the person experiences
satisfaction of each of the three needs. To do that, you must first reverse score all items that are worded in a negative way (i.e., the items shown below with (R) following the items number). To reverse score an item, simply subtract the item response from 8. Thus, for example, a 2 would be converted to a 6. Once you have reverse scored the items, simply average the items on the relevant subscale. They are:

Autonomy: 1, 4(R), 8, 11(R), 14, 17, 20(R)

Competence: 3(R), 5, 10, 13, 15(R), 19(R)

Relatedness: 2, 6, 7(R), 9, 12, 16(R), 18(R), 21

Appendix G
Meaning-making Qualitative Questions (Davis et al., 1998; *Revised*)

Please read each of the following questions carefully and thinking about how it relates to your experience, feelings, and thoughts:

Based on your experience from this loss…

1. Do you feel that you have been able to make sense of this loss? Please explain:

2. Sometimes people who have experienced a loss can find some positive aspect in the experience. For example, some people feel they learn something about themselves or others. Have you found anything positive coming out of this experience? Please explain: