Posttraumatic Growth, Depreciation, and Psychopathology Following Sexual Victimization: A Unified Model of Predictors

Tiffany Leung, M.A.

Dissertation in partial fulfillment of the program requirements of the degree of

Doctor of Philosophy in Clinical Psychology

Department of Psychology, Lakehead University

Supervisor: Dr. Edward Rawana, Ph.D., C. Psych.

Second Reader: Dr. Rupert Klein, Ph.D.

Internal Examiner: Dr. Josephine Tan, Ph.D., C. Psych.

External Examiner: Dr. Chantal Boucher, Ph.D., C. Psych

Acknowledgement

I am immensely proud and grateful to have completed my graduate training at Lakehead University. I would like to express my deepest appreciation to my supervisor, Dr. Edward Rawana for his guidance and encouragement in the development and completion of this project. I would also like to thank Dr. Rupert Klein (second reader), Dr. Josephine Tan (internal examiner) and Dr. Chantal Boucher (external examiner) for their insightful feedback in perfecting the document. Each of my committee members have been generous with their time, expertise, and willingness to invest in my growth as a researcher-clinician. I would also like to thank my mom, partner, and friends for their endless patience, humour, and support throughout this process. I would not have been able to complete my PhD had it not been for the many that have been here along the way, who had conveyed their belief and confidence in me.

Abstract

Background: Sexual violence is amongst the most detrimental events a woman can experience, with survivors suffering long-term consequences to their mental health and perception of self. However, accumulating research shows trauma can also act as a catalyst for positive change. To gain a fully comprehensive understanding of sexual victimization, a simultaneous examination of positive and negative change is needed, as is an exploration of the cognitive and social experiences that differentiate post-trauma presentations. **Method:** Female undergraduate students (N = 358) completed standardized measures assessing positive and negative change following trauma (i.e., posttraumatic growth and posttraumatic depreciation, respectively); psychopathology (PTSD, anxiety, depression); world beliefs (thoughts of the world and other people); cognitive processing styles (rumination types); and social experiences (disclosure reactions and content). A series of regressions was used to identify the significant predictors of the three post-trauma outcomes, while structural equation modelling was used to identify the process of posttraumatic growth. **Results:** With respect to predictors of growth, some previously identified factors were found to be important (i.e., deliberative rumination, positive social reactions), but others were not supported (i.e., the role of world beliefs). The same pattern was noted with psychopathology, with the importance of some factors strengthened (i.e., rumination as a transdiagnostic feature), while others were clarified (i.e., the impact of different negative reactions). **Discussion:** In addition to discussing the implications of the present results for our understanding of sexual violence, the applied ramifications will be highlighted with focus on Canadian universities and clinical care. The hope from such discussion is to lead to policy change to better protect a vulnerable group within the community.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

LIST OF APPENDICES

Posttraumatic Growth, Depreciation, and Psychopathology Following Sexual Victimization: A Unified Model of Predictors

It is well-established that the experience of sexual violence has permeating harmful consequences for an individual's health (Basile et al., 2014). Yet, the complexity of victimization cannot be overlooked, and individuals have reported personal growth and increased social connection following trying events (Calhoun & Tedeschi, 1999). Amidst the almost exclusive focus on the negative consequences of trauma that has permeated the field, a growing trend has emerged within the social sciences towards examining the positive transformative process of trauma (Westphal & Bonanno, 2007). Such studies have shown that the experience of dealing with highly challenging events can lead to positive changes in several domains (e.g., in perception of self, life, and relationships; Calhoun & Tedeschi, 1999). However, studies that examine positive change tend to focus exclusively on positive outcomes, omitting the assessment of negative changes that may be occurring simultaneously (Frazier, Conlon, & Glaser, 2001). If we are to fully understand the complexity of victimization and victimhood, an examination of both positive and negative processes and outcomes following sexual violence is needed (Linley & Joseph, 2004).

The present study focused on the experience of sexual victimization among current university students, as students have increased risk of victimization, yet reduced rates of reporting compared to non-students (Fisher, Cullen, & Turner, 2000; Sinozich & Langton, 2014). Psychological growth served as the primary positive outcome of interest, whereas psychopathology (i.e., symptoms of PTSD, anxiety, and depression) served as the primary negative outcome of interest. As will be explained, these outcomes are not mutually exclusive, nor merely points of a single continuum. For example, survivors can report both increased

symptoms of depression *and* perception of newfound strengths (Lev-Wiesel, Amir, & Besser, 2004). Survivors can even simultaneously report positive and negative changes within a single domain. For example, within the domain of relationships, traumatized individuals may feel a greater sense of empathy towards other survivors but form a general distrust in the goodness of others (Frazier et al., 2001). These possibilities highlight the importance of clearly describing the nature of changes following sexual violence, and of examining the interaction between different post-trauma outcomes. The simultaneous examination of positive and negative changes following trauma would garner a nuanced perspective of survivors, that respects the complexity of the individual and their experiences; and was the approach utilized in the present study.

To better understand *how* survivors recover, experiences theorized to increase the likelihood for psychological growth to transpire following victimization were also examined. This line of examination may help to explain why some individuals present with higher levels of growth than others following victimization and why different presentations of growth may be seen (e.g., some individuals come to have an increased sense of personal strength, while others find themselves feeling more connected to others). Understanding the processes by which people can achieve growth following trauma represents one means of disrupting a victim's cycle of increased vulnerability (Lev-Wiesel et al., 2004). It would also be clinically relevant information, as health providers would gain a better understanding of their clients with trauma histories, thereby facilitating relationship development and case conceptualization for treatment planning.

In summary, the present study had four overarching objectives: 1) to describe the nature of growth and loss in a sexually victimized student sample; 2) to examine the possible interaction between growth and psychopathology; 3) to delineate the different processes (thoughts and social experiences) that are associated with growth and psychopathology; and 4) to identify the

pathway to growth. For the introduction, I will first provide a detailed rationale for why further research on sexual violence amongst a female student population is necessary, highlighting the increased risk and vulnerability inherent in the university environment and as a function of being a female student. I will then summarize the known consequences of sexual violence, showing that the experience can have a long-term detriment on mental, physical, and sexual health; yet, also be a catalyst for positive change and psychological growth across different domains. Next, I will review the mechanisms of change theorized to underlie personal growth, which have been selected as they may also bear relevance to the etiology of depreciation in functioning and psychopathology. Finally, I will reiterate the important shortcomings and limitations of existing research, to which the current study aimed to ameliorate.

Sexual Victimization Among Undergraduate/College Students

According to the Center for Disease Control and Prevention, sexual victimization encompasses sexual acts committed or attempted by a perpetrator without freely given consent of the victim, as well as sexual acts committed against someone who is unable to consent or refuse (Basile, Smith, Breiding, Black, & Mahendra, 2014). Sexual victimization consists of a range of "violent, coercive, and developmentally inappropriate sexual experiences, which include incest, rape, and other forms of sexual abuse such as fondling and sexual exposure; use of physical force, authority, or age differentials to obtain sexual contact; and verbally coerced sexual contact" (MacGreene & Navarro, 1998, p. 590).

Female undergraduate students in North America are particularly vulnerable to the experience of sexual violence. Based on data from the National Crime Victimization Survey in America, women aged 18–24 experience the highest rates of sexual violence amongst any age-group, and students (university, college, trade, or vocation school) have significantly higher rates

than non-students (Sinozich & Langton, 2014). In Canada, 59% of first-year students have reported history of sexual violence (Senn et al., 2014), with 45.1% and 19.5% of female and male students reporting sexual victimization (defined as unwanted contact, sexual coercion, attempted rape, and rape) since leaving high school (DeKeseredy & Kelly, 1993).

When the definition of sexual violence is extended to non-physical forms of violence (e.g., obscene phone calls, leers, suggestive comments, being followed down the street, being catcalled, or unwanted sexual advances at bars), the rate of prevalence within the past year among Canadian undergraduate women rises to 84.1% (DeKeseredy, Schwartz, & Tait, 1993; Kelly & Radford, 1987). It should be noted, that just because there is no direct physical harm of such incidents, these events are not trivial, as survivors still hold fear and uncertainty as to how a perpetrator will act (DeKeseredy et al., 1993). Importantly, student survivors of *both* non-contact and contact forms of sexual violence experience negative outcomes following the event, most often feeling intimated or uncomfortable in the environment (Pinchevsky, Magnuson, Augustyn, & Rennison, 2019).

The increased risk for sexual victimization among university students is often explained through the lifestyle-exposure/routine activities perspective, which posits that victimization risk is high when exposure to likely offenders, suitable targets, and absence of capable guardianship coalesce in time and space (Cohen & Felson, 1979; Fisher, Daigle, & Cullen, 2010; Hindelang, Gottfredson, & Garafalo, 1978). The university environment is very much an environment of high risk: Students have increased freedom, reduced supervision, and may engage in risky behaviours (e.g., engaging in sexual activities with someone recently met) without the safety net of a person capable or willing to intervene (Combs-Lane & Smith, 2002). University is also a time marked by alcohol and drug use, with the use of substances linked to sexual victimization (Combs-Lane & Smith, 2002). In fact, in one study, it was found that the majority of rapes (completed, 88%)

occurring in college women involved substance use by the victim (Messman-Moore, Ward, & Brown, 2009). Consumption results in a poorer ability to assess and respond to threating situations, an increase in behaviors that may evoke violent responses from others, and a compromised ability to protect oneself (Abbey, 2001; Daigle, Johnston, Azimi, & Felix, 2019).

A sociocultural perspective to the conceptualization of sexual violence has also been proposed, as certain attitudes have been shown to be predictive of violence. Western culture tends to endorse traits such as masculinity, violence, hostility towards women, and the belief that it is a man's place to be dominant, with such traits predictive of violence within university settings (Connell & Messerschmidt, 2005; Daigle et al., 2019; Murnen, Wright, & Kaluzny, 2002; Pascarella & Terenzini, 2005). It is the combination of hostile forms of masculinity and certain situational factors (e.g., heavy alcohol consumption, peer pressure) that best predict sexual violence (DeKeseredy & Kelly, 1995; Mahoney et al., 1986; Murnen et al., 2002).

Due to the sociocultural perspective, Canadian and American students are often grouped together given the commonalities in environment. However, Canadian students actually experience significantly higher rates of sexual victimization than their American counterparts, due to increased exposure to risk factors of victimization (Daigle, Johnston, Azimi, & Felix, 2019). Namely, a greater percentage of Canadian students report binge drinking and marijuana use, living off-campus, and having a sexual partner during the previous 12 months (increasing exposure to potential criminals). In addition, Canadian universities do not have legal requirements in regards to managing sexual violence and risk (Daigle et al., 2019). In the United States, as part of the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, for universities to receive funding from certain federal financial aid programs, they must publish an annual campus security report which outlines crime statistics and security policy (Fisher, Hartman,

Cullen, & Turner, 2002). In addition, universities must disclose incidents through crime logs and provide warnings about potential threats in a timely manner. Finally, universities must adhere to specific legal requirements when sexual violence cases arise on campus (i.e., procedures for the investigation and prosecution of alleged sexual offences). Although similar procedures may be in place in Canadian universities, they are not federally mandated. Thus, variability in protection exists for students across Canada.

Despite high rates of sexual violence for students, such experiences are rarely screened in off-campus health care visits or college health centers (Sutherland, Fantasia, & Hutchinson, 2016). To make matters worse, university women are consistently less likely to disclose an experience of sexual victimization compared to the general population, with a third never telling anyone of the violent event (Fisher et al., 2000). Student survivors are also less likely to report to police compared to nonstudent survivors (20% versus 32%, respectively; Sinozich & Langton, 2014). Meaning, although female university students suffer elevated rates of sexual violence, there are reduced rates of both formal and informal disclosures. This places greater pressure on the victim alone to manage the heavy psychological and physical burden of sexual violence. I will next describe the burden of sexual violence students' likely face in isolation.

Harmful Consequences of Sexual Violence

Survivors of sexual violence suffer unique challenges that make healing and growth particularly difficult. Notably, unlike survivors of other traumatic events, those who have been sexually victimized tend to be blamed for the event and subjected to stereotypical beliefs and negative social reactions, amounting to a secondary form of victimization (Fontana, Swartz, & Rosenheck, 1997; Krahé, 2016). Sexual violence is among the most disturbing things a person can experience, as evident by the comparison of PTSD rates across traumatic events, which show the

highest rates in women are amongst those who have been raped or molested (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). The direct and indirect consequences of sexual violence can have a detrimental permeating impact on the victim's functioning and perception of self.

First and foremost, sexual victimization predicts poor mental health and increased symptoms of psychopathology (Basile et al., 2014). Compared to their non-victimized peers, those with a history of sexual violence have been found to have elevated rates of depression (Elliott, Mok, & Briere, 2004; Littleton, Axsom, Breitkopf, & Berenson, 2006; Thompson & Kingree, 2010), suicide risk (Mondin et al., 2016), anxiety (Littleton et al., 2006), eating disorder symptoms (e.g., purging behaviour; Groff Stephens & Wilke, 2016; Laws & Golding, 1996), substance abuse (Stockman, Campbell, & Celentano, 2010; Turchik & Hassija, 2014), and PTSD (Golding, Taylor, Menard, & King, 2000). With PTSD, sexual violence was found to account for additional variance in symptomology beyond that of physical violence (Bennice, Resick, Mechanic, & Astin, 2003). In addition, it was found that the increased rates of sexual violence experienced by women and not gender per se, that accounted for the increased rates of PTSD among women, though authors did not specify if the dichotomously coded variable of gender referred to psychological identification or biological differences (Cortina & Kubiak, 2006).

Given the nature of the violence, reproductive and sexual health also tend to be negatively impacted with trauma. Sexual violence is associated with gynecological problems (e.g., vaginal bleeding and infection, pelvic pain, premenstrual syndrome; Campbell et al., 2002; Golding, Taylor, Menard, & King, 2000); sexually transmitted infections (Campbell et al., 2002); unintended pregnancies (Holmes, Resnick, Kilpatrick, & Best, 1996; Raj, Liu, McCleary-Sills, & Silverman, 2005); early pregnancies (<18 years old; Zierler et al., 1991), adverse fetal and maternal conditions (e.g., abnormal progress of labour, preterm birth, premature ruptures of

membranes; Faramarzi, Esmaelzadeh, & Mosavi, 2005), and higher levels of depressive symptomatology during pregnancy (Benedict, Paine, Paine, Brandt, & Stallings, 1999). Even aspects of pregnancy and birth can be troubling for those who have experienced sexual violence (Montgomery, Pope, & Rogers, 2015). For example, having your body examined by medical staff (strangers), having a baby gain increasing control of your body, and being in the trust of medical staff that exercise authority over your health can be triggering, reminding women of an event in which they lost autonomy over their own bodies.

Sexual violence also has an impact on the behaviour enacted by the survivors, with those affected engaging in risky sexual behaviours that have the potential to cause adverse health outcomes. Those with history of sexual violence tend to have a younger age of sexual initiation (Fergusson, Horwood, & Lynskey, 1997; Grimstad & Schei,1999), multiple sexual partners (Fergusson et al., 1997; Zierler, Witbeck, & Mayer, 1996); practice unreliable use of condoms during intercourse (Fair & Vanyur, 2011; Fergusson, et al., 1997; Zierler et al., 1996); have increased occurrence of sex with strangers (Jewkes, Sen, & Garcia-Moreno, 2002), and work in prostitution (Zierler et al., 1991). Quite understandably, those with sexual violence tend to not gain as much enjoyment from sexual activity and sexual relations (Feldman-Summers, Gordon, & Meagher, 1979), and suffer from poorer sexual performance (Campbell & Soeken, 1999; Elliott et al., 2004). In this way, sexual violence continues to affect a victim's sexual autonomy long after the incident is over.

In addition to clinically meaningful maladaptive outcomes, sexual violence can alter functioning and self-perception generally. Sexual victimization is associated with decreased body-image (Campbell & Soeken, 1999; Zweig, Crockett, Sayer, & Vicary, 1999); self-esteem (Perilloux, Duntley, & Buss, 2012); emotional well-being (Zweig et al., 1999); withdrawal and

less enjoyment from daily activities (Ellis, Atkeson, & Calhoun, 1981; Resick, Calhoun, Atkeson, & Ellis, 1981); lower academic achievement (Jordan, Combs, & Smith, 2014); lower annual incomes (Sadler, Booth, Nielson, & Doebbeling, 2000); and greater cigarette, alcohol, and drug use (Martin, Clark, Lynch, Kupper, & Cilenti, 1999).

Relationships tend to suffer in the aftermath of sexual victimization, whether with family, romantic partners, or friends, (Ellis et al., 1981; Resick et al., 1981; Zweig et al., 1999). From the loved one's perspective, it may be difficult to relate to a victim's experience and manage personal anxieties and discomfort while being supportive. From the victim's perspective, there may be heightened sensitivity and feelings of hurt, loneliness, and discomfort from the vulnerability. Overall, there are changed needs within the relationship that both parties may be ill-equipped to accommodate (Resick et al., 1981).

A final area of functioning that is impaired worth highlighting is in one's ability to work and progress in one's occupation, with this impairment sometimes lasting longer than the interpersonal impairment (Resick et al., 1981). Those who have experienced sexual violence often find themselves in difficult situations (e.g., working alone with men) and thus, end up quitting, taking time off work, or being fired due to the severity of their reactions (Ellis et al., 1981). In addition, if the victim has chosen to go forward with legal proceedings, they would need to take an undetermined time away from work and negotiate this leave with supervisors, all while maintaining the desired level of privacy (Resick et al., 1981). Of course, this may not always be possible, leading to termination from work, or the violation of a personal boundary.

There is also a widespread belief that sexual violence propagates in a cycle, such that survivors later become perpetrators (i.e., victim to victimizer cycle; Hilton & Meezy 1996), and thus a consequence of sexual violence is the propagation of violence across the community.

However, there is little empirical basis for this belief, when looking at female survivors (Glasser et al., 2001; Plummer & Cossins, 2018). For example, in one adult forensic sample, it was found that although 41 of the 96 female participants had been victimized, only one victim later became a perpetrator (Glasser et al., 2001).

Instead, the cycle seen amongst female survivors, tends to be one of revictimization. Sexual revictimization is especially common among female undergraduate students (Benedict et al., 1999; Classen, Palesh, & Aggarwal, 2005; Fergusson et al., 1997; Gutierres & Van Puymbroeck, 2006). In fact, in one study it was found that over one-quarter of students had experienced an incident of revictimization in the mere four months after initial contact (Miller et al., 2011). In this instance, revictimization was defined as unwanted intercourse, but had the definition expanded to encompass non-contact forms of violence and failed attempts, one would assume rates would have been much higher. Chronic exposure to traumatic events is particularly detrimental, with consistent evidence showing such individuals have an increased risk for PTSD and depression (Fritch, Mishkind, Reger, & Gahm, 2010; Kimerling, Alvarez, Pavao, Kaminski, & Baumrind, 2007; Littleton, Grills-Taquechel, Axsom, Bye, & Buck, 2012; Suliman, Mkabile, Fincham, Ahmed, Stein, & Seedat, 2009).

As the reviewed literature clearly demonstrates, those with sexual victimization histories suffer from compromised mental, physical, and sexual health, and must navigate new barriers and difficulties within their relationships and work environment. There is an imperative need to not only mitigate the negative consequences of sexual violence, but to disrupt the cycle of revictimization and equip students with the ability to thrive despite experienced trauma. Understanding the processes by which people can achieve positive change following trauma is one means of disrupting the cycle of increased vulnerability (Linley & Joseph, 2004; Lev-Wiesel et

al., 2004). Furthermore, to gain a truly comprehensive understanding of trauma, both positive and negative consequences need to be considered, and not simply the latter. Evidence has been accumulating showing that trauma can act as a catalyst for positive change across different domains of an individual's life. Such positive change is also by no means rare and has been found across different victim groups, although it is understudied amongst survivors of sexual violence. Next reviewed is the current state of the growth literature, with information as it pertains to sexual victimization highlighted when possible.

Growth Following Sexual Victimization

Confrontation with negative events in life are unavoidable and may in fact be necessary to achieve the deepest levels of meaning, purpose, and connection (Ryff & Singer, 1998). Posttraumatic growth (PTG) refers to positive psychological change experienced from struggling with highly challenging life circumstances (Calhoun & Tedeschi, 1999, 2001). PTG encompasses qualitative change in functioning across domains and is typically manifested through: 1) increased appreciation for life, 2) more meaningful interpersonal relationships, 3) an increased sense of personal strength, 4) changed priorities or new possibilities, and 5) a richer existential or spiritual life (Tedeschi & Calhoun, 2004). PTG has been found in survivors of childhood abuse (Woodward & Joseph, 2003), survivors of intimate partner violence (Cobb et al, 2006), genocide survivors (Uy & Okubo, 2018), parents after stillbirth (Cacciatore et al., 2018); and even among trauma workers (e.g., social workers, crisis workers, therapists; Cohen & Collens, 2013).

PTG, and its individual factors, can be thought of as both a process and outcome, as the act and success in coming to terms with trauma and identifying positive psychological change can lead to an increased sense of wisdom and satisfaction for life (Jayawickreme & Blackie, 2014). PTG is also best conceptualized as a multidimensional construct, and researchers have suggested

the utility of examining the five factors of PTG separately (Calhoun & Tedeschi, 2004; Janoff-Bulman, 2004). Research has shown that the five factors of PTG are associated with different personality characteristics (Tedeschi & Calhoun, 1996), different means of cognitive processing (Calhoun, Tedeschi, Fulmer, & Harlan, 2000), and potentially, different developmental pathways (Calhoun & Tedeschi, 2004).

Positive change, not necessarily as conceptualized as PTG with its component five factors, has been examined and found amongst sexual violence survivors (Burt & Katz, 1987; Frazier & Burnett, 1994; Frazier et al., 2001; Frazier, Conlon, Steger, Tashiro, & Glaser, 2006; Frazier, Tashiro, Berman, Steger, & Long, 2004; Guerette & Cannon, 2007; Kennedy, Davis, & Taylor, 1998). When rape survivors were asked whether positive change had occurred, most respondents (57%) responded with the affirmative (Frazier & Burnett, 1994). Respondents reported changes across nine categories: 1) becoming more cautious; 2) appreciating life more; 3) changed relationships in positive ways; 4) re-evaluation of life and goals; 5) better self-care; 6) greater assertiveness; 7) realization of strengths; 8) choosing different men (sample was entirely female and heterosexual); and 9) closer relation to God. On face value, these nine categories do appear to coincide with the five factors of PTG as conceptualized by Tedeschi and Calhoun (2004). The same can be said of the four dimensions of positive change (i.e., changes in self, relationships, life philosophy or spirituality, and empathy) examined by Frazier and colleagues (2001, 2004), although more stringent analysis is required to confirm the factor structure of growth within a sexual violence sample.

By examining positive change longitudinally, many misconceptions concerning timing have been illuminated. Although there is an assumption that positive life changes increase over time (Tedeschi & Calhoun, 1995), growth is not uniformly linear and accumulating amongst those

sexually victimized. Instead, it appears that the period between 2 weeks and 2 months post-assault is when most change, positive and negative, occurs (Frazier et al., 2001, 2004). Furthermore, positive change can be reported soon after an event, despite some theorizing that it is only the result of a long recovery process (Calhoun & Tedeschi, 1998). For example, in the study by Frazier and Burnett (1994), more than half of survivors reported positive change three days post-rape (most commonly, increased caution), and in the study by Frazier and colleagues (2001), 91% of participants reported positive change at 2 weeks post-assault (most commonly, increased concern of similar others).

Positive change should not be seen as a unitary outcome, with findings showing that changes within different domains follow different trajectories (Frazier et al., 2001) and have variable durability (Frazier et al., 2006). Namely, some changes (i.e., increased empathy, positive change in relationships) were endorsed early at 2 weeks post-assault and remained stable across time periods (i.e., at 2 months, 6 months, and 12 months post-assault), while other areas were more commonly reported as time passed (i.e., recognition of personal strengths, increased spirituality; Frazier et al., 2001). Furthermore, it appears that changes in relationships were less enduring than changes in self and spirituality (Frazier et al., 2006).

It is worth stressing that the research concerning positive change following sexual violence has notable methodological limitations. Many studies included measures of post-traumatic change designed by authors specific to the study (e.g., Burt & Katz, 1987; Frazier et al., 2001, 2004). Such measures were designed without the formal processes typically seen with the creation of a new questionnaire (e.g., administering the questionnaire to different sample groups, comparing outcomes of the measure to conceptually similar and dissimilar outcomes, etc.). Importantly, replication of results becomes difficult, as conflicting results may then be a function of differences

in operationalization versus differences in growth pattern. Consequently, after a review of the PTG and sexual violence literature, Ulloa, Guzman, Salazar, and Cala (2016) recommended the use of the Posttraumatic Growth Inventory for future research in which PTG is a primary construct of interest.

Another notable methodological shortcoming is that none of the studies reviewed included university/college women and instead utilized clinical samples (i.e., those coming into the emergency room for sexual assault; Frazier & Burnett, 1994; Frazier et al., 2001, 2004) and community samples (i.e., through phone surveys; Frazier et al., 2006), with student status not queried. Although students are likely incidentally included in each sample, further research is still needed in female students. Given that students are less likely than their nonstudent peers to seek formal support, findings from samples of help-seeking students may not generalize to the general student population. Furthermore, community samples tend to be quite small (e.g., the study by Frazier et al., 2006 included 135 participants), raising issues of power for subgroup analyses. Thus, we do not currently know what the pattern of change would be amongst female students with history of sexual violence.

Only three studies to date have examined PTG amongst survivors of sexual violence, with variable focus and methods across studies. Ahrens, Abeling, Ahmad, and Hinman's (2010) found that a stronger association between religious coping and PTG was found in White female survivors of rape compared to their Black counterparts. Ullman (2014) examined correlates of PTG among adults with sexual violence histories occurring in childhood (before age 14, as measured by the Sexual Experiences Survey). It was found that post-assault characteristics better predicted PTG than child sexual violence history and assault characteristics (i.e., perception of life threat, pre-assault drinking). Namely, greater levels of maladaptive coping, characterological self-blame,

negative social reactions from others, and PTSD symptoms were related to less PTG, whereas positive social reactions from others, perceived control over recovery, adaptive individual coping, and disrupted core beliefs were all related to greater PTG. The most recent study by Hassija and Turchik, (2016) was most relevant for the current study, as the focus was similarly on PTG amongst college women, whereas the former two studies focused on non-clinical community samples. In an exclusively white student sample, it was found that degree of disclosure to supportive others (i.e., extent to which details of event were discussed, as rated on a 7-point scale), as well as the use of mental health services (rated yes/no) were associated with greater PTG. Contrary to the study by Ullman (2014), no association was found between PTSD or depression severity and PTG. Each of the three studies were cross-sectional, with PTG treated as an outcome variable. However, a different direction of causality amongst variables is equally conceivable. Thus, we currently only have an inconsistent preliminary picture of the association amongst a limited set of variables and PTG.

In addition to the inconsistent results and limited research on PTG in survivors of sexual violence, there are important methodological and conceptual shortcomings within the growth literature worth highlighting. Importantly, the sexually traumatic event being examined is often not clearly delineated, and the screening procedures/measures not provided. In many studies, the definition of "sexual assault" (e.g., Frazier et al., 2001; Kennedy et al., 1998) and "rape" (e.g., Ahrens et al., 2010; Burt & Katz, 1987; Frazier & Burnett, 1994) were not provided, despite the many definitions one can garner with those terms. Even with rape, which appears to be a specific term, there are many different elements a researcher can consider in deciding what constitutes a relevant event. Rape can entail attempted or completed incidents of vaginal, oral, and/or anal penetration. Rape can also entail the use of force, substances, and/or manipulation of a situation

(e.g., power differential). Unfortunately, even in instances when a definition is presented, they can be quite vague (e.g., Frazier et al., 2004 defined victimization as any sexual activity that a participant did not want to happen). The nature of the traumatic event being examined needs to be clearly defined if comparisons are to be made across samples. In addition, beyond assessing and describing elements of the traumatic event (e.g., age of incident, relation of perpetrator, presence of physical injury), analysis is needed on whether features of the event affect PTG. Although, Ullman (2014) found that assault characteristics were weakly related to PTG, only perception of threat on life and pre-assault drinking was examined. Thus, we have a poor understanding of how event facets may alter the presentation or processes required of PTG.

Although PTG is rarely examined within survivors of sexual violence, the research conducted showed that positive change is possible, and in fact, common. Following sexual violence, individuals can come to perceive themselves, their relationships, and their life with greater meaning. Positive change does not occur in a linear fashion and positive changes in different domains may follow different trajectories. As I have now reviewed both the literature concerning the negative and positive consequences of sexual violence separately, in the next section, I will speak to how these different patterns of reactions coincide and interact.

The Simultaneous Expression of Positive and Negative Change Following Sexual Violence

Although the experience of pain can be a catalyst for positive change, it does not negate the fact that the experience of sexual violence clearly causes meaningful long-term harm on the survivors. As previous researchers have pointed out, studies that examine positive change tend to focus exclusively on positive outcomes without assessing negative changes (Frazier et al., 2001). Such a narrow focus overlooks the complexity of the recovery process and does not help to elucidate the potential relationships between different positive and negative outcomes. In this

section, I will review the research that has been done examining the simultaneous presentation of PTG and different distress outcomes. I will also review the research that has been done examining positive and negative change within a single functional area (e.g., growth and depreciation in relationships).

Growth and Distress Outcomes

When growth is examined in conjunction with negative outcomes, researchers most commonly choose to include a measure of distress, operationalized as increased psychopathology. Research in this area has shown that the simultaneous expression of PTG and distress is possible, as these outcomes are not mutually exclusive (Linley & Joseph, 2004; Tedeschi & Calhoun, 1995). Following sexual violence, PTG has been found to co-occur with psychological distress (depression, PTSD, general psychological symptomology; Borja, Callahan, & Long, 2006; Grubaugh & Resick, 2007; Lev-Wiesel et al., 2004) and negative changes in beliefs (e.g., concerning the safety of the world; Frazier et al., 2001, 2006). The consensus across studies is that PTG and distress are independent constructs and not ends of a continuum. Findings are consistent with Tedeschi and Calhoun's (2004) theoretical conceptualizations, with authors further theorizing no direct relationship may exist between growth and distress.

Although findings are consistent in demonstrating growth and distress are independent constructs, it is not clear whether an association or relationship exists between constructs, as mixed results have been found in the literature. Some studies (cross-sectional) have found no association between PTG and distress outcomes (Borja et al., 2006; Grubaugh & Resick, 2007). However, longitudinal examinations have shown a curvilinear relationship between PTG and psychopathology, in that those with no or high levels of growth reported fewer symptoms than those who reported moderate growth (Kleim & Ehlers, 2009; Kunst, 2010). However, these studies

utilized physical assault survivors and operationalized PTG as a superordinate construct. Thus, it is not clear if the same curvilinear pattern would be found amongst sexual violence survivors and for each of the five component factors of PTG (i.e., relating to others, new possibilities, personal strengths, spiritual change, and appreciation of life). One study which has been done that examined different domains of positive change amongst those sexually victimized (Frazier et al., 2001). It was found that positive changes in self and spirituality (e.g., greater recognition of strengths and appreciation of life) were associated with less distress whereas negative changes in these two domains (e.g., lower sense of self-worth and lower spiritual well-being) were associated with more distress. Results suggest different domains of positive change may be more or less related to distress over time.

Some researchers have proposed that significant distress could motivate some individuals to create meaning from the traumatic experience, as a means of balancing loss (Grubaugh & Resick, 2007). Consistent with this notion, was the finding that PTSD symptoms mediated the relationship between the identity of perpetrator and PTG for female participants sexually victimized in childhood (identified as having been sexually harassed, raped, and/or sexually exploited; Lev-Wiesel et al., 2004). Specifically, those who had suffered intra-familial violence, tended to have more severe PTSD symptomology, and higher PTG. Other researchers have suggested that the building of meaning may cultivate positive emotions, which consequently prevents and treats negative outcomes related to negative emotions (e.g., anxiety, depression, stress-related health problems; Fredrickson, 2000). Consistent with this theory was the finding that survivors of sexual violence who reported greater PTG, displayed fewer distress symptoms (Frazier et al., 2006).

Based on the existing literature, the consensus is that growth and psychopathology are separate constructs rather than opposite ends of a spectrum. However, further research is needed to clarify if and how growth and psychopathology are related. Is it the case that specific growth components (e.g., personal strengths, spirituality) are related to specific distress outcomes (e.g., depression, PTSD)? Is distress a precursor to growth, and/or is growth a protective factor against distress following trauma? These questions remain unclear and warrant further research.

Growth and Depreciation

Given the complexity of individuals, it is comprehensible that both positive and negative experiences can co-occur, even within the same functional domain (Park & Lechner, 2014). For example, an individual may feel an increased sense of agency within the professional domain but a decreased sense of agency within relationships (Zięba, Wiecheć, Biegańska-Banaś, & Mieleszczenko-Kowszewicz, 2019). Post-traumatic depreciation (PTD; Baker et al., 2008) is defined as the negative changes resulting from coping with a traumatic event and include the same domains examined as that of PTG (i.e., appreciation for life, relating to others, personal strength, new priorities/possibilities, and spirituality). However, PTG and PTD are not ends of the same spectrum, and instead, distinct domains of psychological functioning.

Research has shown that PTG and PTD can co-exist (Purc-Stephenson, Bowlby, & Qaqish, 2015) independently (Cann, Calhoun, Tedeschi, & Solomon, 2010; Forgeard, 2013). They are associated with different indices of well-being and psychopathology. PTG was found to be positively correlated to quality of life and meaning in life, whereas PTD was negatively correlated to these well-being outcomes (Cann et al., 2010). PTD, but not PTG, was significantly correlated with life satisfaction and psychological flourishing (Barrington & Shakespeare-Finch, 2013; Kunz et al., 2017). When PTG and PTD are measured simultaneously, only PTD was associated with

psychopathology, most commonly depression (Barrington & Shakespeare-Finch, 2013; Kunz et al., 2017). PTG was found to only be associated with lower levels of depression amongst individuals who experienced moderate to high levels of PTD (Kunz et al., 2017). These results may further support the notion that perceiving growth in oneself can have a stress buffering function when concurrent negative life changes are present (e.g., Zoellner & Maercker, 2006).

The differences in association found across PTG and PTD provide evidence of construct validity and highlight the necessity of including both outcomes when trying to fully understand the post-trauma response. However, researchers have failed to examine both improvements and struggles in a singular domain amongst survivors of sexual violence. Instead, researchers tend to pool traumas together (e.g., Cann et al., 2010; Forgeard, 2013; Zięba et al., 2019), at times with the inclusion of stressful events (e.g., romantic break-ups, parental divorce; Allbaugh et al., 2016), and examine outcomes of the group without further analyzing the role of trauma experienced. When specific traumas have been examined, they have been within groups characterized by severe medical illnesses (Kroemeke et al., 2017; Kunz et al., 2017; Purc-Stephenson et al., 2015), thus, the presentation of PTG and PTD following sexual victimization remains poorly understood.

Despite the plethora of research that has been done examining the burden and more recently, the potential for growth following sexual violence, little is known about how these different patterns of responses interact. As it stands, growth, depreciation, and psychopathology are viewed as three separate multi-faceted dimensions, to which individuals can vary on a continuum of degree/severity. Although separate, it is not clear whether these different dimensions play an influence on one another (e.g., growth as a protective factor for psychopathology, depreciation in functioning as a precursor to psychopathology). One way to better understand the presentation and interaction of these three dimensions is to examine the different processes or

building blocks thought to underlie each pattern of response. As there are endless cognitive, emotional, social processes that may be relevant in such a review, I limit my discussion to three processes theorized to be necessary to achieve growth, that also bear relevance to the etiology of depreciation and psychopathology.

Causal Mechanisms of Post-Traumatic Growth, Depreciation, and Psychopathology

While PTG has been examined for the last 20 years, the mechanisms by which victimized people achieve growth remains poorly understood. Better delineation of the processes by which people develop and achieve PTG could help to explain why some people present with growth following victimization while others do not, why different presentations of growth may be seen (e.g., what processes underlie strengthened connection to others, increased sense of personal strength), and why different patterns of responses may be observed (e.g., what cognitions underlie growth, depression). Information on processes of growth is also important from an applied standpoint, in that clinicians, educators, and administrators could better tailor relevant interventions and outreach programs to promote positive change within survivors of sexual violence. The theoretical model of focus in the present study is that created by Tedeschi and Calhoun (1995), which has been updated over time. Figure 1 details the most updated iteration of the model. An implicit assumption of the model is that the process of growth is the same for all traumas. However, as previously mentioned, those who experience sexual violence suffer unique elements that other survivors do not (e.g., blame for being victimized), necessitating further research into the process of growth within this unique victim group.

Given the extensiveness of the model, three theoretical mechanisms of PTG will be the focus of the present study: changes in world assumptions, deliberative rumination, and disclosure of the event to supportive others. I will provide findings as it relates to sexual violence,

depreciation, and psychopathology, when possible, and highlight the areas of future research if inconsistencies are to be reconciled. As you will see, no research existed examining world assumptions and disclosures in relation to PTD, despite their theorized importance in PTG.

World Assumptions

One proposed mechanism of PTG is the shattering and rebuilding of world assumptions. World assumptions are core cognitive schema through which individuals interpret themselves, others, and the world generally (Janoff-Bulman, 1989, 1992). According to the theory of shattered assumptions, humans inherently hold positive assumptions about the predictability, safety, fairness, and justness of the world as a function of warmth experienced from caregivers during early development (Janoff-Bulman, 1992; Lerner & Miller, 1978; Parkes, 1971). The primary categories of assumptions people hold central are: 1) the benevolence of the world (i.e., belief that world is a good place and people are basically good and caring); 2) meaningfulness of the world (i.e., the belief that good and bad outcomes do not occur arbitrarily but based on justice and an individual's controllable actions); and 3) self-worthiness (i.e., the belief that one is a moral person, that one engages in appropriate behaviours to control outcomes, and that one is lucky and protected from ill fortune). However, after a traumatic event, such assumptions are shattered given the incompatibility between the assumptions and reality (Janoff-Bulman, 1989, 1992). As a result, survivors often suffer from negative perceptions of the self and world, leading to increased vulnerability to posttraumatic stress disorder (Ginzburg, 2004; Janoff-Bulman, 1989; Littleton, Grills-Taquechel, Axsom, Bye, & Buck, 2012; Rini et al., 2004).

The shattering and rebuilding of world assumptions is seen as a necessary condition for PTG. Following a trauma, individuals either have to integrate the new information into pre-existing assumptions or revise the assumptions in line with the new information (Calhoun & Tedeschi,

1998; Janoff-Bulman, 1989, 1992). Calhoun and Tedeschi (2006) outlined the theoretical phases of the schema reconstruction process leading to PTG. Survivors first experience distress and low PTG as they are confronted with conflicting pre and posttraumatic beliefs. Anxiety occurs, as rumination, and a new narrative about life goals develops. In the final phase, schemas are reconstructed to be wider and more complex. Both negative and positive views of the self and world are endorsed, reflecting the paradoxical nature of PTG in survivors (e.g., increased recognition of vulnerability and strength; Calhoun & Tedeschi, 1999; Tedeschi, 1999). However, the specific assumptions to which positive and negative change needs to occur for PTG to present have not been delineated. For example, perhaps those who demonstrate PTG following sexual violence demonstrate altered assumptions of justice and benevolence ("Things that happen to me are not always fair, people are not always good") but maintain a sense of control ("I still have control over what will happen in my life").

The importance of schema reconstruction for developing PTG remains largely theoretical at this point, with the few studies done demonstrating contradictory outcomes. Positive correlations (Valdez & Lilly, 2015; Zhou, Wu, Fu, & An, 2015), negative correlations (Cann et al., 2010), and simultaneous positive and negative correlations have been found. Among a sample of former Israeli war prisoners, only the assumption of controllability predicted PTG (Dekel, Mandl, & Solomon, 2011), whereas among newly diagnosed adult cancer patients, the assumptions of justice and luck predicted PTG (Carboon, Anderson, Pollard, Szer, & Seymour, 2005). The latter two findings suggest different assumptions may be more or less relevant based on the traumatic event experienced.

The discrepant findings within the literature concerning world assumptions and PTG may also highlight the need for PTG to be treated as a multidimensional construct. Janoff-Bulman

(2004) proposed that world assumptions are unimportant for understanding the factors of personal strength and new possibilities, as the very act of progressing through the pain of trauma is sufficient for survivors to become aware of previously undiscovered strengths and develop coping skills and resources that provide new possibilities for life. However, world assumptions are important for understanding the remaining three PTG factors. Namely, after trauma, survivors come to realize that terrible events can be distributed randomly, that misfortune does not strike only bad people, and that troubles do not occur only as a result of mistakes in actions (i.e., the assumption of randomness, justice, and controllability, respectively). These realizations are difficult for survivors to accept and thus, they will often engage in self-blame and counterfactuals ("If only I had not gone out, I would not have been raped") as a means of minimizing perception of a random, meaningless world, which can be mirrored by those around the victim. However, these realizations also result in an increased appreciation of existence. In a world that is incomprehensible, uncontrollable, and unpredictable, individuals recognize the preciousness of life and make commitments towards living a meaningful life (i.e., strengthening relationships to family, friends, God, and/or nature). As research on world assumptions has been mostly theoretical, the present study aimed to clarify the connection, by looking at both the process (world assumptions) and outcome (PTG) as multifaceted.

Cognitive Processing or Rumination

To alter one's perception of the self, others, and the world, extensive cognitive processing needs to occur. Within the growth literature, cognitive processing is often classified as rumination. Two different rumination types have been described within the growth literature (i.e., intrusive and deliberative; Tedeschi & Calhoun, 2004). It is theorized that rumination begin as mostly automatic, intrusive, and counter-factual (e.g., thoughts of how the incident could have been

avoided) and evolve into event-related thoughts intended to help one understand, resolve, and make sense of the trauma-related event (e.g., thoughts of the comprehensibility and importance of the traumatic experience). It is theorized that intrusive rumination prime the conscious efforts of deliberative rumination (Tedeschi & Calhoun, 2004), and some preliminary evidence has shown that intrusive thoughts do tend to precede more deliberate attempts to contemplate the wider significance of a traumatic event (Brooks, Graham-Kevan, Lowe, & Robinson, 2017). Cognitive processing, that is at its core is creative, may lead to the creation of a new and helpful schematic structure (Calhoun & Tedeschi, 2004).

Intrusive rumination alone have been shown to be related to greater distress and unrelated to PTG, while conflicting evidence has been found regarding whether deliberative rumination predict PTG (Brooks et al., 2017; Morris & Shakespeare-Finch, 2011; Stockton, Hunt, & Joseph, 2011). Deliberative rumination alone may facilitate the reassessment of an event, but a positive reorientation of the event (i.e., seeing the situation from a positive perspective) may need to occur for PTG to be present (Cardenas et al., 2017). Furthermore, it may be the case that only certain aspects of deliberative rumination are relevant for growth. Within a trauma-exposed community sample (which included those sexually victimized), it was found that the search for meaning and learning from experience were more strongly associated with PTG than aspects such as purposeful contemplation of the event and its consequence (Stockton et al., 2011).

Inconsistencies have been noted in regards to depreciations and rumination. Namely, it is not clear if PTD is predicted by both intrusive and deliberative rumination (Allbaugh, Wright, & Folger, 2016) or by solely intrusive rumination (Cann et al., 2010; Forgeard, 2013). In addition, Kroemeke, Bargiel-Matusiewicz, and Kalamarz (2017) examined the predictive role of emotional regulation and found that problem-focused and positive emotion-focused coping predicted PTG,

whereas negative emotion and avoidance-focused coping predicted PTD. Intrusive rumination may be indicative of avoidance-focused coping, but further research is needed to confirm.

The concept of rumination within the growth literature is a deviation from the characterization used in clinical research. Rumination in clinical research is typically defined as the tendency to think continuously and passively about negative events and individual distress (Nolen-Hoeksema, 1991). Rumination are the core cognitive element of major depressive disorder (Nolen-Hoeksema, 1991) and are crucial in understanding the maintenance and severity of PTSD (Elwood, Hahn, Olatunji, & Williams, 2009). According to a cognitive framework, rumination are intended to reduce one's current sense of threat and regain cognitive control (Ehlers & Clark, 2000, 2008). However, rumination are ineffective and act as a means of avoidance, whereby the individual can focus on the superficial aspects of how and why the trauma happened, rather than processing the underlying emotional content and adjusting to changes caused by the event (Michael, Halligan, Clark, & Ehlers, 2007). Research has shown that aspects of rumination better explain PTSD severity than just its mere presence. Namely, compulsions to continue ruminating, occurrence of unproductive thoughts (e.g., why and what if questions), and experiential avoidance were concurrently and prospectively related to PTSD (Bishop, Ameral, & Palm Reed, 2018; Michael et al., 2007).

The growth and clinical literature suggest that not all ways of ruminative thinking may be equally maladaptive or maladaptive in the first place. Certain aspects of cognitive processing, such as searching for meaning and learning from experiences, may be crucial for growth. Alternatively, a fixation on reliving events, one's own personal distress, and unproductive questions (why me, what if I had done this differently) may not only be an impediment to growth, as the individual does not engage in creating a new schema of the event, but may also result in increased

psychopathology and dysfunction. However, these different aspects of ruminative thinking have yet to be examined simultaneously in relation to PTG, PTD, and psychopathology among a sexually victimized student population.

Self-Disclosure

Self-disclosure of the traumatic experience to trusted empathic others is theorized to facilitate ruminative thinking and help individuals derive meaning from their experience of trauma (Tedeschi & Calhoun, 2004). It is theorized that others, particularly those with similar experiences and circumstances, can help survivors make sense of the events and devise new narratives outlining how they have changed since the event. In addition, disclosure to others may help to increase tolerance to distress, which allows for sustained cognitive processing (Weiss, 2002) and creates a sense of safety while working through trauma-reminiscent cues and contexts (Foa et al., 1991).

The study of disclosures following sexual violence is a prolific area of research and has helped to describe the nature of exchanges survivors commonly engage in, the type of responses confidants typically offer survivors, as well as the nature of individuals who tend to disclose. In general, disclosures are common, tend to be informal, directed towards a female peer/friend, and done soon after the event. Amongst first-year undergraduates who experienced sexual violence while in college, approximately 55% discussed the experience with someone, most often a female peer (94.5%), a male peer (45.9%), a mother (13.5%), or another family member (10.8%; Orchowski & Gidycz, 2012). Female peers most commonly responded with emotional support, rather than distraction, egocentric responses, controlling decisions, information/tangible aid, treating the survivor different, or blame (Campbell, Wasco, Ahrens, Sefl, & Barnes, 2001). It is not clear how these reactions were interpreted by the women or whether the reactions related to subsequent adjustment. Disclosures of sexual violence tend to be done quite quickly, most often

the following day (51.4%). In regards to PTG, findings based on cancer patients suggest emotional support may be most crucial during the crisis phase, whereas informational and instrumental support may be more relevant in later stages (Schwarzer, Luszczynska, Boehmer, Taubert, & Knoll, 2006). However, given the differences in stressors, its unclear whether this same pattern is demonstrated following sexual violence. Finally, those who tend to make a disclosure are those who cope with stress through gaining emotional support (e.g., confiding fears and worries to a friend; Orchowski & Gidycz, 2012). A meta-analysis on general trauma samples demonstrated that social support and seeking social support as a means of coping are both moderately related to PTG (Prati & Pietrantoni, 2009). However, trauma event characteristics were not further examined, nor was the nature of social support (e.g., differential association between emotional versus instrumental social support and PTG).

Among those with sexual violence histories, social support and disclosure reactions are commonly examined in relation to psychopathology (Billette, Guay, & Marchand, 2008; Borja, Callahan, & Long, 2006; Bryant-Davis, Ullman, Campbell et al., 2001; Tsong, & Gobin, 2011; Ullman & Filipas, 2001), without the inclusion of positive outcomes measures. An exception is the study by Borja and colleagues (2006), which included measures of PTSD, general psychological symptomology, and experience of positive and negative social disclosure reactions. The focus of the study was on formal and informal social reactions, with results showing positive reactions from informal and formal sources were associated with benefits, whereas only negative reactions from informal sources was associated with PTSD symptomology. Within this body of literature, a recent meta-analysis on intimate partner violence (M = 51, N = 6532) was published showing that negative reactions to disclosure (especially reactions involving controlling, distracting, and treating survivors differently) were harmful, yet positive reactions were not

protective (Dworkin, Brill, & Ullman, 2019). Negative social reactions were consistently associated with psychopathology regardless of sample or study characteristics (*r's* ranged from .14 to .25 depending on the type of reaction). Although correlations were in the small range, their magnitude is comparable to other known risk factors of PTSD among trauma-exposed adults (e.g., trauma severity r = .23, prior trauma r = .12, Brewin et al., 2000). The larger effect of negative versus positive reactions was theorized to reflect the fact that negative reactions violate a victim's expectation of support during a time of high vulnerability. Furthermore, negative reactions may result in a victim questioning whether future disclosures would be effective and reinforce potential feelings of self-blame and uncertainty over one's own perception of events (e.g., whether what they experienced was rape; Ahrens, 2006). Negative reactions have the potential to further silence a victim.

When examining PTG, it appears that both social reactions and the very act of making self-disclosures are important, with these two dimensions being related. Findings show that greater extent of disclosure and telling more persons is related to more positive reactions from others (Ullman & Filipas, 2001). In line with theoretical expectations, supportive social reactions to disclosures, whether by an informal or formal source of support, are related to increased positive change (Borja et al., 2006; Frazier et al., 2004) and decreased sexual revictimization risk (Mason, Ullman, Long, Long, & Starzynski, 2009). Not feeling judged or blamed, feeling validated, and being offered alternative perspectives were indicated as important among survivors for achieving growth (Hartley et al., 2016). Alternatively, fears of being blamed, doubted, and treated insensitively (stigma threat) lead to survivors remaining silent (stigma threat-motivated nondisclosure; Ahrens, 2006; Miller, Canales, Amacker, Backstrom, & Gidycz, 2011). This type of self-silencing occurs more frequently if the victim minimizes the event or perpetrator's

behaviour (Miller et al., 2011). Self-silencing is associated with reduced growth in new possibilities, and consequently, greater revictimization risk (PTG mediator; Miller et al., 2011). Lastly, it is important to remember, disclosure in of itself can be empowering, as an individual no longer must conceal an aspect of themselves (Hartley et al., 2016).

Beyond just the act of making a disclosure, relationships and creating a connection to the community may act as the vehicle to which survivors achieve growth (Hartley et al., 2016). Within these relationships, key processes to growth may include learning to assert one's needs within relationships, as well as terminating harmful relationships. New relationships offer survivors an opportunity for re-establishing trust in others, for exploring their sexuality, and for understanding the self in relation to others. Many survivors also report wanting to share their experiences at a societal level, to increase awareness, understanding, and acceptance (Hartley et al., 2016). The process of sharing their experiences may foster a new narrative of the trauma and of themselves (not as a victim, but as someone capable of helping others).

Despite the depth of research examining disclosures in relation to both psychopathology and PTG, there is still a lot we do not know. Psychopathology and PTG are rarely examined simultaneously, and thus, we do not know what aspects of disclosure are relevant in understanding the different patterns of responses seen following victimization (e.g., those who present with growth, those who present with depression, those who present with both growth and depression). Furthermore, most aspects of disclosure examined are quite at surface level. For example, although the literature does provide information regarding the timing of disclosures, the relation/identify of disclosure recipients, and disclosure reactions, there is very little information concerning the information the victim tends to disclose. We do know that the level of detail of the disclosure predicts psychological functioning (Ullman, 1996, Ullman & Filipas, 2001, Ullman & Filipas

2005). Preliminary findings have also found that the content shared can account for additional variance in whether a person ultimately identifies a disclosure experience as positive, even after accounting for reactions. Pinciotti, Allen, Milliken, Orcutt, and Sasson (2019) found that positive experiences of disclosure were predicted by less sharing of assault-related cognitions (content; $\beta = -.41$, $p < .05$), less turning against (reaction; $\beta = -.57$, $p < .01$), and more unsupportive acknowledgement (reaction; $\beta = .50$, $p < .05$). No one has yet to examine whether certain patterns of disclosure content and reactions are characteristic of those with higher levels of growth. It also may be the case that certain conversations are particularly facilitative of aspects of growth (e.g., discussing physical harm of incident as facilitative of increased appreciation for life). Finally, we do not know if disclosures predict PTG through its facilitative effect on cognitive processing (rumination) as theorized, as processes of PTG are not commonly examined together.

The Current Study

Given the high-risk environment of university, the grave burden placed on individuals following an incident of sexual violence, and the increased likelihood of continuous revictimization, there is an imperative need to equip students with the ability to thrive despite experienced trauma. Understanding the process by which people can achieve growth following trauma represents one means of disrupting the cycle of increased vulnerability. Furthermore, delineation of the processes required to develop and achieve PTG may help to explain why some individuals present with higher levels of growth than others following victimization, why different presentations of growth may be seen (e.g., what processes underlie strengthened connection to others, increased sense of personal strength), and why different patterns of responses may be observed (e.g., what cognitions underlie growth, depreciation, depression). The simultaneous examination of growth, depreciation, and psychopathology reflects a more nuanced perspective of

survivors, as it is increasingly appreciated within the scientific and clinical community that individuals can demonstrate both positive and negative changes in the aftermath of trauma, at times even within a single domain of functioning.

The current study had four overarching objectives. The first objective was to describe the nature of growth and depreciation in a sexually victimized student sample utilizing a standardized measure, the Paired Format Posttraumatic Growth Inventory (Baker et al., 2008). Namely, we wanted to identify the levels of both PTG and PTD, and their component factors, amongst an understudied sample. The second objective was to examine the co-occurrence and possible interaction between PTG, PTD, and psychopathology (as operationalized as PTSD, anxiety, and depressive symptoms). Both composites and subscales of each outcome were examined. Frazier et al., 2001 found that positive changes in self and spirituality (e.g., greater recognition of strengths and appreciate of life) were associated with less distress whereas negative changes in these two domains (e.g., lower sense of self-worth and lower spiritual well-being) were associated with more distress. The third objective was to delineate the different world assumptions, cognitive processing styles (rumination), and disclosure patterns that are associated with PTG, PTD, and psychopathology (PTSD, anxiety, and depression). Finally, the last objective was to assess the appropriateness of the theorized process of growth as outlined by Calhoun et al., 2010 as it relates to sexual violence. I hypothesized the following:

Interaction Between PTG, PTD, and Psychopathology

1. There will be a greater association between PTD and psychopathology than PTG and psychopathology, as they are conceptually more similar.

2. PTG and PTD in the factors of appreciation for life, personal strengths, and spirituality will be the most strongly associated (negative and positively, respectively) with different indices of psychopathology compared to other factors.

Predictors of PTG, PTD, and Psychopathology

3. World beliefs, deliberative rumination, and positive social reactions to disclosure will be positively associated with PTG.
4. Intrusive rumination and negative reactions to disclosure will be positively associated with psychopathology.
5. The magnitude of association between negative social reactions and psychopathology will be greater than that of positive social reactions and PTG, as harmful reactions are particularly impactful (Dworkin et al., 2019)

Process of PTG

6. Supported self-disclosures will mediate the pathway from intrusive rumination to deliberative rumination, and the latter will be the precursor to PTG. Figure 2 details the hypothesized process of PTG.

Method

Participants

Three hundred and fifty-eight female students (undergraduate, graduate) participated in the study. To be eligible for the study, participants had to be at least 18 years old; endorse presence of an unwanted sexual experience during university; and classify themselves as female,

both biologically and in terms of gender identity. Participants were aware they would be asked to detail positive and negative outcomes following the unwanted sexual experience. No behavioural definition of unwanted sexual experience was provided; however, to have some consistency in understanding across participants, participants were made aware that experience of contact ("e.g., attempted or completed penetration, a person touching your body without consent, etc.") and/or non-contact ("e.g., having a partner verbally coerce you to engage in a sexual act, being followed by someone who has a sexual interest in you, etc.") forms of sexual violence would deem the person eligible for participation.

One hundred and twenty-four students were eliminated from the dataset and not included in the main analyses: 26 students did not complete the screening questions, 55 failed the screening questions (i.e., did not identify as at least 18 years in age, female both biologically and in gender identity, and experience of an unwanted sexual experience while in university), 9 did not answer any demographic questions, 13 did not answer a single survey question (i.e., 100% missing on the first measure), and 21 demonstrated evidence of careless responding (i.e., reporting greater victimization severity for their time in university than in their lifetime on the Sexual Experiences Survey-Short Form). Comparisons were made between the latter two eliminated groups (i.e., those who did not complete a single question, who demonstrated careless responding), to see if they differed from the majority: 1) No difference in demographic variables (i.e., age, year in school, ethnicity, financial strain, religion, sexual orientation, relationship status) were noted amongst those who did and did not complete a single question; 2) while only one demographic variable and questionnaire score differed amongst those demonstrating careless responding (i.e., in relationship status and lifetime sexual violence severity; deleted were mostly dating and had less severe histories).

To analyze the pattern of missing data of the remaining dataset (n = 234), Little's chi-square test was done to assess whether the missing data was missing completely at random (MCAR; Little and Rubin 2002). No significant finding was obtained, $\chi^2 = 477.28$, $p > .99$. Unfortunately, as missing values were common across the remaining dataset (25%), conventional methods (e.g., listwise/pairwise deletion, mean substitution) were deemed inappropriate (Little et al., 2014). Given a priori analysis conducted suggested that 194 participants were required for the most extensive regression model ($1 - \beta = .95$, $\alpha = .05$, $f^2 = .15$, predictors = 14; G* Power 3.1.9.7), and a minimum of 200 was set for the SEM (Weston & Gore, 2006), maintaining the sample size was prioritized.

Unfortunately, it is difficult to determine if the attained pattern in missing responses is similar to other studies of sexual violence, given missing data and methods for handling missing data are not reliably reported (Sidi & Harel, 2018). Although there are characteristics of the present sample that are typical of greater distress amongst participants engaged in trauma research (i.e., endorsement of trauma history, PTSD symptoms; Jaffe et al., 2015), it has not been established whether distress is associated with incomplete responding. In fact, it has been established through meta-analysis, that participants can report distress and positive experience with participation, regardless of trauma history or rates of PTSD (Jaffe et al., 2015). Thus, it is unclear if the attained proportion of missing responses represent a significant increase compared to other sexual violence research, and if it does, whether the basis of the increase is due to distress or revictimization from the sensitive nature of the questions.

Missing data was handled with full information maximum likelihood (FIML) estimates, which uses observed responses to supplement the loss of information due to missing responses (Little et al., 2014). Several simulation studies have shown that FIML yields unbiased estimates

of both parameters and their standard errors (e.g., Enders, 2010; Schafer & Graham, 2002). Although FIML methods are most commonly applied to SEM models, they can be used for other analysis that falls within the general linear model (Graham, 2009). Thus, data from 234 participants will be used for the outlined SEM and regression analyses.

Procedure

The current study was approved by the Research Ethics Board at the Department of Psychology at Lakehead University. Participants were recruited through an online research portal, open to current students within the Psychology Department (Appendix A provides a preview of the information presented to potential participants). Consent, screening, and questionnaires were completed online through SurveyMonkey. Appendix B contains the Consent Form, while Appendix C details the questions used for screening. Responses were anonymous and confidential, to encourage comfort and honesty in participants, given the sensitive nature of the information collected. The consent form and the questionnaires were hosted through separate links to preserve their anonymity. However, participants had the option at the end of the study to rescind their anonymity if they were interested in being contacted for a follow up study. Participants were offered a course credit in exchange for their participation, as well as the chance to win four $50 gift cards. In addition to standardized measures, some personal details were collected (i.e., age, year in university, race, level of financial strain, religion, place of residence, gender identity, sexual orientation, relationship status, age of first sexual experience, and contraceptive use). Appendix D contains the demographic questions presented to participants. On average, participants took roughly 40 minutes to complete the questionnaires, which included 10 measures or 233 items, although measures/items answered varied based on participant details (e.g., disclosure measures were skipped if no disclosure was made). Alternate debriefing forms were created (Appendix D),

to provide information and resources to individuals deemed ineligible, as well as to participants who completed the study. Data collection occurred from May 2021 to April 2022 (inclusive).

Measures

Traumatic Event

An amended version of the *Sexual Experiences Survey- Short Form Victimization* (SES-SFV; Koss et al., 2007) was used to confirm and quantify severity of unwanted sexual experience(s). The SES-SFV is the most widely used instrument of its kind, with results supporting the validity and reliability of the instrument among female participants (Johnson, Murphy, & Gidycz, 2017). The SES-SFV uses behaviourally specific descriptions of sexually assaultive acts and tactics, which has been shown to increase reporting rates amongst participants (up to 11 times higher than when using less behaviourally specific items; Fisher, 2009). Participants were asked to indicate the frequency to which they have experienced the different outcomes since entering university, and since the age of 14 (period subsequently referred to as "lifetime"), with frequency rated on a four-point scale. Unwanted sexual contact, sexual coercion, attempted rape, and completed rape were assessed across the seven items.

Given the depth and breadth of information collected through the SES-SFV, there were multiple means of garnering a severity score (Davis et al., 2014). Since only victimized female students were eligible for the study which could result in limited sampling, the aim for the severity indicator was to ensure greater variability in possible scores. Thus, a "sum of frequency ranks" was used for scoring where the severity rank of each outcome (detailed in Figure 3) was multiplied by the number of times the participant reported experiencing that particular outcome (maximum of 3 times allowed for each rank), and then summed across items, with scores ranging

from 0-135. High internal consistency was found for the scale totals, both for the lifetime and university timeframe (Cronbach's alpha = .93 and .92, respectively). The SES-SFV can be found on Appendix F.

Psychopathology

The *Hospital Anxiety Depression Scale* (HADS; Zigmond and Snaith, 1983) was used to assess the presence and severity of anxiety and depression symptoms. The HADS consists of separate subscales for anxiety (HADS-A) and depression (HADS-D), each comprising of 7 items which are rated using a 0 to 3 scale. Although the measure was originally designed to screen for clinically relevant levels of depression and anxiety in patients attending a medical clinic, research has shown that the measure has strong psychometric properties even when applied to samples from the general public (Bjelland, Dahl, Haug, & Neckelmann, 2002). Specifically, the two-factor structure of the measure has been replicated and the internal consistency of both the HADS-A and HADS-D are reliably high (mean of .83 and .82 across 15 studies, respectively). For the current study, the internal consistency of both the Anxiety and Depression scale were acceptable (Cronbach's alpha = .81 and .76, respectively). The HADS can be found on Appendix G.

The *Posttraumatic Stress Disorder Checklist for DSM-5* (PCL-5; Weathers et al., 2013) was used to assess PTSD symptom severity. The 20 items of the PCL-5 correspond to the 20 symptoms of PTSD listed within the most recent revision of the DSM. Participants were asked to indicate the degree of disturbance for each symptom for the past month. Items were rated on a 5-point scale, from 0 ("*Not at all*") to 4 ("*Extremely*"). A total symptom severity score was garnered by summing scores across all items, with higher scores indicating greater severity (range 0-80). One can also garner symptom cluster severity scores by summing relevant items;

however, only total symptom severity scores will be used for analyses. The PCL-5 has been independently validated on two separate samples of trauma-exposed college students (Blevins, Weathers, Davis, Witte, & Domino, 2015). Across both samples, strong internal consistency, test-retest reliability, and convergent and discriminant validity was found. High internal consistency for the scale was found in the current study (Cronbach's alpha = .96). The PCL-5 can be found on Appendix H.

Posttraumatic Growth and Posttraumatic Depreciation

The *Paired Format Posttraumatic Growth Inventory* (PTGI-42; Baker et al., 2008) was used to assess PTG and PTD. The PTGI-42 includes the 21 items from the original Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) which are presented with 21 matched negatively worded items to measure PTD. Respondent were asked to indicate the degree to which they experienced the change described by each item using a 6-point scale ranging from 0 *(''I did not experience this change as a result of my crisis"*) to 5 *(''I experienced this change to a very great degree as a result of my crisis'')*. The 21 positively worded and 21 negatively worded items were separated summed to create a PTG and PTD composite score (range from 0 to 105), with higher scores indicating greater PTG and PTD. Each composite was further broken down into five subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. For an overview of the items for each factor, across PTG and PTD, please refer to Table 1. The PTG and PTD composite scores have been shown to have high internal consistency, with adequate reliability estimates for the PTG subscales (ranging from $\alpha = .72$ for personal strength to $\alpha = .85$ for spiritual change) and PTD subscales (ranging from $\alpha = .59$ for appreciation of life to $\alpha = .84$ on the new possibilities subscale; Baker et al., 2008; Cann et al., 2010). The internal consistency for both the PTG and PTD composites were high in the present

study (Cronbach's alpha = .94 and .92, respectively). For the PTG and PTD subscales, the internal consistency values were the following: Relating to Others (.83 and .80, respectively); New Possibilities (.85 and .78); Personal Strength (.80 and .72), Spiritual Change (.76 and .68); Appreciation of Life (.69 and .77). The PTGI-42 can be found on Appendix I.

Processes of Growth

The *Event-Related Rumination Inventory* (ERRI; Cann, Calhoun, Tedeschi, Triplett, Vishnevsky, & Lindstrom, 2011) was used to measure the extent to which participants engaged in intrusive and deliberative rumination. Each style of cognitive processing was assessed through 10 items, with each item assessed on a 4-point Likert scale ranging from "*Not at all*" to *Often*". Example of items include "Thoughts about the event distracted me or kept me from being able to concentrate" (an intrusive rumination item) and "I thought about what the experience might mean for my future" (a deliberative rumination item). As the measure was developed more recently, there has been minimal research published on its psychometric properties. However, based on the research published, the measure appears to have robust internal consistency (alphas of .94 and .88 for intrusive and deliberative rumination, respectively; Cann et al., 2011), with the two-factor structure replicated independently (Kramer, Silverstein, Witte, & Weathers, 2020), with both studies utilizing undergraduate student samples. The internal consistency for both the Intrusive and Deliberative subscale were high (Cronbach's alpha = .95 and .90, respectively). The ERRI can be found on Appendix J.

The *10-item Ruminative Response Scale* (*RRS-10*; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) was used as a second measure of rumination. The RRS-10 encompasses two subscales, reflecting the two major types of rumination conceptualized by Nolen-Hoeksema (1987): The two types of rumination are brooding and reflection. The RRS-10 was found to

have good internal consistency and high test-retest reliability. In a general trauma sample, it was found that brooding was not associated with PTG, whereas reflection (in the context of low brooding) was associated with PTG (Stockton et al., 2011), the same pattern that had been noted for intrusive and deliberative ruminations, respectively (e.g., Morris & Shakespeare-Finch, 2011). For the present study, the internal consistency for both scales were acceptable (Cronbach's alpha = .80 for Brooding and Cronbach's alpha = .75 for Reflection). The RRS-10 was included to act as the second observed variables for the two rumination types, as a minimum of two observed variables is needed for each latent variable included in the structural equation model. The RRS-10 can be found on Appendix K, and a definition of all four rumination types can be found on Table 2. As can be seen, intrusive ruminations and brooding reflect a passive repetitive form of cognitive processing, whereas deliberative rumination and reflection reflect a purposeful goal-directed form of processing.

The *World Assumptions Questionnaire* (WAQ; Kaler, 2009) was used to assess world assumptions. The 22 items of the instrument are divided into four subscales: Controllability of Events ("I have a great deal of control over what will happen to me in my life"), Comprehensibility and Predictability of People ("People often behave in unpredictable ways"), Trustworthiness and Goodness of People ("Other people are usually trustworthy"), and Safety and Vulnerability ("Terrible things might happen to me"). For further detail on these assumptions, please refer to Table 3. For each item, participants were asked to indicate their agreement with a statement from 1 (*strongly agree*) to 6 (*strongly disagree*). A total score and separate subscale scores are garnered by summing relevant items, with higher scores indicating greater endorsement of the specific world schema. The WAQ can be found on Appendix L.

The WAQ was used instead of its widely used counterpart, the *World Assumptions Scale* (WAS; Janoff-Bulman, 1989), as issues of reliability, factor structure, and validity have been raised for the latter (Ginzburg, 2004; Elklit, Shevlin, Solomon, & Dekel, 2007; Kaler et al., 2008). For example, several subscales have consistently garnered alphas in the .50-.70 range, indicating questionable consistency of measurement item-to-item (Ginzburg, 2004). Kaler and colleagues (2008) suggested that the psychometric limitations of the WAS may account for inconsistencies in the world assumptions literature to date. The WAQ was developed to address these psychometric shortcomings, with accumulating support for its use amongst traumatized student populations (Anders, Frazier, & Shallcross, 2014; Schleider, Woerner, Overstreet, Amstadter, & Sartor, 2018). In the present study, the WAQ demonstrated good internal consistency (Cronbach's alpha = .82), although variability was seen across subscales: Controllability of Events (Cronbach's alpha = .61); Comprehensibility and Predictability of People (Cronbach's alpha = .82); Trustworthiness and Goodness of People (Cronbach's alpha = .67); Safety and Vulnerability (Cronbach's alpha = .75).

The *Social Reactions Questionnaire- Shortened* (SRQ-S; Ullman, Relyea, Sigurvinsdottir, & Bennett, 2017) was used to assess a respondent's experience of different disclosure reactions. The SRQ-S is a behaviourally defined self-report measure that includes 16 items, each detailing a different social reaction. The three primary scales of the original 48-item Social Reactions Questionnaire (Ullman, 2000) were maintained and used for analysis in the current study. The Turning Against scale consists of overtly negative experiences, such as blame and stigmatization, while the Unsupportive Acknowledgements scale consists of experiences reflecting unsuccessful attempts at providing support, such as egocentrism and distraction. Finally, the Positive Reactions scale consists of experiences detailing emotional support and

belief. Respondents were asked to indicate their experience of each reaction on a 5-point Likert-scale from 0 (*never*) to 4 (*always*). The SRQ-S was validated on a large college and community sample of female survivors. Adequate internal consistency was found for the three primary scales, the three-factor model was confirmed through factor analysis, and importantly, the measure was found to predict important recovery outcomes similar to the full-length version. For the current study, the three primary scales demonstrated variable internal consistency: Turning Against (Cronbach's alpha = .83); Unsupportive Acknowledgement (Cronbach's alpha = .69); and Positive Reactions (Cronbach's alpha = .79). The SRQ-S can be found on Appendix M.

The *Sexual Assault Inventory of Disclosure* (SAID; Pinciotti, Allen, Milliken, Orcutt, & Sasson, 2019) was used to examine the extensiveness and content of socially supported disclosures. Participants are asked to detail what information was discussed during their most positive and most negative disclosure experience, with the participant asked to select a person to which they had the most positive and most negative conversation about the event (if they only disclosed to one person, the participant chooses to identify the person as a positive or negative disclosure recipient). If a participant had experienced multiple sexually traumatic events, they were asked to select the most upsetting event when answering, with information on the most upsetting traumatic event queried (e.g., age to which the most upsetting sexually traumatic event occurred). For both the positive and negative disclosure recipient, disclosure content across five information areas was assessed: 1) *details* about the assault and its aftermath; 2) *emotions* related to the assault and its aftermath; 3) *cognitions* during the assault and its aftermath; 4) *beliefs* about oneself, others, and the world since the assault, and 5) *societal experiences* with others following the assault. The information areas have between 13 to 17 items each, with items rated on a scale of 0 (*Not at all*) to 3 (*A great amount*), with the option to indicate if the item was not relevant

(e.g., if they did not go to the police, they cannot disclose such information), as well as if they were unsure whether disclosure of the content was made. Items are summed within each information area assessed, such that higher scores indicate a greater degree of disclosure. The five totals (i.e., details, emotions, cognitions, beliefs, social experiences) for the most positive disclosure experience were used in analysis as a means of measuring supported disclosures. For the current study, the internal consistency for each domain was acceptable: Details (Cronbach's alpha = .80); Emotions (Cronbach's alpha = .89); Cognitions (Cronbach's alpha = .90); Beliefs (Cronbach's alpha = .91); and Social Experiences (Cronbach's alpha = .90). The SAID can be found on Appendix N.

Data Analyses

All analyses were conducted using SPSS Version 27 and Amos Version 26, with the former used to garner descriptive statistics, and the latter used for hypothesis testing.

Descriptive analyses were conducted for all measures administered and correlations were calculated for all scale and subscales relates to psychopathology, PTG, and PTD: Based on recommendations of Graham (2009) for dealing with missing data, the means, standard deviations, and correlation matrix values reported are based on ML (maximization likelihood) estimates calculated using an EM (expectation-maximization) algorithm. Alpha coefficients were calculated to ensure the reliability of the instruments included (Clark and Watson 1995) and were similarly calculated using the EM algorithm (Graham et al., 2003; Graham, 2009).

To examine the social and cognitive processes associated with the different indices of post-trauma outcomes, a total of five two-step hierarchical regressions were calculated with five different outcomes: PTG (using the PTGI-42 Growth Composite), PTD (using the PTGI-42

Depreciation Composite), depression (using the HADS-D), anxiety (using the HADS-A) and PTSD (using the PCL-5). Adversity and event details were added on the first step, which included level of financial strain, sexual victimization severity (SES-SFV University total), and time since worst unwanted sexual experience (i.e., current age – age of worst unwanted sexual experience listed on SAID). Growth processes were added as the second step, which included world beliefs (WAQ Controllability of Events, WAQ Comprehensibility/Predictability of People, WAQ Trustworthiness/Goodness of People, WAQ Safety & Vulnerability), cognitive processes (EERI Intrusive Rumination, ERRI Deliberative Rumination), and social reactions (SRQ-S Turning Against, SRQ-S Unsupportive Acknowledgments, SRQ-S Positive Reactions).

In addition to growth processes, adversity and event details have also been shown to be associated to post-trauma outcomes, warranting inclusion across regressions. Financial strain was included as a predictor variable, as a systematic review demonstrated less privileged social positions (e.g., having a low income) was associated with higher prevalence of depressive and/or anxiety disorders (Fryers, Melzer, & Jenkins, 2003). However, Dijkstra-Kersten and colleagues (2015) subsequently showed that financial strain (a subjective indicator) was more highly associated with depressive and/or anxiety disorders than income (an objective indicator), with the recommendation that financial strain be assessed instead of income when examining mental health. It was not clear if financial strain would be associated with other indices of psychopathology (e.g., PTSD) and if it would be associated with depressive and anxiety symptoms amongst a victimized sample, as community and healthcare samples have been used. Severity of trauma exposure has similarly been found to be related to different indices of psychopathology (PTSD, depression, substance use) amongst trauma samples (Ullman et al., 2005; Ying et al., 2014), with timing of abuse associated to PTG (Kaye-Tzadok & Davidson-

Arad, 2016). Thus, sexual victimization severity and time elapsed since worst unwanted sexual event were also included in the hierarchal regressions.

To examine the pathway to PTG, structural equation modelling (SEM) was performed, with the three previously indicated processes (i.e., intrusive rumination, deliberative rumination, and socially-supported disclosures; latent variables) examined. The SEM parameters were garnered from ML estimation, as the outcome variable of interest was continuous and normally distributed (Maydeu-Olivares, 2017). To evaluate the overall model fit, chi-square ($\chi 2$), comparative fit index (CFI), Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) were used. Based on presently recognized standards (for a review, see Hooper et al., 2008), the following will be seen as indicators of good model-data fit: A non-significant chi-square; CFI and TLI values greater than .95; and RMSEA values below .07, with confidence intervals between 0 and .08.

Results

The descriptive statistics for the sample can be found on Table 4, while the descriptive statistics for measures can be found on Table 5. There were commonalities across the participant sample ($N = 234$): Most participants identified as heterosexual (76.5%), Caucasian (77.3%), had a sexual relationship in the previous year (78.6%), endorsed a Christian religion (52.5%), lived off-campus (90.6%), and had disclosed the fact that they were sexually victimized (60.3%). Over half (53.9%) of the sample were made of students in their first and second year of undergraduate studies. Financial strain did not seem common in the sample, with most reporting “never” or “rarely” having issue paying for necessities (33.3% and 35%, respectively). Extreme responses were seen with condom use for those who engaged in a sexual relationship, with most reporting “never” or “always” using condoms (32.7 % and 29%, respectively): Reason for omission was

most commonly due to presence of another form of contraceptive and simultaneous presence of a long-term partner, although issues of access, convenience, and pressure from a partner were also mentioned. In regards to the mental health of the sample, the means attained would indicate a subthreshold level of PTSD (M = 30.03, recommended clinical cut-off = 31-33; Weathers et al., 2013), abnormal levels of anxiety (M = 11.08, abnormal = 11-21; Zigmond and Snaith, 1983), and normal levels of depression (M = 6.61, normal = 0-7; Zigmond and Snaith, 1983). Reported a different way, 44% of the sample would warrant further clinical attention for PTSD symptoms (> 30 on the PCL-5), 51.3% for anxiety symptoms (> 7 on the HADS-A), and 13.7% for depressive symptoms (> 7 on the HADS-D). When compared to other recent studies of mental health amongst students in North America (i.e., data collection occurring 2020 onward), similarities and deviations can be noted: The attained rates of anxiety seem comparable, whereas the attained rates of depression appear lower, with PTSD symptoms not typically examined in favour of general stress (Chrikov et al., 2020; Wang et al., 2020). For example, Chrikov and colleagues (2020) found that 39% of their undergraduate warranted further clinical attention for generalized anxiety disorder, while 35% of their undergraduate sample warranted further clinical attention for major depressive disorder. Similarly, Wang and colleagues (2020) identified 38% of their student sample screened in the moderate-to-severe levels of anxiety and 48% of their student sample screened in the moderate-to-severe levels of depression.

Posttraumatic Growth and Depreciation Following Sexual Violence

The current study had four overarching objectives. The first objective was to describe the nature of PTG and PTD in a sexually victimized student sample utilizing a standardized measure, the Paired Format Posttraumatic Growth Inventory (Baker et al., 2008). Namely, we wanted to identify the levels of both PTG and PTD, and their component factors, amongst an understudied

sample. Although there are no categorical descriptors for the PTGI-42, we can see from the descriptive statistics that growth and depreciation were present in low levels within the present sample. Specifically, the averages attained were below the midpoint of each scale (i.e., PTG M = 32.36 and PTD M = 25.51, each out of a possible total of 105). Although the mean scores for the growth composite are higher than that of the depreciation composite, the attained standard deviations (i.e., PTG SD = 22.96 and PTD SD = 18.67), indicate scores overlapped. When looking at the different areas that make up both growth and depreciation (i.e., relation to others, new possibilities, personal strength, spirituality, appreciation of life), the pattern of mean values suggested greatest growth in the areas of personal strengths and appreciation of life, and the least growth in the area of spirituality. The pattern of mean values also suggested the greatest depreciation in relating to others, and the least depreciation occurred in perception of new possibilities (meaning people did not feel disadvantaged when it came to opportunities as a function of their trauma). It is worth noting that similar to the growth and depreciation *composite*, the means for each *subscale* were well below the midpoint.

Summary

Using a standardized measure, we found modest occurrences of both PTG and PTD in the present sample of sexually victimized female students. The most reported positive change was noted in personal strength, while the most reported negative change was in relating to others.

Interaction Between PTG, PTD, and Psychopathology

The second objective of the study was to examine the co-occurrence and possible interaction between PTG, PTD, and psychopathology (PTSD, anxiety, depression). Both composite totals and subscales of each outcome were examined, to see if experience of PTG was

related to psychopathology and/or if specific facets of PTG were related to the three symptom clusters (e.g., growth in perception of personal strength and reduced occurrence of PTSD symptoms). The correlation matrix can be found on Table 6.

Hypothesis Testing

There will be a greater association between PTD and psychopathology than PTG and psychopathology, as they are conceptually more similar (Hypothesis 1).

This hypothesis was supported. PTD was significantly positively correlated with PTSD ($r = .75$, $p < .001$), anxiety ($r = .40$, $p < .001$), and depression ($r = .43$, $p < .001$). PTG was significantly correlated to only PTSD and depression, with both a positive and negative correlation seen, respectively (i.e., $r = .30$, $p < .001$ for PTSD; $r = -.14$, $p < .05$ for depression). Using the metric proposed by Dancey and Reidy (2007) on the interpretation of correlations (i.e., $r = 0.1 – 0.3$ weak association, $r = .4$ - $.6$ moderate association, and $r = .7$ - $.9$ strong association), PTD was strongly associated with PTSD symptoms ($r = .75$) and moderately associated with anxiety and depression symptoms ($r = .40$ and $r = .43$, respectively). On the other hand, PTG was weakly associated with PTSD and depression ($r = .30$, $r = -.14$, respectively). The greater correlation between PTD and psychopathology than PTG and psychopathology can also be seen when looking at the specific factors (i.e., relating to others, new possibilities, personal strength, spiritual change, and appreciation of life), as opposed to composites. Surveying only the significant correlations, with PTSD, the PTD factors demonstrated a moderate correlation (r ranging from .41 to .67) whereas the PTG factors demonstrated a weak correlation (r ranging from .19 to .31). With depression, the PTD factors had a weak to moderate correlation (r ranging from .24 to .49), whereas only one PTG factor (relating to others) proved significant, with a weak correlation ($r = -.20$, $p < .01$). With anxiety, the PTD factors had a weak to moderate

correlation (*r* ranging from .25 to .38), whereas none of the PTG factors were significantly correlated.

PTG and PTD in the factors of appreciation of life, personal strength, and spiritual change will be the most strongly associated (negative and positively, respectively) with different indices of psychopathology compared to other factors (Hypothesis 2).

This hypothesis was partially supported. As a reminder, both PTG and PTD can be simultaneously reported for a factor: For example, a participant can endorse both greater distance and closeness to other people. For PTG, both the direction and specific subscales hypothesized to be most strongly correlated were not supported. Importantly, none of the PTG factors were significantly correlated with anxiety; and only one factor was significantly correlated with depression, with the one significant factor (*relating to others*) not amongst the factors hypothesized to be most important. For PTSD, PTG in *new possibilities*, *appreciation of life*, and *personal strengths* were most highly correlated with PTSD (i.e., magnitude-wise, irrespective of valence; $r = .31$, $r = .31$, $r = .24$, respectively). Thus, two of the three hypothesized factors were supported (i.e., *appreciation of life* and *personal strengths)* for the one outcome. Though, the PTG factors were positively correlated with PTSD, as opposed to negatively correlated, as hypothesized. For PTD, all correlations with psychopathology were in the positive direction as hypothesized, but the specific PTD subscales predicted to be most strongly correlated with psychopathology were not supported (with the exception of *appreciation for life*). PTD in *appreciation of life*, *relating to others*, and *new possibilities* were most strongly positively associated with PTSD ($r = .67$, $r = .66$, $r = .63$, respectively), anxiety ($r = .38$, $r = .32$, $r = .37$, respectively), and depression ($r = .49$, $r = .33$, $r = .36$, respectively). When surveying across

PTG and PTD, only one of the hypothesized factors (i.e., *appreciation of life*) was amongst the most highly correlated factors to psychopathology.

Summary

By examining correlations, it was found that PTD and increased psychopathology symptoms (PTSD, depression, anxiety) commonly co-occur. On the other hand, overall PTG appeared unrelated to psychopathology, with small (positive and negative) correlations seen across psychopathology indicators, regardless if looking at the PTG composite or factor scores. Furthermore, PTG was only significantly correlated to two of the three psychopathology outcomes (not correlated to anxiety), whereas PTD was significantly correlated with all three psychopathology outcomes. Consequently, PTG and psychopathology should be seen as separate entities, as opposed to opposite ends of a continuum.

Generally, it was not the case that consistent PTG or PTD factors (i.e., appreciation of life, personal strength, and spiritual change) were most highly correlated with the different psychopathology outcomes. Only one of the hypothesized factors (i.e., appreciation of life) was amongst the most highly correlated factors to psychopathology. Consequently, all areas of potential PTG and PTD (i.e., relating to others, new possibilities, personal strength, spiritual change, and appreciation of life) should be considered when making connections to psychopathology.

Predictors of PTG, PTD, and Psychopathology

Five separate two-step hierarchical regressions were conducted to assess the variance in PTG, PTD, and psychopathology (PTSD, anxiety, depression) accounted by growth processes (world beliefs, ruminations, disclosure reactions), after controlling for adversity/trauma details.

For all regressions, assumptions of a linear relationship, multivariate normality, multicollinearity, autocorrelation, and homoscedasticity were examined and satisfied. A normal probability plot was used to assess for normality, a residual versus predicted scatterplot was used to assess for homoscedasticity, and if these two plots were appropriate, it was deemed that linearity was not a concern (as was the case for all five regressions). To examine autocorrelations, a Durbin Watson Test was run, with attained values between 1.5 and 2.5. indicative of no autocorrelation. The Durbin-Watson values attained for the five regressions (outcome in bracket) were as followed: 2.00 (PTG), 1.85 (PTD), 1.88 (PTSD), 1.88 (anxiety), and 2.24 (depression). Finally, for multicollinearity, the Variance Inflation Factor (VIF) was calculated, with attained values below 10 suggestive of no multicollinearity. Surveying across regressions, no attained VIF score surpassed 4 (for a full breakdown, please refer to Table 7).

Regression Results for Posttraumatic Growth

The complete model (with all predictors added) accounted for 38% variance in PTG scores (as can be seen in Table 8). In the first step, the adversity/trauma detail variables were added, accounting for a significant portion of variance in PTG, $R^2 = .12$, $F(3, 230) = 10.06$, $p < .001$. Financial strain and sexual victimization severity were significant predictors at step one ($\beta = .15$, $p < .05$; $\beta = .25$, $p < .001$; respectively). At step 2, the growth processes were added, accounting for a significant portion of additional variance in PTG, $\Delta R^2 = .26$, $\Delta F(9, 221) = 11.10$, $p < .001$. Financial strain ($\beta = .17$, $p < .01$), deliberative rumination ($\beta = .32$, $p < .001$), and positive reactions ($\beta = .22$, $p < .01$) were significant predictors at step two.

Regression Results for Posttraumatic Depreciation

The complete model (with all predictors added) accounted for 55% variance in PTD scores (as can be seen in Table 9). In the first step, the adversity/trauma detail variables were

added, accounting for a significant portion of variance in PTD, $R^2 = .16$, $F(3, 230) = 14.49$, $p < .001$. Sexual victimization severity was a significant predictor at step one ($\beta = .39$, $p < .001$). At step 2, the growth processes were added, accounting for a significant portion of additional variance in PTG, $\Delta R^2 = .39$, $\Delta F(9, 221) = 22.69$, $p < .001$. The world belief of the trustworthiness/goodness of people ($\beta = -.27$, $p < .001$), intrusive rumination ($\beta = .24$, $p < .001$), deliberative rumination ($\beta = .16$, $p < .05$), and turning against reactions ($\beta = .38$, $p < .01$) were significant predictors at step two.

Regression Results for Psychopathology

Posttraumatic Symptoms. The complete model (with all predictors added) accounted for 69% variance in PTSD scores (as can be seen in Table 10). In the first step, the adversity/trauma detail variables were added, accounting for a significant portion of variance in PTG, $R^2 = .16$, $F(3, 230) = 14.49$, $p < .001$. Sexual victimization severity was a significant predictor at step one ($\beta = .38$, $p < .001$). At step 2, the growth processes were added, accounting for a significant portion of additional variance in PTG, $\Delta R^2 = .53$, $\Delta F(9, 221) = 40.99$, $p < .001$. Financial strain ($\beta = .17$, $p < .001$), the world belief of the trustworthiness/goodness of people ($\beta = -.16$, $p < .01$), intrusive rumination ($\beta = .52$, $p < .001$), deliberative rumination ($\beta = .20$, $p < .001$), turning against reactions ($\beta = .37$, $p < .001$), and unsupportive acknowledgement reactions ($\beta = -21$, $p < .05$) were significant predictors at step two.

Anxiety Symptoms. The complete model (with all predictors added) accounted for 41% variance in anxiety scores (as can be seen in Table 11). In the first step, the adversity/trauma detail variables were added, accounting for a significant portion of variance in PTG, $R^2 = .06$, $F(3, 230) = 4.89$, $p < .01$. Financial strain and sexual victimization severity were significant predictors at step one ($\beta = .15$, $p < .05$; $\beta = .16$, $p < .05$; respectively). At step 2, the growth

processes were added, accounting for a significant portion of additional variance in PTG, $\Delta R^2 = .35$, $\Delta F(9, 221) = 12.59$, $p < .001$. Financial strain ($\beta = .17$, $p < .01$), the world belief of the controllability of events ($\beta = -.17$, $p < .01$), the world belief of the trustworthiness/goodness of people ($\beta = -.27$, $p < .001$), and intrusive rumination ($\beta = .34$, $p < .001$) were significant predictors at step two.

Depressive Symptoms. The complete model (with all predictors added) accounted for 36% variance in depression scores (as can be seen in Table 12). In the first step, the adversity/trauma detail variables were added, accounting for a significant portion of variance in PTG, $R^2 = .09$, $F(3, 230) = 7.12$, $p < .001$. Financial strain and sexual victimization severity were significant predictors at step one ($\beta = .15$, $p < .05$; $\beta = .22$, $p < .01$; respectively). At step 2, the growth processes were added, accounting for a significant portion of additional variance in PTG, $\Delta R^2 = .27$, $\Delta F(9, 221) = 10.31$, $p < .001$. Financial strain ($\beta = .20$, $p < .01$), the world belief of the trustworthiness/goodness of people ($\beta = -.31$, $p < .001$), intrusive rumination ($\beta = .18$, $p < .05$), turning against reactions ($\beta = .38$, $p < .05$), and unsupportive acknowledgement reactions ($\beta = -27$, $p < .05$) were significant predictors at step two.

Hypothesis Testing

World beliefs, deliberative rumination, and positive social reactions to disclosure, will be positively associated with PTG (Hypothesis 3).

Two of the three associations were supported. Deliberative rumination and positive reactions to disclosure were positively associated with PTG ($\beta = .32$, $p < .001$; $\beta = .22$, $p < .01$; respectively). Those who reflected on their trauma and perceived support (emotional, tangible) from others reported positive change following their trauma. However, no world belief was significantly associated with PTG.

Intrusive rumination, and negative reactions to disclosure will be positively associated with psychopathology (Hypothesis 4).

The hypothesized pattern was supported for two of the three psychopathology outcomes (i.e., PTSD and depression, but not anxiety). With PTSD, both intrusive rumination ($\beta = .52$, $p < .001$) and the social reaction of turning against ($\beta = .37$, $p < .001$) were positively associated. The same pattern was noted for depression: Intrusive rumination ($\beta = .18$, $p < .05$) and the social reactions of turning against ($\beta = .38$, $p < .001$) were positively associated. Interestingly, unsupportive acknowledgements were *negatively* associated with PTSD and depression ($\beta = -.21$, $p < .05$; $\beta = -.27$, $p < .05$; respectively), lending support to the notion that the two "negative" social reactions should be treated as separate, as Relyea and Ullman (2015) suggested. It may be the case that certain unsupportive acknowledgements (e.g., distraction, control) prove helpful for survivors, as it allows a reprieve in focus away from the trauma. With anxiety, intrusive rumination ($\beta = .34$, $p < .001$) was positively associated, but the social reaction of turning against was unrelated ($\beta = .09$, $p = .61$), as was unsupportive acknowledgements ($\beta = -.10$, $p = .48$). Thus, intrusive rumination was found to be a risk factor across all included psychopathology outcomes (PTSD, anxiety, depression), while negative reactions to social disclosure (specifically turning against reactions) was a risk factor for PTSD and depression only.

The magnitude of association between negative social reactions and psychopathology will be greater than that of positive social reactions and PTG (Hypothesis 5).

This hypothesis was partially supported. To examine the hypothesis, both the regressions for psychopathology (PTSD, anxiety, depression) and PTG were examined: The standardized betas for the negative social reactions (i.e., turning against and unsupportive acknowledgements) in the former three regressions, were compared to the standardized beta of positive social

reactions (i.e., positive reactions) for PTG. If the standardized betas for negative social reactions were greater than those of the positive social reaction (irrespective of valence in standardized beta values), the hypothesis was considered supported.

The hypothesis was supported only for one of the two negative social reactions examined. Using the metric by Cohen (1988) for interpreting standardized beta values (i.e., .10 - .29 = small effect size, .30 - .49 = medium effect size, > .50 = large effect size), turning against reactions had a medium effect in relation to PTSD and depression (β = .37, p < .001; β = .38, p < .001; respectively), while unsupportive acknowledgements had a small effect on these same outcomes (β = -.21, p < .05; β = -.27, p < .05; respectively). Positive reactions had a small effect in relation to PTG (β = .22, p < .01) and was not significantly associated to PTSD (β = .10, p = .10), anxiety (β = .03, p = .75), or depression (β = -.02, p = .82). None of the negative reactions were associated to anxiety either: Turning against reactions (β = .09, p = .42) and unsupportive acknowledgements (β = -.10, p = .42) were not significant predictors of anxiety. Thus, only the influence of turning against social reactions on psychopathology (specifically PTSD, depression) was greater than that of positive social reactions for PTG. Furthermore, positive social reactions did not have a protective effect for psychopathology (i.e., no negative association was noted for PTSD, anxiety, or depression), not significantly associated with any measured symptom cluster.

Non-Hypothesized Significant Findings

By including a variation of factors that examine adversity, trauma details, and growth processes across multiple post-trauma outcomes, consistencies and deviations can be noted (i.e., variables significantly associated to multiple outcomes and unique associations). The world belief of the trustworthiness/goodness of people was amongst the most consistent significant predictors across outcomes, and was associated with PTD and all psychopathology outcomes: A

negative association was noted, meaning the more people believed in the inherent goodness of people, the less PTD (β = -.27, p < .001), PTSD symptoms (β = -.16, p < .01), anxiety symptoms (β = -.27, p < .001), and depressive symptoms (β = .-31, p < .001) were endorsed. Level of financial strain proved to be significantly associated to all psychopathology outcomes. Specifically, the greater perceived financial strain the participant reported, the more endorsed symptoms of PTSD (β = .17, p < .001), anxiety (β = .17, p < .001), and depression (β = .20, p < .01). Finally, in addition to turning against social reactions being positively associated with PTSD and depression (as hypothesized), it also was associated with PTD (β = .38, p < .001), suggesting a wide-range of harmful outcomes to receiving stigma, blame and infantilization when making a disclosure of violence.

Interestingly, both intrusive and deliberative rumination were positively associated with PTD (β = .24, p < .001, β = .16, p < .05), as well as PTSD (β = .52, p < .001, β = .20, p < .001). The positive associations for deliberative rumination was particularly interesting, as it was also found to be positively associated with PTG (β = .32, p < .001), meaning the creative style of cognitive processing was associated with both positive and negative outcomes (PTG, PTD, and PTSD).

Finally, one other significant association was noted, specific to only one symptom cluster as opposed to multiple. Namely, the world belief on the controllability of events was negatively associated with anxiety (i.e., the more people believed that they control their own life outcomes and events that occur in their life, the less anxiety; β = -.17, p < .01). The series of regressions suggested certain world beliefs may be transdiagnostic (as was the case with the belief on the goodness of people) while others specific to a symptom cluster (as was the case with the belief on the controllability of events).

Summary

By simultaneously examining positive and negative post-trauma outcomes, we were able to determine the cognitive and social events that are characteristic of each outcome. Deliberative rumination (thoughts of the comprehensibility and importance of the traumatic experience) and positive reactions to disclosure (perception of emotional and/or informational support) were positively associated with PTG. Alternatively, intrusive rumination (unintended counter-factual thoughts of the traumatic event) and turning against reactions to disclosure (perception of stigma, blame, and/or infantilization) were positively associated with PTSD and depression; while unsupportive acknowledgements to disclosure (perception of control, egocentrism, and/or use of distraction) was negatively associated with PTSD and depression.

Support was given to the notion that negative reactions to disclosure are related to poor mental health, whereas support was not present to suggest positive reactions to disclosure are protective against psychopathology (no negative association was noted for PTSD, anxiety, or depression). Furthermore, it was found that the association between turning against reactions and psychopathology (PTSD, depression) was greater than the association of positive reactions and PTG. Results point to the harm of stigmatizing, blaming, and infantilizing responses to disclosure for post-violence presentation.

While no hypotheses were stated concerning PTD, the discovered significant associations suggest parallels between PTD and PTSD. Similar growth processes (i.e., world belief on the trustworthiness/goodness of people, both intrusive and deliberative rumination, as well as turning against disclosure reactions) proved significant and had the same valence in association (i.e., all positive, except the world belief). The positive associations noted for deliberative rumination

suggest that both growth and losses can be simultaneously reported following creating processing of trauma, further highlighting the complexity of processing victimization.

Process of PTG

Finally, the last objective of the study was to assess the process of PTG: Whereas in the previous section, *direct* associations between different thinking styles, disclosure, and PTG were examined through regressions, the present section examined pathways to PTG using SEM. Furthermore, the regressions focused on disclosure reactions (i.e., perceived action of disclosure recipients), whereas the SEM focused on supported disclosures (i.e., extensiveness in disclosure made by the victim during a positive disclosure experience).

Amos (Version 26) was the software used, to assess for model fit. Please refer to Figure 4 for a visual presentation of the tested model, with both latent and observed variables. The latent variables included in the model were Supported Disclosures, Intrusive Rumination, Deliberative Rumination and PTG. The observed variables for Supported Disclosures were the different subject areas of disclosure assessed through the SAID (i.e., Details, Emotions, Cognitions, Beliefs, and Social Experiences). The observed variables for Intrusive Rumination were the Event-Related Rumination Inventory, Intrusive Subscale Total and the 10-item Ruminative Response Scale, Brooding Subscale Total. The observed variables for Deliberative Rumination were the Event-Related Rumination Inventory, Deliberative Subscale Total and the 10-item Ruminative Response Scale, Reflection Subscale Total. Finally, the observed variables for PTG were the five areas of growth assessed through the PTGI-42 (i.e., Relating to Others, New Possibilities, Personal Strength, Spiritual Change, Appreciation of Life).

Hypothesis Testing

Supported self-disclosures will mediate the pathway from intrusive rumination to deliberative rumination, and the latter will be the precursor to PTG (Hypothesis 6).

The hypothesis was not supported. The model, with four latent variables, failed to meet the metrics of good model fit: [$\chi^2(74) = 216.160$***, *CFI* = 0.879, *TLI* = 0.828, *RMSEA* (90% CI) = 0.091 (0.077–0.105)].

As it had the smallest and only non-significant association amongst latent variables (i.e., Intrusive Rumination → Supported Social Disclosure), the latent variable of Intrusive Rumination was dropped from subsequent model testing. The amended model, with three latent variables (i.e., Deliberative Rumination mediating the pathway from Supported Disclosures to PTG), showed good fit: [$\chi^2(52) = 58.489$, *CFI* = 0.993, *TLI* = 0.990, RMSEA (90% CI) = 0.023 (0.000–0.049)].

Although social support and social reactions are not the same as supported disclosures, given the empirical positive findings, an additional directional effect was added between Supported Disclosures and PTG, and the additional parameter improved model fit: [$\chi^2(51) = 55.422$, *CFI* = 0.995, *TLI* = 0.993, RMSEA (90% CI) = 0.019 (0.000–0.047)]. To note, the additional parameter (i.e., Supported Disclosures → Posttraumatic Growth) was added to the hypothesized model, but model fit remained poor.

As a final modification, the unidirectional effect between Supported Disclosures and Deliberative Rumination was substituted for a bidirectional effect. As survivors often make multiple disclosures following sexual violence, it was thought that disclosures and reflection might co-vary in a continuous fashion (i.e., survivors would want to discuss the new insights formed with those they trust). The amended, final model (Figure 4) demonstrated the same fit as the previous iteration: [$\chi^2(51) = 55.422$, *CFI* = 0.995, *TLI* = 0.993, RMSEA (90% CI) = 0.019 (0.000–0.047)].

Summary

The results of the SEM (both model identification and amendment) only supported parts of the model by Calhoun et al., (2010). Interestingly, supported disclosures to others did not mediate the transition from intrusive to deliberative rumination. As their name suggests, intrusive rumination are unsolicited, whereas deliberative rumination are voluntary: Through discussions with others, it was theorized that individuals can hear and incorporate different perspectives of their experience, better reflecting on the ramifications of their trauma. Model testing did not support this pathway. Instead, the best model supported a covariance between supported disclosures and deliberative rumination, with each directly associated with PTG. Results lend preliminary support that reflection and conversations with trusted others are mutually-reinforcing.

Discussion

The results supported many of the stated hypotheses, and demonstrated the complexity of trauma, with PTG, PTD, and psychopathology co-occurring in participants. Results are discussed in relation to the four overarching objectives of the project and placed in the context of recent research, with suggestions for future areas of inquiry and applications in clinical practice.

Posttraumatic Growth and Depreciation Following Sexual Violence

The first objective of the study was to describe the nature of PTG in a sexually victimized student sample utilizing a standardized measure, as previous studies had conceptualized and operationalized positive change in varying manners depending on the study/researcher. Although there are no categorical descriptors as part of the measure design, the attained PTG scores in the present study are noticeably lower compared to other samples. In the present sample, PTG, was

present at levels below the midpoint of the scale. Comparatively, the validation samples used in developing the PTGI (Tedeschi & Calhoun, 1996) and later the PTGI-42 (Cann et al., 2010) reported more PTG, with the validation study reporting a mean PTG composite close to the upper limit of the scale. In both studies, experience of varying traumatic events (natural disasters to sexual violence) would render one included in the analysis. On the other hand, the attained PTD levels seem comparable to those previously found (Cann et al., 2010), demonstrating consistent patterns (i.e., less PTD tends to be reported than PTG, means attained are below the midpoint).

One possible reason for the low PTG might be as a function of the detrimental effect of sexual violence, as compared to other traumatic events. When compared to survivors of motor vehicle accidents and bereavement, Shakespeare-Finch and Armstrong (2010) found those who had been sexually abused reported poorer functioning: As a group, they reported the lowest PTG and highest PTSD. Other studies have supported the notion that different events have diverging effects for different post-trauma outcomes (Gul & Karanci, 2017; Kılıç, et al., 2016; Meyerson et al., 2011): Intentional/assaultive events (those perpetuated by another, such as sexual violence) tend to be associated with higher PTSD, while trauma involving injury/shock (e.g., fire, natural disaster, life threatening illness) are associated with higher PTG. It is theorized that intentional/assaultive events may hinder trust in others, damaging relationships and hindering disclosures (Gul & Karanci, 2017), while events involving death are more common and universal, allowing for easier disclosure and positive reception in others (Kılıç, et al., 2016).

Interestingly though, even compared to the handful of studies that have examined PTG in a sexually victimized sample (Ahrens et al., 2010; Kirkner & Ullman, 2020; Shakespeare-Finch & Armstrong, 2010; Ullman, 2014), the present sample's levels remain comparatively diminished. For example, Hassija and Turchik (2016), who similarly examined a sexually victimized

postsecondary female student sample, found a PTG mean of 55.36 (the present study's mean was 32.36). Participants were included based on affirmative to relevant items of the Life Events Checklist [i.e., "Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)" and "Other unwanted or uncomfortable sexual experience".] As the name would imply, events could have occurred at anytime in the participant's *lifetime*, and no measurement was done on timing of trauma.

When efforts have been made to recruit participants more recently sexually victimized, the reported PTG levels of the present study appear less diminished. Sterman et al., (2014) recruited a mostly female sample who had been sexually victimized in the last three years (with most having attended an education program during that time), and found a similarly low PTG rate (mean of 41.26), with improved relations reported. Nonetheless, perception of positive change (not PTG) has been noted as soon as 2 weeks post sexual violence (Frazier et al., 2001), although this finding was based on a help-seeking population (recruited from ER and agreed to counselling), and research has shown that those who engage in formal help-seeking (such as seeking medical care and/or mental health services) have differing trauma characteristics and identity qualities to those who do not seek formal support (for a review, see McCart, Smith, & Sawyer, 2010). Given the average age of the present sample (21.67), the average reported age of worst unwanted sexual experience (19.17), and the fact that participation required endorsement of sexual violence while in university, the present sample represents those recently (re)victimized. Sexual violence is likely salient to participants (i.e., individuals are still actively reflecting on what the trauma means for them). It is not clear if the lower PTG scores are due to the recency of sexual violence and/or chronicity of sexual violence. Repeated testing with non-clinical samples, would be invaluable in

future research to compare the fluctuations in PTG presentation as a function of revictimization occurrence (subgroup analyses).

Interaction Between PTG, PTD, and Psychopathology

The second objective of the study was to examine the co-occurrence and possible interaction between PTG, PTD, and psychopathology. Besides composite totals, the subscales of PTG and PTD were also examined. As hypothesized, a greater association was found between PTD and psychopathology than PTG and psychopathology; moderate to high (positive) associations were found with the former pair while only small associations (*both* positive and negative) were found with the latter pair. PTG was positively associated with PTSD and negatively associated to depression and anxiety. Furthermore, there were not specific growth factors (e.g., personal strengths, spirituality) more strongly related to the psychopathology outcomes, and small associations were seen regardless if looking at the PTG composite or factor scores.

As PTG, PTD, and psychopathology tend to be viewed as outcomes, research generally looks at the phenomena separately (e.g., Carney et al., 2020; Ikizer et al., 2021). Of the two other studies that also examined the three areas of post-trauma functioning (Barrington & Shakespeare-Finch, 2013; Kunz et al., 2017), commonalities and deviations can be noted: The finding that is replicated across all three studies (present included) is that of an association between PTD and negative posttraumatic outcomes (i.e., depression, anxiety, stress, physical functioning, pain intensity), although this association has been to varying degrees based on the outcome (small to high). The replication shows that vulnerability tends to co-occur in individuals, such that those who have poor mental health, tend to also perceive their relationships, life, connection to God, prospects for the future, and self in a negative light. However, it is not clear if there is a directional effect, such that a certain negative change precedes/increases vulnerability for other areas. Besides

longitudinal research, qualitative studies that examine participants' perception of event sequence (i.e., do participants see poor mental health as the reason or consequence of PTD) may prove helpful for risk screening. For example, a university instructor or counsellor could track changes and increase support during key shifts observed in the student. The point of discrepancy across the three studies, which is why no formal hypothesis had been stated, is whether or not PTG is associated with psychopathology: Both null (Barrington & Shakespeare-Finch, 2013) and positive findings have been noted (for anxiety and distress; Kunz et al., 2017). The present results also showed the disparity, with the correlation between PTG and PTSD (r = .30) higher than PTG and anxiety or depression (r = -.08 and r = -.13, respectively); furthermore, the associations had differing valences, with the former being a positive association, and the latter two being negative. A meta-analysis with pooled effect sizes, which accounts for study heterogeneity and sample characteristics would provide a robust examination as to whether an association between PTG and poor mental health exist. Such an examination has been done with PTG and PTSD symptoms, showing a small significant positive correlation (Liu et al., 2017), which was the finding in the present study. Subsequent reviews with other indices of psychopathology (e.g., depression, anxiety, substance use, self-harm/suicidal behaviour) would help to delineate the varying relations that exist between PTG and other common negative post-trauma outcomes. Alternatively, as opposed to simple linear relationships between variables, an examination of profiles and change over time (Pięta & Rzeszutek, 2022) or moderation (i.e., the relationship between PTG and psychopathology varying as a function of level of PTD; Kunz et al., 2017) would provide a nuanced description of the experience of survivors following sexual violence.

Finally, the present study also aimed to provide a multifaceted examination of PTG and PTD, thus the correlation between component factors (i.e., relating to others, new possibilities,

personal strength, spiritual change, and appreciation of life) and psychopathology were also examined. Although previous research (Frazier et al., 2001) had shown that positive and negative change in perception of self and spirituality (i.e., recognition of strengths, spirituality, appreciation of life) predicted less/greater distress, the present findings did not stress the importance of these areas of change. For both PTG and PTD, there were not specific factors more strongly associated to the different psychopathology indicators above that of the composite (i.e., all PTD factors were moderately-strongly associated to psychopathology; all PTG factors were weakly associated to psychopathology). The specific factors purported to most reliably be associated to change did not match (e.g., PTD in spiritual change was most weakly associated to all psychopathology indicators). However, the disparate findings may be due to the deviations in study design: The current study utilized a student sample (vs a health-seeking community sample), was cross sectional (vs longitudinal), utilized a standardized questionnaire of PTG and PTD (vs a measure of positive and negative life change), and looked at correlation magnitudes (vs consistency/reliability). Our findings suggest that all areas of potential depreciation and growth (as it relates to self-perception, relationships, and philosophy of life) should be considered when making connections to psychopathology. In a clinical setting, this would be relevant for case conceptualization, goal-formulation, and fostering the therapeutic alliance. For example, although clients are typically referred based on a (potential) diagnosis, from a client's perspective, what is most troubling could be a loved one letting them down, a loss of clarity and motivation regarding the future, and a belief that one's life is no longer valuable (areas of depreciation). Being able to see the client beyond clinical symptoms, while still identifying potential links to events and thoughts could lead to better case conceptualizing. Being able to stress the universality of negative

psychological change could also foster greater exploration of themes, as the client's experience is normalized and validated.

Predictors of PTG, PTD, and Psychopathology

The third objective of the present study was to examine the social and cognitive experiences that predict and differentiate between post-trauma outcomes (PTG, PTD, PTSD, anxiety, depression), as both positive and negative phenomena are rarely examined in unison allowing for such a comparison. Again, certain results were in line with hypotheses, while others were unexpected. As hypothesized, positive reactions to disclosure and deliberative rumination were both positively associated with PTG. Additionally, intrusive rumination were found to be unrelated to PTG. Results show that following sexual violence, those who reflected on the significance of the traumatic events and its relevance for the future, as well as those that perceived support saw increased growth. The finding on disclosure reactions is in line with research on general trauma samples, such as the meta-analysis by Prati and Pietrantoni (2009) showing social support was moderately related to PTG, and the study by Brooks et al., (2019) showing social support mediated the relation between trauma characteristics and PTG. The current results add to the literature, as although disclosure reactions are a prolific area of sexual violence research, they are not studied in relation to positive outcomes, such as PTG (Ulloa et al., 2016). Results lend support to the importance of confidants providing emotional and information support in response to the disclosure of sexual violence. The findings on deliberative rumination replicate those previously done on survivors of interpersonal trauma (e.g., attack or assault, rape, childhood maltreatment; Allbaugh et al., 2016), those diagnosed with cancer (Morris et al., 2011), and general trauma samples (Stockton et al., 2011). Although null findings have also been found (Brooks et al., 2017), the general pattern of empirical findings show an individual's

deliberate engagement in processing the meaning of the trauma (e.g., thinking of how one's life, beliefs, relationships, and future have changed; recognizing one's feelings surrounding the event, etc.) facilitated PTG. Finally, the lack of association between intrusive rumination and PTG demonstrated that the occurrence of counter-factual thinking (e.g., thoughts of how the incident could have been anticipated) does not preclude the presence of PTG. The finding is consistent with Tedeschi and Calhoun's (2004) model, in that intrusive rumination was theorized not to be associated with PTG directly, and instead, a precursor to deliberative rumination, which is then predictive of PTG.

Consistent with stated hypothesis, results demonstrated that intrusive rumination predicted increased psychopathology, with differing association strengths found based on the symptom examined (β ranging from .18 to .52). While there is slight deviation in how intrusive rumination are conceptualized within the growth and clinical literature, common elements are seen: Intrusive rumination are passive, (at times) triggered by event-related external cues, and efforts at suppression are commonly attempted by the individual. Although intrusive rumination are most often studied and seen as a clinical indicator of depression (Nolen-Hoeksema, 1991), the present results are in line with recent theorizing and empirical evidence, which show rumination are a transdiagnostic cognitive process that plays a maintaining role across mood, anxiety, psychotic, and stress-related disorders (Ehring & Watkins, 2008; Hartley et al., 2014; Hsu et al., 2015; McEvoy et al., 2010; McLaughlin & Nolen-Hoesksema, 2011; Michl et al., 2013; Moulds et al., 2020; Szabo et al., 2017; Wolkenstein et al., 2014). The present study adds to this accumulating evidence, with intrusive rumination being the most reliable predictor of psychopathology of all predictor variables examined; being significantly associated to PTSD, anxiety, and depression. Interestingly, when comparing standardized beta values, we can see that

intrusive rumination accounted for the greatest variance in PTSD scores and the *lowest* variance in depression. This may be due to the way intrusive rumination was measured, with the ERRI emphasizing the automatic component to rumination (to contrast with deliberative rumination, which are intended). Birrer and Michael (2011) found that those with PTSD rarely perceived rumination as deliberative/strategic, with 96% stating they rarely initiated rumination on purpose.

An important area for future research would be to differentiate the presentation and pathways of rumination across different disorders. As Moulds et al., (2020) purported, rumination may present differently based on the disorder. For example, while rumination across PTSD, depression, and anxiety can be abstract, repetitive, and include "what if "questions, rumination in the context of PTSD may focus on the trauma and its consequences (trauma-related rumination). The individual may dwell on their actions during the trauma, supposed evidence demonstrating personal culpability, and their PTSD symptoms. Similarly, Hsu et al., (2017) suggested that different rumination content could differentiate the development of depression versus anxiety symptoms (i.e., perceived social failure in relation to anxiety, and self-efficacy in relation to depression). As associations are established between rumination and different indices of psychopathology, a natural progression would be to examine subtypes of rumination, as well as the content/themes of rumination (as has been done with depression; Watkins, 2004, 2008). Such research would help to establish whether it is the mode of processing (e.g., abstract vs concrete) or content that is maladaptive: Result would be relevant in guiding treatment targets and intervention design. For example, different rumination-specific protocols could be adapted based on the (combination of) disorder(s) present (Moulds et al., 2020).

As was the case with rumination, different types of reactions to disclosure had differing associations with the varying indices of psychopathology examined. Turning against reactions (i.e., reactions conveying stigma, infantilization, and blame) were positively associated to both PTSD and depression symptoms, while unsupportive acknowledgements (i.e., reactions attempting at distraction; conveying control and egocentrism) were *negatively* associated to both symptoms. The results lend support to the notion that the two "negative" reactions should be treated as separate, as demonstrated in previous confirmatory factor analysis (Relyea & Ullman, 2015; Ullman et al., 2017). The stronger effect of turning against reactions (β ranging from .37 to .38) relative to unsupportive acknowledgements (β ranging from -.21 to -.27), may also be seen as support of the notion that unsupportive acknowledgements can be viewed as either positive or negative (Relyea & Ullman, 2015). For example, with the unsupportive acknowledgement item, "*Expressed so much anger at the perpetrator that you had to calm them down*"; though one could see that as redirecting care away from the victim (egocentrism), a victim could also see the intense anger as validation of their own emotions and perception of events ("the traumatic event was serious, I am normal to feel as upset as I am"), as a demonstration of the person caring deeply for their well-being and recovery, and as a needed temporary reprieve from the self-centered thoughts/rumination that are commonplace after a crisis. On the other hand, it would be difficult to interpret any reaction that conveyed stigma, infantilization, and blame as being helpful. Although the differential effect of the two negative reactions is in line with previous research, the fact that a negative association was noted between unsupportive acknowledgements and the three psychopathology outcomes (only significant for PTSD and depression) was a deviation: In past research, turning against reactions have been found to predict significantly worse psychopathology, whereas unsupportive acknowledgements have been found to be *less*

harmful (but not protective; Dworkin et al., 2019; Relyea & Ullman, 2015; Ullman & Relyea, 2016). Interestingly, in qualitative research, positive perceptions of distractions and controlling behaviour (both unsupportive acknowledgements) are often reported (Dworkin et al., 2018; Lorenz et al., 2018). One means of reconciling the unique finding on unsupportive acknowledgements in the present study may be a consideration of timing after trauma, and the fact that certain reactions may be more or less harmful based on where a person is in their recovery process. For example, within dialectical behavioural therapy, a transdiagnostic approach that has been adopted to address PTSD, depression, and anxiety (Ritschel et al., 2015), the skill of distraction is taught and recommended for use during a crisis (i.e., when emotions are intense and one has an urgent need to fix the problem immediately), whereas it is discouraged long-term, as individuals never learn the skills needed to achieve their most meaningful goals. Similarly, the presence of distraction and controlling reactions may be helpful during a crisis period, but ultimately, hinder recovery and mechanisms of growth (e.g., deliberative, creative processing of the event) if adopted long-term within the support network. This theory requires empirical examination (e.g., a look at what social reactions are associated with psychopathology amongst those whose trauma occurred within the last two weeks vs those whose trauma occurred a year ago).

The final supported hypothesis was the finding that the negative social reactions (specifically turning against reactions) demonstrated a larger association than positive social reactions (i.e., reactions conveying informational and emotional support), whether in reference to psychopathology (PTSD, depression) or PTG. From previous reviews and meta-analyses, it was established that with psychopathology, negative reactions exert a small effect (although still comparable to other established risk factors for PTSD), whereas positive reactions exert no effect

(Dworkin et al., 2019): Such a finding was replicated in the present study as well. As both positive and negative outcomes were examined simultaneously, it was also found that the effect of turning against reactions on psychopathology (PTSD and depression, β ranging from .37 to .38) was greater than the facilitative effect of positive social reactions for PTG (β = .22). Taken together, the findings on social reactions emphasize a harm prevention approach (i.e., it is particularly important for disclosure recipients to *not* blame the victim for what happened, undermine/question the victim's ability to take care of themselves, or treat them differently). Although issues with blame and judgement are often highlighted amongst resources (e.g., the problematic connotations of asking about a woman's attire or alcohol consumption ahead of the assault), other well-intentioned comments could similarly lead to negative views of the self (Ahrens et al, 2007; Dworkin et al, 2019). For example, treating survivors differently (e.g., as fragile), could lead survivors to question their own competence and self-efficacy, and subsequently lead to overreliance on others for decision-making. As the association between negative reactions and psychopathology are replicated, research is needed on causal mechanisms and directionality. For example, the negative effect could be due to expectancy violations (i.e., people disclose with hopes of support, which when not confirmed, could lead to poor perception of the responsiveness of others; Ahrens et al., 2007; Dworkin et al., 2019). Alternatively, negative reactions may not be the causal factor, as has been posited thus far. Instead, negative reactions may be a reflection of higher symptomology (i.e., negative reactions are more common with displays of high distress; DePrince et al., 2014), which then propagate in a reinforcing cycle. Prospective studies with multiple time-points are needed, to test the mechanisms and sequence between negative reactions and psychopathology.

While most hypotheses were supported, unexpectedly, none of the world beliefs examined were associated with PTG. Four different world beliefs were examined (i.e., beliefs concerning the controllability of events, comprehensibility/predictability of other people, trustworthiness/goodness of other people; and one's own safety and vulnerability to subsequent harm). Historically, both positive and negative correlations have been noted (Cann et al., 2010; Valdez & Lilly, 2015; Zhou, Wu, Fu, & An, 2015). To reconcile the inconsistency, it was thought that perhaps only certain beliefs would be associated to PTG, unique to the trauma experienced. For example, amongst those with sexual violence histories, becoming more cautious and less trusting has been viewed as a "benefit" (Frazier & Burnett, 1994; McMillen et al., 1995): Survivors may have viewed their past self as being naïve in their perception of the world, with their perception now being accurate. However, the beliefs concerning the trustworthiness or goodness of people were not associated to PTG in the present sexually victimized sample. The null findings in the present study, in combination with previous inconsistent results, may suggest a need to move beyond examining belief *content,* and instead thinking *style*. According to the stages of schema reconstruction, as theorized by Calhoun and Tedeschi (2006), PTG emerges as world assumptions are revised and widened, as one learns to hold both negative and positive views of the self and world. The present null results would be consistent with such a theory (since those with moderate belief scores would present with the highest PTG). One can also see many paradoxes in how PTG is conceptualized (e.g., survivors gain an increased recognition of vulnerability and strength, relationships to others can be the source of their suffering and also recovery). The many paradoxes survivors would have to hold is akin to a dialectical thinking style (i.e., one's ability to endorse contradictions, engage in cognitive and behavioural change as a function of varying circumstances; Spencer-Rodgers et al.,

2004). Examining both trait dialectical thinking style, as well as changes as a function of intervention, would better delineate a potential mechanism of change in relation to PTG. For example, does PTG increase after interventions that emphasizes flexibility in thinking, such as cognitive behavior therapy or dialectical behavior therapy? Is the effect moderated by whether one explicitly engages with trauma material in a dialectical fashion (i.e., trauma-related cognitions are discussed with a therapist, who highlights potential alternative perceptions)? Examining thinking styles may reconcile the inconsistent results on belief content.

Curiously, while none of the world beliefs were associated with PTG, specific world beliefs were associated to PTD and the psychopathology outcomes. The world belief of the trustworthiness/goodness of people was amongst the most commonly noted significant predictor variables across outcomes, and was negatively associated to PTD, PTSD, anxiety, and depression (i.e., the more people believed in the inherent goodness of people, the less PTD, PTSD, anxiety, and depressive symptoms endorsed). Cognitive theories of psychopathology purport that mental organizations (schemas) can be vulnerabilities for the development of psychopathology as they bias attention, interpretations, and memory (retention, recall; Beck, 1976; Braet et al., 2015). Schemas can be latent and activated through circumstances, such as a trauma (Beck, 1979). The world belief of the trustworthiness/goodness of people presents as conceptually similar to one of the cognitive triad factors used to explain the onset and maintenance of depressive symptoms (Beck, 1976): Maladaptive thought content is viewed as a core characteristic of depression, with those depressed having 1) a negative view of themselves, 2) the world (which includes views of other people in the world), and 3) the future. Of the three facets of the cognitive triad, other researchers have noted the least attention has been given to world views (Braet et al., 2015). However, empirical findings have repeatedly demonstrated that depressed individuals have

poorer views of other people compared to non-depressed individuals (Braet et al., 2015; Epikins, 2000; Jacobs & Joseph, 1997). Interestingly, the effect of the world belief on the trustworthiness/goodness of people was the largest for depression compared to the other outcomes (a medium effect size, compared to small effect sizes, respectively). While the specified cognitive triad factor (view of the world) and world belief (trustworthiness/goodness of people) may not perfectly overlap, the present significant findings may further support the connection between world views and depressive symptoms. Another theory which emphasizes the importance of early cognitions may help to explain the additional significant finding involving world beliefs: The world belief of the controllability of events was negatively associated with anxiety (i.e., the more strongly people believed they control the outcomes and events that occur in their life, the less anxiety). According to Chorpita & Barlow (1998), early experience of diminished control can foster (mis)interpretations of subsequent events as being out of one's control, creating increased negative affect and a more pronounced hormonal stress response. Replications of the present study with inquiry into childhood occurrence of trauma/adverse events, as well testing of beliefs pre- and post-trauma, would help to contextualize present findings (e.g., if fostering beliefs of control is an important therapeutic process for improving anxiety, if an internal locus of control represents a protective factor for the development of anxiety post-traumatic event, etc.). The present results may also suggest the presence of transdiagnostic and unique world beliefs associated with psychopathology: The world belief on the trustworthiness/goodness of people was associated to all examined symptom clusters, while the world belief on the controllability of events was associated to only anxiety. Longitudinal research, involving changes in world belief *profiles* would help to establish certain

cognitions styles or content as vulnerabilities/maintenance aspects for psychopathology, and subsequently help to identify treatment targets within clinical settings.

Similar to the world belief of the trustworthiness/goodness of people, financial strain was also associated with four post-trauma outcomes (i.e., those who perceived greater difficulty paying for basic necessities had higher PTG, PTSD, anxiety, and depression symptoms). Thus, although all attained beta coefficients indicated a small effect, financial strain proved to be one of the most commonly significant variable across the five post-trauma outcomes examined. The variable had been included in the regression models to act as a controlling variable, given the suggested link to mental health outcomes. The attained positive association is consistent with the accumulating body of evidence showing the link between poverty and poor mental health, with a small effect size commonly noted (Lund et al., 2010; Murali & Oyebode, 2004; Ribeiro et al., 2017). The findings demonstrate difficulty in paying for necessities is associated with poor mental health. Similarly, examinations to PTG have begun to extend to community-level variables (e.g., neighbourhood poverty, crime rates), with positive correlations similarly found (i.e., more PTG was seen in higher violent crime and poverty rate areas; Kirkner & Ullman, 2020). Although the present study focused on individual level factors relevant for post-trauma outcomes, the positive findings for financial strain highlight the necessity for future research to examine *structural* forces driving mental health: Social inequality and social determinants of health has effects for survivors in their recovery (Burns, 2015). For example, some mechanisms have been indicated in relation to inequality and mental health (e.g., social comparison leading to feeling of 'defeat'; erosion of social capital leading to social fragmentation and vulnerability to psychosocial stressors; Chiavegatto Filho et al., 2013; Mansyur et al., 2008). Mechanisms between poverty and PTG have yet to be examined or established. Yet, as Crenshaw (1991)

argued, the focus on the interconnectedness of economic hardship, crime, and racial stratification should be applied to the study of violence against women. The present positive findings highlight the need for both examinations of structural level factors, as well as the interconnection between structural and individual level factors in understanding post-trauma outcomes after sexual violence.

While associations were hypothesized in relation to PTG and psychopathology, examination of variables associated with PTD were mostly exploratory. PTD had never been examined in a sexually victimized sample and was the least studied amongst the outcomes included in the study. Consistent to the conclusions garnered from the correlation analysis, regression results demonstrated that PTD is conceptually more similar to psychopathology than PTG. Attained significant associations for PTD appeared to most similarly parallel that of PTSD: Similar growth processes (i.e., world belief on the trustworthiness/goodness of people, both intrusive and deliberative rumination, as well as turning against disclosure reactions) proved significant and had the same valence in association (i.e., all positive, except the world belief). Interestingly, deliberative rumination was significantly associated to both PTG and PTD, though a stronger association was found for the former. While the association between deliberative rumination and PTD was unexpected (Cann et al., 2010; Forgeard, 2013), a comparable finding has been noted by Allbaugh et al., (2016), who found that reflection (also a creative form of cognitive processing) was associated to PTD. Calhoun and Tedeschi (2006) theorized a paradoxical nature to PTG, in that growth emerges as our views of the self and worth widen to hold both positive and negative views. This paradoxical nature may be extended to how we view deliberative rumination, and its positive association to PTG, PTD, and also PTSD: From attempting to find meaning and recognize the changes caused by a traumatic event, one can

identify both the personal strengths gained and lost, as well as create commitment to new paths and fear for others (e.g., being engaged in social activism, yet avoiding sexual relationships).

Of note, sexual victimization severity did not prove to be significantly associated to any examined post-trauma outcome. One means of understanding the mostly null findings with victimization severity may be in how it was operationalized (i.e., through objective details, as frequency of different sexually traumatic events). Differing magnitudes of association have been noted in whether severity is measured through objective details or through subjective perceptions from the victim (Chopko et al., 2019; Rieck et al., 2007). For example, amongst police officers, it was found that while both the frequency (number of exposures to varying traumatic events) and perception of difficulty in coping with the traumatic event(s) were related to PTG, a stronger association was found for the latter (Chopko et al., 2019). The lack of association found may suggest that instead of the frequency or physicality of a traumatic event, it is the individual's perception of the trauma as being challenging that may have greater implications for recovery. Future research could examine the different factors which contribute to the perception of challenge (e.g., exposure to violence in childhood, familiarity to violence amongst the peer group).

Process of PTG

The final objective of the present study was to assess the appropriateness of the theorized process of growth as outlined by Calhoun et al., 2010 (hypothesis presented on Figure 2) as it relates to sexual violence. Whereas in the previous section of the discussion, the focus was on *direct* associations between theorized predictors and PTG, we also wanted to examine the *pathways* between predictors. Interestingly, we did not find supported disclosures to mediate the relation between intrusive and deliberative rumination. Instead, the final supported model detailed

a covariance between supported disclosures and deliberative rumination, with each both directly related to PTG. Thus, results demonstrated that creative reflective processing and conversations with trusted others are mutually-reinforcing (i.e., new perspectives can be gained from intimate conversations, and the need for discussion of the consequences and meaning of trauma can lead to self-disclosures and opportunities for connection). Furthermore, results of the SEM add to the regression results as it relates to disclosure: Whereas the regression focused on reactions of the support provider, as perceived by the victim; the SEM focused on extensiveness of disclosure to a support provider, as it relates to different content areas. Both disclosure aspects were related to PTG, a novel finding, as focus on research is generally placed on improving support provider responses. Results show that discussion of detail, emotions, cognitions, beliefs, and social experiences surrounding the violent incident contribute to greater perceived growth, both directly and indirectly though increased creative processing of the trauma. Thus, while it is certainly important to educate the public in how to respond to a disclosure, it is also important to recognize that disclosures can be empowering in themselves (Hartley et al., 2016), as individuals no longer must conceal a key aspect to their identity and development.

Unexpectedly, supported disclosures was not found to mediate the relation between intrusive and deliberative rumination based on the SEM result. According to Tedeschi and Calhoun (2004), supported self-disclosures facilitate creative processing of trauma, helping the individual to devise helpful schematic structure and new narratives of the trauma. Hearing additional perspectives and being able to problem-solve in a safe relationship, is one of the factors thought to lead people to progress from mostly intrusive rumination (automatic, counterfactual, unintended) to deliberative rumination (reflective, constructive, intended). The fact that this pathway (i.e., supported disclosures mediating the pathway from intrusive to

deliberative rumination) was not supported may highlight the dual difficulty in making a disclosure but also in effectively supporting a disclosure. While previous research has indicated that more extensive disclosures are associated with more positive reactions (Ullman & Filipas, 2001); the transition to creative processing may require more than just positive reactions, and instead, certain behaviours, observations, and qualities from the support provider. For example, having a model (i.e., a person with a similar experience who experienced growth) has been shown to predict growth in the individual (Cobb et al., 2006): Such a person would likely be more adept at highlighting shared experiences (normalizing and fostering connection in the victim), describing their personal changes following the event (modeling safe disclosure), and pointing out ideas or behaviours they found helpful (creating concrete steps to a goal). When looking at different efficacious psychotherapies aimed at trauma/sexual violence (Cowan et al., 2020), again, there are behaviours that would likely affect the victim's ability to transition to deliberative rumination, which an informal support may be more or less skilled in executing (e.g., practicing non-judgement while eliciting a trauma narrative, pointing out recurring themes, making connections between the past and present behaviour). The unsupported pathway may indicate a need to examine facets of both the victim's and support provider's behaviour, in predicting change in cognitive processing within the victim.

Applied Ramifications

The present results further illuminated the difficulty inherent to sexual violence for female students: One's ability to find or enact positive changes in life and maintain one's mental health can be particularly challenging given the lost trust and exploitation of power and/or responsibility characteristic of sexual violence. Within a university environment, such a history could translate to mistrust or discomfort in being alone with (fe)male instructors and peers; compromising one's

ability to learn, form friendships, and find meaningful causes for involvement. Victimization may also result in avoidance of formal supports for issues of privacy and fear of misunderstanding amongst administration.

University Response to Sexual Violence Amongst Students

Given the student sample and the inclusion of disclosures as a key construct in the present study, it would be negligent to not discuss the continued issue that is Canadian universities' response to sexual violence. The present study results showed that both positive reactions to disclosure, as well as greater extensiveness in disclosure was associated with greater growth, which as mentioned, was low within the sample. Being able to detail what happened to a supportive other was found to lead to greater reflective creative processing of the traumatic event. Yet, the way policies are structured and practiced within a university setting actively disparages students in making a disclosure (Spencer et al., 2017). While there is much research examining formal disclosures and service utilization amongst students following sexual violence (with the consensus that both events are rare), an implicit assumption with such research is that the rarity is due to the student's decision (Sabina & Ho, 2014). Yet, the university community is also responsible for whether services are utilized and responsive to the needs of its students: Recent survey (Our Turn, 2017) and qualitative research with students (Marques et al., 2020), as well as academic reviews of legislation and university policy (Brockbank, 2021; Lee & Wong, 2019; MacKenzie, 2018) all undeniably show a pronounced problem across Canadian universities in their response to sexual violence. Unlike the USA, there is no federal legislation governing university sexual violence responses in Canada. In fact, only two provinces (Ontario, British Columbia) have even introduced legislation requiring universities to *develop* sexual violence policies and response procedures. Consequently, issues of policy variability and comprehensiveness, lack of student engagement in

policy design, and policy enforcement (e.g., not informing a complainant of the sanctions placed on accused) have all been cited as issues across Canadian universities.

In addition to directly impacting survivors of sexual violence, institutional policy also affects and informs the wider university community, affecting the responses enacted by those who receive a disclosure. As there is less is research in Canada, likely due to the less stringent requirements of universities, again, insights and criticisms can be gained from research based in the USA. In the USA, universities who receive federal funding are mandated to collect data on the frequency of campus violence and require Responsible Employees (those who have authority, or whom students could reasonably expect to have authority and duty) to report disclosures of sexual violence to the Title IX office. However, even then, universities provide inadequate resources and training to those likely to receive a disclosure: In a systematic review across geographically diverse universities, Bogen et al., (2019) found that only half of institutions had specific webpages dedicated to responding to disclosure of sexual violence; often lacked tailored webpages to specific groups (resident assistants, faculty, family), despite the differing responsibilities and expectations; and tended to include general conversation guideline (say phrases like “I believe you” and “This was not your fault”) as opposed to scripts, despite the latter being a better predictor of behavioural change (Webb et al., 2010). Very little attention was placed on the well-being of the disclosure recipient despite the distressing nature of such an interaction(s), with only 31% of webpages providing skills in relation to vicarious trauma. Finally, across the dedicated webpages, more content was dedicated to positive reactions as compared to negative reactions, and information on positive reactions was also more reliably seen compared to negative reactions. The latter finding runs counter to the suggestions of the present results: Although positive reactions were associated with increased growth, the impact of negative reactions on psychopathology (PTSD, depression)

was greater than the effect of positive reactions on growth. It is equally, if not- more important to train people on what *not* to say during disclosures; greater depth and breadth to negative reactions needs to be stressed in webpages. Namely, unlike mental health professionals, resident assistants and faculty members may not be knowledgeable on the presentation or impact of sexual violence, nor practice the skills required in handling a disclosure effectively (e.g., self-monitoring, self-soothing, active listening, introspection on personal biases, etc.). Advice to "not be judgemental" or to "not blame the person", may not translate to empathic non-judgemental behaviour if the person lacks awareness as to the hardships of those who have been sexually victimized, and the ways in which misogyny alters their perception and behaviour. For example, Holland and colleagues (2019) showed that endorsement of gender ideals and acceptance of rape myths reduced resident assistants' provision of informational and emotional support, despite the requirements of the job. Although university members may not be the most appropriately trained in dealing with trauma, they are in a key position to provide concrete guidance on next steps. Stressing egalitarian ideals and providing information dispelling common rape myths (e.g., research on "false accusations", the common experience of "freezing", the multiple presentations amongst survivors during and after the assault, etc.) during training may help to reduce the occurrence of negative reactions to disclosure.

The low growth but high levels of psychopathology (PTSD, anxiety, depression) seen in the present female student sample illustrate a vulnerable group within the university. The importance of responsive policy development and enactment cannot be understated. Canadian universities have an opportunity to construct policies based on research and input from survivors, which would help to create an environment deserving of trust and truly reflecting safety for its most vulnerable members.

Limitations

Notwithstanding the strengths of the project, there were limitations to consider. As mentioned, given the cross-sectional data, it was not possible to clarify the direction to which variables were related: This is most relevant in instances which no theoretical model is present and both directions of causation are plausible (e.g., psychopathology as a precursor or consequence of posttraumatic depreciation, negative disclosure reactions as causal vs consequence of psychopathology, etc.). This limitation is seen in reference to PTG and psychopathology: Some have suggested PTG to be protective against psychopathology and financial worry, due to the negative correlation sometimes found (Edwards et al., 2021). Alternatively, a recent longitudinal study examining COVID-19's impact, found that psychopathology tended to precede increased PTG, with authors positing perception of growth may be a coping factor (Park et al., 2022). Although, such a pattern could also be indicative of individuals requiring a challenging circumstance (such as struggling with mental health) for growth to occur. In the present study, both negative and positive associations were noted between PTG and psychopathology (dependent on the symptoms examined), with the strongest association being a positive association between PTSD and PTG. Prospective studies that account for the differing distress and growth indicators (a profile analysis) would better describe the potential causal relation between growth and mental health difficulties.

Although implications of the study results were discussed in relation to the university setting, a second limitation concerns the lack of consideration to systems during study design. Specifically, no questions were posed to participants to assess their knowledge or perception of the university's approach to sexual violence (e.g., if they thought the university saw gender-based violence as an important issue; if they were aware of university and community resources

for survivors; if the institution's complaint process seemed clear and fair, etc.). As mentioned, research tends to focus on individual and social-level barriers to help-seeking and recovery, but university level factors are also important and could potentially account for differences in student mental health and growth following victimization. For example, if the university's complaint process was clearly understood by the victim, it would be easier to put forth a complaint, and see evidence of self-efficacy (personal strength). Examining student's perception of university in relation to mental health and growth, would be an important area of future research that could help to identify limitations of existing university policy/outreach practices.

A third area of limitations concerns the areas of trauma that were not examined, yet likely affected the participant's presentation of growth and the social and cognitive processes examined. Revictimization and overall (non-sexual) trauma history were not examined. Yet, revictimization/chronic trauma is common, with one study finding a quarter of participants being sexually revictimized within a four-month span (Miller et al., 2011). Chronic experience of physical and/or sexual violence (compared to single instance event) has been associated with greater distress (i.e., greater somatization, depression, anxiety, interpersonal sensitivity, hostility, and PTSD symptoms) among college women (Fritch, Mishkind, Reger, & Gahm, 2010; Kimerling, Alvarez, Pavao, Kaminski, & Baumrind, 2007; Littleton, Grills-Taquechel, Axsom, Bye, & Buck, 2012; Messman-Moore, Long, & Siegfried, 2000; Suliman, Mkabile, Fincham, Ahmed, Stein, & Seedat, 2009). The proposed model of growth has also been theorized to differ amongst those with enduring trauma (Tedeschi & Calhoun, 2004), with the cognitive processing and schema reconstruction required of PTG thought to be different and/or more difficult amongst those continuously victimized (Janoff-Bulman, 1992; Hartley, Johnco, Hofmeyr, & Berry, 2016; Valdez & Lilly, 2015). For example, in a small study, it was found that

participants who did not have responsive caregiving during development (i.e., were sexually abused by family as a child), did not have positive views of the world, and thus did not go through a subsequent shattering and rebuilding of world assumptions with subsequent trauma (Hartlet et al., 2016). The lack of association between world assumptions and PTG in the present study may have been due to the treatment of chronic vs singularly victimized participants as one.

Finally, it is worth highlighting areas, that while not necessarily limitations, are important considerations when interpreting the findings. First, the present study focused on *symptoms* of PTSD, anxiety, and depression. Thus, there would have been participants who met a formal diagnosis (with varying primary difficulties) and those that did not- yet all groups were treated as one for analysis. Symptom severity is an important measure, given those who have subclinical symptoms still face compromised subjective well-being. However, the inclusion of clinical samples may offer additional insights in identifying the causal/maintaining mechanisms of PTSD, major depressive disorder, and the varying anxiety disorders. Second, while the document has referenced posttraumatic growth, posttraumatic depreciation, and psychopathology as post-trauma outcomes, such a classification is researcher-based (both based on the present authors', as well as cited authors' perspective). For participants, the word/notion of *trauma* was never explicitly indicated. Instead, the unwanted sexual experience was phrased as v*iolence*. It unclear if participants similarly classified their unwanted sexual experience as a trauma, and readers may feel more comfortable interpreting the results as indicative of sexual violence (as opposed to sexual trauma). Similarly, the dichotomizing of outcomes (i.e., posttraumatic growth as positive, posttraumatic depreciation and psychopathology as negative) were researcher-imposed and meant to ease in the organization of findings. However, it is unclear whether participants similarly viewed their post-sexual violence experience in this way. For example, while one can

see increased personal strengths as growth, it could also be viewed as a burden of needed change (i.e., potentially holding a positive and/or negative, or neutral valence). Again, readers are cautioned that the definitions and understanding as conceptualized by researchers may not reflect those of the participants examined. Subsequent research on PTG and PTD may seek the inclusion of qualitative elements (e.g., exploring the narratives participants' create of the sexually violent event; the evaluative nature to the changes observed, if any).

Conclusion

By simultaneously examining the predictors and pathways to both positive and negative post-trauma outcomes, we can better understand the intricacies of sexual victimization. It was found that perceiving positive changes in the self can occur while struggling from psychopathology (PTSD, depression, or anxiety) and simultaneously recognizing the losses that have occurred due to trauma. Nonetheless, female students who have been sexually victimized represent a vulnerable group, based on the low levels of growth but high proportion meeting clinical cut-offs. Results lend credence to the fact that achieving positive psychological change after sexual violence is an especially difficult endeavor. With respect to predictors of growth, some previously identified factors were found to be important (i.e., deliberative rumination, positive social reactions), but others were not supported (i.e., the role of world beliefs). Novel findings were noted with disclosures, despite being an already prolific area of sexual violence research: Although support from others is important, the very act of sharing information can be beneficial for achieving PTG, as it may facilitate creative reflective processing of the trauma. However, emphasis within institutions (healthcare, university) should be set on reducing the occurrence of negative reactions, as results demonstrated the detrimental effect of negative reactions for health, is greater than the facilitative effect of positive reactions to growth. The results highlight the importance of Canadian

universities to have extensive training of its staff and education to its community concerning the realities of sexual victimization. Issues concerning variability and comprehensiveness in sexual violence policies need to be addressed, with student's involvement at each stage, if universities are to act in line with their stated goal of achieving equity and inclusion.

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Table 1

Factors of Posttraumatic Growth (PTG) and Posttraumatic Depreciation (PTD)

Factor	Relevant Items	
	PTG	PTD
Relating to Others	• I more clearly see that I can count on people in times of trouble. • I have a greater sense of closeness with others • I am more willing to express my emotions. • I have more compassion for others • I put more effort into my relationships. • I learned a great deal about how wonderful people are. • I better accept needing others.	• I more clearly see that I *cannot* count on people in times of trouble. • I have a greater sense of *distance* from others • I am *less* willing to express my emotions. • I have *less* compassion for others • I put *less* effort into my relationships. • I learned a great deal about how *disappointing* people are • I find it *harder* to accept needing others.
New Possibilities	• I developed new interests • I established a new path for my life • I am able to do better things with my life • New opportunities are available which wouldn't have been otherwise • I am more likely to try to change things that need changing	• I have *fewer* interests than before • I have a *less* clear path for my life • I am *less* capable of doing better things with my life • *Fewer* opportunities than would have been before • I am *less* likely to try to change things that need changing
Personal Strength	• I have a greater feeling of self-reliance • I know better that I can handle difficulties • I am better able to accept the way things work out	• I have a *diminished* feeling of self-reliance • I am *less* certain that I can handle difficulties • I am *less* able to accept the way things work out

	• I discovered that I'm stronger than I thought I was	• I discovered that I'm *weaker* than I thought I was
Spiritual Change	• I have a better understanding of spiritual matters • I have a stronger religious faith	• I have a *poorer* understanding of spiritual matters • I have a *weaker* religious faith
Appreciation of Life	• I change by priorities about what is important in life • I have a greater appreciation for the value of my own life • I can better appreciate each day	• I find it *difficult t*o clarify priorities about what is important in life • I have *less* appreciation for the value of my own life • I appreciate each day *less* than I did before

Note. Although the PTG and PTD items seem like opposites to each other, past studies have shown that they can co-exist and are associated with different indices of psychopathology. The table shows how the five factors of PTG and PTD were conceptualized, to better understand their differing correlations with posttraumatic stress disorder, anxiety, and depressive symptoms.

Table 2

Rumination Types Related to Posttraumatic Growth

Rumination Type	Description
Intrusive	Automatic and counter-factual thoughts (e.g., thoughts of how the incident could have been avoided) that occur passively and without control of the individual
Brooding	The passive focus on the causes and consequences of negative emotions or experiences, a repetitive comparison of one's current situation with an unachieved standard, and the dwelling on obstacles that prevent one from overcoming problems
Deliberative	Event-related thoughts intended to help one understand, resolve, and make sense of the trauma-related event (e.g., thoughts of the comprehensibility and importance of the traumatic experience).
Reflection	A purposeful turning inward to engage in adaptive problem solving

Table 3

Major World Assumptions Examined in the World Assumptions Questionnaire

World Assumptions (Categories)	Description
Controllability of Events	Beliefs in the controllability of ones own life outcomes and events that occur in one's life.
Comprehensibility and Predictability of People	Assumptions related to whether one can truly know another and predict their actions.
Trustworthiness and Goodness of People	Beliefs about the nature of people and their inherent goodness.
Safety and Vulnerability	Assumptions related to one's fragility and the possibility that bad things might happen.

Table 4

Descriptive Statistics of Sample Characteristics

	%	*M*(*SD*)	Range
Age		21.67(4.49)	8-44[a]
Age of Sexual Initiation		16.66(2.05)	9-24[b]
Ethnicity			
Aboriginal/Indigenous	2.1		
African	4.7		
Asian	9.0		
Caucasian	77.3		
Caribbean	1.3		
Hispanic	0.9		
Middle Eastern	0.9		
Other	3.9		
Religion			
Buddhism	0.5		
Christianity	52.5		
Hinduism	1.4		
Islam	3.2		
Judaism	-		
Sikhism	0.5		
Other[c]	42.0		
Sexual Orientation			
Asexual	2.6		
Bisexual	12.0		
Heterosexual	76.5		
Homosexual	3.4		
Pansexual	1.7		
Unsure	3.0		
Other	0.9		
Year of Study			

First Year Undergraduate	35.5
Second Year Undergraduate	18.4
Third Year Undergraduate	26.5
Fourth Year Undergraduate	14.5
Fifth year + Undergraduate	3.8
First Year Second Degree	0.9
Master's Studies	0.4
Financial Strain	
Never	33.3
Rarely	35.0
Sometimes	23.5
Often	7.7
All the Time	0.4
Condom Use	
All the time	29.0
More than half the time	11.7
Half the time	5.6
Less than half the time	21.0
Never	32.7

Note. $N = 234$.

[a] Participants were specified to indicate their age of first *consensual* sexual experience. One participant indicated that sexual initiation occurred at age 9. However, their responses did not indicate careless responding. Furthermore, subsequent inferential analyses were run with the omission of the participant to no changes in finding. Thus, the participant was not excluded.

[b] Given the range of age amongst participants, mean comparisons for each of the outcome variables were made between mature (> 30 years old) and non-mature students. No significant differences were noted for posttraumatic growth, posttraumatic depreciation, or psychopathology (PTSD, anxiety, depression). No participant was omitted from analyses due to their age, which is ecologically valid given older aged students are commonplace in the university landscape.

[c] Many descriptors were provided amongst those who responded “Other” for Religion: Agnostic, atheist, not identifying with a religion, identifying with multiple religions, and a preference for spirituality over religion.

Table 5

Descriptive Statistics for Questionnaire Responses

	M(SD)	Range	Scale Range
Sexual Victimization Severity			
SES-SFV: Lifetime (since age 14)	45.56(39.21)	0-135	0-135
University	30.12(32.89)	0-135	0-135
Age of Worse Unwanted Sexual Experience	19.17(3.10)	13-37	
Indices of Psychopathology			
PCL-5 Total	30.03(20.51)	0-80	0-80
HADS- Depression	6.61(3.91)	0-20	0-21
Anxiety	11.08(4.60)	1-20	0-21
Growth Outcomes			
PTGI-42: Growth Composite	32.36(22.96)	0-105	0-105
Relating to Others	10.28(8.03)	0-35	0-35
New Possibilities	7.48(6.55)	0-25	0-25
Personal Strength	7.32(5.32)	0-20	0-20
Spiritual Change	1.94(2.71)	0-10	0-10
Appreciation of Life	5.34(3.93)	0-15	0-15
PTGI-42: Depreciation Composite	25.51(18.67)	0-105	0-105
Relating to Others	11.93(7.53)	0-35	0-35
New Possibilities	4.42(4.97)	0-25	0-25
Personal Strength	4.29(4.07)	0-20	0-20
Spiritual Change	1.54(2.45)	0-10	0-10
Appreciation of Life	3.33(3.44)	0-15	0-15
Growth Processes			
WAQ: Total	63.11(12.84)	26-101	22-132
Controllability of Events	16.95(4.11)	5-28	5-30
Comprehensibility/Predictability of People	12.45(4.51)	5-30	5-30
Trustworthiness/Goodness of People	19.25(4.70)	7-30	6-36
Safety and Vulnerability	14.46(4.67)	6-36	6-36
RRS: Brooding	7.52(3.76)	0-15	0-15
Reflection	6.61(3.72)	0-15	0-15
ERRI: Intrusive	14.56(9.01)	0-30	0-30

Deliberative	12.26(8.03)	0-30	0-30
SAID: Positive Detail	27.01(10.52)	0-51	0-51
Positive Emotion	14.05(9.97)	0-42	0-42
Positive Cognition	11.96(9.35)	0-34	0-39
Positive Belief	14.87(13.57)	0-51	0-51
Positive Social	6.59(10.81)	0-41	0-42
SRQ-S: Positive Reactions	6.93(4.18)	0-16	0-16
Turning Against	5.03(5.18)	0-20	0-24
Unsupportive Acknowledgement	6.37(5.00)	0-20	0-24

Note. N = 234. SES-SFV = Sexual Experiences Survey – Short Form, Victimization; PCL-5 = PTSD Checklist for DSM-5; HADS = Hospital Anxiety and Depression Scale; PTGI-42 = The Paired Format Posttraumatic Growth Inventory; WAQ = World Assumptions Questionnaire; RRS = Ruminative Response Scale; ERRI = The Event Related Rumination Inventory; SAID = Sexual Assault Inventory of Disclosure; SRQ-S = Social Reactions Questionnaire-Shortened.

Table 6

Correlation Between Indices of Posttraumatic Growth (PTG), Posttraumatic Depreciation (PTD), and Psychopathology

	1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*	*10.*	*11.*	*12.*	*13.*	*14.*	*15.*
1. PCL-5	1														
2. HADS-Anxiety	.50***	1													
3. HADS-Depression	.50***	.52***	1												
4. PTG Total	.30***	-.08	-.14*	1											
5. PTG-Relating	.23***	-.04	-.20**	.87***	1										
6. PTG-Possibilities	.31***	-.05	-.07	.92***	.71***	1									
7. PTG-Strength	.24***	-.10	-.11	.86***	.63***	.76***	1								
8. PTG-Spirituality	.19**	-.11	-.13	.74***	.56***	.64***	.59***	1							
9. PTG-Appreciation	.31***	-.08	-.09	.86***	.64***	.78***	.73***	.63***	1						
10. PTD Total	.75***	.40***	.43***	.31***	.24***	.34***	.24***	.26***	.26***	1					
11. PTD-Relating	.66***	.32***	.32***	.31***	.11	.35***	.37***	.25***	.31***	.86***	1				
12. PTD-Possibilities	.63***	.37***	.36***	.30***	.31***	.27***	.21**	.28***	.20**	.88***	.63***	1			
13. PTD-Strength	.57***	.33***	.34***	.16*	.21***	.18**	-.03	.17**	.13*	.81***	.52***	.71***	1		
14. PTD-Spirituality	.41***	.25***	.24***	.27***	.23***	.32***	.19**	.16*	.22***	.67***	.47***	.60***	.49***	1	
15. PTD-Appreciation	.67***	.38***	.49***	.19**	.18**	.23***	.12	.16*	.12	.82***	.58***	.71***	.69***	.48***	1

Note. $N = 234$. PCL-5 = PTSD Checklist for DSM-5; HADS = Hospital Anxiety and Depression Scale. Values reported are based on maximization likelihood estimates calculated using an expectation-maximization algorithm.

Table 7

Variance Inflation Factor (VIF) for Five Hierarchical Regressions

	PTG	***PTD***	***PTSD***	***Anxiety***	***Depression***
Adversity/Sexual Violence Details					
Level of Financial Strain	1.20	1.23	1.26	1.23	1.24
Sexual Victimization Severity	1.54	1.61	1.61	1.54	1.55
Time Since Worst Unwanted Sexual Experience	1.17	1.18	1.15	1.15	1.14
Growth Processes					
World Beliefs					
Controllability of Events	1.33	1.28	1.28	1.27	1.26
Comprehensibility/Predictability of People	1.80	1.50	1.81	1.80	1.80
Trustworthiness/Goodness of People	1.66	1.68	1.56	1.52	1.52
Safety and Vulnerability	1.89	1.71	1.88	1.87	1.88
Cognitive Processes					
Intrusive Rumination	1.94	1.95	2.02	2.00	1.97
Deliberative Rumination	1.74	1.76	1.84	1.78	1.77
Social Reactions					
Turning Against	3.24	3.30	2.97	2.99	3.01
Unsupportive Acknowledgement	3.58	3.51	3.29	3.31	3.33
Positive Reactions	1.40	1.42	1.38	1.39	1.39

Note. Values reported were attained from the final step of the hierarchical regression when all predictors were added.

Table 8

Hierarchical Regression Analysis (N = 234) for Posttraumatic Growth

	Model 1			Model 2		
Predictor Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Step 1: Adversity/Sexual Violence Details						
Financial Strain	3.69	1.62	.15*	4.12	1.49	.17**
Sexual Victimization Severity	.18	.05	.25***	.08	.05	.11
Time Since Worst Unwanted Sexual Experience	.74	.45	.11	.08	.43	.01
Step 2: Growth Processes						
World Beliefs						
Controllability of Events				.64	.39	.11
Comprehensibility/Predictability of People				-.30	.43	-.06
Trustworthiness/Goodness of People				.28	.38	.06
Safety and Vulnerability				-.14	.43	-.03
Cognitive Processes						
Intrusive Rumination				-.20	.22	-.08
Deliberative Rumination				.91	.23	.32***
Social Reactions						
Turning Against				-.04	.54	-.01
Unsupportive Acknowledgement				.94	.59	.19
Positive Reactions				1.28	.48	.22**
R^2		.12			.38	
ΔR^2		.12***			26***	

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

Table 9

Hierarchical Regression Analysis (N = 234) for Posttraumatic Depreciation

	Model 1			Model 2		
Predictor Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Step 1: Adversity/Sexual Violence Details						
Financial Strain	.57	1.27	.03	1.75	1.04	.09
Sexual Victimization Severity	.22	.04	.39***	.03	.03	.04
Time Since Worst Unwanted Sexual Experience	.20	.36	.04	.46	.30	.09
Step 2: Growth Processes						
World Beliefs						
Controllability of Events				-.16	.27	-.04
Comprehensibility/Predictability of People				-.39	.29	-.10
Trustworthiness/Goodness of People				-1.08	.26	-.27***
Safety and Vulnerability				.45	.29	.11
Cognitive Processes						
Intrusive Rumination				.50	.15	.24***
Deliberative Rumination				.36	.16	.16*
Social Reactions						
Turning Against				1.43	.36	.38***
Unsupportive Acknowledgement				-.16	.41	-.04
Positive Reactions				.40	.33	.08
R^2		.16			.55	
ΔR^2		.16***			.39***	

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

Table 10

Hierarchical Regression Analysis (N = 234) for Posttraumatic Stress Disorder Symptoms

	Model 1			Model 2		
Predictor Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Step 1: Adversity/Sexual Violence Details						
Financial Strain	1.48	1.37	.07	3.65	.93	.17***
Sexual Victimization Severity	.24	.04	.38***	.00	.03	.01
Time Since Worst Unwanted Sexual Experience	-.28	.38	-.05	.13	.27	.02
Step 2: Growth Processes						
World Beliefs						
Controllability of Events				-.19	.25	-.04
Comprehensibility/Predictability of People				.07	.27	.02
Trustworthiness/Goodness of People				-.71	.24	-.16**
Safety and Vulnerability				.15	.27	.03
Cognitive Processes						
Intrusive Rumination				1.20	.13	.52***
Deliberative Rumination				.50	.14	.20***
Social Reactions						
Turning Against				1.57	,32	.37***
Unsupportive Acknowledgement				-.94	.36	-.21*
Positive Reactions				.51	.30	.10
R^2		.16			.69	
ΔR^2		.16***			.53***	

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

Table 11

Hierarchical Regression Analysis (N = 234) for Anxiety Symptoms

	Model 1			Model 2		
Predictor Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Step 1: Adversity/Sexual Violence Details						
Financial Strain	.73	.34	.15*	.80	.29	.17**
Sexual Victimization Severity	.02	.01	.16*	-.01	.01	-.05
Time Since Worst Unwanted Sexual Experience	-.12	.09	-.09	.03	.09	.03
Step 2: Growth Processes						
World Beliefs						
Controllability of Events				-.19	.07	-.17**
Comprehensibility/Predictability of People				.01	.08	.01
Trustworthiness/Goodness of People				-.27	.07	-.27***
Safety and Vulnerability				-.09	.08	-.10
Cognitive Processes						
Intrusive Rumination				.17	.04	.34***
Deliberative Rumination				-.01	.04	-.01
Social Reactions						
Turning Against				.08	.10	.09
Unsupportive Acknowledgement				-.09	.11	-.10
Positive Reactions				.03	.09	.03
R^2		.06			.41	
ΔR^2		.06**			.35***	

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

Table 12

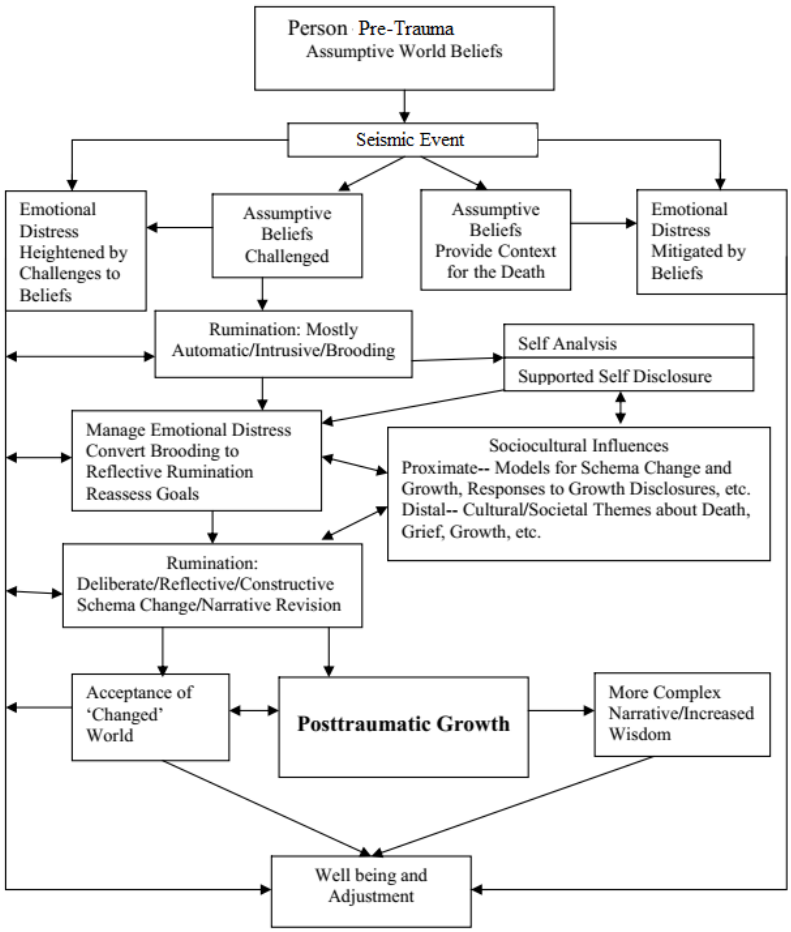
Hierarchical Regression Analysis (N = 234) for Depression Symptoms

	Model 1			Model 2		
Predictor Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Step 1: Adversity/Sexual Violence Details						
Financial Strain	.60	.28	.15*	.79	.26	.20**
Sexual Victimization Severity	.03	.01	.22**	.01	.01	.02
Time Since Worst Unwanted Sexual Experience	-.13	.08	-.12	-.03	.07	-.03
Step 2: Growth Processes						
World Beliefs						
Controllability of Events				-.11	.06	-.12
Comprehensibility/Predictability of People				.00	.07	.00
Trustworthiness/Goodness of People				-.26	.06	-.31***
Safety and Vulnerability				.09	.07	.10
Cognitive Processes						
Intrusive Rumination				.08	.04	.18*
Deliberative Rumination				.03	.04	.07
Social Reactions						
Turning Against				.30	.09	.38***
Unsupportive Acknowledgement				-.22	.10	-.27*
Positive Reactions				-.02	.08	-.02
R^2		.09			.36	
ΔR^2		.09***			.27***	

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

Figure 1

A Model of Growth



Note. Adapted from Figure 1, presented by Calhoun, Tedeschi, Cann, and Hanks (2010).

Figure 2

Hypothesized Model of Posttraumatic Growth

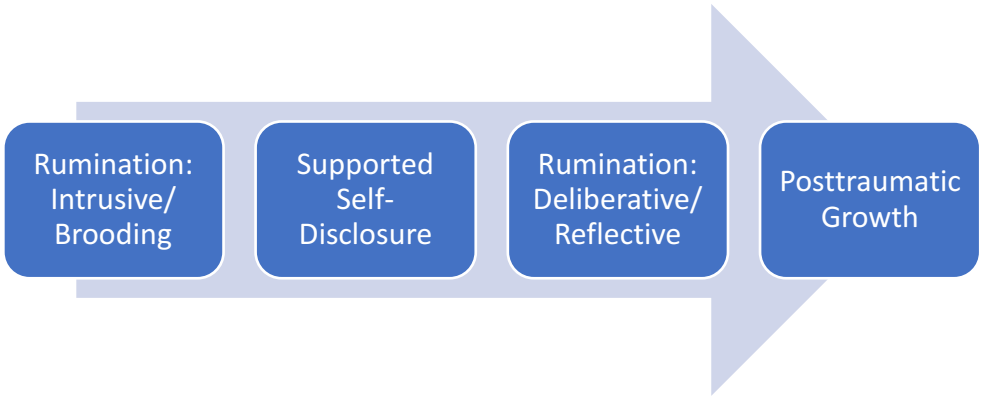


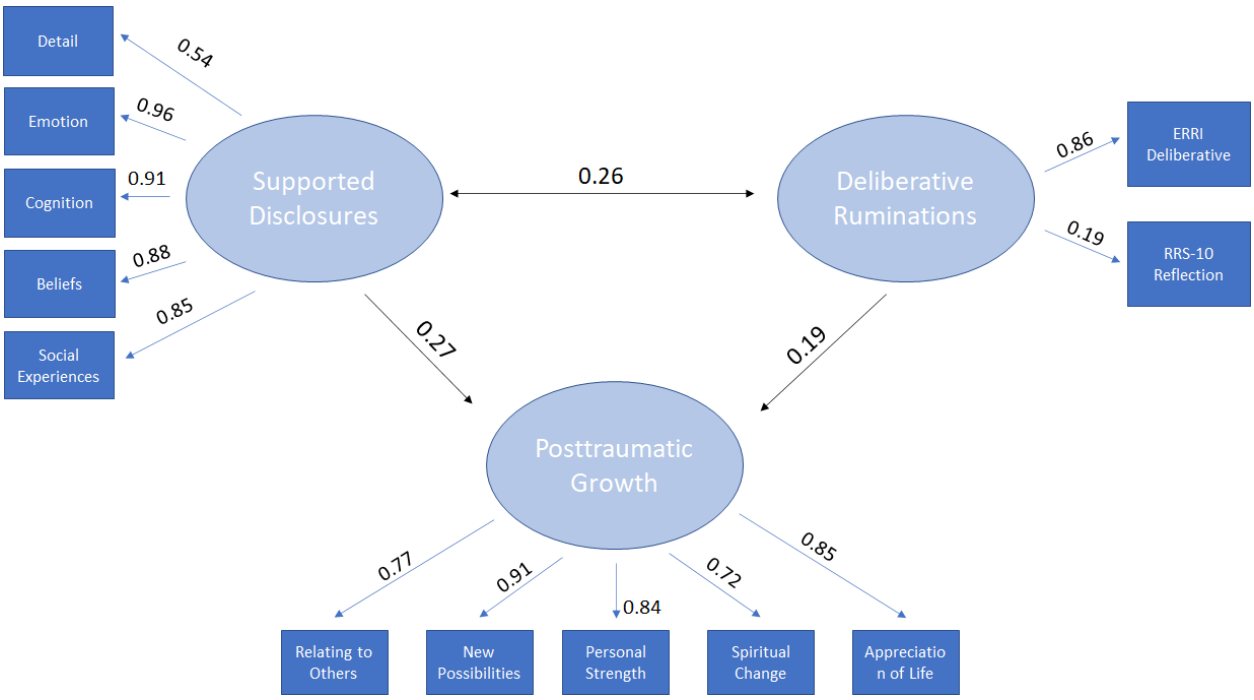
Figure 3

"Sum of Frequency Ranks" Approach to Calculating Sexual Victimization Severity

Separated outcomes and tactics severity ranking scheme	
9	Completed rape by physical force
8	Completed rape by intoxication
7	Completed rape by verbal coercion
6	Attempted rape by physical force
5	Attempted rape by intoxication
4	Attempted rape by verbal coercion
3	Sexual contact by physical force
2	Sexual contact by intoxication
1	Sexual contact by verbal coercion
0	No history of sexual assault

Figure 4

Final Structural Equation Model With Standardized Regression Weights



Note. $N = 234$. ERRI = Event-Related Rumination Inventory, RRS-10 = 10-item Ruminative Response Scale. None of the parameters between latent variables were significant.

Appendix A: Recruitment Information

Study Name	Psychological Change and Mental Health Following Sexual Violence in Female University Students
Study Type	**Online Study** This study is an online study on another website. To participate, sign up, and then you will be given access to the website to participate in the study.
Credits	1 Credits
Duration	60 minutes
Description	In this study we are investigating the positive and negative changes that occur following unwanted sexual experiences in university (e.g., changes in beliefs, relationships, mental health, etc.). There are many different kinds of unwanted sexual experiences one can have: Some experiences involve contact (e.g., a person touching your body without consent), while others do not (e.g., being followed by someone who has a sexual interest in you.). Experience of contact and/or non-contact forms of sexual aggression would quality you for the current study. The results from this study will help to provide a more complete picture of what occurs following different forms of sexual aggression.
Preparation	The study will involve an online questionnaire, which you can complete the whenever and wherever you want.
Eligibility Requirements	Female; At least 18 years of age; Experience of sexual violence while in university
Website	View Study Website
Researcher	Tiffany Leung
Principal Investigator	Ed Rawana

Appendix B: Information Letter and Consent Form

Department of Psychology
t: (416) 726-9998 f: (807) 346-7734
e: tleung1@lakeheadu.ca

Dear potential participant,

Thank you for your interest in this study. Before you begin, we would like to give you some information. Please read the following information carefully so that you understand what you are being asked to do.

Investigators: The study is being conducted by Tiffany Leung (tleung1@lakeheadu.ca), a PhD Clinical Psychology student at Lakehead University, and her dissertation supervisor, Dr. Edward Rawana (erawana@lakeheadu.ca).

Eligibility: To qualify for participation in this study, you must be a current or former female university student who is at least 18 years of age and who has experienced an unwanted sexual experience during university. It is important to understand that there are many kinds of unwanted sexual experiences one can have: Some experiences involve contact (e.g., attempted or completed penetration, a person touching your body without consent, etc.), while others do not (e.g., having a partner verbally coerce you to engage in a sexual act, being followed by someone who has a sexual interest in you, etc.). Experience of contact and/or non-contact forms of sexual aggression would quality you for the current study.

Purpose of the Study: In this study we are investigating the positive and negative changes that occur in students following unwanted sexual experiences in university. We are interested in understanding the potential changes in belief systems, self-perception, relationships, personal priorities, and mental health amongst those who have experienced sexual forms of aggression. The results from this study will help to provide a more complete picture of what occurs following sexual aggression, as research has tended to focus on negative changes only.

What is Requested of me as a Participant: Participation will include filling out an online research questionnaire. The questionnaire will lead you step-by-step through the process and will take a little over an hour to complete. You can complete the questionnaire whenever and wherever you want. However, you would need to complete it in one sitting because you will not be able to return to an incomplete questionnaire to finish it up.

There will be questions that ask about your background, any unwanted sexual occurrences you experienced before or during university, your feelings surrounding the most recent unwanted sexual experience that occurred during university, your feelings about disclosing the experience to others, and your current mental health. Some questions ask for specific and personal details regarding these unwanted experiences. For example, you will be asked about what actions occurred during the unwanted experience (e.g., fondling, penetration, etc.), how many times such events occurred, and the tactic(s) used by the perpetrator during the event(s) (e.g.,

threatening physical harm, verbal pressure). Being asked to recall and provide details on these unwanted experiences can be distressing.

Voluntary Participation and Withdrawal: Your participation is fully voluntary. You can withdraw from the study anytime you wish without explanation or penalty. If you drop out of the study by exiting the questionnaire part way through, whatever responses you have provided will be saved, remain anonymous and confidential, and will not be used in any analysis. You can refuse to answer any question you choose and are able to skip any section you would to like using the SKIP option.

Please note that once you have submitted your answers, they cannot be retracted because we cannot trace them back to you. Whatever answers you have provided will be saved but will remain anonymous and confidential.

Confidentiality: We will keep all information completely confidential and anonymous and no names are collected. Your answers will be identified only by a numerical code. This consent form and the research questionnaire are held at two separate web links so that we cannot trace your answers back to you.

We are using SurveyMonkey to administer the online research questionnaire. SurveyMonkey is an online survey tool that is hosted in the USA. The US Patriot Act permits US law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without the person's knowledge. In the unlikely event that such a court order is served, we cannot guarantee absolute confidentiality and anonymity of your data.

The findings of this study will be disseminated at scientific conferences and in scientific journals. Any presentations or publications that come out of this study will not have any identifying information on the participants, and the information that is shared will be in an aggregate or grouped format.

Data Storage: The data will be kept in secure storage on a password-protected hard drive in Dr. Edward Rawana's locked laboratory in the Department of Psychology at Lakehead University for a period of at least 5 years, after which time it may be destroyed.

Potential Risks of Participation: There is some risk involved in your participation because some questions are personal and sensitive in nature and may cause psychological distress to some participants. **Given the potential for distress, it is gravely important that you consider your own capacity, and whether proceeding with the study is the right choice for you and your safety.**
You will be free to skip any question you would like, and you can terminate your participation at any time by exiting the questionnaire. Upon exiting, the answers you have provided will remain confidential and anonymous. You will also be provided with counseling and crisis resources available to anyone who needs help or someone to talk to.

Benefits of Participation: If you are a Lakehead student currently enrolled in a psychology class, you will be awarded a course credit for your participation in the study. All participants will have the option of being entered into a draw for four $50 prepaid visas.

Furthermore, the information from this study can contribute new knowledge by providing a more complete picture of what occurs following sexual aggression. This is necessary information, given previous research has only examined negative changes.

Can I Receive a Copy of the Research Results? All participants are eligible to receive a summary of our findings when the study is completed. We will share our results with you upon request. The results will not have any identifying information and will be reported in an aggregate fashion.

Questions about the Study: If you have any questions about the research, please contact Tiffany Leung at tleung1@lakeheadu.ca (preferred) or at 4167269998.

Research Ethics Board Review and Approval: This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

Consent Form

Please check the box below to indicate that you have read, understood, and accept the terms and information above and wish to participate in the study.

I have read and understand all of the above information, and consent to participate in this study.

- ☐ *Yes*
- ☐ *No*

Are you interested in receiving a copy of the summary of the findings from this study?

- ☐ Yes
- ☐ No

If yes, please provide your email address below:

_____

To thank you for your participation, you also have the option of being entered into a random draw for four $50 prepaid visas, which will be held after data collection is complete. If you would like to be entered into the draw, please provide your email address below so you can be notified if you are one of the winners.

_____

To begin the Research Questionnaire, please click NEXT. It will take you to a different web link so that your responses to the Research Questionnaire will be anonymous and will not be linked back to your contact information above.

Appendix C: Screening Questions

Please answer the following questions to the best of your ability.

1. Are you a current or former university student?

- Yes*
- No

2. What was your biological or physical sex determined at birth?

- Male
- Female*
- Intersex
- The above do not apply. At birth I was determined as _____

3. What is your gender identity (i.e. your own personal experience of gender)?

- Male
- Female*
- Transgender woman
- Transgender man
- Gender queer or nonbinary
- Unsure
- I identify as _____

4. Have you ever experienced an unwanted sexual experience while in university?

- Yes*
- No
- Unsure

5. What is your age?

- Under 18
- Aged 18 or over, please specify age _____ *

Required response for eligibility. If a participant is deemed ineligible, they would have been directed to the debriefing form (specific to non-qualifying participants). If the participant is eligible, they would continue with the subsequent Questionnaire Package.

Appendix D: Debriefing Forms

Debriefing Page for Non-Qualifying Participants

We would like to thank you for your interest in our research study. Unfortunately, we are only looking for participation from current or former female university students who experienced an unwanted sexual experience in university and who are 18 years of age or older.

Nonetheless, your psychological safety and wellbeing are of the utmost importance to us. If you currently have thoughts to harm yourself or others, please contact 911 immediately or proceed to your local hospital's emergency department. There are also toll-free crisis hotlines available to you 24/7, should you need immediate emotional support from trained counsellors:

If you are in Thunder Bay: 807-346-8282 (local Crisis Response Services)

If you are a Canadian resident: **1-833-456-4566 (**Canada Suicide Prevention Service)

If you are an Indigenous person in Canada: 1-855-242-3310 (Hope for Wellness Help Line, telephone counselling is available in Cree, Ojibway, and Inuktitut)

If you are an American resident: 1-800-273-8255 (National Suicide Prevention Lifeline)

Additional resources will be outlined at the end of this document

We would also like to provide you with more information regarding the topic of this research study. In Canada, approximately approximately one in three women will experience a form of sexual violence in their lifetime. Female university students have been found to be at a particularly high risk.

Sexual assault is a criminal offense under Canada's criminal code. There are a number of myths about sexual assault that can lead individuals to blame the survivor (referred to as victim-blaming), but we would like to emphasize that experiencing a sexual assault is never the fault of the survivors. After experiencing a sexual assault, survivors can experience many different thoughts and feelings, including shock, fear, anger, self-blame, among others. We have provided the following links that provide more information on the feelings, facts, and myths associated with sexual assault:

- What you may be feeling: https://www.uwsp.edu/dos/sexualassault/Pages/feelings-after-being-sexually-assaulted.aspx
- Facts about sexual assault: http://www.canadianwomen.org/facts-sexual-assault-sexual-harassment
- Myths about sexual assault: https://www.uottawa.ca/sexual-violence-support-and-prevention/myths
- Information regarding victim-blaming https://crcvc.ca/docs/victim_blaming.pdf

The experience of sexual victimization is complex, and recent research has shown that extremely trying events may be a catalyst for positive psychological change. For example, some survivors report having a greater appreciation of their life, a better sense of what things are important, a closer connection to certain loved ones/other survivors, greater spirituality, or a sense of increased personal strength. In the current study, we wanted to examine *both* the positive and negative changes that occur amongst female students following sexual violence, as well as the causal mechanisms underlying such changes. Results of this study will help to better capture the complexity of sexual victimization. It may also help to identify the thought processes and social experiences that increase the likelihood of positive psychological change and decrease the likelihood of negative mental health outcomes. Such information may inform university policies, sexual assault education programs, and clinical treatments involving victimized individuals. You can access Lakehead University's Sexual and Gender Based Violence Response Policy here: https://www.lakeheadu.ca/sites/default/files/policies_procedures/Sexual%20and%20Gender%20Based%20Violence%20Response%20Policy.pdf

Please know that any information you provided is anonymous and confidential. Your answers will be only identified by a numerical code and nothing can be traced back to you. If you have any questions please feel free to contact Tiffany Leung at tleung1@lakeheadu.ca or 1-416-726-9998, or the project supervisor, Dr. Edward Rawana, at erawana@@lakeheadu.ca or 1-807-343-8453

Even though you did not go through the entire study, we are still very appreciative of your interest in participating. If you had requested for a summary of the results and provided your email, we will be pleased to share our findings with you when the project has been completed.

Before you leave, we would also like to share with you a number of counselling and crisis resources that are available to anyone who may need help or someone to talk to. Please feel free to print a copy of the following resources or to share it with others who may be interested.

Resources for the online community

Canadian residents:

- 24-hour support: http://good2talk.ca/ or Good2Talk helpline for postsecondary students: 1-866-925-5454
- 24-hour support: http://www.awhl.org/, click on "Urgent Contact Info" on the top right corner of the screen, for the assaulted women's helpline telephone numbers http://www.mentalhealthhelpline.ca/
- http://www.heretohelp.bc.ca/screening/online/
- http://www.cmha.ca/mental_health/getting-help/#.VwFb8eF9AE
- National list of crisis response services: http://www.partnersformh.ca/find-help/crisis-centres-across-canada/

American residents:

- 24-hour support: https://www.rainn.org/ or RAINN sexual assault hotline: 800.656.HOPE
- http://www.mentalhealthamerica.net/finding-help
- http://healthyplace.com/
- http://psychcentral.com/

Local resources for Thunder Bay residents

- 24-hour support: Emergency services available at the Thunder Bay Regional Hospital
- Sexual Assault/ Violence Treatment Centre Thunder Bay: 807-684-6751
- Assaulted Women's Helpline: 1-866-863-0511
- Your family physician or a walk-in clinic physician can help make a referral to mental health resources in Thunder Bay
- Lakehead University Health and Counseling Services – free to all Lakehead University students: 807-343-8361
- Thunder Bay Counseling Centre: 807-684-1880
- More resource information available from the Thunder Bay Canadian Mental Health Association: 807-345-5564

If you or someone you know would like to report a sexual assault, they are able to do so through the following resources:

- **Report to the police** - call 911 or visit your local police station
- **Report to Lakehead University** – contact the Office of Human Rights and Equity at 807-346-7785 or visit them on campus at LI5012. More information is available at https://www.lakeheadu.ca/faculty-and-staff/departments/services/human-rights-and-equity/sexual-violence-supports

Thank you again for your interest in this study.

Debriefing Page for Qualifying Participants

We would like to thank you for your participation in our research study.

Your psychological safety and wellbeing are of the utmost importance to us. If you currently have thoughts to harm yourself or others, please contact 911 immediately or proceed to your local hospital's emergency department. There are also toll-free crisis hotlines available to you 24/7, should you need immediate emotional support from trained counsellors:

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Before you go, we would also like to provide you with more information regarding the topic of this research study. In Canada, approximately approximately one in three women will experience a form of sexual violence in their lifetime. Female university students have been found to be at a particularly high risk.

Sexual assault is a criminal offense under Canada's criminal code. There are a number of myths about sexual assault that can lead individuals to blame the survivor (referred to as victim-blaming), but we would like to emphasize that experiencing a sexual assault is never the fault of the survivors. After experiencing a sexual assault, survivors can experience many different thoughts and feelings, including shock, fear, anger, self-blame, among others. We have provided the following links that provide more information on the feelings, facts, and myths associated with sexual assault:

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- Information regarding victim-blaming https://crcvc.ca/docs/victim_blaming.pdf

The experience of sexual victimization is complex, and recent research has shown that extremely trying events may be a catalyst for positive psychological change. For example, some survivors report having a greater appreciation of their life, a better sense of what things are important, a closer connection to certain loved ones/other survivors, greater spirituality, or a sense of increased personal strength. In the current study, we wanted to examine *both* the positive and negative changes that occur amongst female students following sexual violence, as well as the causal mechanisms underlying such changes. Results of this study will help to better capture the complexity of sexual victimization. It may also help to identify the thought processes and social experiences that increase the likelihood of positive psychological change and decrease the likelihood of negative mental health outcomes. Such information may inform university policies, sexual assault education programs, and clinical treatments involving victimized individuals. You can access Lakehead University's Sexual and Gender Based Violence Response Policy here: https://www.lakeheadu.ca/sites/default/files/policies_procedures/Sexual%20and%20Gender%20Based%20Violence%20Response%20Policy.pdf

We would like to reiterate that your participation was anonymous and confidential. Your answers will only be identified by a numerical code and results shared will not have any identifying information and will be reported in an aggregate fashion. The consent form and the research questionnaire were held at two separate web links so that we cannot trace your answers back to you.

If you had requested for a summary of the results and provided your email, we will be pleased to share our findings with you when the project has been completed. If you had provided your email address for the random prize draw, we will email you should you be the winner in the draw.

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  http://www.mentalhealthhelpline.ca/
- http://www.heretohelp.bc.ca/screening/online/
- http://www.cmha.ca/mental_health/getting-help/#.VwFb8eF9AE
- National list of crisis response services: http://www.partnersformh.ca/find-help/crisis-centres-across-canada/

American residents:

- 24-hour support: https://www.rainn.org/ or RAINN sexual assault hotline: 800.656.HOPE
- http://www.mentalhealthamerica.net/finding-help
- http://healthyplace.com/
- http://psychcentral.com/

Local resources for Thunder Bay residents

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- Your family physician or a walk-in clinic physician can help make a referral to mental health resources in Thunder Bay
- Lakehead University Health and Counseling Services – free to all Lakehead University students: 807-343-8361
- Thunder Bay Counseling Centre: 807-684-1880
- More resource information available from the Thunder Bay Canadian Mental Health Association: 807-345-5564

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- **Report to the police** - call 911 or visit your local police station
- **Report to Lakehead University** – contact the Office of Human Rights and Equity at 807-346-7785 or visit them on campus at LI5012. More information is available at https://www.lakeheadu.ca/faculty-and-staff/departments/services/human-rights-and-equity/sexual-violence-supports

Thank you again for your help in this study. If you have any questions, please feel free to contact Tiffany Leung at tleung1@lakeheadu.ca or 1-416-726-9998, or the project supervisor, Dr. Edward Rawana, at erawana@@lakeheadu.ca or 1-807-343-8453

Appendix E: Demographic Questions

How old are you? _____

Are you currently a university student?

- Yes
- No

If yes, what year of studies are you in?

- First year of undergraduate studies
- Second year of undergraduate studies
- Third year of undergraduate studies
- Fourth year of undergraduate studies
- Fifth year or beyond of undergraduate studies
- Masters studies
- Doctoral studies
- Other (please specify): _____

If no, are you a former university student?

- Yes
- No

If yes, when were you enrolled in university? Please specify the years.

____ to ____

If yes, what is your highest level of education?

- First year of undergraduate studies
- Second year of undergraduate studies
- Third year of undergraduate studies
- Fourth year of undergraduate studies
- Fifth year or beyond of undergraduate studies
- Masters studies
- Doctoral studies
- Other (please specify): _____

What is your ethnicity:

- Aboriginal/Indigenous
- African
- Asian
- Caribbean
- Caucasian

- Hispanic
- Middle Eastern
- Pacific Islander
- Other _____

Do you identify as biracial or multi-racial?

- Yes
- No

How often have you experienced trouble paying for basic necessities?

- Never
- Rarely
- Sometimes
- Often
- All the time

What religion do you identify with?

- Buddhism
- Christianity
- Hinduism
- Islam
- Judaism
- Sikhism
- Other _____

Sexual Orientation:

- Asexual (little to no sexual attraction to others)
- Bisexual (attraction to members of both biological sex)
- Heterosexual (attraction to members of opposite biological sex)
- Homosexual (attraction to members of same biological sex)
- Pansexual (attraction to individuals regardless of their biological sex or sexual orientation))
- Unsure
- I identify as _____

Relationship Status:

- Dating
- Single
- Engaged
- Married
- Divorced
- Widowed

Where do you live?

- On- Campus
- Off- Campus

Who do you live with (e.g., parents, roommates, romantic partner, siblings)? Please do not provide names of those you live with. _____

Have you had a consensual sexual partner anytime during the previous 12 months?

- Yes
- No

How old were you when you had your first consensual sexual experience? _____

To your best knowledge, how often do you use a condom?

- All the time
- More than half the time
- Half the time
- Less than half the time
- I never use a condom

If you answered anything other than "all the time", what barriers do you see that prevent you from using condoms more consistently? _____

Do you *currently* use any other contraceptive method? (select all that apply)

- Oral contraceptive pill
- Intrauterine device (IUD)
- Contraceptive implant
- Contraceptive injection
- Skin patch
- Vaginal ring
- Diaphragm
- Cervical cap
- Contraceptive sponge

Appendix F: Sexual Experiences Survey – Short Form Victimization (SES_SFV)

The following questions concern sexual experiences that you may have had that were unwanted. They involve asking you to recall and describe specific incidences of sexual assault you have experienced. We know that these are personal and sensitive questions, so we do not ask your name or other identifying information. Your information is completely confidential. We hope that this helps you to feel more comfortable answering each question. You also have the option to skip this section. Place a check mark in the box showing the number of times each experience has happened to you. If several experiences occurred on the same occasion--for example, if one night someone told you some lies and had sex with you when you were drunk, you would endorse both items a and c. Each item you fill in is to be answered twice, once regarding "times in your life", which refers to any time in your life including university, and the second time regarding "while being in university", which refers to any time in which you were enrolled in university.

Click here to **SKIP** this Section (***will appear following the description of every measure***)

Sexual Experiences

1. Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt) or removed some of my clothes without my consent *(but did not attempt sexual penetration)* by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

2. Someone had oral sex with me or made me have oral sex with them without my consent by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

3. A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

4. A man put his penis into my butt, or someone inserted fingers or objects without my consent by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

5. Even though it didn't happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

6. Even though it didn't happen, a man TRIED to put his penis into my vagina, or someone tried to stick in fingers or objects without my consent by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

7. Even though it didn't happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:	**How many times in your life?**	**How many times while being in university?**
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	0 1 2 3+	0 1 2 3+
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	0 1 2 3+	0 1 2 3+
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	0 1 2 3+	0 1 2 3+
d. Threatening to physically harm me or someone close to me.	0 1 2 3+	0 1 2 3+
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	0 1 2 3+	0 1 2 3+
f. Just doing the behaviour without giving me a chance to say 'no' (e.g., surprising me with the behaviour)	0 1 2 3+	0 1 2 3+

Appendix G: The Hospital Anxiety Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			**I feel as if I am slowed down:**
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			**I get a sort of frightened feeling like 'butterflies' in the stomach:**
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			**I have lost interest in my appearance:**
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			**I feel restless as I have to be on the move:**
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			**I look forward with enjoyment to things:**
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			**I get sudden feelings of panic:**
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			**I can enjoy a good book or radio or TV program:**
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Please check you have answered all the questions

Scoring:
Total score: Depression (D) _____ Anxiety (A) _____
0-7 = Normal
8-10 = Borderline abnormal (borderline case)
11-21 = Abnormal (case)

Appendix H: The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)

Below is a list of problems that people sometimes have in response to a very stressful experience. Keeping your worst event in mind, please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Appendix I: The Paired Format Posttraumatic Growth Inventory (PTGI-42)

For each of the statements below, use the scale provided to indicate the **degree to which this change occurred** in your life **as result of the stressful or traumatic situation you identified.** That statements are arranged in pairs representing different types of change you might have experienced.

Within each pair,
- You might **not have experienced** either change,
- You might have experience **both** changes to some degree, or
- You might **only have experienced one type** of change.

Consider both statements in each pair, then rate the degree to which you experienced each type of change using the scale below.
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.

Please **rate each item below** by placing a number from the scale that reflects your choice in the space provided to the left of the item.
____ 1a. I changed my priorities about what is important in life.
____ 1b. I find it difficult to clarify priorities about what is important in life.
____ 2a. I have less of an appreciation for the value of my own life.
____ 2b. I have a greater appreciation for the value of my own life.
____ 3a. I developed new interests.
____ 3b. I have fewer interests than before.
____ 4a. I have diminished feeling of self- reliance.
____ 4b. I have a greater feeling of self- reliance.
____ 5a. I have a better understanding of spiritual matters.
____ 5b. I have a poorer understanding of spiritual matters.
____ 6a. I more clearly see that I cannot count on people in times of trouble.
____ 6b. I more clearly see that I can count on people in times of trouble.
____ 7a. I established a new path for my life.
____ 7b. I have a less clear path for my life.
____ 8a. I have a greater sense of distance from others.
____ 8b. I have a greater sense of closeness with others
____ 9a. I am more willing to express my emotions.
____ 9b. I am less willing to express my emotions.

____ 10a. I am less certain that I can handle difficulties.
____ 10b. I know better than I can handle difficulties.
____ 11a. I am able to do better things with my life.
____ 11b. I am less capable of doing better things with my life.
____ 12a. I am less able to accept the way things work out.
____ 12b. I am better able to accept the way things work out.
____ 13a. I can better appreciate each day.
____ 13b. I appreciate each day less than I did before.
____ 14a. Fewer opportunities are available than would have been before.
____ 14b. New opportunities are available which wouldn't have been otherwise.
____ 15a. I have less compassion for others.
____ 15b. I have more compassion for others.
____ 16a. I put more effort into my relationships.
____ 16b. I put less effort into my relationships.
____ 17a. I am less likely to try to change things that need changing.
____ 17b. I am more likely to try to change things that need changing.
____ 18a. I have a weaker religious faith.
____ 18b. I have a stronger religious faith.
____ 19a. I discovered that I'm stronger than I thought I was.
____ 19b. I discovered that I'm weaker than I thought I was.
____ 20a. I learned a great deal about how disappointing people are.
____ 20b. I learned a great deal about how wonderful people are.
____ 21a. I better accept needing others.
____ 21b. I find it harder to accept needing

Scoring for the PTGI-42

Variable	Items Summed
Posttraumatic Growth Composite	1a, 2b, 3a, 4b, 5a, 6b, 7a, 8b, 9a, 10b, 11a, 12b, 13a, 14b, 15b, 16a, 17b, 18b, 19a, 20b, 21a
Relating to Others	6b, 8b, 9a, 15b, 16a, 20b, 21a
New Possibilities	3a, 7a, 11a, 14b, 17b
Personal Strength	4b, 10b, 12b, 19a
Spiritual Change	5a, 18b
Appreciation of Life	1a, 2b, 13a

Posttraumatic Depreciation Composite	1b, 2a, 3b, 4a, 5b, 6a, 7b, 8a, 9b, 10a, 11b, 12a, 13b, 14a, 15a, 16b, 17a, 18a, 19b, 20a, 21b
Relating to Others	6a, 8a, 9b, 15a, 16b, 20a, 21b
New Possibilities	3b, 7b, 11b, 14a, 17a
Personal Strength	4a, 10a, 12a, 19b
Spiritual Change	5b, 18a
Appreciation of Life	1b, 2a, 13b

Appendix J: The Event-Related Rumination Inventory (ERRI)

After an experience like the one you reported, people sometimes, but not always, find themselves having thoughts about their experience even though they don't try to think about it. Indicate for the following items how often, if at all, you had the experiences described during the weeks immediately after the event.

0	1	2	3
Not At All			Often

1. I thought about the event when I did not mean to.
2. Thoughts about the event came to mind and I could not stop thinking about them.
3. Thoughts about the event distracted me or kept me from being able to concentrate.
4. I could not keep images or thoughts about the event from entering my mind.
5. Thoughts, memories, or images of the event came to mind even when I did not want them.
6. Thoughts about the event caused me to relive my experience.
7. Reminders of the event brought back thoughts about my experience.
8. I found myself automatically thinking about what had happened.
9. Other things kept leading me to think about my experience.
10. I tried not to think about the event, but could not keep the thoughts from my mind

After an experience like the one you reported, people sometimes, but not always, deliberately and intentionally spend time thinking about their experiences. Indicate for the following items how often, if at all, you deliberately spent time thinking about the issues indicated during the weeks immediately after the event.

0	1	2	3
Not At All			Often

11. I thought about whether I could find meaning from my experience.
12. I thought about whether changes in my life have come from dealing with my experience.
13. I forced myself to think about my feelings about my experience.
14. I thought about whether I have learned anything as a result of my experience.
15. I thought about whether the experience has changed my beliefs about the world.
16. I thought about what the experience might mean for my future.
17. I thought about whether my relationships with others have changed following my experience.
18. I forced myself to deal with my feelings about the event.
19. I deliberately thought about how the event has affected me.
20. I thought about the event and tried to understand what happened.

Scoring:

Intrusive Rumination = Sum of items 1 - 10

Deliberative Rumination – Sum of items 11 - 20

Appendix K: The 10-Item Ruminative Response Scale (RRS-10)

0	1	2	3
Almost never	Sometimes	Often	Almost Always

People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed.

Please indicate what you *generally* do, not what you think you should do.

How often do you…

1. Think "What am I doing to deserve this?"
2. Analyze recent events to try to understand why you are depressed
3. Think "Why do I always react this way?"
4. Go away by yourself and think about why you feel this way
5. Write down what you are thinking and analyze it
6. Think about a recent situation, wishing it had gone better
7. Think "Why do I have problems other people don't have?"
8. Think "What can't I handle things better?
9. Analyze your personality to try to understand why you are depressed
10. Go someplace alone to think about your feelings

Scoring:

Brooding = Sum of items 1, 3, 6, 7, 8

Reflection = Sum of items 2, 4, 5, 9, 10

Appendix L: The World Assumptions Questionnaire (WAQ)

Please rate the following statements on how much you agree or disagree with them using the following scale:

1 = Strongly Agree

2 = Agree

3 = Slightly Agree

4 = Slightly Disagree

5 = Disagree

6 = Strongly Disagree

1. Most people can be trusted. *TGP
2. I don't feel in control of the events that happen to me. CE
3. You usually can know what is going to happen in your life. *CE
4. It is difficult for me to take most of what people say at face-value. TGP
5. It is very difficult to know what others are thinking. CPP
6. Anyone can experience a very bad event. SV
7. People often behave in unpredictable ways. CPP
8. People are less safe than they usually realize. SV
9. For the most part, I believe people are good. *TGP
10. I have a great deal of control over what will happen to me in my life. *CE

11. You never know what's going to happen tomorrow. SV
12. Other people are usually trustworthy. *TGP
13. People's lives are very fragile. SV
14. It is hard to know exactly what motivates another person.CPP
15. Most people cannot be trusted. TGP
16. People fool themselves into feeling safe. SV
17. It is hard to understand why people do what they do. CPP
18. Most of what happens to me happens because I choose it. *CE
19. Terrible things might happen to me. SV
20. It is ultimately up to me to determine how events in my life will happen. *CE
21. It can be very difficult to predict other people's behavior. CPP
22. What people say and what they do are often very different things. TGP

* denotes reverse-scoring

CE = item on the Controllability of Events subscale

CPP = item on the Comprehensibility and Predictability of People subscale

TGP = item on the Trustworthiness and Goodness of People subscale

SV = item on the Safety and Vulnerability subscale

Appendix M: The Social Reactions Questionnaire – Shortened (SRQ-S)

The following is a list of reactions that other people sometime have when responding to a person with this experience. Please indicate how often you experienced each of the listed responses from other people.

0	1	2	3	4
Never	Rarely	Sometimes	Frequently	Always

1. Told you that you were irresponsible or not cautious enough
2. Reassured you that you are a good person
3. Treated you differently in some way than before you told them that made you uncomfortable
4. Told you to go on with your life
5. Comforted you by telling you it would be all right or by holding you
6. Tried to take control of what you did/decisions you made
7. Has been so upset that they needed reassurance from you
8. Made decisions or did things for you
9. Told you that you could have done more to prevent this experience from occurring
10. Provided information and discussed options
11. Told you to stop thinking about it
12. Expressed so much anger at the perpetrator that you had to calm them down
13. Avoided talking to you or spending time with you
14. Treated you as if you were a child or somehow incompetent
15. Helped you get information of any kind about coping with the experience
16. Made you feel like you didn't know how to take care of yourself

Scoring:

Turning Against = Sum of items 1, 3, 9, 13, 14, 16

Unsupportive Acknowledgements = Sum of items 4, 6, 7, 8, 11, 12

Positive Support = Sum of items 2, 5, 10, 15

Appendix N: The Sexual Assault Inventory of Disclosure (SAID)

1. Please select the unwanted sexual experience that you had after the age of 14 that was the most upsetting to you.
2. Approximately how old were you when this event occurred? Enter the number in years.
   ____
3. Have you ever told anyone about the unwanted sexual event you just described?

   ❑ Yes
   ❑ No

4. *You indicated that you never told anyone about the event. This means that you never told any friends, family, or professionals such as police, medical, mental health, or religious. Please confirm that this is true.*

   ❑ *Correct, I never told anyone*
   ❑ *Incorrect, I did tell someone*

5. *Please select all the reasons why you chose not to tell:*

   ❑ *I didn't want anyone to know*
   ❑ *I didn't think it was a big deal*
   ❑ *I didn't know what it was that happened to me, or didn't understand it*
   ❑ *I was told not to talk about it*
   ❑ *I was ashamed or embarrassed*
   ❑ *I was afraid I would not be believed*
   ❑ *I was afraid I would be blamed*
   ❑ *I didn't want to burden someone else*
   ❑ *I didn't want the person who did it to get in trouble*
   ❑ *I didn't want to get in trouble*
   ❑ *I feared the person who did it would try to get back at me*
   ❑ *I wanted to deal with it on my own*
   ❑ *I didn't think anyone would understand*
   ❑ *I thought others would try to tell me what to do*
   ❑ *I feared I would be harassed or treated negatively by others*
   ❑ *I didn't want anyone to worry about me*
   ❑ *I wanted to forget it happened*
   ❑ *I had other things I needed to focus on (e.g., family, classes, work)*
   ❑ *I didn't know who to talk to*
   ❑ *I didn't have anyone to talk to*
   ❑ *I didn't believe anything would be done to help me*
   ❑ *Other (please explain)* _____

4. Approximately how many people did you tell? This can include both friends and family members as well as professionals (e.g., doctors, mental health providers, legal personnel, etc.). It may be hard to remember the exact number, but please make your best guess.

   ❑ I only told one person
   ❑ I told more than one person (enter number): _____

5. Approximately how long after the event occurred did you first tell anyone about it?

   - ❑ The same day
   - ❑ 1–6 days later
   - ❑ 1–3 weeks later
   - ❑ 1–3 months later
   - ❑ 4–6 months later
   - ❑ 7–12 months later
   - ❑ 1–2 years later
   - ❑ 3–5 years later
   - ❑ 6–10 years later
   - ❑ Over 10 years later
   - ❑ Not sure, I don't remember

6. Who did you tell? Please select all that apply:

   - ❑ Friend(s) (How many friends did you tell? If you can't remember exactly, please make your best guess.) _____
   - ❑ Significant other (e.g., boyfriend, girlfriend, spouse, partner)
   - ❑ Mother
   - ❑ Father
   - ❑ Sibling(s) (How many did you tell? If you can't remember exactly, please make your best guess.) _____
   - ❑ Other family member (How many did you tell? If you can't remember exactly, please make your best guess.) _____
   - ❑ Clergy or religious leader (e.g., priest, pastor)
   - ❑ Mental health professional, counselor, or therapist
   - ❑ Doctor, nurse, or other medical professional
   - ❑ Police, including campus police
   - ❑ Lawyer, judge, or other legal professional
   - ❑ School or university employee (e.g., teacher, professor, Dean of Students, Advocacy Services, Title IX Coordinator) (Please indicate which) _____
   - ❑ Other (please specify) _____

7. *You indicated that you only told one person about the event. Overall, how would you rate this conversation experience?*

   - ❍ *1 = Very negatively*
   - ❍ *2*
   - ❍ *3 = Negatively*
   - ❍ *4*
   - ❍ *5 = Positively*
   - ❍ *6*
   - ❍ *7 = Very positively*

8. *You indicated that you told only one person about the event and that you rated the conversation experience as neutral. For the remaining questions, please indicate whether you will focus on the positive or negative aspects of this conversation experience.*

   - ❑ *I would like to discuss the positive aspects of this conversation*
   - ❑ *I would like to discuss the negative aspects of this conversation*

9. Please select the person with whom you had the most positive conversation experience. A "conversation experience" can be either one single conversation or conversations that occurred over multiple periods of time. (Note: If you only told one person, please select that person below.) Who did you have the most positive conversation(s) with about the event?
(Keeping in mind that same event, you will now be asked to answer the same questions about a conversation (or series of conversations) that you had, but this time it will be about the person with whom you felt you had the most negative conversation experience. Remember, a "conversation experience" can be either one single conversation or conversations that occurred over multiple periods of time. Please select the person with whom you had the most negative conversation(s) about the event. [Note: If you only told one person, please select that person below.])

   - ❑ Friend
   - ❑ Significant other (e.g., boyfriend, girlfriend, spouse, partner)
   - ❑ Mother
   - ❑ Father
   - ❑ Sibling
   - ❑ Other family member
   - ❑ Clergy or religious leader (e.g., priest, pastor)
   - ❑ Mental health professional, counselor, or therapist
   - ❑ Doctor, nurse, or other medical professional
   - ❑ Police or campus police officer/department
   - ❑ Lawyer, judge, or other legal professional
   - ❑ School or university employee _____
   - ❑ Other (please specify) _____

10. Approximately how long after the event occurred did you first tell your [positive/negative disclosure recipient] about it?

   - ❑ The same day
   - ❑ 1–6 days later
   - ❑ 1–3 weeks later
   - ❑ 1–3 months later
   - ❑ 4–6 months later
   - ❑ 7–12 months later
   - ❑ 1–2 years later
   - ❑ 3 to 5 years later
   - ❑ 6–10 years later
   - ❑ Over 10 years later
   - ❑ Not sure, I don't remember

11. How many people do you think you told about the event prior to telling your [positive/negative disclosure recipient]? If you can't remember exactly, please make your best guess.

   - ❑ My [positive/negative disclosure recipient] was the first person I told
   - ❑ Before telling my [positive/negative disclosure recipient], I told this many other people (enter the number below): _____

12. Overall, how would you rate this conversation experience with your [positive/negative disclosure recipient]?

- ❍ 1 = Very negatively
- ❍ 2
- ❍ 3 = Negatively
- ❍ 4
- ❍ 5 = Positively
- ❍ 6
- ❍ 7 = Very positively

The following questions will ask you about what you specifically told your [positive/negative disclosure recipient] when you talked to them about the event. Please answer the degree to which you shared the following detail information with your [positive/negative disclosure recipient]. By details, we mean factual information about what happened (e.g., where you were, what happened, who you were with).

I talked about:

Not at all	A small amount	A moderate amount	A great amount	Not applicable to me	Not sure, I don't remember

1) Who did it (if known), including how I met them or what they looked like
2) My relationship to the person who did it (e.g., friend, romantic partner, acquaintance)
3) Where the event happened
4) When the event occurred
5) What I did or said during the event (e.g., my behavior)
6) What he/she did or said during the event (e.g., their behavior)
7) What I saw or physically experienced during the event
8) The circumstances leading up to the event occurring
9) What happened right before or right after the event occurred
10) What happened the next day after the event
11) What happened in the weeks or months after the event
12) *The fact that I went to the police after the event*
13) *The fact that I went to a doctor, nurse, or other medical professional, or the hospital after the event*
14) *The fact that I went to a counselor/therapist after the event*
15) *The fact that I spoke to a clergy member or religious leader after the event*
16) *The fact that I spoke to a legal professional or went to court over the event*
17) *The fact that I spoke to someone at the university or school after the event*

13. Based on what I talked about, he/she has a good understanding of the details relating to the event

- ❍ Strongly disagree
- ❍ Disagree
- ❍ Somewhat disagree
- ❍ Somewhat agree
- ❍ Agree
- ❍ Strongly agree

14. Thinking back to this conversation with your [positive/negative disclosure recipient], which details that you shared were the most important in terms of making this conversation [positive/negative]? Please check all that apply.

- ❑ [Insert all displayed detail items]
- ❑ Something not listed (please explain): _____
- ❑ None; talking about details was not related to why the conversation was [positive/negative]

14. *You indicated that you did not share any detail information with your [positive/negative disclosure recipient]. Please select all the reasons why you did not share detail information:*

- ❑ *I didn't want to talk about details*
- ❑ *I was not asked to talk about details*
- ❑ *I was encouraged not to talk about details*
- ❑ *I didn't have enough time to talk about details*
- ❑ *I didn't think to share details or didn't know what kind of details to share*
- ❑ *I could not remember details*
- ❑ *Talking about details was not relevant to the conversation(s)*
- ❑ *? Other (please specify)* _____

Please answer the degree to which you shared the following emotion information with your [positive/negative disclosure recipient]. By emotion, we mean information about the emotions you feel relating to the event (e.g., scared, embarrassed, confused, etc.).

I talked about:

Not at all	A small amount	A moderate amount	A great amount	Not applicable to me	Not sure, I don't remember

1) The emotions I felt before, during, or after the event occurred
2) The emotions I felt the next day after the event
3) The emotions I felt in the weeks or months after the event occurred
4) The emotions I felt about the event itself
5) The emotions I felt while talking to friends, peers, family, or significant others about the event
6) The emotions I felt when I thought about or was reminded of the event
7) *The emotions I felt while talking to the police*
8) *The emotions I felt while talking to the doctor, nurse, or other medical professional, or during the physical examination at the hospital*
9) *The emotions I felt while talking to a counselor/therapist about the event*
10) *The emotions I felt while talking to a clergy member or religious leader about the event*
11) *The emotions I felt while speaking with the school or University about the event*
12) *The emotions I felt while talking to a legal professional or going through the court case*
13) The emotions I was feeling right before, during, or right after telling my [positive/negative disclosure recipient] about the event
14) What it felt like to talk about the event

15. Based on what I talked about, he/she has a good understanding of the emotions I felt relating to the event

- ❍ Strongly disagree
- ❍ Disagree
- ❍ Somewhat disagree
- ❍ Somewhat agree
- ❍ Agree
- ❍ Strongly agree

16. Thinking back to this conversation with your [positive/negative disclosure recipient], which emotions that you shared were the most important in terms of making this conversation [positive/negative]? Please check all that apply.

- ❑ [List all displayed emotion items]
- ❑ Something not listed (please explain): _____
- ❑ None; talking about my emotions was not related to why the conversation was [positive/negative]

16. *You indicated that you did not share any emotion information with your [positive/negative disclosure recipient]. Please select all the reasons why you did not share emotion information:*

- ❑ *I didn't want to talk about emotions*
- ❑ *I was not asked to talk about emotions*
- ❑ *I was encouraged not to talk about emotions*
- ❑ *I didn't have enough time to talk about emotions*
- ❑ *I didn't think to share emotions or didn't know what kind of emotions to share*
- ❑ *I could not remember the emotions I felt*
- ❑ *Talking about my emotions was not relevant to the conversation(s)*
- ❑ *Other (please specify)* _____

Please answer the degree to which you shared the following cognition information with your [positive/negative disclosure recipient]. By cognition, we mean information about the thoughts you have relating to the event (e.g., the thoughts going through your mind while it was happening).

I talked about:

Not at all	A small amount	A moderate amount	A great amount	Not applicable to me	Not sure, I don't remember

1) The thoughts that were going through my mind before, during, or after the event occurred
2) What was going through my mind the next day after the event
3) What was going through my mind in the weeks or months after the event
4) The thoughts I had about the event itself
5) What was going through my mind while talking to my friends, peers, family, or significant others about the event
6) What was going through my mind when I thought about or was reminded of the event

7) *What was going through my mind when speaking to the police*
8) *What was going through my mind when speaking to the doctor, nurse, or other medical professional, or during the physical examination at the hospital*
9) *What was going through my mind when I was talking to a counselor/therapist*
10) *What was going through my mind when I was talking to a clergy member or religious leader*
11) *What was going through my mind when I was talking to the school or University*
12) *What was going through my mind when talking to a legal professional or the court*
13) What was going through my mind right before, during, or right after telling my [positive/negative disclosure recipient] about the event

17. Based on what I talked about, he/she has a good understanding of the thoughts I had relating to the event

- ❍ Strongly disagree
- ❍ Disagree
- ❍ Somewhat disagree
- ❍ Somewhat agree
- ❍ Agree
- ❍ Strongly agree

18. Thinking back to this conversation with your [positive/negative disclosure recipient], which thoughts that you shared were the most important in terms of making this conversation [positive/negative]? Please check all that apply.

- ❑ [List all displayed cognition items]
- ❑ Something not listed (please explain): _____
- ❑ None; talking about my thoughts was not related to why the conversation was [positive/negative]

18. *You indicated that you did not share any cognition information with your [positive/negative disclosure recipient]. Please select all the reasons why you did not share cognition information:*

- ❑ *I didn't want to talk about my thoughts*
- ❑ *I was not asked to talk about my thoughts*
- ❑ *I was encouraged not to talk about my thoughts*
- ❑ *I didn't have enough time to talk about my thoughts*
- ❑ *I didn't think to share thoughts or didn't know what kind of thoughts to share*
- ❑ *I could not remember the thoughts I had*
- ❑ *Talking about my thoughts was not relevant to the conversation(s)*
- ❑ *Other (please specify)* _____

Please answer the degree to which you shared the following belief information with your [positive/negative disclosure recipient]. By beliefs, we mean information about your beliefs since the event (e.g., your beliefs about yourself, others, and the world).

I talked about:

Not at all	A small amount	A moderate amount	A great amount	Not applicable to me	Not sure, I don't remember

1) My beliefs about myself since the event, including my worth, my judgment, or feeling "unlovable"
2) My beliefs about the event itself
3) My beliefs about how I've changed since the event
4) My beliefs about my body, appearance, or self-esteem since the event
5) My beliefs about my own power or control since the event
6) My beliefs about being "damaged" since the event
7) My beliefs about the trustworthiness of other people since the event
8) My beliefs about the world since the event
9) My beliefs about sex since the event
10) My beliefs about men or women since the event
11) My beliefs about safety since the event
12) My beliefs about religion or God since the event
13) My beliefs about the police or the justice system since the event occurred
14) My beliefs about doctors, nurses, or the medical profession since the event
15) My beliefs about counselors/therapists since the event
16) My beliefs about schools or Universities since the event
17) My beliefs about clergy members or religious leaders since the event

19. Based on what I talked about, he/she has a good understanding of the beliefs I have relating to the event

- ❍ Strongly disagree
- ❍ Disagree
- ❍ Somewhat disagree
- ❍ Somewhat agree
- ❍ Agree
- ❍ Strongly agree

20. Thinking back to this conversation with your [positive/negative disclosure recipient], which beliefs that you shared were the most important in terms of making this conversation [positive/negative]? Please check all that apply.

- ❑ [List all displayed belief items]
- ❑ Something not listed (please explain): _____
- ❑ None; talking about my beliefs was not related to why the conversation was [positive/negative]

20. *You indicated that you did not share any belief information with your [positive/negative disclosure recipient]. Please select all the reasons why you did not share belief information:*

- ❑ *I didn't want to talk about beliefs*
- ❑ *I was not asked to talk about beliefs*
- ❑ *I was encouraged not to talk about beliefs*
- ❑ *I didn't have enough time to talk about beliefs*
- ❑ *I didn't think to share beliefs or didn't know what kind of beliefs to share*
- ❑ *I could not remember the beliefs I had*
- ❑ *Talking about my beliefs was not relevant to the conversation(s)*
- ❑ *Other (please specify)* _____

Please answer the degree to which you shared the following social experiences information with your [positive/negative disclosure recipient]. By social experiences, we mean information about the experiences you had with other people after the event (e.g., being blamed, treated differently, trying to take control of the situation, or being supportive).

I talked about:

Not at all	A small amount	A moderate amount	A great amount	Not applica-ble to me	Not sure, I don't remem-ber

1) How I was treated by my parent(s) after the event
2) How I was treated by my friend(s) or other peers after the event
3) How I was treated by my significant other after the event
4) How I was treated by my sibling(s) after the event
5) How I was treated by other family member(s) after the event
6) How I was treated by my teacher(s) or professor(s) after the event
7) How I was treated by the person with whom I had the unwanted sexual experience after it occurred
8) *How I was treated by the police*
9) *How I was treated by the doctor, nurse, or other medical professional*
10) *How I was treated by the counselor/therapist*
11) *How I was treated by the clergy member or religious leader*
12) *How I was treated by the court or legal professional*
13) *How I was treated by the school or university*
14) How I was treated by my [positive/negative disclosure recipient] since the event.

21. Based on what I talked about, he/she has a good understanding of the way I was treated by other people after the event.

    ❍ Strongly disagree
    ❍ Disagree
    ❍ Somewhat disagree
    ❍ Somewhat agree
    ❍ Agree
    ❍ Strongly agree

22. Thinking back to this conversation with your [positive/negative disclosure recipient], which social experiences that you shared were the most important in terms of making this conversation [positive/negative]? Please check all that apply.

    ❑ [List all displayed social experiences items]
    ❑ Something not listed (please explain): _____
    ❑ None; talking about my social experiences was not related to why the conversation was [positive/negative]

22. *You indicated that you did not share any social experiences information with your [positive/negative disclosure recipient]. Please select all the reasons why you did not share social experiences information:*

    ❑ *I didn't want to talk about social experiences*
    ❑ *I was not asked to talk about social experiences*
    ❑ *I was encouraged not to talk about social experiences*
    ❑ *I didn't have enough time to talk about social experiences*

- ❑ *I didn't think to share social experiences or didn't know what kind of social experiences to share*
- ❑ *I could not remember the social experiences I had*
- ❑ *Talking about my social experiences was not relevant to the conversation(s)*
- ❑ *Other (please specify)* _____

23. Thinking back to this conversation with your [positive/negative disclosure recipient], to what extent did you feel you were in control of what information you shared?

- ❍ 0=Not at all
- ❍ 1
- ❍ 2=A small amount
- ❍ 3
- ❍ 4=A moderate amount
- ❍ 5
- ❍ 6=A great amount
- ❍ Not sure, I don't remember

Thinking back to this conversation with your [positive/negative disclosure recipient], to what extent did you tell because:

1=Strongly Disagree	2	3=Disagree	4	5=Agree	6	7=Strongly agree	Not sure, I don't remember

24. You felt pressured to tell
25. You were responding to questioning
26. They witnessed part or all of the event
27. You thought they'd find out anyway
28. You were afraid
29. You needed help
30. You knew they had a similar experience
31. You wanted to
32. Some other reason (if so, please specify)
33. What is the main reason why you told your [positive/negative disclosure recipient]?

- ❍ You felt pressured to tell
- ❍ You were responding to questioning
- ❍ They witnessed part or all of the event
- ❍ You thought they'd find out anyway
- ❍ You were afraid
- ❍ You needed help
- ❍ You knew they had a similar experience
- ❍ You wanted to
- ❍ Other (please specify) _____

34. Is there anything else you shared during this conversation that wasn't asked about?

- ❍ No
- ❍ Yes (please explain): _____

Scoring:

As the item numbers may differ, the relevant sections used to calculate the SAID variables have been highlighted with a star. Each section indicated represents a different domain of the SAID (i.e., content area of disclosure): Items are summed (responses of “not applicable to me” and “not sure, I don’t remember” not included). In order of appearance, the domains are the following: Detail, Emotion, Cognition, Belief, and Social Experiences.