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POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Posttraumatic Growth in People Living With HIV

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POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Abstract

Nowadays, HIV is no longer necessarily terminal but remains a chronic and stigmatising illness. People living with HIV may experience posttraumatic growth (PTG) through processing HIV diagnosis and its associated issues. Two studies were conducted to investigate the processes of PTG among people living with HIV in New Zealand (NZ).

Study 1 was quantitative and conducted among 77 people with HIV. It examined the relationships between PTG and its potential correlates: demographics, event centrality, deliberate rumination, active and avoidance coping, sense of coherence, optimism, instrumental and emotional support, posttraumatic stress symptoms (PTSSs), and perceived mental and physical health. Study 1 found the relationship between event centrality and PTG was sequentially mediated by deliberate rumination and avoidance coping, and this relationship was enhanced by higher levels of sense of coherence, optimism, and emotional support. Higher levels of PTG were associated with more positive perceptions of physical health in participants who had lived with HIV longer, but not PTSSs or perceived mental health.

Study 2 comprised semi-structured interviews with 16 participants which were analysed using thematic analysis. Three themes were identified: challenges, event-related cognitive processing, and rebuilding of assumptions. The findings suggested that PTG might be related to perceived violations of beliefs and goals, coping with events, and rebuilding of assumptions. This process was found to be influenced by personal and social context (support and stigma). Participants who reported PTG could have been wiser but not necessarily happier.

The findings of Studies 1 and 2 support current theories of PTG in general, provide a more in-depth picture of cognitive processing and PTG in participants with

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HIV, and highlight the importance of personal and social contexts in investigating the processes and implications of PTG. Future studies need to be aware that PTG may be a multidimensional construct, occurring on multiple levels.

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Chapter 1: General Introduction

The idea that people may experience personal growth from tragic or painful events is deeply rooted in Western and Eastern cultures (Splevins et al., 2010). However, it is only in the last few decades that researchers have started to examine the idea in empirical studies. The number of studies examining potential benefits in the aftermath of crises have been boosted by the rise of positive psychology (Seligman & Csikszentmihalyi, 2000). Studies of the potential benefits of experiencing stressful events do not undermine the pathogenic nature of trauma or imply that trauma is something worth striving for. The idea behind these studies is to remind us that people are capable of growth despite pain and suffering.

Concept of Posttraumatic Growth

PTG is defined as the “positive psychological change experienced as a result of the struggle with highly challenging life circumstances” (Tedeschi & Calhoun, 2004, p. 1). It represents individuals’ transformation in ways that go beyond their pre-trauma status of psychological functioning. PTG includes three broad aspects of positive changes: changes in perception of self (e.g., recognition and appreciation of vulnerability as well as personal strengths), changes in relationships with others (e.g., more self-disclosure and emotional expressiveness, greater understanding, compassion, and altruism), and changes in life philosophies (e.g., reorganised life priorities, increased appreciation for existence, deeper spirituality, and profound life philosophies) (Tedeschi & Calhoun, 1995).

Different terms have been used to describe personal growth after encounters with stressful events, and three of them are widely used in the literature. These are PTG (Tedeschi & Calhoun, 1995), stress-related growth (Park et al., 1996), and benefit finding (Tomich & Helgeson, 2004). To avoid confusion, in this thesis, PTG is utilised

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to encompass all these terms because the term PTG highlights the severe and disruptive nature of the event which the person has encountered. Other conditions (e.g., positive changes related to lifespan development, positive stressful events, and minor negative life events) are not within the scope of this study of PTG.

Though “traumatic” forms part of the term “posttraumatic growth”, the definitions of traumatic events used in many of the studies into PTG and posttraumatic stress disorder do not correspond exactly. A traumatic stressor is defined as “any event that may cause or threaten death, serious injury, or sexual violence to an individual, a close family member, or a close friend” in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5, American Psychiatric Association [APA], 2013, p. 830). However, the definition of the word “traumatic” used in theories and studies of PTG (including this research) is less restrictive. It implies significant crises or highly stressful events (Tedeschi & Calhoun, 2004).

The phenomenon of PTG has been reported in people from various sociocultural backgrounds and geographical locations (Weiss & Berger, 2010), including NZ (Ellis & Gardner, 2018; Marshall et al., 2015). Shakespeare-Finch et al. (2013) conducted a qualitative study in an Australian sample, and the results supported and validated the concept proposed by Tedeschi and Calhoun (1996). However, the concept and measures of PTG were developed in the United States (Tedeschi & Calhoun, 1995, 1996), and people from different nations may define and report PTG in different ways. It is possible that a greater sense of self-reliance may be considered as PTG in an individualistic culture, and increased religious belief may be an indicator of PTG in more religious cultures. More qualitative studies may help to clarify conceptual differences in PTG across sociocultures.

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Sociocultural differences may be associated with the degrees and processes of PTG. For example, people from the United States are more likely to report higher levels of PTG than similar populations in Australia (Morris et al., 2005), Japan (Taku, 2013), or Spain (Steger et al., 2008). It is possible that aspects of American culture encourage people to report positive narratives from adversarial experiences (Tedeschi et al., 2018). However, many studies of PTG have been quantitative, and it is possible that some socioculture-specific aspects of PTG are not covered by quantitative questionnaires. Calhoun et al. (2010) argue that Westerners are more likely to explain their experiences based on their own actions, whereas Easterners are more likely to work on their way of understanding the world rather than themselves. However, more empirical evidence is required. These two present studies provide information about PTG in NZ.

Researchers have identified PTG in people who have experienced a range of stressful events, such as natural disasters, vehicle accidents, physical or sexual assaults, bereavements, medical diseases, and vicarious traumas (Cieslak et al., 2009; Kleim & Ehlers, 2009; Manning-Jones et al., 2017; Milam, 2004; Morris & Shakespeare-Finch, 2011; Shakespeare-Finch & Armstrong, 2010). These studies suggest that PTG is common across populations who experience various stressful events. This current research focuses on PTG in people living with HIV.

Posttraumatic Growth in People Living with HIV

HIV attacks the immune system of the human body, especially the cluster of differentiation 4 cells (Centers for Disease Control and Prevention [CDC], 2017). Following infection, despite treatment, the human body cannot completely clear itself of HIV. If not treated appropriately, HIV can rapidly weaken and damage the immune system. Consequently, people living with HIV may be more vulnerable to secondary infections, such as opportunistic infections or HIV-related cancers, which are indicators

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of AIDS and also the main cause of death of people living with HIV (CDC, 2017).

However, HIV can be managed with antiretroviral therapy (ART).

ART was approved in the United States in 1996. In the pre-ART era, many people progressed from an asymptomatic HIV infection to AIDS and died a few years following infection. ART dramatically prolongs the lives of people with HIV by suppressing HIV and protecting the immune system. ART also lowers the chance of people living with HIV infecting others, reduces their mortality rate, and improves their quality of life (CDC, 2017). In NZ, the 5-year survival rate was less than 10% in people diagnosed with HIV in 1990, whereas it was more than 70% in people diagnosed in 2000 (Dickson, 2015). Currently, HIV is increasingly recognised as a chronic medical condition (CDC, 2017).

Although ART has prolonged life and improved the quality of life among people with HIV, receiving a diagnosis of HIV is still highly stressful. Among people diagnosed with HIV, whose cause of death was determinable, 58% died of AIDS-defining conditions, and the mortality rate remained higher than that of the general population (Croxford et al., 2017). Moreover, in a study comparing women with HIV in the pre-ART ($n = 79$) and the ART era ($n = 79$), researchers found that ART extended life for many people with HIV, but it did not result in equivalent psychosocial improvements (Siegel & Schrimshaw, 2005). Many people reported that the diagnosis of HIV came as a shock for it came suddenly and unexpectedly (Baumgartner & David, 2009). Despite knowing that being diagnosed with HIV was no longer a death sentence, many people who received the diagnosis still reported a fear of death and a shortened life, regardless of whether they were diagnosed in the pre-ART or ART era, with an emotional reaction ranging from several days to weeks (Baumgartner, 2012). Moreover, several studies have found that receiving a diagnosis of HIV implies a life with multiple

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stressors, such as HIV-related symptoms, disease progression, fear of death, financial difficulties, stigma, emotional distress, and the side effects of treatment (Catz et al., 2002; Deacon, 2006; Milan et al., 2005; Schrimshaw et al., 2005; Updegraff et al., 2002; Venable et al., 2006).

Studies have found that people living with HIV are at a higher risk of having mental illnesses. For example, the prevalence of posttraumatic stress disorder in people living with HIV in the United States ranged from 10.4% to 74%, according to a paper which reviewed 33 related studies (Sherr et al., 2011). This was higher than the 3.5% incidence of posttraumatic stress disorder in the general population of the United States (APA, 2013). The prevalence of depression, anxiety, and other mental illnesses in people living with HIV were also higher than in the general population in Sweden (Jallow et al., 2017; Owe-Larsson et al., 2009). In a more local context, a study of the health and well-being of people living with HIV in NZ found that 21% of the 226 participants had been diagnosed with a mental health condition at some stage (Grierson et al., 2004). Therefore, even in the era of ART, receiving the diagnosis of HIV is still highly stressful.

There is growing evidence showing that people living with HIV may experience positive changes. Studies have found that between 74% and 83% of participants reported at least one positive change (Schwartzberg, 1993; Siegel & Schrimshaw, 2000), and between 59% and 63% of participants reported moderate or higher levels of PTG (Milam, 2004, 2006a, 2006b; Siegel et al., 2005). It seems that PTG in people living with HIV is common, but the processes and implications of PTG are not clear.

There were 2,885 adults and 14 children receiving ART in NZ at the end of June 2019, which accounted for about 85% of people with HIV in NZ at that time (AIDS Epidemiology Group, 2017, 2020). There are few, if any, published studies which have

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investigated PTG among people living with HIV in NZ. Therefore, this study will examine PTG among people with HIV in NZ and attempt to explore its potential contributors.

Importance of This Research

Theories provide general descriptions referring to the processes of PTG, but they lack consistently empirical support. PTG may have positive implications for other adaptive outcomes, such as life satisfaction and well-being, although consistent empirical findings are lacking (Algoe & Stanton, 2009). More studies will help to fill the theoretical gaps, clarify the inconsistencies in empirical findings, and provide the possibility of promoting PTG among people with HIV. These studies could make participants more aware of the PTG they have achieved, and this could help them develop a more positive self-perception. Additionally, it might help health professionals to integrate perspectives on PTG into their approach to people living with HIV. Health professionals need to acknowledge PTG themselves to help people with HIV realise the PTG that has occurred. About 80% of people living with HIV in NZ are registered with HIV specialists (AIDS Epidemiology Group, 2017). This represents a large proportion of people with HIV that could be helped by health professionals to be aware of and generate PTG, which could be complementary to current interventions.

Aims and Overview of the Following Chapters

This research project aims to find out the process of PTG in people living with HIV and if people living with HIV benefit from PTG mentally and physically. Studies 1 and 2 investigate these questions quantitatively and qualitatively, respectively. Chapters 2 and 3 illustrate the introduction, method, results, and discussion of each study, respectively. Chapter 4 provides a general discussion and conclusion of Studies 1 and 2.

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Chapter 2: Study 1

Cognitive Processing and Implications of Posttraumatic Growth Among People Living with HIV

Introduction

Study 1 has three main aims:

- Aim 1 is to explore the relationships between PTG and its potential contributors.
- Aim 2 is to investigate the relationship between PTG and PTSSs.
- Aim 3 is to examine the relationship between PTG and perceived health.

This study investigated the processes of PTG using theories by both Tedeschi et al. (Tedeschi & Calhoun, 1995, 2004; Tedeschi et al., 2018) and Schaefer and Moos (1992). Theories of PTG should explain the processes of both positive and negative outcomes of a life crisis (Joseph & Linley, 2005). Although Tedeschi and Calhoun (2004) provided a comprehensive description of PTG, they only focused on the positive outcomes. In contrast, Schaefer and Moos (1992) interpreted PTG within the stress and coping framework, which included negative as well as positive outcomes. Several factors expected to be related to PTG and PTSSs have been extracted from these two theories and are outlined below.

First, a highly stressful event may interrupt an individual's preexisting world assumptions. It is assumed that people have their own ways of interpreting events, which are built on each individual's experiences and called the "assumptive world" (Parkes, 1971). This includes "everything we know or think we know", provides us with a general sense of meaning and purpose, and guides our behaviour and thoughts (Parkes, 1971, p. 103). Some of these basic assumptions may include benevolence (i.e., the world is good and safe), meaningfulness (i.e., the world is meaningful, and events

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make sense), and self-worth (i.e., we are capable and moral people) (Janoff-Bulman, 1992). However, a highly stressful event may reveal discrepancies between new trauma-related information and previous assumptions (Park, 2010; Tedeschi & Calhoun, 2004). For example, individuals diagnosed with a severe illness might never have thought that this could happen to them, and so the disease might interrupt their plans. The more an event is appraised as central to a person's life, acts as a watershed and divides one's life into "before" and "after", the more it may initiate cognitive processing and develop into PTG (Tedeschi & Calhoun, 1995).

Second, cognitive processing, or cognitive coping, plays a crucial role in the processes of PTG (Schaefer & Moos, 1992; Tedeschi & Calhoun, 2004; Tedeschi et al., 2018). After encountering a highly stressful event, people need to process and resolve the discrepancies between new event-related information and previous assumptions, and PTG is one product of this process (Tedeschi & Calhoun, 1995, 2004). Similarly, Schaefer and Moos (1992) also suggest that more active coping, especially cognitive, will promote PTG.

Third, individual differences in sociodemographic factors (e.g., age, gender, socioeconomic status, education), social support, and personal characteristics (e.g., locus of control, sense of coherence, optimism, hardiness, openness to experience, and prior crisis experience) influence cognitive processing (Schaefer & Moos, 1992; Tedeschi & Calhoun, 1995, 2004; Tedeschi et al., 2018). In addition, the processes of PTG are interactive and reciprocal. Hence, the factors mentioned above may impact on and also be impacted by PTG (Schaefer & Moos, 1992; Tedeschi & Calhoun, 2004).

It seems that both theories suggest that demographics, rumination and other coping strategies, personal characteristics, and social support play important roles in the processes of PTG. However, these two theories only provide a general framework to

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understand PTG and lack details or consistent empirical support. It is not clear whether or how these factors impact PTG. Thus, this study examined the relationships between these factors and PTG.

The part that follows illustrates the identifications of PTG-related factors, reviews the studies that examined these relationships, and proposes hypotheses. Many of the studies that were referenced in this study were in people with HIV or early-stage breast cancer as studies of PTG in people living with HIV were limited. Breast cancer (especially the early stage) used to be a life-threatening disease and has been increasingly considered a chronic medical condition, which was similar to what occurred with HIV (American Cancer Society, 2016). The literature search was extended to the general population when necessary.

Demographics and Posttraumatic Growth

The demographics of interest in this study were gender, age, and time since diagnosis. Helgeson et al. (2006) reviewed 87 cross-sectional studies of PTG among people who experienced various stressful events and found that gender and age were significantly correlated with PTG, although effect sizes were small, whereas marital status, socioeconomic status, and the amount of time since the event were not related. However, Tedeschi and Calhoun (2004) suggested that people needed time to process event-related information, and so time since diagnosis might contribute to PTG.

Gender. Women with HIV reported higher levels of PTG than men (Kamen et al., 2016; Milam, 2004), in studies conducted with 334 (87 women) and 835 (108 women) participants in the United States, respectively. One possibility was that women were more likely to appraise an event as central to their identity (Berntsen & Rubin, 2006) and to ruminate about it (Nolen-Hoeksema, 2004; Olf et al., 2007), thereby giving rise to more PTG. However, similar findings were not reflected in the study by

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Rzeszutek et al. (2016) who investigated PTG among 250 Polish participants of which 44 were women. They found that women with HIV reported higher levels than men of PTG in the domain of spiritual change, but the differences in total scores of PTG between men and women were nonsignificant. This inconsistent finding could be the result of the smaller sample of women and different cultural backgrounds of participants. In the present study, any gender difference in PTG was examined and controlled for, if necessary.

Age and Time Since Diagnosis. Younger adults might be more open to learning and change, and thus current age was predicted to be positively associated with PTG (Tedeschi & Calhoun, 2004). Among a range of studies which examined this relationship in people living with HIV, researchers found nonsignificant (Rzeszutek et al., 2017; Yu et al., 2017), negative (Milam, 2004), and positive (Luszczynska et al., 2007) relationships. These inconsistencies might have been due to the confusion of “current age” with “age at diagnosis”. Because current age and age at diagnosis were correlated, especially when data were collected soon after diagnosis, most researchers reported current age rather than age at diagnosis. Few studies examined the relationship between age at diagnosis and PTG in people living with HIV. Two studies found negative associations between them in people living with breast cancer (Andysz et al., 2015; Koutrouli et al., 2016). Therefore, in terms of relationship to PTG, the age at diagnosis might be a better indicator than current age, and so was examined in this study.

Studies have had mixed findings when investigating the relationship between time since diagnosis and PTG. Some studies on women with breast cancer found longer time since diagnosis was associated with greater PTG (Cordova et al., 2001). Similar findings were reported by other studies 1 year on (Sears et al., 2003) and 2 years on

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(Danhauer et al., 2013). In a sample of people living with HIV, time since diagnosis was negatively associated with current PTG at baseline, but not with the PTG 1 year later (Milam, 2004). The negative association might be due to the confound of current age, as after controlling for the effect of current age, the relationship between time since diagnosis and PTG was not significant. Some studies failed to find significant relationships between time since diagnosis and PTG in people living with HIV (Nightingale, 2010; Siegel & Schrimshaw, 2007). A systematic explanation for the mixed findings (e.g., sample size, ranges of time since diagnosis and age, population or measurement tools) could not be identified. Hence, no hypothesis was made in the relationship between time since diagnosis and PTG.

Coping and Posttraumatic Growth

Event centrality, rumination, and coping play important roles in the processes of PTG. Event centrality was a unique predictor of PTG as it contributed to PTG significantly even after controlling for the effects of core beliefs challenged, rumination and presence of meaning (Groleau et al., 2012). Rumination and coping were the essential elements in Tedeschi and Calhoun's (2004) PTG theory and the personal growth model (Schaefer & Moos, 1992), respectively. Many empirical studies found these to be crucial in the processes of PTG as reviewed in the part that follows.

Therefore, these three factors were included in this study.

Event Centrality. It is difficult to directly examine whether or to what extent an event shattered an individual's assumptive world. Some studies used the Core Belief Inventory (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010) to examine disruptions of one's assumptive world. However, the items in this inventory were more likely to measure cognitive processing than event centrality. For example, "because of the event, I seriously examined the degree to which I believe things that happened to people are

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fair” (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010, p. 21). This issue was also noticed by Park and George (2013). Some studies used the criteria for defining a traumatic event as set out in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV, American Psychiatric Association, 1994) to evaluate whether an event was challenging enough to shatter ones’ assumptive world, although the word “traumatic” in PTG means highly stressful rather than its definition in the DSM-IV. However, there was no correlational relationship found between the criteria for defining the traumatic event and PTG in a sample of 112 people living with HIV (Nightingale et al., 2010). Thus, instead of examining whether the diagnosis of HIV was traumatic or whether the individual’s assumptive world was shattered, the present study focused on the subjective stressfulness of the event, more specifically, event centrality.

Event centrality refers to the degree to which an event becomes central to a person’s life story and identity (Berntsen & Rubin, 2006). Higher event centrality means that event-related information is different from people’s preexisting assumptions and challenging enough to cause changes in one’s identity. The level of disparity between new trauma-related information and the individuals’ values, beliefs, and goals predicts the level of PTG (Tedeschi & Calhoun, 1995, 2004). Therefore, this study examined event centrality as a contributing factor to PTG.

The positive association between event centrality and PTG has been confirmed empirically. Studies identified this positive association among people with cancer (Abernathy, 2009) and undergraduates who had experienced traumatic events (Groleau et al., 2012; Lancaster et al., 2013; Schuettler & Boals, 2011; Wamser-Nanney et al., 2018). Also, as a unique predictor, event centrality contributed to PTG significantly after controlling for the effect of other important predictors, such as core beliefs challenged, rumination, and presence of meaning (Groleau et al., 2012). However, one

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study failed to find a significant relationship between event centrality and PTG in women who were physically or sexually abused (Barton et al., 2013). This nonsignificant finding might have been due to the limited sample size ($N = 53$), gender, and the relatively high and narrow range of event centrality levels. The average level of event centrality of these abused women ($M = 3.84$, $SD = .96$) was about 1 SD higher than that of the undergraduate students ($M = 2.83$, $SD = 1.10$) in Barton et al.'s (2013) research. Though most studies found positive relationships between event centrality and PTG, many of the participants were undergraduates, and the mechanism behind these relationships was not clear. This study investigated the relationship between event centrality and PTG in people living with HIV and attempted to find out this mechanism.

Rumination. Rumination is defined as repetitive conscious thoughts and is a primary function of the cognitive system, including both automatic and controlled processes (Martin & Tesser, 1989). Rumination in this study refers to the cognitive processing provoked by a specific stressful event, which is different from the stable tendency for habitual ruminative coping (Cann et al., 2011). Rumination that occurs soon after the event can be automatic and intrusive and include recurrent, negative, and unwanted thoughts (Tedeschi & Calhoun, 2004). This intrusive rumination could be a normal response to life crises indicating automatic cognitive processing activity in relation to the crisis (Horowitz, 1986). Later, more deliberate rumination may take place, which is repetitive and intentional thinking about the event (Martin & Tesser, 1996; Tedeschi & Calhoun, 2004). People may integrate the new event-related information and find new goals through rumination.

This study included deliberate rumination as a hypothesised correlate of PTG. Deliberate rumination aims at understanding and problem solving and is a key contributing factor to PTG (Calhoun & Tedeschi, 2006; Cann et al., 2011; Tedeschi &

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Calhoun, 2004). On the other hand, intrusive rumination overlaps with PTSSs and may be related more strongly to distress than to PTG (Morris & Shakespeare-Finch, 2011). A study of PTG in a sample of 112 people living with HIV found that deliberate rumination in the previous 3 months was positively associated with PTG, whereas deliberate rumination in the first 3 months after diagnosis was not (Nightingale, 2010). Recalling initial deliberate rumination referring to an event that happened years ago could increase recall bias. Therefore, only recent deliberate rumination was examined in this study.

Several studies have consistently supported the essential role of deliberate rumination on PTG. In one study by Nightingale et al. (2010), more recent deliberate rumination was associated with higher levels of PTG in people living with HIV. Similarly, positive cancer-related rumination (Chan et al., 2011), instrumental (Soo & Sherman, 2015), and reflective rumination (Koutrouli et al., 2016) were associated with higher levels of PTG in women with breast cancer. Although described in different terms, they all referred to an intentional cognitive effort to understand what happened. These studies consistently supported the essential role of deliberate rumination on PTG. However, the model proposed by Tedeschi and Calhoun (2004) overly relied on rumination and did not explain the role of other coping strategies in the processes of PTG. Accordingly, few empirical studies have examined whether deliberate rumination and other coping strategies worked in parallel or sequentially.

Coping. Coping is defined as constantly changing efforts to manage specific external and internal demands that are appraised as exceeding a person's resources, and it involves both cognitive and behavioural processes (Lazarus & Folkman, 1984). Coping is generally aimed at addressing demands either by active approaches to problem solving or by managing emotional distress (Lazarus & Folkman, 1984). Some

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studies examined relationships between secondary categories of coping (i.e., active and avoidance coping, or adaptive and maladaptive coping) and PTG (Bellizzi & Blank, 2006; Danhauer et al., 2013; Kroemeke et al., 2017). Coping mechanisms have primarily been separated into active coping and avoidance coping. This typology was based on Billings and Moos' (1981) approach and combined their active-cognitive and active-behavioural coping as one category, which was active coping.

Active coping refers to people's cognitive efforts in managing their appraisal of stressful events and behavioural attempts to deal with the stressful event and its related effects (Billings & Moos, 1981). According to this concept, active coping may include strategies such as problem solving, planning, positive reappraisal, refocusing, positive sensemaking, meaning making, engaging with religious or spiritual beliefs, help seeking, and acceptance. On the other hand, avoidance coping refers to attempts to avoid confronting a stressful event or using other ways to reduce distress such as eating and smoking (Billings & Moos, 1981). Thus, it might include strategies like avoidance, denial, self-blame, isolation, negative sensemaking, catastrophising, substance use, and other-blame. Active coping is known to be associated with better adjustment outcomes; avoidance coping is known to be associated with maladaptive outcomes (Lazarus & Folkman, 1984). In a meta-analytic study, Moskowitz et al. (2009) reviewed 63 studies of people living with HIV and found that active coping was associated with better physical and psychological well-being, whereas avoidance (i.e., behavioural disengagement) was associated with poorer outcomes.

Active coping might be positively associated with PTG. Researchers found that more positive reappraisal was associated with higher levels of PTG in a sample of 264 people living with HIV (Carrico et al., 2006). Similarly, Siegel et al. (2005) found this positive association in 138 women with HIV. These two cross-sectional studies were

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carried out about 7 years postdiagnosis, and only examined one active strategy (positive reappraisal) and positive outcomes (PTG), which might have caused positive bias.

However, Rzeszutek et al. (2017) did not find a significant relationship between positive reevaluation and PTG in people living with HIV when controlling for current resilience, previous resilience, and previous PTG. The effect of reevaluation might have overlapped with the control variables, thus causing the nonsignificant result. The limited sample size ($N = 73$) in a complicated structural equation model could be another reason for this result.

The relationship between avoidance coping and PTG seems less clear.

Researchers examined various cognitive-emotional coping strategies and PTG in a sample of 104 men who were diagnosed with HIV about 10 years ago in the Netherlands (Kraaij et al., 2008). They found that active or positive cognitive coping strategies (e.g., positive refocusing, refocus on planning, positive reappraisal, and putting into perspective) were associated with greater PTG, whereas blaming others was negatively associated with PTG. Other avoidance or negative cognitive coping (i.e., self-blame, rumination, and catastrophizing) and acceptance were not significantly correlated with PTG.

Bellizzi and Blank (2006) found that adaptive coping was positively associated with PTG, whereas maladaptive coping was not significantly associated with PTG in a sample of 224 women with breast cancer with an average time since diagnosis of 3.5 years. Similar findings were also reported in other cross-sectional studies (Kroemeke et al., 2017; Svetina & Nastran, 2012), as well as in a longitudinal study of women with breast cancer, which examined coping strategies at baseline (average time since diagnosis = 4.37 months) and PTG at baseline and 1.5 years later (Danahauer et al., 2013).

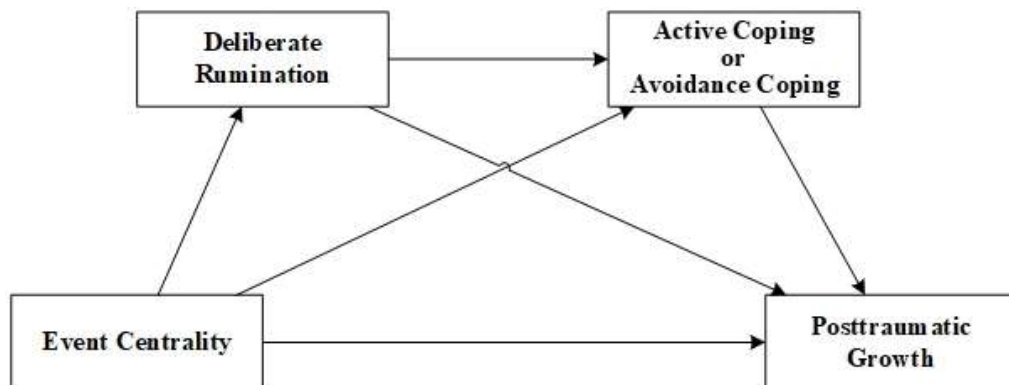
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From the abovementioned studies, active coping strategies are more likely to be positively associated with PTG, whereas avoidance coping strategies do not present clear relationships with PTG. It is uncertain whether the inconsistent relationships were due to the population, time since diagnosis or other factors. This study will examine the role of active and avoidance coping in the processes of PTG and clarify their relationships with deliberate rumination.

Hypothetical Model. Empirical studies have found associations between event centrality, deliberate rumination, some coping strategies and PTG as reviewed above. However, the relationships between these factors are rarely examined. In this study, a serial mediation model (Figure 1) is proposed to explain the relationships between event centrality, deliberate rumination, active and avoidance coping, and PTG.

Figure 1

Deliberate Rumination and Active and Avoidance Coping as Serial Mediators in the Relationship Between Event Centrality and Posttraumatic Growth



A mediator is a variable that accounts for the relationship between an independent variable and a dependent variable (Baron & Kenny, 1986). This study used the most common criteria for mediation testing. First, variations in levels of the independent variable significantly accounted for variations in the potential mediator. Second, variations in the mediator significantly accounted for variations in the

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dependent variable. Finally, when controlling for the effects of the independent variable and the mediator, the previously significant relationship between the independent variable and dependent variable reduced or became nonsignificant (Baron & Kenny, 1986). Serial mediation means mediators operate in a serial and causal chain with specified directions (Hayes, 2013).

Deliberate rumination might be a mediator in the relationship between event centrality and PTG. As outlined above, deliberate rumination is positively associated with PTG empirically, and positive relationships between event centrality and deliberate rumination are also reported (Groleau et al., 2012; Lancaster et al., 2015). Events which are central to identity and beliefs might be more likely to be remembered and to initiate rumination in response to external and internal cues (Berntsen & Rubin, 2006; Martin & Tesser, 1996). Furthermore, intrusive and deliberate rumination has been found to mediate the relationship between event centrality and PTG (Lancaster et al., 2015). Thus, the relationship between event centrality and PTG is hypothesised to be mediated by deliberate rumination in this study.

Coping can also be a mediator in the relationship between event centrality and PTG. Coping is known as a mediator between the appraisal of demands as stressful and outcomes such as well-being or distress (Lazarus & Folkman, 1984). Event centrality indicates that a situation is appraised as being both important and stressful. Stressful appraisals are associated with active and avoidance coping. Active coping is more likely to be associated with well-being outcomes, including growth, while avoidance is more likely to be associated with distress (Rinaldis et al., 2012). Stressful appraisals are associated with PTG through mediation by the coping strategies of seeking social support, venting, disengagement, restraint, religious coping, suppression, acceptance, and positive reinterpretation (Park & Fenster, 2004). Therefore, in the current study,

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active and avoidance coping strategies are hypothesised to mediate the relationship between event centrality and PTG.

Deliberate rumination and coping are examined as serial mediators between event centrality and PTG. Although deliberate rumination is a form of coping, it has not been as well examined as other coping strategies. It reflects attempts to process and adjust to new and disturbing information that has arisen from a highly stressful experience and can help generate alternative coping strategies (Martin et al., 2004). Thus, this study proposes a serial mediation model in which deliberate rumination and coping (active and avoidance) sequentially mediate the relationship between event centrality and PTG. Accordingly, the hypotheses are:

Hypothesis 1a: Deliberate rumination and active coping will sequentially mediate the relationship between event centrality and PTG.

Hypothesis 2a: Deliberate rumination and avoidance coping will sequentially mediate the relationship between event centrality and PTG.

Personal Characteristics and Posttraumatic Growth

The role of personal characteristics in the processes of PTG is not clear. Theories suggest that personal characteristics influence the process of rumination or cognitive appraisal and coping (Schaefer & Moos, 1992; Tedeschi & Calhoun, 1995, 2004). However, empirical studies have not found consistent evidence of whether or how they impact PTG. This study examines sense of coherence and optimism, as research has shown that these characteristics may contribute to PTG and optimal health status (Aspinwall et al., 2001; Aspinwall & Tedeschi, 2010; Eriksson & Lindström, 2006).

Sense of Coherence. Sense of coherence is defined as:

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A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement. (Antonovsky, 1987, p. 19)

Sense of coherence is one of the “salutary factors”, which means “factors which are negentropic, actively promote health, rather than just being low on risk factors” (Antonovsky, 1996, p. 14). Individuals with higher sense of coherence are more likely to search for meaning, view events as understandable, and to work to master stressful situations (Antonovsky, 1987). Thus, they are more likely to experience PTG. However, only a few studies have investigated the relationship between sense of coherence and PTG, and these have reported inconsistent results as detailed below.

A study of psychological therapists found a negative correlation between sense of coherence and PTG (Brockhouse et al., 2011). It seemed that people with high sense of coherence tended to see the world as comprehensible, manageable, and meaningful, and were less likely to appraise an event as stressful (Antonovsky, 1987; Eriksson & Lindström, 2007; Pallant & Lae, 2002), so reporting less PTG. It may be that vicarious events were not central to therapists' lives and their identities and left less room for PTG.

Another study of a sample of psychological therapists failed to find significant associations between sense of coherence and PTG (Linley et al., 2005). Levels of sense of coherence in this and the abovementioned therapist samples were similar ($p > .05$), but the average level of PTG in Brockhouse et al.'s (2011) sample was lower than that

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in Linley et al.'s (2005) study ($p = .02$). No other differences were found in demographics (age, education background or culture).

In another study, the comprehensibility and meaningfulness facets of sense of coherence were related to higher levels of PTG in adults whose ages ranged from 65 years to 97 years (López et al., 2015). The average level of PTG was higher than in the samples of therapists (Brockhouse et al., 2011; Linley et al., 2005), but the sense of coherence total score in the sample of older adults was unavailable. In addition, different educational and occupational backgrounds, and the different nature of the encountered events for therapists and older adults (vicarious events vs. a specific life event) made the inconsistent findings difficult to explain.

Moderation means the relationship between an independent variable and a dependent variable is conditional, as the relationship magnitude or direction changes with changes in a third variable (Baron & Kenny, 1986). A moderation effect can be determined if the interaction of the independent variable and the third variable (the moderator) is significantly related to the dependent variable. This study used this approach to concept and analysis moderation.

Sense of coherence did not moderate the relationship between vicarious exposure to trauma and PTG (Brockhouse et al., 2011). Vicarious exposure was measured by several objective indexes, such as duration of therapy career, hours per week with clients, the frequency of vicarious exposure to trauma over the previous month, and exposure to clients who could be classified as suffering from posttraumatic stress disorder. As mentioned earlier, events with higher centrality were more likely to initiate cognitive processing, which led to PTG. Hence, event centrality could be a better predictor than the objective indexes.

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PTG might be a function of the interaction between subjective stressfulness and sense of coherence. People who reported higher stressful appraisals and more adaptive coping strategies perceived higher levels of PTG when they had a higher sense of manageability and social resources (Armeli et al., 2001). However, the sense of manageability was situational and measured with few items in Armeli et al.'s (2001) study (e.g., "At that time I felt I had the ability to handle it"), whereas the manageability aspect of sense of coherence is more of a general orientation (Antonovsky, 1987). Vicarious exposure to trauma might be less central for therapists, which partly explains why the relationship between sense of coherence and PTG was negative or nonsignificant in this group. However, when the level of event centrality was relatively high, relationships between sense of coherence and PTG might be positive, as in the findings for the sample of older people (López et al., 2015). In other words, sense of coherence might moderate the relationship between event centrality and PTG. This leads to the next hypothesis below:

Hypothesis 3a: Sense of coherence will moderate the relationship between event centrality and PTG.

Optimism. Dispositional optimism is a personality trait that reflects generalised positive outcome expectancies (Scheier & Carver, 1985). It represents the tendency to expect positive outcomes, even in the face of obstacles. People with higher levels of optimism are more likely to derive a sense of PTG in the aftermath of stressful events when compared to people with lower levels of optimism (Tennen & Affleck, 1998). Therefore, optimism is expected to be positively associated with PTG.

More concrete evidence has not been found empirically. Milam (2004) found that optimism at baseline was positively associated with PTG at baseline and 1.57 years later in a sample of 434 people living with HIV. However, in another study of PTG in

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189 women with HIV, optimism was not significantly associated with positive changes (Updegraff et al., 2002). The positive changes in this study were measured with six open interview questions instead of a valid scale, which could be a reason for the nonsignificant result.

Studies of PTG in women with breast cancer also found either a positive or nonsignificant relationship between optimism and PTG. In a sample of 189 women with breast cancer, participants with higher levels of optimism reported greater PTG (Urcuyo et al., 2005). In contrast, another study found that optimism at baseline did not predict PTG at 12 months later in women with breast cancer (Sears et al., 2003). However, the nonsignificant result in Sears et al.'s (2003) study might be due to the small sample size ($n = 60$).

The inconsistent findings may be due to the different scales used to measure optimism. Optimism was measured with the Life Orientation Test-Revised (LOT-R, Scheier et al., 1994) in studies conducted by Milam (2004) and Urcuyo et al. (2005), which found positive associations between optimism and PTG. On the other hand, optimism was measured with the Life Orientation Test (LOT, Scheier & Carver, 1985) in studies undertaken by Updegraff et al. (2002) and Sears et al. (2003), which found nonsignificant results. However, this explanation was not supported as researchers found optimism measured with LOT-R was not significantly associated with PTG in women with breast cancer (Bellizzi & Blank, 2006; Bellizzi et al., 2010).

There might be other factors that moderate the relationship between optimism and PTG. Prati and Pietrantonio (2009) noted such a possibility. Their meta-analytic study reviewed 27 studies and examined the moderator role of gender, age, time since diagnosis, and measures of optimism in the relationship between optimism and PTG, but found that none of these moderated such a relationship (Prati & Pietrantonio, 2009).

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Though the events that were reported by participants in these 27 studies varied, it was unclear if the type of event impacted the results.

It remains possible that optimism, like sense of coherence, may act as a moderator of the relationship between event centrality and PTG. This possibility has been underinvestigated, and it will be examined in this study through the following hypothesis:

Hypothesis 4a: Optimism will moderate the relationship between event centrality and PTG.

Social Support and Posttraumatic Growth

Social support refers to the structures and functions of social relationships, and the resources (psychological and material) that individuals gain from their social network, which might enhance their mental and physical health (Cohen & Syme, 1985; Kaniasty et al., 2020; Rodriguez & Cohen, 1998). Social support is considered likely to relate to PTG by facilitating cognitive processing or coping, as well as by offering new perspectives and providing practical help (Schaefer & Moos, 1992; Tedeschi & Calhoun, 1995, 2004).

Social support is multifaceted and has been defined and measured in different ways, such as by function (emotional comfort, informational support, and tangible support) and by structure or resource (e.g., family and partner/spouse, friends and coworkers, and professionals) according to Kaniasty et al. (2020). However, the existence and number of family or friends do not always correlate with the level of perceived availability of support (Sherbourne & Stewart, 1991), because support networks might be unavailable when individuals need help. Therefore, this study emphasises the functional aspect of social support.

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Social support has several types of functions: emotional support (caring, love, and empathy), instrumental support (provision of goods or services), informational support (guidance or feedback), and appraisal support (information relevant to self-evaluation) (House et al., 1985; Kaniasty et al., 2020). In general, studies of PTG among people with serious medical conditions measure three types of social support: unspecific or combined support, emotional support, and instrumental support (Barskova & Oesterreich, 2009).

Studies have found either a positive or nonsignificant relationship between combined social support and PTG. Littlewood et al. (2008) found social support was positively associated with PTG in a sample of 221 people living with HIV (44% female), while Updegraff et al. (2002) reported that this relationship was not significant in a sample of 189 HIV-positive women with low socioeconomic resources. Both studies were cross-sectional, and it was not clear whether gender or socioeconomic status caused these inconsistent results. Similarly, Stanton et al. (2006) reviewed studies of PTG in people with cancer, published from 1960 to 2004, and found either positive or nonsignificant associations between social support and PTG. However, most studies reviewed by Stanton et al. (2006) were cross-sectional and had sample sizes of fewer than 100.

It is possible that emotional support may contribute to PTG, whereas instrumental support may not, which may mean that in combination they obscure the relationships. Soo and Sherman (2015) found that emotional support was positively associated with most subscales of the Posttraumatic Growth Inventory (PTGI, Tedeschi & Calhoun, 1996) in women with breast cancer, but instrument support was not, except for a weak correlation with the subscale of relating to others. Similarly, Barskova and Oesterreich (2009) found that emotional support showed a positive association with

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PTG in cross-sectional studies, whereas instrumental support and combined support showed inconsistent results. It seems that relationships between these different types of support and PTG are different. Therefore, this study investigates the relationships between PTG and both emotional and instrumental support.

Another possibility is that social support moderates the relationship between event centrality and PTG. According to Lepore (2001), a supportive social environment may facilitate cognitive processing by enabling people to discuss trauma-related thoughts and feelings and increasing a sense of control, whereas an unsupportive social environment may impede cognitive processing and give rise to maladaptive outcomes. The moderator role of social support in the process of PTG has yet to be confirmed empirically. One study found that people with higher levels of threat or loss appraisal and more adaptive coping strategies reported greater PTG when more personal and social resources were available (Armeli et al., 2001), although social support was measured with only two items (“When it occurred I had help available” and “At that time I had someone to turn to”). The moderator role of social support has rarely been examined in people directly experiencing highly stressful events. Therefore, in this study, instrumental and emotional social support will be examined as potential moderators of the relationship between event centrality and PTG, reflected in the following hypotheses:

Hypothesis 5a: Instrumental support will moderate the relationship between event centrality and PTG.

Hypothesis 6a: Emotional support will moderate the relationship between event centrality and PTG.

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Posttraumatic Growth and Posttraumatic Stress Symptoms

PTSSs are measured and included in this study to clarify their mixed relationships with PTG and to balance the potential positive bias of using only PTG measurements (Calhoun & Tedeschi, 2006). PTSSs include several clusters of symptoms: intrusion, avoidance, and hyper-arousal, according to the DSM-IV (American Psychiatric Association, 1994). One more cluster of symptoms—negative cognitions and mood—is added in the DSM-5 (American Psychiatric Association, 2013). This study follows the DSM-IV, as it is widely used in stress-related studies, which allows for comparisons with other studies.

The relationship between PTG and PTSSs has been controversial (Shakespeare-Finch & Lurie-Beck, 2014). PTG and PTSS were considered to be positive and negative outcomes in the aftermath of a highly stressful event. It seems logical to consider PTG and PTSSs as the opposite ends of a continuum or to expect PTG to reduce the levels of PTSSs. If so, PTG and PTSSs should be negatively associated with each other. Yu et al. (2017) found a negative relationship between PTSSs and PTG in a sample of newly diagnosed young men with HIV, with an average time since diagnosis of 4.5 months. However, some studies found an opposite relationship between them. PTG was positively associated with PTSSs in a sample of 114 people living with HIV (Nightingale et al., 2010). This positive relationship was also found in a sample of 161 women with early-stage breast cancer (Morrill et al., 2008). The average time since diagnosis of these two studies was 10.9 years ($SD = 5.7$) and 4.0 years ($SD = 3.1$), respectively. It was not clear if time since diagnosis moderated this relationship.

Moreover, a number of studies have not found significant relationships between PTSSs and PTG in women with breast cancer (Chan et al., 2011; Cordova et al., 2001; Cordova et al., 2007; Ho et al., 2011; Koutrouli et al., 2016). The average time since

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diagnosis of these studies ranged from 9.4 months to 5 years. However, some of them were in relatively small samples, $N = 65$ and $N = 70$, respectively (Cordova et al., 2001; Cordova et al., 2007), which could be another reason for the nonsignificant results.

Therefore, the perspective that higher levels of PTG predict fewer PTSSs is not supported empirically. Most of the above studies are cross-sectional, and few convincing explanations for the inconsistent findings referring to the relationship between PTSSs and PTG have been put forth. It seems that the relationship between PTG and PTSSs changes from negative or nonsignificant to positive in people with longer time since diagnosis, according to the studies reviewed above. It is possible that time since diagnosis moderates the relationship between PTG and PTSSs, and this study examines this possibility through the following hypothesis:

Hypothesis 7a: Time since diagnosis will moderate the relationship between PTG and PTSSs.

PTG and PTSSs have been suggested to be different outcomes of the same coping process and influenced by personal characteristics and social support (Joseph & Linley, 2005; Schaefer & Moos, 1992), and their relationship can vary under different conditions. Joseph and Linley (2005) further claim that the theories of PTG should be able to explain PTSSs. Few studies have examined PTG and PTSSs together to find the shared and unique pathways leading to them in people living with HIV. This study examines PTSSs with the hypothetical coping model of PTG and investigates the moderator role of sense of coherence, optimism, and social support in the relationship between event centrality and PTSSs. The rationale for examining PTSSs as a parallel construct of PTG is illustrated as follows.

As previously mentioned, higher levels of event centrality are associated with more deliberate rumination and coping strategies, and together, these factors influence

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the results of stress management: PTG and PTSSs. The serial coping model of PTG proposed earlier will also be used to examine the process of PTSSs. The positive relationship between the independent variable (event centrality) and serial mediators (deliberate rumination and coping) has been illustrated when explaining the serial coping model of PTG. Empirical studies have also supported a positive relationship between event centrality and PTSSs. For example, event centrality acts like a double-edged sword, positively predicting both PTG and PTSSs (Boals & Schuettler, 2011; Boals et al., 2010; Groleau et al., 2012; Schuettler & Boals, 2011), though these studies were conducted with undergraduate students. If the relationships between the mediators (deliberate rumination and coping) and the dependent variable (PTSSs) are also significant, deliberate rumination and coping could be examined as serial mediators in the relationship between event centrality and PTSSs.

Deliberate rumination and coping might mediate the relationship between event centrality and PTSSs. Struggling to cognitively deal with traumatic events is likely to be painful (Tedeschi & Calhoun, 2004). Thus, more deliberate rumination might be associated with higher levels of PTSSs. One study confirmed this association in a sample of undergraduates (Lancaster et al., 2015). Similarly, the relationship between coping and PTSSs has been explained in the transactional model of stress and coping (Lazarus & Folkman, 1984) and demonstrated in evidence-based studies. For example, more active coping and less avoidance coping were found to be associated with less maladaptive outcomes in people living with HIV, including PTSSs (Moskowitz et al., 2009). Therefore, this study explores the role of deliberate rumination and coping strategies as serial mediators in the relationship between event centrality and PTSSs, as detailed in the hypotheses below:

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Hypothesis 1b: Deliberate rumination and active coping will sequentially mediate the relationship between event centrality and PTSSs.

Hypothesis 2b: Deliberate rumination and avoidance coping will sequentially mediate the relationship between event centrality and PTSSs.

Sense of coherence and optimism are known as protective factors that reduce the negative impact of stressful events (Antonovsky, 1987; Aspinwall et al., 2001). A few studies have investigated their moderator roles in stress adaptation. A cross-sectional study found that sense of coherence moderated the relationships between exposure to bullying and levels of PTSSs in a sample of 221 people who had experienced workplace bullying (Nielsen et al., 2008). It seemed that the protective effects of sense of coherence declined when people were exposed to higher levels of bullying. Optimism was found to buffer the effect of combat exposure on PTSSs in a sample of 2,439 soldiers 12 months after they returned from combat (Thomas et al., 2011). These findings suggest that sense of coherence and optimism might moderate the relationship between objective stressfulness (i.e., stressful event exposure) and PTSSs. Thus, this study investigates their buffer roles in the relationship between subjective stressfulness and PTSSs to clarify their roles in the formation of PTG and PTSSs, with the two hypotheses that follow:

Hypothesis 3b: Sense of coherence will moderate the relationship between event centrality and PTSSs.

Hypothesis 4b: Optimism will moderate the relationship between event centrality and PTSSs.

Social support might buffer the impact of event centrality on PTSSs. The stress-buffering effect of social support on the negative impact of life crises has been recognised over the last few decades (Cohen & Wills, 1985; Thoits, 1982). The

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buffering role of social support has also been found in empirical studies. For example, perceived support was found to weaken the relationship between exposure severity and PTSSs in people who experienced a tsunami (Arnberg et al., 2012). Social integration (measured by contacts with friends or relatives over the preceding year) was found to buffer the negative impact of exposure to a terrorist attack on PTSSs in a sample of police officers (Schwarzer et al., 2014).

Moreover, in a sample of people with HIV who experienced Hurricane Katrina, perceived social support in the 2 months post-Katrina moderated the relationship between trauma exposure and PTSSs 18 to 24 months post-Katrina (McGuire et al., 2018). However, Kornblith et al. (2001) failed to find the buffering effect of social support on the mental health of women with breast cancer. These studies did not differentiate between the effects of the different types of social support. Therefore, it was not clear if different types of social support influenced PTSSs in the same way. This study examines the moderator roles of emotional and instrumental support in the relationship between event centrality and PTSSs, by testing the following hypotheses:

Hypothesis 5b: Instrumental support will moderate the relationship between event centrality and PTSSs.

Hypothesis 6b: Emotional support will moderate the relationship between event centrality and PTSSs.

Posttraumatic Growth and Perceived Health Status

Perceived health is a subjective indicator of overall health status. It can include information that is difficult to capture clinically, such as the severity of chronic illness, physiological, psychological and social function. Considering this, and the need to maintain the confidentiality of participants, perceived health status is used to measure

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the health implications of PTG instead of medical indices. In this study, perceived health is subdivided into two general aspects: mental and physical.

Empirical studies have found inconsistent results referring to the relationship between PTG and perceived physical health. One of the few studies (if not the only study) examined this relationship in a sample of 104 people living with HIV within 5 years of their receiving diagnosis, and found higher PTG was associated with better perceived physical health (Luszczynska et al., 2007). However, PTG was not significantly associated with current perceived physical health in another study (Bellizzi et al., 2010; Silva et al., 2012) or with perceived physical health 3 or 9 months later (Tomich & Helgeson, 2004) in women with breast cancer. The mean time since diagnosis of these three studies were about 3.5 years, 6 months, and 4 months respectively, which were shorter than the time since diagnosis in the above study in people living with HIV (Luszczynska et al., 2007). It is not clear whether the inconsistent results were due to the populations or time since diagnosis. More studies would help to clarify this relationship.

Researchers have found positive relationships between PTG and perceived mental health. For example, higher levels of PTG were associated with better perceived mental health in a sample of 138 women with HIV with a mean time since diagnosis of 7 years (Siegel & Schrimshaw, 2007). Similar findings were also found in women with breast cancer. For example, Silva et al. (2012) examined PTG in women who were diagnosed with breast cancer (stage 0 and stage IA) within 1 year and found that PTG was associated with better mental health. Another study also found PTG was positively correlated with mental health in women who had been diagnosed with breast cancer (92.8% were stage I and II) from 5 to 15 years previously and who were disease-free at the time. However, in a cross-sectional study of women who had been diagnosed with

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early or advanced breast cancer approximately 3.5 years previously, PTG was negatively associated with perceived mental health (Bellizzi et al., 2010). These findings suggest that PTG is more likely to be associated with better perceived mental health in people living with HIV longer.

According to the studies reviewed above, it is possible that time since diagnosis moderates the relationships between PTG and perceived physical and mental health. This possibility has been supported by a meta-analytic review of 38 studies of PTG in people with HIV or cancers (Sawyer et al., 2010). The promoting effect of PTG on perceived health was enhanced by longer time since diagnosis (Sawyer et al., 2010). This study examines the moderator role of time since diagnosis in relationships between PTG and perceived physical and mental health as it is rarely examined empirically. Hypotheses 7b and 7c below examines this issue.

Hypotheses 7b and 7c: Time since diagnosis will moderate the relationship between PTG and b. perceived mental health, and c. perceived physical health.

Summary of Aims and Hypotheses

In conclusion, this study has three aims. Aim 1 is to investigate the processes of PTG by examining the relationships between PTG and its potential correlates. In addition, the relationship between event centrality and PTG is hypothesised to be sequentially mediated by deliberate rumination and coping strategies (Hypotheses 1a and 2a), and moderated by individual differences (sense of coherence and optimism, as described in Hypotheses 3a and 4a) and social support (emotional and instrumental support, as described in Hypotheses 5a and 6a). Aim 2 is to clarify the relationship between PTG and PTSSs. PTSSs are hypothesised to be developed with the same process of PTG (Hypotheses 1b, 2b, 3b, 4b, 5b, and 6b), and their relationship is hypothesised to be moderated by time since diagnosis (Hypothesis 7a). Aim 3 is to

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examine the relationships between PTG and perceived mental and physical health (Hypotheses 7b and 7c).

Accordingly, the hypotheses are:

Hypothesis 1: Deliberate rumination and active coping will sequentially mediate the relationship between event centrality and a. PTG and b. PTSSs.

Hypothesis 2: Deliberate rumination and avoidance coping will sequentially mediate the relationship between event centrality and a. PTG and b. PTSSs.

Hypothesis 3: Sense of coherence will moderate the relationship between event centrality and a. PTG and b. PTSSs.

Hypothesis 4: Optimism will moderate the relationship between event centrality and a. PTG and b. PTSSs.

Hypothesis 5: Instrumental support will moderate the relationship between event centrality and a. PTG and b. PTSSs.

Hypothesis 6: Emotional support will moderate the relationship between event centrality and a. PTG and b. PTSSs.

Hypothesis 7: Time since diagnosis will moderate the relationship between PTG and a. PTSSs, b. perceived mental health, and c. perceived physical health.

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Method

Research Design

This was a cross-sectional quantitative design study. Data were mainly collected by means of an online survey, with a paper-and-pen version available on request. This approach was chosen for its flexibility in reaching a range of participants and because the secure online site could protect participants' confidentiality.

Ethical Considerations

Some ethical issues need to be considered. First, people living with HIV are considered a vulnerable population, as many of them may live with stigma, fear of contagion and disease progression, emotional distress, financial difficulties and other stressors (Deacon, 2006; Grierson et al., 2004; Updegraff et al., 2002). The study was therefore anonymous, and information that could identify participants was not collected. Participation was voluntary. After the recruitment was completed, participants were able to enter a draw for 1 of 10 \$100 supermarket gift cards. Participants needed to provide contact information (either e-mail or mail address) only if they wanted to receive a summary of research findings or to enter the draw, but contact details could not be linked in any way to survey data. The study was approved by the Massey University Human Ethics Committee: Southern A-15/09 (Appendix A).

Procedure

A recruitment advertisement (Appendix B) was distributed on the electronic members' boards or Facebook pages or both of the New Zealand AIDS Foundation, Body Positive, Positive Women, and the Maori, Indigenous & South Pacific HIV/AIDS Foundation. Posters (Appendix C) about the study were also put up in the three centres of the New Zealand AIDS Foundation and in Body Positive's office.

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The online survey was hosted on the secure Qualtrics survey system. It included the information sheet (Appendix D), consent form, and questionnaires. The paper-and-pen survey included the information sheet and questionnaires. Completion and return of the survey implied consent to participate in the study. The questionnaires took about 20 minutes to complete, and the recruitment period lasted for 8 months (from 10th March 2016 to 11th November 2016).

The draw was made, and gift cards were posted after the recruitment. At the end of the study, copies of summaries of the research findings (Appendix E) were sent to the above organisations that helped with the recruitment, and to the participants who had requested this.

Participants

Participants were eligible to take part if they met the following criteria: (a) were 18 years of age or above, (b) had been diagnosed with HIV/AIDS, and (c) lived in NZ. Eighty-seven participants completed the survey (84 online and three paper copies). Due to the recruitment method, the response rate was unknown as it was not possible to assess how many people received information about the survey.

Participants with more than 40% missing data ($n = 7$) or who had received their diagnoses before 18 years of age ($n = 3$) were excluded. People who receive a diagnosis of HIV at a young age (below 18 years old) may have different cognitive processing and coping strategies compared to adults, although few studies have examined PTG in this population. The three cases who received their diagnoses before the age of 18 years were too few for separate analyses and so were not included. Therefore, the final sample size was 77.

The mean age of participants was 46.62 years ($SD = 11.19$), the mean time since diagnosis was 11.41 years ($SD = 8.19$), and the mean age of receiving the diagnosis of

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HIV infection was 35.21 years ($SD = 10.01$). The majority of participants ($n = 60$, 78%) were diagnosed with HIV during the ART era (with time since diagnosis of fewer than 20 years in 2016), 14 (18%) were diagnosed with HIV in the pre-ART era (with time since diagnosis of more than 21 years in 2016), and three of them (4%) did not provide this information.

The sample was predominantly male ($n = 58$, 75.3%), with 16 (20.8%) female and two (2.6%) transgender participants. One (1.3%) participant did not provide this information. Due to the small number of transgender participants, this group was not analysed separately.

Measures

There were some general rules when considering the measures used in this study. First, the measures needed to assess the constructs described in the Introduction of this chapter. For example, this study differentiated the influence of instrumental and emotional support on PTG and the associations between PTG and perceived mental and physical health, and the measures had to differentiate these subdomains of these constructs. Second, the measures needed to be valid and reliable, widely used in empirical studies, and to allow for further comparisons. Third, the measures had to be suitable for use in populations with medical conditions. Fourth, the measures had to be relatively short, as long surveys might have reduced the response rate and response quality (Allen, 2016). Permissions to use the measures were obtained before recruitment.

Demographics. Participants were asked to provide information on their gender (men = 1, women = 2, and transgender = 3), current age (years and months), and the time since they had received a positive HIV test result (years and months). The time-related variables also included age at diagnosis which was calculated by subtracting

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time since diagnosis from the current age. Participants who received their diagnosis of HIV before 1996 were considered diagnosed in the pre-ART era, and participants who received their diagnosis in and after 1996 were considered diagnosed in the ART era.

Event Centrality. In this study, the Centrality of Event Scale 7-item version (CES-7; Berntsen & Rubin, 2006) was used to measure appraisals of the centrality of a prior stressful event during the previous 4 weeks. The CES-7 evaluates the extent to which an event impacts a person's beliefs or becomes a central component of personal identity. Items include "I feel that this event has become part of my identity" and "this event has become a reference point for the way I understand myself and the world." Responses are on a 5-point Likert-type scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The higher the scores, the greater the event impacts on one's identity. The Cronbach's alpha for this scale ranges from .87 to .92 (Berntsen & Rubin, 2006). In this study, the event referred to receiving the diagnosis of HIV, and the scale score was computed as the means of related items. The Cronbach's alpha for this study was .86.

Deliberate Rumination. Deliberate rumination on the HIV diagnosis during the previous 4 weeks was measured with the Event-Related Rumination Inventory (ERRI; Cann et al., 2011). The ERRI consists of 20 items that assess two styles of rumination: intrusive (10 items) and deliberate (10 items) rumination. In this study, only items for deliberate rumination were assessed. Items include "I thought about whether I could find meaning from my experience". Participants were asked to rate the degree to which the thoughts occurred during the previous 4 weeks on a 4-point scale ranging from 0 (*not at all*) to 3 (*often*). Higher scores show more active cognitive processing effort. The Cronbach's alpha has been reported as ranging from .88 to .90 (Cann et al., 2011; Triplett et al., 2012). In this study, the scale score was computed as the means of all items, and the Cronbach's alpha was .86.

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Coping Strategies. These were measured with the Brief Coping Orientations of Problems Experienced scale (Brief COPE; Carver, 1997). The Brief COPE is a 28-item self-report questionnaire modified from the original COPE (Carver et al., 1989). Each item is rated on a 4-point Likert-type scale, ranging from 1 (*I haven't been doing this at all*) to 4 (*I have been doing this a lot*). In this study, the Brief COPE was used to examine the coping strategies used for dealing with HIV infection in the previous 4 weeks.

Principal component analysis (PCA) with oblique rotation (direct oblimin) was applied to examine the Brief COPE. Factor loadings less than .40 were suppressed. Seven components had eigenvalues over Kaiser's criterion of 1 (Kaiser, 1960), and the scree plot inflexions showed a 2 or 4-factor construct. Fixing the number of factors to extract at 4, the PCA was rerun, and cross-loading items were deleted. The first factor comprised 10 items, including items for active coping, planning, positive reframing, acceptance and seeking instrumental support. The second factor comprised 10 items, including items for self-distraction, denial, substance use, behavioural disengagement, venting, and self-blame. The third factor only included three items and was deleted. The fourth only included two items (humour) and was also excluded. Therefore, two factors were retained: active coping and avoidance coping, which cumulatively explained 46.23% of the total variance. Studies of PTG in women with breast cancer also reported a similar secondary categorisation of the Brief COPE (Bellizzi & Blank, 2006; Danhauer et al., 2013). In this study, the scale scores were computed as the means of items, and the Cronbach's alphas were .92 and .87 for active coping and avoidance coping, respectively.

Sense of Coherence. Sense of coherence was measured with the Orientation to Life Questionnaire 13-item scale (OLQ-13; Antonovsky, 1993). The OLQ-13 is a 13-

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item 7-point Likert-type scale, ranging from 1 to 7, including five reversed items.

Sample items include “do you have very mixed-up feelings and ideas” and “do you have the feeling that you don’t really care about what goes on around you?” (reversed).

A higher score indicates viewing the world as more coherent. The OLQ-13 is recommended as a unidimensional scale because it reflects a general orientation. The Cronbach’s alpha has been reported to range from .74 to .91 (Antonovsky, 1993). In this study, the scale score was computed as the mean of all items, and the Cronbach’s alpha was .86.

Optimism. The level of optimism was measured with the Revised Life Orientation Test (LOT-R; Scheier et al., 1994). The LOT-R is a 10-item 5-point Likert-type scale, ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). It includes three positively worded items, three negatively worded items (which are reverse scored) and four unscored fillers. Positively worded items include “In uncertain times, I usually expect the best”, while negatively worded items include “If something can go wrong for me, it will.” The filler items were not included in this survey. Higher scores indicate higher optimism and the Cronbach’s α is .78 (Scheier et al., 1994).

The PCA with oblique rotation (direct oblimin) supported two factors which explained 68.41% of the variance. The first factor (optimism) comprised the three positively worded items, and the second factor (pessimism) comprised the three negatively worded items. To avoid the impact of pessimism on further analyses, only the optimism factor was utilized. In this study, the scale score was computed as the mean of the three positively worded items, and the Cronbach’s alpha was .69.

Social Support. In the present study, the modified Medical Outcomes Study Social Support Survey (mMOS-SSS; Moser et al., 2012) was used to assess the social support of people living with HIV within the previous 4 weeks. The mMOS-SSS is a

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shorter version of the original MOS-SSS (Sherbourne & Stewart, 1991), examining the frequency and availability of social support when it is needed. It comprises eight items with Likert-type scales ranging from 1 (*none of the time*) to 5 (*all of the time*). Items include “Someone to help you if you were confined to bed” and “Someone to have a good time with.” Higher scores indicate more social support. It consists of two factors, instrumental and emotional social support, with four items each. The Cronbach’s alpha has been reported ranging from .88 to .93 among different populations (Moser et al., 2012). In this study, the scale scores were computed as the means of items, and the Cronbach’s alphas for the instrumental and emotional support subscales were .93 and .88, respectively.

Posttraumatic Growth. The Posttraumatic Growth Inventory-Short Form (PTGI-SF; Cann, Calhoun, Tedeschi, Taku, et al., 2010) was used to assess PTG. The PTGI-SF is a 10-item 6-point Likert-type scale, ranging from 0 (*no change*) to 5 (*very great degree of change*), selected from the original PTGI (Tedeschi & Calhoun, 1996). Sample items include “I changed my priorities about what is important in life” and “I am able to do better things with my life.” Higher scores indicate greater growth. When a single total score is desired, the PTGI-SF is a reliable substitute for the longer PTGI (Cann, Calhoun, Tedeschi, Taku, et al., 2010). In this study, the scale score was computed as the mean of all items, and the Cronbach’s alpha of the present sample was .90.

Posttraumatic Stress Symptoms. PTSSs caused by receiving the positive result of an HIV test were measured with the Impact of Event Scale-Revised (IES-R, Weiss & Marmar, 1997). The IES-R contains 22 items that measure subjective distress after experiencing a potentially stressful event. Respondents were asked to rate each item on a 5-point Likert-type scale ranging from 0 (*not at all*) to 4 (*extremely*) according to the

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frequency of symptoms they experienced in the preceding 7 days (Weiss & Marmar, 1997). IES-R is a revised version of the original IES (Horowitz et al., 1979), assessing three clusters of PTSSs according to the DSM-IV (APA, 1994): intrusion, avoidance, and hyper-arousal. Although one more cluster of symptoms—negative cognitions and mood—is added in the DSM-5 (APA, 2013), in this study the measure of PTSSs followed the DSM-IV. This is because the DSM-IV is widely used in stress-related studies, and allows for further comparisons with other studies. In this study, the event referred to receiving the diagnosis of HIV, and the IES-R was used to measure PTSSs in the 4 weeks prior to the survey. In this study, the total score was computed as the means of all items, and the Cronbach's alpha was .96.

Perceived Health Status. The Medical Outcomes Study General Health Survey 8 Item Short-Form (MOS SF-8) was used to measure the perceived health status. The MOS SF-8 (Ware, 2001) is a shortened version of the MOS SF-36. Each item represents one of eight domains of the MOS SF-36, and the alternate forms reliability for the eight scales range from 0.70 to 0.88, estimated by correlating them with their respective MOS SF-36 counterparts (Ware, 2001). In this study, the MOS SF-8 was used to assess the general physical and mental health, using the Physical Component Summary (PCS) and Mental Component Summary (MCS). Questions were answered in relation to the previous 4 weeks. Higher levels of PCS and MCS meant more negative perceptions of physical and mental health, respectively.

The PCA with oblique rotation (direct oblimin) supported a two-factor structure, accounting for 71.19% of the variance. Item 5 was deleted as it cross-loaded. A four-item PCS and a three-item MCS factor were obtained. The scale scores were computed as the means of related items. Items for PCS included “overall, how would you rate your health over the past 4 weeks?”, and the Cronbach's alpha was .90. Items of MCS

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included “over the past 4 weeks, how much have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)?”, and the Cronbach’s alpha was .90.

Statistical Analyses

It was intended that the hypothetical model in this study would be analysed with structural equation modelling using AMOS (Version 23.0). According to Boomsma (1985), a sample size of more than 100 is suitable for structural equation modelling. Little (2013) also recommended the sample size of around 100 for structural equation modelling as being appropriate for many social and behavioural studies. However, because the sample size of this study was only 77, data analyses were conducted with IBM SPSS Statistics for Windows (Version 24.0) with the PROCESS macro (Version 2.16.3, Hayes, 2013). The level of significance was set to $p < .05$. Before the analyses, data were screened for missing data, univariate and multivariate outliers, linearity, normality, and multicollinearity.

PCA was applied to scales where the factor structure had not previously been clearly established: the LOT-R, the Brief COPE and the MOS SF-8. The LOT-R comprises two constructs: optimism and pessimism (Herzberg et al., 2006). The Brief COPE comprises 14 subscales from which secondary subscales can be derived (Carver, 1997), and one item of MOS SF-8 was found cross-loaded on both PCS and MCS (Ware, 2001). Although the sample size of this study was only 77, when all communalities are above .60, relatively small samples (even less than 100) can be considered adequate (MacCallum et al., 1996). Furthermore, if four or more items on a factor load more than .60, the results of PCA are considered reliable (Guadagnoli & Velicer, 1988). Other scales in this study were constructed with established structures.

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The differences in levels of PTG and other continuous variables between this study and other studies were analysed with the summary independent-samples *t* test. The differences in levels of PTG and other continuous variables between women and men, or between participants who were diagnosed in the pre-ART and ART era were analysed with bootstrapped independent samples *t* tests.

Bivariate and partial correlations of continuous variables were assessed using Pearson's correlation. The results of these analyses were derived with 1,000 bootstrap estimates. Bootstrapping allows the calculation of effect sizes and hypothesis testing when distributions are unknown or not normally distributed and is recommended for small to moderate samples.

Moderation was examined with regression analyses. As potential moderators were continuous variables (sense of coherence, optimism, emotional and instrumental support, and time since diagnosis), moderation was tested with standardised predictors and moderator variables, and interaction terms were calculated by multiplying the standardised predictor and moderator. Unstandardised coefficients, 95% percentile bootstrap confidence intervals (CIs) and *p* values were derived with 1,000 bootstrap estimates.

Mediation was used to understand the ways an independent variable was related to a dependent variable (Baron & Kenny, 1986). Simple mediation was examined using the SPSS plug-in, PROCESS macro Model 4 (Version 2.16.3, Hayes, 2013). For example, when exploring whether event centrality mediated the relationship between age at diagnosis and PTG, age at diagnosis was the predictor, event centrality was the mediator, and PTG was the outcome variable. Serial mediations were examined using the PROCESS macro Model 6 (Hayes, 2013). Event centrality was the predictor, and

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PTG or PTSSs were the outcome variables. The serial mediation analyses examined deliberate rumination and coping strategies as serial mediators.

Baron and Kenny (1986) differentiate between partial and full mediation. However, this has limited practical meaning, as not all potential mediators are included in analyses (Hayes, 2013). Thus, this study will focus on the mediation or indirect effect itself and will not discuss whether the mediators partially or fully mediated the relationship between the independent variable and dependent variable.

Two widely recommended tests to calculate the 95% CIs in SPSS and PROCESS (Version 2.16.3) are the percentile bootstrap and the bias-corrected and accelerated bootstrap. The latter has stronger power but is more likely to elevate the Type I error, compared to the first (Fritz et al., 2012; Hayes & Scharkow, 2013). Therefore, the percentile bootstrap CI was chosen to control the inflation of the Type I error when applying PROCESS macro (Version 2.16.3, Hayes, 2013) as suggested by Hayes and Scharkow (2013). The unstandardised coefficients, 95% CIs, coefficients and *p* values were derived from the bootstrap distribution with 5,000 bootstrap estimates in simple and serial mediation analyses. An effect is considered significant if the CI does not include zero.

Results

Data analyses included descriptive statistics, bivariate analysis, hypotheses testing, and exploratory analyses. Prior to that, missing data, normality, outliers, linearity, normality, and multicollinearity were considered (Tabachnick & Fidell, 2007).

Data Screening

Missing data. Missing data in this study refers to item-level missingness which occurred when participants left some items blank intentionally or unintentionally (Newman, 2014). Missing value analysis showed that missing data were completely

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missing at random. The missing data on each item were less than 5%, below the level of concern of 10% (Dong & Peng, 2013). Given the limited sample size of this study, pairwise deletion was applied to deal with missing data (Field, 2013).

Outliers. Univariate outliers were examined for extreme values. Cases with standardized scores in excess of 3.29 are potential outliers (Tabachnick & Fidell, 2007). No univariate outliers were found. In addition, multivariate outlier analyses were performed using Mahalanobis distance when applying multivariate regression analyses. No multivariate outliers were identified (all $ps > .001$) (Tabachnick & Fidell, 2007).

Linearity. Scatterplots of values of the residuals against the values of the outcomes predicted by hypothetical models were created to test linearity (Field, 2013). The graphs supported the assumption of linearity.

Normality. Absolute values below 3.29 of the z -scores for skewness and kurtosis are considered to show an acceptable normal distribution (Field, 2013). Only PTSSs were found to be positively skewed ($z = 3.47$; Table 1). Robust procedures like bootstrapping are argued to be superior to data transformation when assumptions of linearity are met, but assumptions of normality are not (Field, 2013). Thus, bootstrapping rather than data transformation was applied.

Multicollinearity. Multicollinearity was not found. The correlation coefficients between continuous variables were below .90 (Table 2), and the variance inflation factor values of regression analyses were below 10 (Tabachnick & Fidell, 2007).

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Table 1*Description of Variables*

Measure	Mean (Mangelsdorf & Eid)	Range	Skewness (z score)	Kurtosis (z score)
Current age (years)	46.62 (11.19)	23.33–67.41	-.53	-1.39
TSD (years)	11.41 (8.19)	0.33–29.5	2.30	-1.22
Age at diagnosis (years)	35.21 (10.01)	21.58–62.75	2.68	.05
Sense of coherence	4.22 (1.03)	2.08–6.46	.43	-1.07
Optimism	2.55 (0.80)	.67–4.00	-1.12	-.86
Instrumental support	2.41 (1.34)	1–5	2.19	-1.54
Emotional support	3.08 (1.22)	1–5	-.44	-1.77
Event centrality	3.57 (.95)	1–5	-2.71	.14
Deliberate rumination	1.48 (.90)	0–3	-.74	-2.02
Active coping	2.38 (.83)	1–4	.22	-1.41
Avoidance coping	1.71 (.63)	1–3.4	3.26	-.05
PTG	2.69 (1.20)	0–5	-.78	-1.05
PTSSs	.98 (.88)	0–3.86	3.47	1.00
Perceived mental health	2.53 (1.16)	1–5	1.24	-2.16
Perceived physical health	2.15 (1.10)	1–4.75	2.73	-1.06

Note. TSD = time since diagnosis; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms.

Descriptive Statistics

The levels of PTG in this study ($N = 77$, $M = 2.69$, $SD = 1.20$) were similar to those found in the samples of people living with HIV in the United States ($N = 112$, $M = 2.91$, $SD = 1.36$; Nightingale, 2010) and the United Kingdom ($N = 38$, $M = 3.08$, $SD = 1.26$; Noone, 2015), both $ps > .05$. The levels of PTG in participants diagnosed in the pre-ART era ($M = 3.16$, $SD = .89$) were higher than in participants diagnosed in the ART era ($M = 2.57$, $SD = 1.28$): $t(72) = 1.63$, $p = .039$, 95% CI [.04, 1.14]. However, the differences in levels of PTSSs, perceived mental or physical health between them were not significant (all $ps > .05$).

The levels of PTSSs in this study ($N = 77$, $M = 1.05$, $SD = .88$) were lower than those found in a sample of people living with HIV in the United States (Nightingale, 2010). It should be noted that PTSSs were measured with the IES-R in this study but were measured with the IES in Nightingale's (2010) study. When only comparing the

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levels of the IES items (total score of intrusion and avoidance), the levels of PTSSs in Nightingale's (2010) study ($N = 112$, $M = 1.69$, $SD = 1.21$) were higher than in this study ($p < .001$).

There were no significant differences in levels of PTG, PTSSs, perceived mental and physical health between men and women (all $ps > .05$), so gender was not included as a control variable in the analyses.

Bivariate Correlations

As shown in Table 2, event centrality, deliberate rumination, active coping and avoidance coping were positively associated with one another. Higher levels of PTG and PTSSs were correlated with higher event centrality, more deliberate rumination, and more active coping. Higher levels of PTSSs were correlated with lower sense of coherence and optimism, but more avoidance coping, whereas higher levels of PTG were associated with higher optimism, but were not significantly correlated with sense of coherence or avoidance coping. PTG was not significantly correlated with perceived mental or physical health.

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Table 2
Correlation Analysis of Continuous Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age		.45**	.69**	.04	-.04	-.17	-.07	-.07	-.29*	-.24*	-.24*	-.19	-.12	-.03	.26*
2. Time since diagnosis			-.33**	-.12	-.24*	-.14	.04	.15	-.11	-.07	-.00	-.02	.22	.08	.22
3. Age at diagnosis				.14	.15	-.06	-.10	-.20	-.23	-.19	-.25*	-.19	-.30*	-.10	.10
4. Sense of coherence					.69**	.26*	.13	-.49**	-.23	-.09	-.64**	-.56**	.07	-.78**	-.47**
5. Optimism						.21	.14	-.30*	-.04	-.04	-.53**	-.43**	.23	-.63**	-.46**
6. Emotional support							.59**	-.07	.10	.22	-.08	-.02	.06	-.14	-.13
7. Instrumental support								.04	-.13	-.07	-.15	-.15	.01	-.16	-.16
8. Event centrality									.45**	.43**	.42**	.47**	.32**	.41**	.26*
9. Deliberate rumination										.76**	.40**	.58**	.41**	.27*	.25*
10. Active coping											.30**	.47**	.39**	.20	.22
11. Avoidance coping												.77**	-.05	.66**	.47**
12. PTSSs													.08	.64**	.42**
13. PTG														.02	.05
14. Perceived mental health															.63**
15. Perceived physical															

Note. $N_s = 72$ to 77. PTSSs = posttraumatic stress symptoms; PTG = posttraumatic growth. The correlation coefficients and p -value were based on 1000 bootstrap samples.

* $p < 0.05$; ** $p < 0.01$ (two-tailed).

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Hypotheses Testing

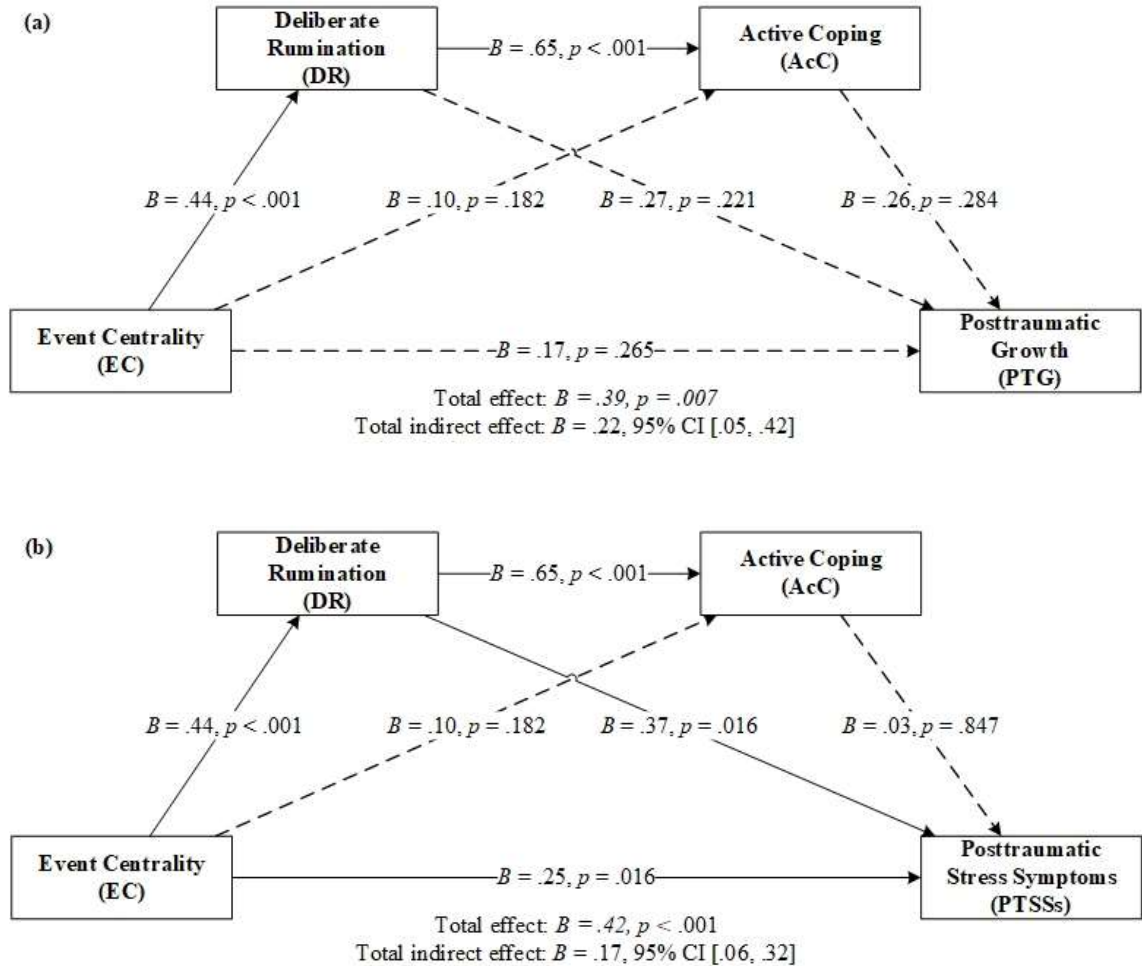
Aim 1 was to examine the processes of PTG. Hypotheses 1 to 6 examined the relationships between PTG or PTSS and their potential correlates, and the results were reported together for comparison.

Hypothesis 1 explored the mediator role of active coping in conjunction with deliberate rumination in the relationships between event centrality and PTG and PTSSs. Hypothesis 1a stated that deliberate rumination and active coping will sequentially mediate the relationship between event centrality and PTG. This was not supported (Figure 2 and Table 3). Although the direct effect of event centrality on PTG was not significant and the total indirect effect was significant, there were no significant mediators as all CIs for the indirect effects included zero. Hypothesis 1b stated that deliberate rumination and active coping will sequentially mediate the relationship between event centrality and PTSSs, and it was also not supported (Table 3). The direct effect of event centrality on PTSSs remained significant, and the total indirect effect was also significant, but only deliberate rumination acted as a mediator (Table 3).

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Figure 2

Deliberate Rumination and Active Coping as Serial Mediators in the Relationships Between Event Centrality and Posttraumatic Growth and Posttraumatic Stress Symptoms



Note. CI = confidence interval. Solid lines indicate significant paths, and dotted lines indicate insignificant paths. Results were based on 5000 bootstrap samples.

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Table 3

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Mediation of Deliberate Rumination and Active Coping on Posttraumatic Growth and Posttraumatic Stress Symptoms

Outcome	Predictor	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	<i>p</i>
1a. PTG						
	Direct					
	EC	.17	.15	1.12	[-.13, .48]	.265
	Indirect					
	DR	.12	.10		[-.09, .33]	
	DR and AcC	.07	.08		[-.08, .24]	
	AcC	.03	.04		[-.04, .11]	
	Total indirect effect	.22	.09		[.05, .42]	
	Total effect	.39	.14	2.80	[.11, .67]	.007
	$R^2 = .19, F(3, 73) = 5.89, p = .001$					
1b. PTSSs						
	Direct					
	EC	.25	.10	2.47	[.05, .45]	.016
	Indirect					
	DR	.16	.07		[.05, .30]	
	DR and AcC	.01	.05		[-.10, .12]	
	AcC	.003	.02		[-.04, .05]	
	Total indirect effect	.17	.07		[.06, .32]	
	Total effect	.42	.10	4.43	[.23, .61]	< .001
	$R^2 = .33, F(3, 73) = 12.09, p < .001$					

Note. $N = 77$. EC = event centrality; DR = deliberate rumination; AcC = active coping; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 5000 bootstrap samples.

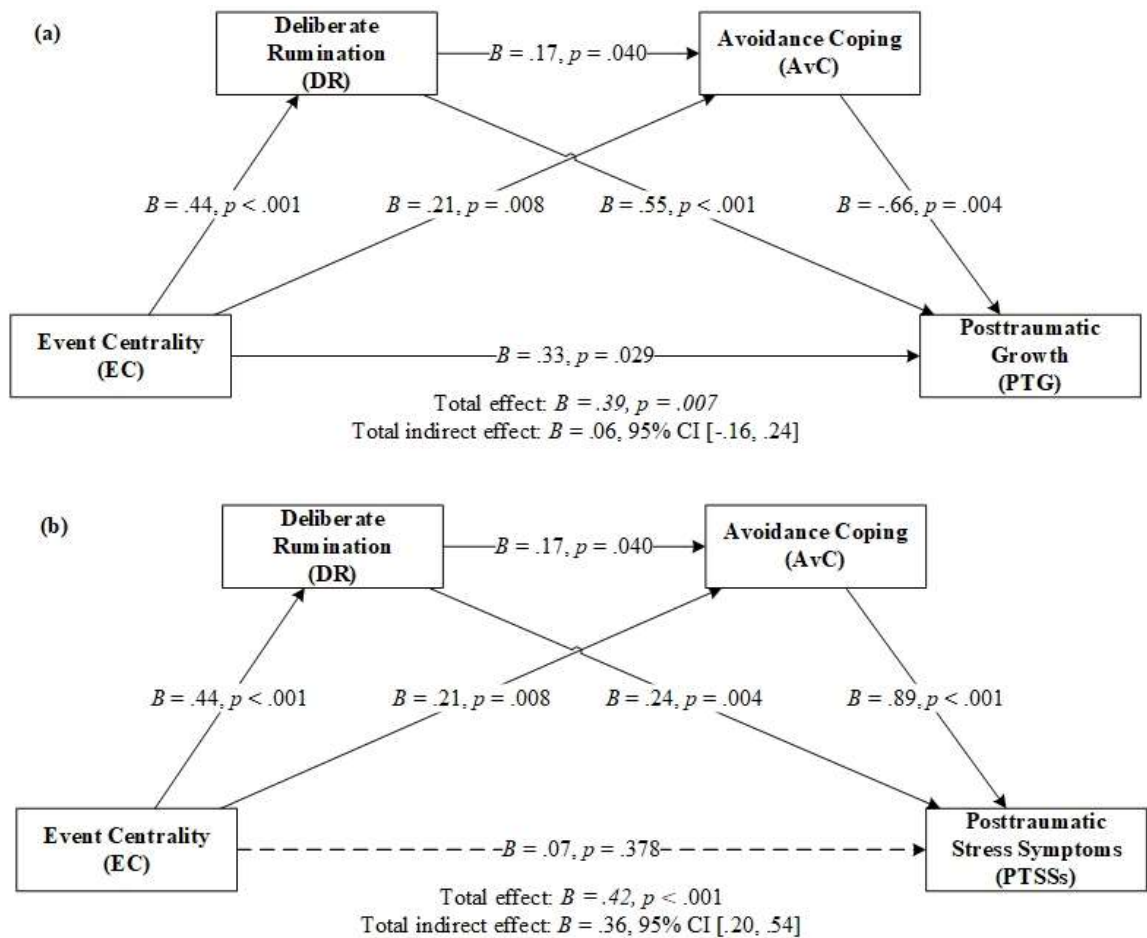
Hypothesis 2 explored the mediator role of avoidance coping in conjunction with deliberate rumination, in the relationships between event centrality and PTG and PTSSs. Hypothesis 2a, that deliberate rumination and avoidance coping will sequentially mediate the relationship between event centrality and PTG, was supported (Figure 3 and Table 4). The direct effect of event centrality on PTG remained significant, and all indirect effects were significant. However, the total indirect effect of event centrality on PTG was not significant due to inconsistent mediation (MacKinnon et al., 2007). Hypothesis 2b stated that deliberate rumination and avoidance coping will sequentially mediate the relationship between event centrality and PTSSs, and it was

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supported (Figure 3 and Table 4). The direct effect of event centrality on PTSSs became nonsignificant, and all indirect effects were significant.

Figure 3

Deliberate Rumination and Avoidance Coping as Serial Mediators in the Relationships Between Event Centrality and Posttraumatic Growth and Posttraumatic Stress Symptoms



Note. CI = confidence interval. Solid lines indicate significant paths, and dotted lines indicate insignificant paths. Results were based on 5000 bootstrap samples

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Table 4

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Mediation of Deliberate Rumination and Avoidance Coping on Posttraumatic Growth and Posttraumatic Stress Symptoms

Outcome	Predictor	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	<i>p</i>
2a. PTG						
	Direct					
	EC	.33	.15	2.22	[.03, .63]	.029
	Indirect					
	DR	.24	.08		[.09, .40]	
	DR and AvC	-.05	.03		[-.10, -.0004]	
	AvC	-.14	.08		[-.33, -.03]	
	Total indirect effect	.06	.10		[-.17, .24]	
	Total effect	.39	.14	2.80	[.11, .67]	.007
	$R^2 = .27, F(3, 73) = 9.11, p < .001$					
2b. PTSSs						
	Direct					
	EC	.07	.08	.89	[-.09, .22]	.378
	Indirect					
	DR	.10	.04		[.03, .19]	
	DR and AvC	.07	.04		[.0002, .15]	
	AvC	.19	.07		[.06, .34]	
	Total indirect effect	.36	.09		[.20, .54]	
	Total effect	.42	.10	4.43	[.23, .61]	< .001
	$R^2 = .64, F(3, 73) = 43.75, p < .001$					

Note. $N = 77$. EC = event centrality; DR = deliberate rumination; AvC = avoidance coping; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 5000 bootstrap samples.

Hypothesis 3 explored the moderator role of sense of coherence in the relationship between event centrality and PTG and PTSSs. Hypothesis 3a stated that sense of coherence will moderate the relationship between event centrality and PTG, and it was supported as the interaction between sense of coherence and event centrality was significant (Table 5). High levels of sense of coherence enhanced the relationship between event centrality and PTG (Figure 4). Hypothesis 3b stated that sense of coherence will moderate the relationship between event centrality and PTSSs, and it was not supported, as the interaction effect was not significant (Table 5). However, high levels of sense of coherence were directly associated with greater PTG and fewer PTSSs.

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Table 5

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Moderation by Sense of Coherence on Posttraumatic Growth and Posttraumatic Stress Symptoms

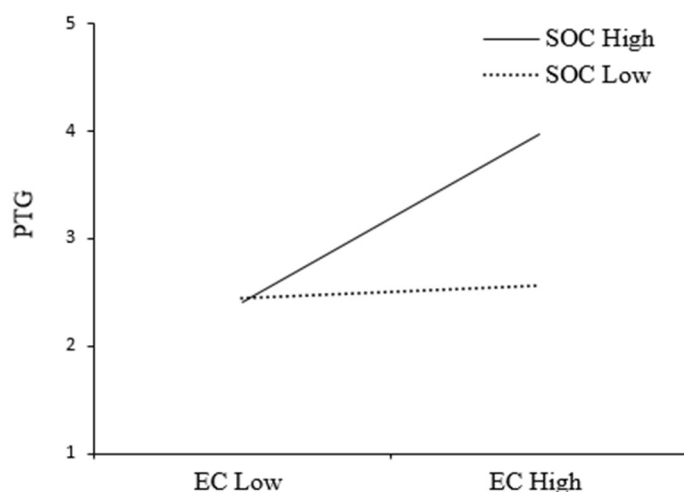
Outcome	Predictor	<i>B</i>	<i>SE</i>	95% CI	ΔR^2
3a. PTG	Step 1				.17**
	EC	.55**	.18	[.21, .94]	
	SOC	.38*	.15	[.06, .68]	
	Step 2				.10**
	EC \times SOC	.36**	.13	[.07, .58]	
	$R^2 = 0.28$; Adj. $R^2 = 0.25$; $F(3,73) = 9.21$, $p < .001$				
3b. PTSSs	Step 1				.35***
	EC	.22*	.09	[.04, .40]	
	SOC	-.37***	.09	[-.55, -.20]	
	Step 2				.01
	EC \times SOC	-.09	.07	[-.22, .05]	
	$R^2 = 0.36$; Adj. $R^2 = 0.33$; $F(3,73) = 13.71$, $p < .001$				

Note. $N = 77$. EC = event centrality; SOC = sense of coherence; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 1000 bootstrap samples.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Figure 4

Moderation by Sense of Coherence of the Relationship Between Event Centrality and Posttraumatic Growth



Note. SOC = sense of coherence; EC = event centrality; PTG = posttraumatic growth. Lines indicate regression of PTG on EC for high (1 *SD* above the mean) and low (1 *SD* below the mean) levels of SOC.

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Hypothesis 4 explored the moderator role of optimism in the relationships between event centrality and PTG and PTSSs. Hypothesis 4a predicted that optimism will moderate the relationship between event centrality and PTG, and this was supported (Table 6). High levels of optimism enhanced the relationship between event centrality and PTG (Figure 5). Hypothesis 4b was not supported. Although optimism did not moderate the relationship between event centrality and PTSSs (Hypothesis 4b), high levels of optimism were directly associated with greater PTG and fewer PTSSs.

Table 6

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Moderation by Optimism on Posttraumatic Growth and Posttraumatic Stress Symptoms

Outcome	Predictor	<i>B</i>	<i>SE</i>	95% CI	ΔR^2
4a. PTG	Step 1				.22***
	EC	.50**	.16	[.18, .81]	
	Optimism	.44***	.12	[.19, .66]	
	Step 2				.06*
	EC \times Optimism	.32*	.15	[-.004, .58]	
	$R^2 = 0.27$; Adj. $R^2 = 0.24$; $F(3,73) = 9.16$, $p < .001$				
4b. PTSSs	Step 1				.30***
	EC	.32***	.08	[.18, .48]	
	Optimism	-.28**	.09	[-.44, -.09]	
	Step 2				.02
	EC \times Optimism	-.15	.10	[-.35, .06]	
	$R^2 = .32$, Adj. $R^2 = .29$, $F(3,73) = 11.56$, $p < .001$				

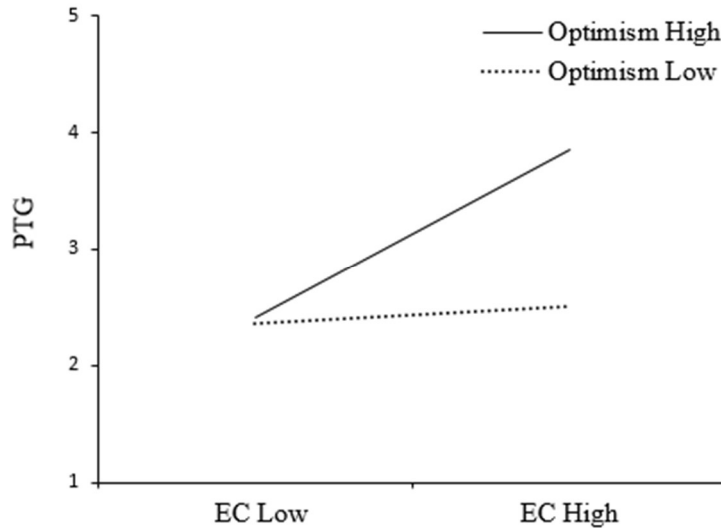
Note. $N = 77$. EC = event centrality; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 1000 bootstrap samples.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

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Figure 5

Moderation by Optimism of the Relationship Between Event Centrality and Posttraumatic Growth



Note. EC = event centrality; PTG = posttraumatic growth. Lines indicate regression of PTG on EC for high (1 *SD* above the mean) and low (1 *SD* below the mean) levels of optimism.

Hypothesis 5 explored the moderator role of instrumental support in the relationships between event centrality and PTG and PTSSs. Hypotheses 5a and b were not supported (Table 7). Instrumental support did not moderate the relationships between event centrality and PTG (Hypothesis 5a) or PTSSs (Hypothesis 5b). The direct effect of instrumental support on PTG was not significant. However, higher levels of instrumental support were directly associated with fewer PTSSs (Table 7).

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Table 7

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Moderation by Instrumental Support on Posttraumatic Growth and Posttraumatic Stress Symptoms

Outcome	Predictor	<i>B</i>	<i>SE</i>	95% CI	ΔR^2
5a. PTG	Step 1				.10*
	EC	.37*	.16	[.07, .68]	
	IS	-.02	.14	[-.28, .27]	
	Step 2				.05*
	EC \times IS	.23	.13	[-.07, .45]	
$R^2 = .14$, Adj. $R^2 = .11$, $F(3,73) = 4.04$, $p = .01$					
5b. PTSSs	Step 1				.24***
	EC	.41***	.09	[.25, .60]	
	IS	-.17*	.08	[-.33, -.005]	
	Step 2				.01
	EC \times IS	-.08	.07	[-.23, .05]	
$R^2 = .25$, Adj. $R^2 = .22$, $F(3,73) = 8.32$, $p < .001$					

Note. $N = 77$. EC = event centrality; IS = instrumental support; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 1000 bootstrap samples.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Hypothesis 6 explored the moderator role of emotional support in the relationships between event centrality and PTG and PTSSs. Hypothesis 6a stated that emotional support will moderate the relationship between event centrality and PTG, and this was supported as the interactive effect of emotional support and event centrality on PTG was significant (Table 8). High levels of emotional support enhanced the relationship between event centrality and PTG (Figure 6). Hypothesis 6b was not supported. Emotional support did not moderate the relationship between event centrality and PTSSs (Hypothesis 6b). In addition, the direct effect of emotional support on PTG or PTSSs was not significant.

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Table 8

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Moderation by Emotional Support on Posttraumatic Growth and Posttraumatic Stress Symptoms

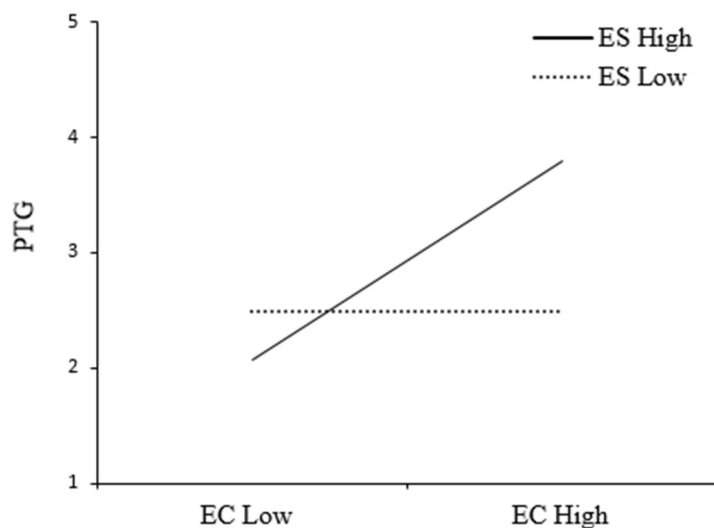
Outcome	Predictor	<i>B</i>	<i>SE</i>	95% CI	ΔR^2
6a. PTG	Step 1				.10*
	EC	.38*	.16	[.04, .69]	
	ES	.10	.15	[-.17, .41]	
	Step 2				.15***
	EC \times ES	.43***	.11	[.21, .65]	
$R^2 = .26$, Adj. $R^2 = .23$, $F(3,73) = 8.38$, $p < .001$					
6b. PTSSs	Step 1				.21***
	EC	.40***	.09	[.23, .60]	
	ES	-.02	.09	[-.19, .15]	
	Step 2				.00
	EC \times ES	.01	.09	[-.18, .18]	
$R^2 = .21$, Adj. $R^2 = .18$, $F(3,73) = 6.41$, $p < .001$					

Note. $N = 77$. EC = event centrality; ES = emotional support; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 1000 bootstrap samples.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Figure 6

Moderation by Emotional Support of the Relationship Between Event Centrality and Posttraumatic Growth



Note. ES = emotional support; EC = event centrality; PTG = posttraumatic growth. Lines indicate regression of PTG on EC for high (1 *SD* above the mean) and low (1 *SD* below the mean) levels of ES.

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The second aim of this study was to examine the relationship between PTG and PTSSs. Hypotheses 1 to 6 examined PTG and PTSSs as constructs that correlated to the same variables, and the results had been illustrated. Hypothesis 7a explored the moderator role of time since diagnosis in the relationships between PTG and PTSSs. However, Hypothesis 7a was not supported as the interactive effect between time since diagnosis and PTG on PTSSs was not significant (Table 9).

The third aim of this study was to examine the relationships between PTG and perceived mental and physical health. However, the results of the bivariate correlation (Table 2) showed that PTG was not significantly associated with perceived mental or physical health. Hypotheses 7b and 7c explored the moderator role of time since diagnosis in the relationships between PTG and perceived mental and physical health. Because current age was significantly correlated with both time since diagnosis and perceived physical health (Table 2), it was controlled for when examining Hypothesis 7c.

Hypotheses 7b was not supported as the interaction between time since diagnosis and PTG on perceived mental health was not significant (Table 9). The direct effect of PTG or time since diagnosis on perceived mental health was not significant. Hypothesis 7c was supported as the interaction between time since diagnosis and PTG on perceived physical health was significant (Table 9). The direction of the relationship between PTG and PCS was positive when time since diagnosis was shorter but negative for longer time since diagnosis (Figure 7). The direct effect of PTG or time since diagnosis on perceived physical health was not significant after controlling for the effect of current age (Table 9).

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Table 9

Results of Linear Regression Models Used to Examine the Direct Effect of Posttraumatic Growth and Moderation by Time Since Diagnosis on Posttraumatic Stress Symptoms and Perceived Mental and Physical Health

Outcome	Predictor	<i>B</i>	<i>SE</i>	95% CI	ΔR^2
7a. PTSSs					
	Step 1				.01
	PTG	.06	.11	[-.16, .28]	
	TSD	-.04	.13	[-.26, .24]	
	Step 2				.01
	PTG \times TSD	-.07	.17	[-.39, .26]	
	$R^2 = .01$, Adj. $R^2 = -.03$, $F(3,70) = .27$, $p = .848$				
7b. MCS					
	Step 1				.01
	PTG	-.003	.14	[-.30, .26]	
	TSD	.10	.16	[-.19, .41]	
	Step 2				.05
	PTG \times TSD	-.28	.15	[-.57, .03]	
	$R^2 = .06$, Adj. $R^2 = .02$, $F(3,68) = 1.40$, $p = .250$				
7c. PCS					
	Step 1				.07*
	Current age	.30*	.12	[.08, .54]	
	Step 2				.01
	PTG	.06	.14	[-.21, .33]	
	TSD	.12	.16	[-.24, .41]	
	Step 2				.06*
	PTG \times TSD	-.28*	.14	[-.56, -.02]	
	$R^2 = .14$, Adj. $R^2 = .09$, $F(4,67) = 2.66$, $p = .040$				

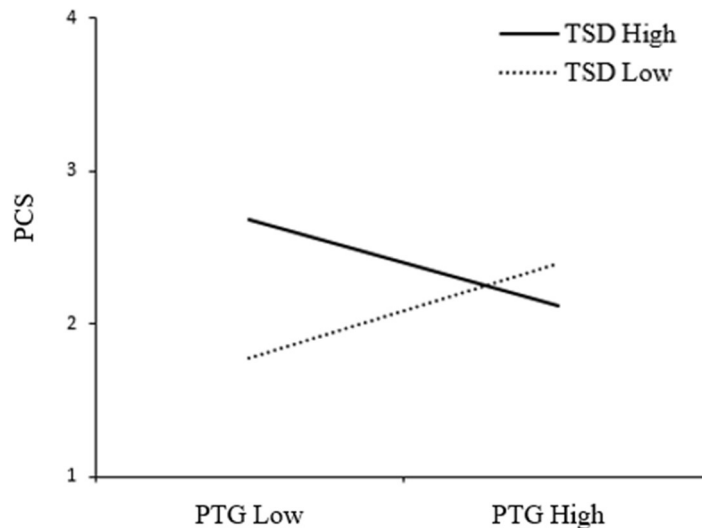
Note. $N = 74$. PTG = posttraumatic growth; TSD = time since diagnosis; PTSSs = posttraumatic stress symptoms; MCS = mental component summary; PCS = physical component summary; CI = confidence interval. Results were based on 1000 bootstrap samples.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

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Figure 7

Moderation by Time Since Diagnosis of the Relationship Between Posttraumatic Growth and Physical Component Summary of Perceived Health After Controlling for the Effect of Current Age



Note. TSD = time since diagnosis; PTG = posttraumatic growth; PCS = physical component summary. Lines indicate regression of PCS on PTG for high (1 *SD* above the mean) and low (1 *SD* below the mean) levels of TSD.

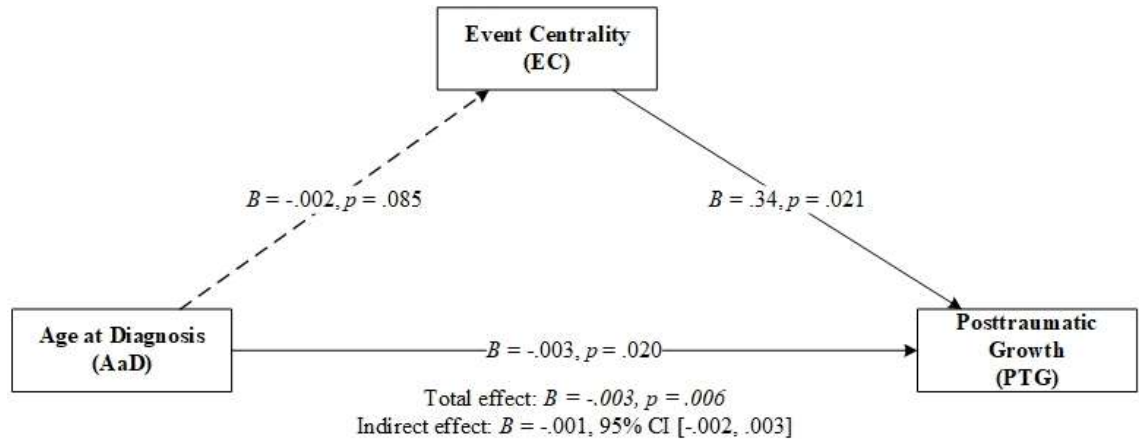
Exploratory Analyses

A higher level of PTG was correlated with a younger age of receiving the diagnosis (Table 2). A further analysis was applied to examine event centrality as the mediator between age at diagnosis and PTG. However, event centrality was not found to mediate this relationship. The direct effect of age at diagnosis was significant, whereas the indirect effect of age at diagnosis through event centrality was not (Table 10 and Figure 8).

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Figure 8

Event Centrality as a Mediator in the Relationship Between Age at Diagnosis and Posttraumatic Growth



Note. CI = confidence interval. Solid lines indicate significant paths, and dotted lines indicate insignificant paths. Results were based on 5000 bootstrap samples.

Table 10

Results of Linear Regression Models Used to Examine the Direct Effect of Age at Diagnosis and Mediation of Event Centrality on Posttraumatic Growth

Outcome	Predictor	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	<i>p</i>
PTG	Direct					
	Age at diagnosis	-.003	.001	-2.38	[-.005, -.0004]	.020
	Indirect					
	EC	-.001	.001		[-.002, .0003]	
	Total effect	-.003	.001	-2.83	[-.006, -.001]	.006
$R^2 = .10, F(1, 72) = 8.02, p = .006$						

Note. $N = 77$. EC = event centrality; PTG = posttraumatic growth; CI = confidence interval. Results were based on 5000 bootstrap samples.

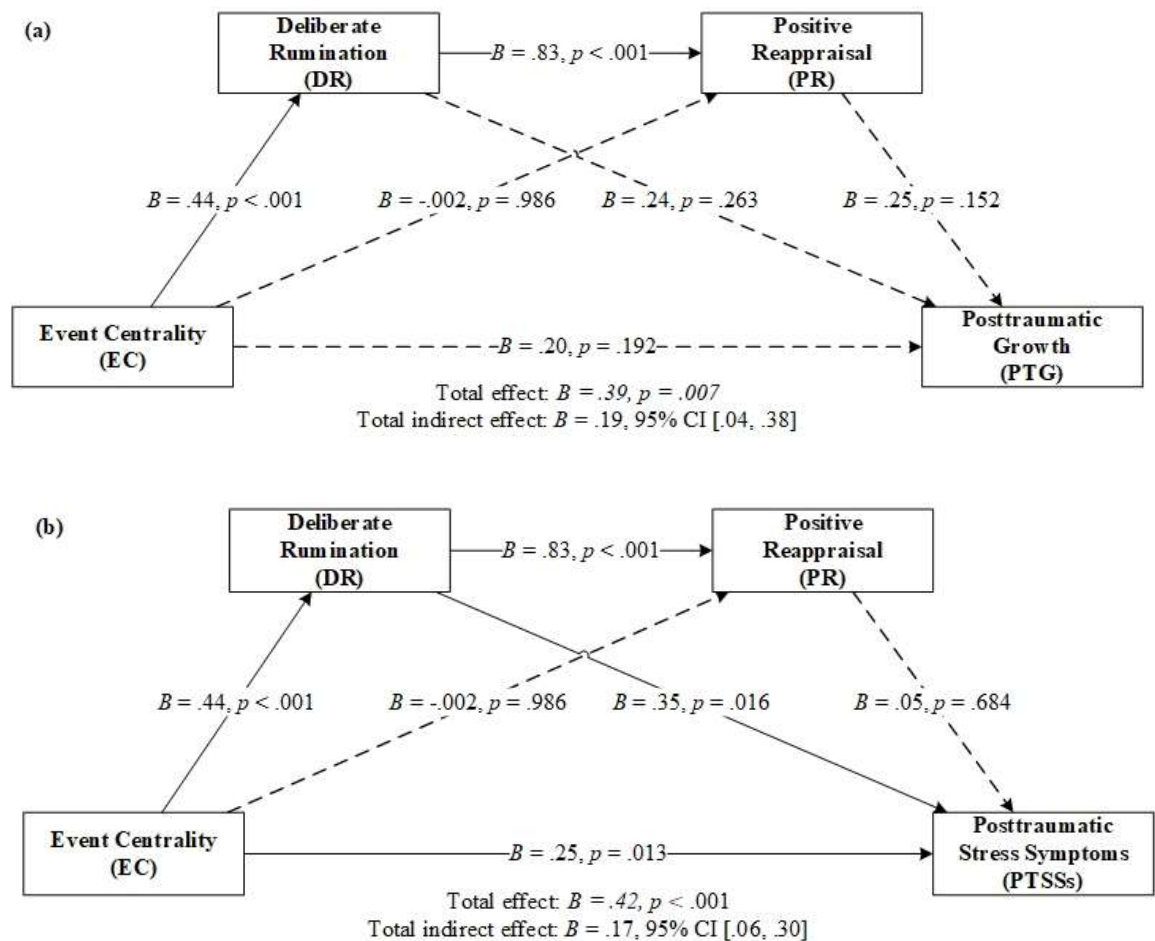
Active coping included both active cognition (i.e., positive reappraisal) and action (i.e., active action) components. Further analyses examined whether deliberate rumination and positive reappraisal or active action mediated the relationships between event centrality and PTG and PTSSs. However, the results showed that deliberate rumination and positive reappraisal did not sequentially mediate the relationship between event centrality and PTG or PTSSs (Figure 9 and Table 11). Although the

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direct effect of event centrality on PTG was not significant and the total indirect effect was significant, there were no significant mediators as all CIs for the indirect effects included zero. The direct effect of event centrality on PTSSs remained significant, and the total indirect effect was also significant, but only deliberate rumination played the role of mediator.

Figure 9

Deliberate Rumination and Positive Reappraisal as Serial Mediators in the Relationships Between Event Centrality and Posttraumatic Growth and Posttraumatic Stress Symptoms



Note. CI = confidence interval. Solid lines indicate significant paths, and dotted lines indicate insignificant paths. Results were based on 5000 bootstrap samples.

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Table 11

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Mediation of Deliberate Rumination and Positive Reappraisal on Posttraumatic Growth and Posttraumatic Stress Symptoms

Outcome	Predictor	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	<i>p</i>
PTG	Direct					
	EC	.20	.15	1.32	[-.10, .50]	.192
	Indirect					
	DR	.10	.10		[-.09, .30]	
	DR and PR	.09	.07		[-.04, .25]	
	PR	-.0004	.03		[-.07, .06]	
	Total indirect effect	.19	.09		[.04, .38]	
	Total effect	.39	.14	2.80	[.11, .67]	.007
$R^2 = .20, F(3, 73) = 6.27, p < .001$						
PTSSs	Direct					
	EC	.25	.10	2.54	[.05, .45]	.013
	Indirect					
	DR	.15	.06		[.04, .29]	
	DR and PR	.02	.04		[-.07, .11]	
	PR	-.0001	.01		[-.03, .03]	
	Total indirect effect	.17	.06		[.06, .30]	
	Total effect	.42	.10	4.43	[.23, .61]	< .001
$R^2 = .33, F(3, 73) = 12.15, p < .001$						

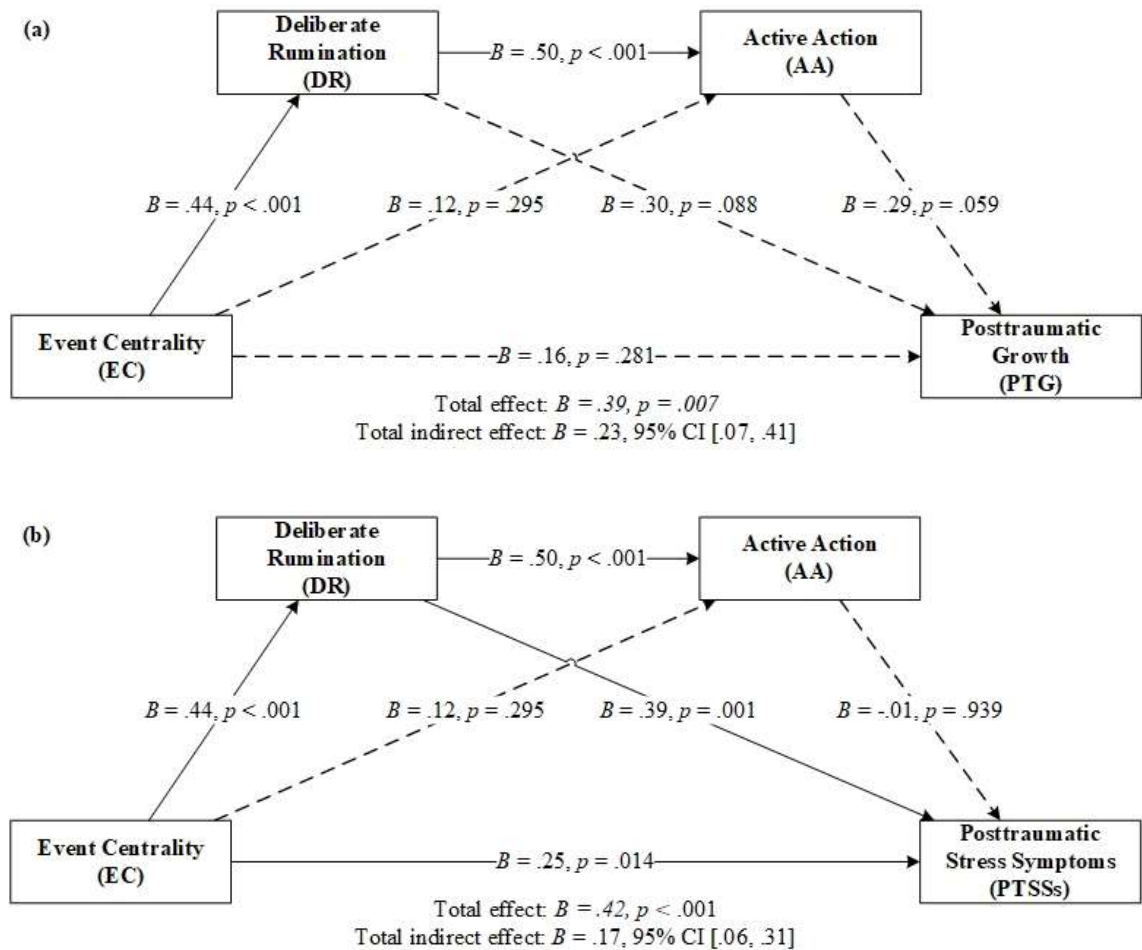
Note. $N = 77$. EC = event centrality; DR = deliberate rumination; PR = positive reappraisal; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 5000 bootstrap samples.

The results did not support deliberate rumination and active action sequentially mediating the relationship between event centrality and PTG or PTSSs (Figure 10 and Table 12). Although the direct effect of event centrality on PTG was not significant and the total indirect effect was significant, there were no significant mediators as all CIs for the indirect effects included zero. The direct effect of event centrality on PTSSs remained significant, and the total indirect effect was also significant, but only deliberate rumination played the role of mediator.

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Figure 10

Deliberate Rumination and Active Action as Serial Mediators in the Relationships Between Event Centrality and Posttraumatic Growth and Posttraumatic Stress Symptoms



Note. CI = confidence interval. Solid lines indicate significant paths, and dotted lines indicate insignificant paths. Results were based on 5000 bootstrap samples.

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Table 12

Results of Linear Regression Models Used to Examine the Direct Effect of Event Centrality and Mediation of Deliberate Rumination and Active Action on Posttraumatic Growth and Posttraumatic Stress Symptoms

Outcome	Predictor	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	<i>p</i>
PTG	Direct					
	EC	.16	.15	1.09	[-.14, .46]	.281
	Indirect					
	DR	.13	.08		[-.01, .30]	
	DR and AA	.06	.04		[-.01, .15]	
	AA	.04	.04		[-.03, .14]	
	Total indirect effect	.23	.09		[.07, .41]	
	Total effect	.39	.14	2.80	[.11, .67]	.007
$R^2 = .22, F(3, 73) = 6.91, p < .001$						
PTSSs	Direct					
	EC	.25	.10	2.52	[.05, .46]	.014
	Indirect					
	DR	.17	.06		[.07, .28]	
	DR and AA	-.002	.02		[-.05, .05]	
	AA	-.001	.02		[-.04, .04]	
	Total indirect effect	.17	.07		[.06, .31]	
	Total effect	.42	.10	4.43	[.23, .61]	< .001
$R^2 = .33, F(3, 73) = 12.07, p < .001$						

Note. $N = 77$. EC = event centrality; DR = deliberate rumination; AA = active action; PTG = posttraumatic growth; PTSSs = posttraumatic stress symptoms; CI = confidence interval. Results were based on 5000 bootstrap samples.

Discussion and Conclusion

This study investigated PTG among people living with HIV in NZ. The levels of PTG in this study were moderate and similar to the findings in samples in the United States (Nightingale et al., 2010) and the United Kingdom (Noone, 2015). On the other hand, participants in this study reported significantly lower levels of PTSSs than participants in Nightingale's (2010) study. The majority of participants in Nightingale's study (2010) were African Americans of low socioeconomic status, which could be the reason for the higher levels of PTSSs.

This study had three main aims. Aim 1 was to investigate the processes of PTG. Aim 2 was to investigate the relationship between PTG and PTSSs and explore their

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shared pathways and covariates by examining them as parallel constructs. Aim 3 was to elucidate the relationships between PTG and perceived mental and physical health.

These aims were considered important as they help to complete current theories of PTG and provide evidence and possibilities to further promote PTG among people living with HIV in practice. In this section, first, the results in relation to these three aims will be detailed. Then the study's limitations and implications for future studies, as well as its contributions to the knowledge base will be discussed.

Processes of Posttraumatic Growth

This study investigated the processes of PTG by examining the associations between PTG and its potential contributors, including demographics (i.e., gender, age at diagnosis, current age, and time since diagnosis), coping factors (event centrality, deliberate rumination, and coping strategies), personal characteristics (sense of coherence and optimism), and social support (emotional and instrumental social support). These factors were extracted from current theories and studies.

Demographics and Posttraumatic Growth. This study did not find significant differences in the levels of PTG and PTSSs between genders, which was similar to the findings of Rzeszutek et al. (2016) in 250 Polish people living with HIV. However, some studies found that women reported higher levels of PTG in 334 and 835 people living with HIV in the United States (Kamen et al., 2016; Milam, 2004), which was inconsistent with the findings of this study. The different sample sizes, measurements of PTG, and participants' cultural backgrounds in these studies make it difficult to determine whether PTG in people living with HIV differed by gender.

This study found that participants who were diagnosed with HIV at younger ages were likely to experience higher levels of PTG, which is consistent with two of the few studies that examined such a relationship (Andysz et al., 2015; Koutrouli et al.,

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2016). People may be more likely to appraise the diagnosis of HIV as stressful and central when receiving it at a younger age, thereby experiencing greater PTG. An exploration was conducted to examine whether event centrality mediated the relationship between age at diagnosis and PTG. However, the result did not support the mediator role of event centrality. It is possible that younger people are more open to changes and learning (Tedeschi & Calhoun, 2004), thus experiencing greater PTG.

This study did not find a significant relationship between time since diagnosis and PTG. Although Tedeschi and Calhoun (2004) suggested that longer time since diagnosis might be associated with greater PTG as the cognitive process might take time, few studies supported this perspective in people living with HIV. Only a small number of studies examined the relationship between time since diagnosis and PTG in people living with HIV, and they did not find significant relationships (Nightingale et al., 2010; Siegel & Schrimshaw, 2007), which was consistent with this study. However, two studies in women with breast cancer found that women who had lived with the diagnosis for a longer period reported greater PTG (Danhauer et al., 2013; Sears et al., 2003). The inconsistency might be due to the population, age ranges, time since diagnosis ranges, and measure tools. More studies will be helpful to clarify the relationship between time since diagnosis and PTG in people living with HIV.

In summary, this study found people who were diagnosed at a younger age experienced greater PTG. Women and men experienced similar levels of PTG. Future replications are required to confirm these findings.

Coping Model of Posttraumatic Growth. Event centrality reflects the extent to which a stressful event violates an individual's beliefs, commitments, and expectations about the future (Gruen et al., 1988). Empirical studies have found that event centrality is a unique predictor of PTG. However, it is not clear how event centrality is associated

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with PTG (Boals & Schuettler, 2011; Groleau et al., 2012). This study examined a mediation model of PTG, in which deliberate rumination and coping were hypothesised to sequentially mediate the relationship between event centrality and PTG. Events which are appraised as central to an individual's identity and life are likely to initiate deliberate rumination, multiple coping strategies, and PTG, as "growth occurs when the trauma assumes a central place in the life story" (Tedeschi & Calhoun, 1995, p. 85). The mediation model in this study explained the coping process of PTG, clarified the mechanisms behind the relationships between event centrality and PTG, and helped determine whether deliberate rumination and coping were sequential processes.

Unlike what was hypothesised, the findings did not support active coping as a serial mediator in the model. Few if any studies have previously investigated this relationship in people living with HIV or other medical conditions or life events. Recently, one study found that deliberate rumination and positive reappraisal acted as serial mediators in the relationship between the impact of the event (measured by a single item) and PTG in a sample of 251 survivors of political violence and state terrorism that occurred between 24 and 42 years ago in Chile (Cárdenas et al., 2016). One possible reason for the inconsistency between this finding and that of the current study was that the measure of PTG (PTGI-SF) used in Cárdenas et al.'s (2016) and this study mainly captured cognitive changes rather than behavioural ones, whereas the active coping in this study included both active cognitive and behavioural components. However, further analyses found that neither positive reappraisal nor active action acted as a serial mediator in the present study. The differences between Cárdenas et al. (2016) and the current study in terms of measures, the nature of stressors, and in populations, indicate that the role of active coping or positive reappraisal in relation to event centrality and rumination requires further investigation.

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The findings of this study supported deliberate rumination and avoidance coping as sequential mediators of the relationship between event centrality and PTG, and all the indirect pathways were significant. The effect of event centrality on PTG could be inconsistent rather than merely positive. In addition to the positive indirect effect of event centrality on PTG mediated by deliberate rumination, this study found negative indirect effects of event centrality on PTG mediated by avoidance coping and by deliberate rumination and avoidance sequentially. No comparisons could be made, as few studies examined such a relationship.

In summary, the findings confirmed the important roles of event centrality, deliberate rumination, and avoidance coping in the processes of PTG, and also explained the mechanisms underlying these relationships. Although causation could not be established in this cross-sectional study, the finding is in line with both Tedeschi and Calhoun's (2004) model and personal growth theory (Schaefer & Moos, 1992). Moreover, it suggested that the effects of event centrality on PTG could be direct and indirect, and with inconsistent directions. Second, Tedeschi et al.'s model (Tedeschi & Calhoun, 2004; Tedeschi et al., 2018) tends to consider PTG as the natural direct outcome of deliberate rumination. However, the findings of the current study suggest that deliberate rumination is neither direct nor necessary for PTG because event centrality is (but not fully) mediated by deliberate rumination and avoidance coping. Third, the findings of this study suggest that deliberate rumination and active coping are not sequential, whereas deliberate rumination and avoidance are sequential in mediating the relationship between event centrality and PTG. Further replications are required to confirm these findings.

Personal Characteristics, Social Support, and Posttraumatic Growth.

Personal characteristics (sense of coherence and optimism) and social support may be

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important in the processes of PTG (Schaefer & Moos, 1992; Tedeschi & Calhoun, 2004). However, empirical studies have reported inconsistent findings. Therefore, whether these factors were related to PTG was not clear. This study examined sense of coherence, optimism, and instrumental and emotional support as moderators in the relationship between event centrality and PTG.

The findings of this study supported the moderator role of sense of coherence in the relationship between event centrality and PTG, although the bivariate relationship between sense of coherence and PTG was not significant. Higher levels of sense of coherence enhanced the relationship between event centrality and PTG. People with higher sense of coherence are those who are more likely to believe that the world is meaningful, comprehensible, and manageable (Antonovsky, 1987). Hence, they are more likely to find positive meaning from an event that impacts on previous important assumptions. However, people with lower sense of coherence are less likely to transform a stressful experience into PTG. The interactive effect between event centrality and sense of coherence on PTG might help to explain the mixed findings in relationships between sense of coherence and PTG.

The findings confirmed the moderator role of optimism in the relationship between event centrality and PTG. Higher levels of optimism were related to a stronger relationship between event centrality and PTG. People with higher levels of optimism expect positive outcomes (Scheier & Carver, 1985), and thus are more likely to find positive perspectives and meaning from a highly stressful situation that challenges their previous life and goals. The existence of interactive effects could explain the positive or nonsignificant bivariate relationships between optimism and PTG.

The findings supported emotional support moderating the relationship between event centrality and PTG. Higher levels of emotional support were related to a stronger

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relationship between event centrality and PTG. On the other hand, the interactive effect between instrumental support and event centrality on PTG was not significant. It is possible that people who encounter a life-changing event are more likely to realise the importance of others and to appreciate significant others when they perceive more support, especially being understood, accepted, and loved. Future studies need to investigate the role of various social support in the processes of PTG.

In summary, this study found that people were more likely to perceive PTG from a highly central and life-changing event when they had higher levels of sense of coherence, optimism, and emotional support. The findings clarify the mixed relationships between these constructs and PTG. The moderator roles of personal characteristics and social support in the processes of PTG have rarely been examined. Future replications are required to confirm these findings.

Processes of Posttraumatic Stress Symptoms

This study examined the processes of PTSSs with the hypothetical coping model of PTG and explored the moderator roles of sense of coherence, optimism, emotional support, and instrumental support in the relationship between event centrality and PTSSs.

This study supported the sequential mediator role of deliberate rumination and avoidance coping in the relationship between event centrality and PTSSs. The results supported the double-edged sword role of event centrality proposed by Boals and Schuettler (2011). Events which were appraised as central to an individual's life were likely to be correlated with deliberate rumination, multiple coping strategies, and PTG and PTSSs, as "growth occurs when the trauma assumes a central place in the life story" (Tedeschi & Calhoun, 1995, p. 85) and the process might be accompanied by pain (Tedeschi & Calhoun, 2004).

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The hypothetical coping model of event centrality, deliberate rumination, and avoidance coping explained about 27% of the variance in PTG and 64% of the variance in PTSSs. The variables extracted from Tedeschi and Calhoun (2004) and Schaefer and Moos' (1992) theories are more effective in explaining the variance in PTSSs than in PTG in the current study. These findings are similar to those of two recent studies (Brooks et al., 2017; Gul & Karanci, 2017). One was conducted with a sample of 250 adults who experienced various adverse events in the United Kingdom and found that event centrality, intrusive and deliberate rumination, and present and future control explained 30% of the variance in PTG and 68% of the variance in PTSSs (Brooks et al., 2017). The other one examined a number of variables (i.e., coping strategies, intrusive and deliberate rumination, personality traits, perceived social support, and demographics) and found that they accounted for 40% of the variance in PTG and 64% of the variance in PTSSs in a sample of 498 Turkish adults who had been exposed to stressful events. These results indicate the existence of other pathways that lead to PTG and that have yet to be identified.

The findings of this study did not support the buffering effects of sense of coherence, optimism, or social support in the relationship between event centrality and PTSSs. However, sense of coherence and optimism were negatively correlated with PTSSs, indicating that people with higher levels of sense of coherence and optimism perceived fewer PTSSs.

It seemed that personal characteristics and social support might buffer the effect of objective stressfulness on PTSSs. Studies found that sense of coherence, optimism, and social support on PTSSs buffered the severity of exposure to workplace bullying (Nielsen et al., 2008), combat (Thomas et al., 2011), a tsunami (Arnberg et al., 2012), a terrorist attack (Schwarzer et al., 2014), and a hurricane (McGuire et al., 2018).

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However, sense of coherence, optimism, and social support did not buffer the impact of event centrality (subjective stressfulness) on PTSSs in this study.

In contrast, the moderator roles of sense of coherence, optimism, and social support (especially emotional support) were more likely to be found in relationships between event centrality and PTG. Another study also found that people were more likely to report higher levels of PTG if they appraised the event as highly stressful, adopted more adaptive coping, and perceived higher levels of controllability, predictability, and social support (Armeli et al., 2001), although their sample comprised university alumni and college students. On the other hand, one of the few studies that investigated the moderator role of sense of coherence in the process of PTG did not find a significant interactive effect between sense of coherence and stress exposure (Brockhouse et al., 2011).

It seems that people with higher levels of sense of coherence, optimism and social support may be less likely to experience PTSSs and more likely to report PTG when exposed to a stressful event. In other words, some personal and social resources may buffer the negative effect of stress exposure and enhance the likelihood of perceiving PTG from a life-changing experience.

Posttraumatic Growth and Posttraumatic Stress Symptoms

Many studies have examined the relationship between PTG and PTSSs and found inconsistent results. Researchers have suggested that PTG and PTSSs could be independent outcomes with shared and unique predictors (Joseph & Linley, 2005; Tedeschi & Calhoun, 2004). This study examined the relationship between PTG and PTSSs, and the interactive effect between PTG and time since diagnosis on PTSSs.

This study found that PTG was not correlated with PTSSs, indicating PTG and PTSSs were independent outcomes. However, PTSSs were positively associated with

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PTG in Nightingale's (2010) study. The different socioeconomic status of participants could be a possible reason, as most participants in Nightingale's (2010) study were African American and unemployed or disabled, and the relationship between PTG and PTSSs has been found to be stronger in ethnic minorities (Sawyer et al., 2010).

This study did not find a significant interactive effect between PTG and time since diagnosis on PTSSs. The finding was inconsistent with a meta-analytic review of 38 studies in people with HIV or cancer (Sawyer et al., 2010). The average time since diagnosis in this study was 11.41 years ($SD = 8.19$), whereas the average time since diagnosis in Sawyer et al.'s (2010) study was 41.65 months ($SD = 31.86$). Higher levels of PTG were correlated with fewer PTSSs, and this relationship was stronger when the time since diagnosis was shorter (Sawyer et al., 2010). Thus, it is possible that the longer average time since diagnosis in this study made this relationship and the moderator role of time since diagnosis nonsignificant.

Posttraumatic Growth and Perceived Health

The third aim of this study was to examine the relationship between PTG and perceived health status. This study did not find a significant relationship between PTG and perceived mental health, and the interaction between time since diagnosis and PTG was significant for perceived physical health but was not significant for perceived mental health.

An interaction between PTG and time since diagnosis on perceived mental health was reported by two meta-analytic studies (Helgeson et al., 2006; Sawyer et al., 2010). One reviewed and analysed 87 cross-sectional studies on the relationships between PTG and health outcomes in various populations (Helgeson et al., 2006). The other analysed 38 studies of this relationship in people with cancer or HIV (Sawyer et al., 2010). However, neither found a significant interactive effect between PTG and time

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since diagnosis on perceived physical health, which was inconsistent with this study. It is possible that the promoting effect of PTG on perceived physical health is more significant in relatively long time since diagnosis ranges. The average time since diagnosis in this study was 11.41 years, and the median of time since diagnosis in Helgeson et al.'s (2006) study was 2.5 years, and the average time since diagnosis in Sawyer et al.'s (2010) study was about 3.5 years. Also, only three studies in Helgeson et al.'s (2006) and eight studies in Sawyer et al.'s (2010) meta-analytic reviews were conducted with people living with HIV. More studies, especially longitudinal ones, will help to confirm the findings.

Limitations

The cross-sectional design of the study means that causality cannot be determined and changes in associations between event centrality, deliberate rumination, coping, and PTG and PTSSs over time cannot be examined. These relationships are likely to be reciprocal rather than unidirectional. The method of data collection limited participants to people who connected with HIV-related organisations as recruitment advertisements were distributed through these organisations. Data were also likely to be subject to self-selection bias, as individuals who were willing to participate in a study may differ from those who choose not to. Additionally, the sample size was relatively small. As such, the findings may not represent the population of people living with HIV in NZ. A final limitation was that some relevant information was not collected for reasons of privacy and practicality. This included education level, ethnicity, income, relationship status, and adoption of and adherence to medical and other treatments.

Implications for Theory

This study proposed a serial mediation coping model to explain the processes of PTG as well as PTSSs, according to theories developed by Tedeschi and Calhoun

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(2004) and Schaefer and Moos (1992). The findings filled some gaps in current theories. First, this model indicates that the relationships between event centrality and PTG and PTSSs may be mediated by deliberate rumination and avoidance coping. Second, this study revealed that deliberate rumination was not necessary for PTG, as event centrality directly or indirectly impacted PTG through mediation by avoidance coping in addition to deliberate rumination. Third, this study suggested that deliberate rumination and active coping did not act sequentially, and that deliberate rumination and avoidance coping may also have direct or parallel as well as sequential effects.

The findings support PTG and PTSSs as distinct constructs with some shared correlates. However, personal characteristics like sense of coherence and optimism, and social support were found to be related to PTG and PTSSs in different ways. The findings supported sense of coherence, optimism, and emotional support as moderating the relationship between event centrality and PTG, indicating that people with higher levels of these resources were more likely to perceive greater PTG from a life-changing or central event. The existence of interaction effects on PTG help to explain the mixed findings in relationships between sense of coherence, optimism, and emotional support and PTG.

This study found that time since diagnosis moderated the relationship between PTG and perceived physical health, though the interactive effect between time since diagnosis and PTG on perceived mental health was not significant. Higher levels of PTG were more likely to be associated with better perceived physical health in people living with HIV longer. This finding might help in understanding the mixed findings in the relationship between PTG and perceived health.

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Implications for Future Research

Future studies need to explore various routes leading to PTG. Not everyone will appraise a diagnosis of HIV as central to their lives. In addition, not all PTG is gained through deliberate rumination or coping with HIV-related events. However, the cross-sectional quantitative design does not provide such information. Qualitative studies will help to explore more possible pathways leading to PTG.

Future studies also need to examine dimensions of deliberate rumination. The measure used in this study does not differentiate dimensions of deliberate rumination. Although rumination has been categorised according to the time of occurrence (soon after the event or recent) and form (intrusive or deliberate), there could be other dimensions, such as purpose (searching or solving) (Segerstrom et al., 2003), valence (positive, neutral, negative), and time orientation (past, present, and future). The relationships between different dimensions of rumination and PTG or PTSSs are not clear. Hence future studies should incorporate these dimensions into their investigations.

Furthermore, future studies should explore more aspects of PTG. PTG is a broad concept that might include many aspects of change, and the measure used in this study focused on cognitive changes. Future studies should explore the different aspects of PTG in a specific population, such as people living with HIV who report increased health behaviour (Siegel & Schrimshaw, 2000). More qualitative studies in particular would help to provide an in-depth illustration of PTG.

As the time since diagnosis of this study is relatively long (mean of 11.41 years), further replications with different time since diagnosis (especially shorter ones) are needed. Longitudinal studies with multiple data collections points would be helpful to clarify the trajectories of PTG over time. Future studies will also need to investigate the

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moderated mediation process of PTG. Researchers need to consider the treatment development and disease progression along with the time since diagnosis and the potential moderator role of time since diagnosis when investigating the implications of PTG on health status.

Implications for Practice

The findings of this study confirmed the existence of PTG among people living with HIV in NZ. It is important for health professionals to integrate the perspective of PTG into their approaches. People with higher levels of PTG have reported enhanced life satisfaction and spiritual well-being (Park & Blank, 2012), and this study found participants reported better physical health status when time since diagnosis was relatively long (although further replications are needed to confirm these findings). Additionally, it is important to be aware that not everyone will experience PTG, and people who do not report PTG can also adapt well to a challenging medical condition such as cancer (Lechner & Antoni, 2004).

The findings of the current study support that people with higher levels of social support, especially emotional support, were more likely to perceive PTG from a life-changing or central event (i.e., being diagnosed with HIV). Therefore, in addition to instrumental support, HIV-related organisations might provide more emotional support or encourage people living with HIV to seek emotional support.

Conclusion

The findings indicate that people who appraise a diagnosis of HIV as central also deliberately ruminate on it, adopt less avoidance coping strategies, and thus experience greater PTG. The positive relationship between event centrality and PTG was enhanced when people had higher levels of sense of coherence, optimism, and emotional support. Second, the findings supported PTG and PTSSs being distinct

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constructs with shared pathways. Third, this study found that people with higher levels of PTG might perceive better physical health status in those with longer time since diagnosis. Replications, especially longitudinal ones, will help to confirm these findings, and qualitative studies will help explore more aspects of PTG and pathways leading to PTG in people living with HIV.

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Chapter 3: Study 2

Posttraumatic Growth Among People Living With HIV:

A Thematic Analysis

Introduction

This qualitative study explored the processes of PTG in people living with HIV. Study 1 has found that event centrality, deliberate rumination, and avoidance coping explained 27% of the variance in PTG. It is likely that multiple strategies are related to PTG. For example, there could be other aspects of rumination not measured in Study 1 since deliberate rumination is more “focused purposefully on trying to understand events and their implications” (Cann et al., 2011, p. 138). However, rumination is a multidimensional construct. It can be categorised into different types according to time (soon after an event or recent), forms (intrusive or deliberate), valence (positive or negative), and aims (searching or solving) according to Cann et al. (2011) and Segerstrom et al. (2003). Therefore, this study will use qualitative methods to further explore participants’ cognitive processing related to PTG.

Overview of Qualitative Studies

An investigation was conducted to search for qualitative studies on PTG in people living with HIV. Three widely-used databases were searched: Medline, PsycINFO, and CINAHL. The search terms included the following: (“HIV” in title) AND (“growth” OR “benefit*” OR “positive chang*” OR “positive adjustment” OR “thriving” OR “mean*” in abstract) AND (qualitative) NOT (“child*” OR “adolescen*” OR “teenager*” in abstract) NOT (“review” OR “meta” in title). Search criteria included peer reviewed and published in English. Publication dates ranged from January 1980 to Feb 2020. Among the 1,021 papers found, only nine met all criteria and were reviewed. Reasons for deletion included: duplication (n = 99), not adults as participants

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($n = 79$), relevance not established from the title ($n = 732$), abstract ($n = 72$), or whole paper ($n = 24$), not an original study or not in English ($n = 6$).

The remaining nine qualitative studies mainly described and confirmed the existence of PTG in people living with HIV. They found that participants reported more appreciation of life (e.g., no longer taking life for granted and having more of a “here and now” focus), more profound life philosophies (e.g., spiritual fulfilment and the ability to tolerate paradoxical thoughts, feelings and beliefs), enhanced relationships with others (e.g., increased sense of belonging, more intimacy with others, and altruistic behaviour), a sense of personal growth and self-discovery, and healthier behaviours (Dibb & Kamalesh, 2012; Dunbar et al., 1998; Fauk et al., 2020; Mosack et al., 2005; Mphande-Finn & Sommers-Flanagan, 2007; Raker et al., 2019; Schaefer & Coleman, 1992; Schwartzberg, 1994; Siegel & Schrimshaw, 2000). Most of the positive changes were covered by the three broad domains summarised by Tedeschi and Calhoun (1996): changes in life philosophy, changes in self-perception, and changes in interpersonal relationships.

Among the nine reviewed studies, only two reported event-related cognitive activities. Dibb and Kamalesh (2012) explored the positive adjustment of 12 African women living with HIV in the United Kingdom. They found positive reappraisal of participants’ situations and increased health behaviours to be part of the positive changes that contributed to adjustment rather than PTG (Dibb & Kamalesh, 2012). Fauk et al. (2020) explored meaning making as a coping strategy among 29 transgender women living with HIV in Indonesia. They described the potential functions of meaning making in facilitating the acceptance of the individual’s health condition, recognition of the importance of friends and families, and increased intentions to contribute to the HIV

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community (Fauk et al., 2020). The process of PTG in people living with HIV remained unclear.

HIV Nowadays

HIV is no longer seen as a death sentence. HIV was considered to be a chronic illness in the 1990s (Altman, 1989; Fee & Fox, 1992). Combination ART has been available since 1996 and has significantly reduced mortality (National Institute of Allergy and Infectious Disease, 2018). In NZ, the mortality rate dropped dramatically in the mid-1990s due to the introduction of ART (Dickson, 2015; Saxton et al., 2012). In a study of about 10,000 people living with HIV in Canada, life expectancy at age 20 increased from 30.8 years to 54.2 years between the calendar period 2000 to 2003 and 2008 to 2012. However, this was still lower than in the general population in 2012, at 59.7 and 63.9 years for men and women, respectively (Patterson et al., 2015). Similarly, in a study of 16,532 people living with HIV in Switzerland, life expectancy at age 20 for people living with HIV who had recent combination ART (during the year 2006–2013) was 52.7 years with compulsory education and 60.0 years with higher education, while in the general population it was 61.5 years and 65.6 years, respectively (Gueler et al., 2017). HIV is no longer as lethal, although it might shorten life expectancies.

For these reasons, people living with HIV may experience different PTG in the pre-ART and post-ART eras. Two qualitative studies conducted in the pre-ART era found more focus on the present and more spiritual changes in samples of 20 and 19 gay men with a median age of 36 years and 37 years, respectively (Schaefer & Coleman, 1992; Schwartzberg, 1994). Another study found increased reports of confrontation and reckoning with death in a study of 34 women with HIV, aged from 26 to 53 years (Dunbar et al., 1998). A later study found reports of religious and spiritual growth and healthy behavioural changes in 54 women with an average age of 36 years (Siegel &

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Schrimshaw, 2000). Two recent studies found that participants reported more health behaviours among nine peer supporters (older than 30 years) and 29 adult transgender women (Fauk et al., 2020; Raker et al., 2019). These studies also found greater appreciation of relationships and increased contribution to the HIV community. It is possible that as HIV has become more manageable in recent years, people living with HIV are reporting more active physical management rather than existential changes. Therefore, this study focused on people who were diagnosed in the ART era.

In recent years, the sense that people living with HIV transmitted HIV to their partner or partners through condomless sex has also changed. The *Swiss Statement* (Vernazza, 2008, as cited in Pearshouse, 2008) reported that people living with HIV who had been virally suppressed for at least 6 months would not transmit HIV to their serodiscordant partner through condomless sex. Rodger et al. (2019; 2016) conducted a large study from September 2010 to April 2018 investigating HIV transmission among serodiscordant couples. This study comprised two phases. The first involved 888 (61.7% heterosexual and 38.3% gay) serodiscordant couples, and the second phase group of participants was 782 (gay) serodiscordant couples. The findings supported the claim that “undetectable equals untransmittable” (“U = U”). It was not clear, however, how the findings would affect the PTG and well-being of people living with HIV. Qualitative studies are better suited to exploring such issues.

Stigma

In Study 1, the impact of stigma was not measured. Stigma is a socially devalued mark or attributed construct (Goffman, 1963), and HIV can be a stigmatising chronic medical condition. People who are stigmatised are those whose social identity is compromised in certain social contexts (Crocker et al., 1998). There are several types of stigma: enacted stigma, felt stigma, internalised stigma or self-stigma, and anticipated

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stigma (Major et al., 2018). Enacted stigma refers to negatively biased perceptions, attitudes, and treatment of stigmatised groups, which occurs at the structural and interpersonal levels (Major et al., 2018). Structural stigma includes reduced opportunities, resources, and well-being of stigmatised people due to sociocultural and institutional policies (Hatzenbuehler & Link, 2014). Interpersonal stigma means prejudice, stereotyping, and discrimination, which people experience during social interaction with others (Major et al., 2018). People can also perceive enacted stigma without explicit verbal or behavioural cues (i.e., felt stigma), or they may internalise enacted stigma and take negatively biased views towards themselves (i.e., internalised stigma or self-stigma) and expect to encounter stigma (anticipated stigma) according to Major et al. (2018).

Whether people with a health condition are stigmatised or not is determined in part by the factors of the concealability, controllability (or origin), and collectivity within a community (Major et al., 2018). HIV status may be concealable for many people living with HIV, but not for people with lipoatrophy or visible opportunistic infection (i.e., Kaposi's sarcoma). In terms of controllability, the transmission pathways are relatively clear and manageable, which means that HIV infection is often seen as the individual's responsibility (Stump et al., 2016). Turning to the factor of collectivity, people living with HIV are often connected with marginalised groups, such as sexual minorities, drug users and sex workers (Deacon, 2006). All these factors contribute to people living with HIV potentially facing significant stigma.

This is also the case in NZ. Mundt and Briggs (2016) found that 47% of people living with HIV experienced stigma in healthcare settings in NZ. Examples of stigmatising events included violation of confidentiality, additional infection prevention measures, avoidance of physical contact by health care providers, and poor treatment

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service including being treated last, refusal of treatment, and rudeness. This study was conducted with 213 people living with HIV aged 16 years and over, which comprised about 10% of the people living with HIV in NZ at the time, according to Mundt and Briggs (2016). In a qualitative study with 14 people living with HIV in NZ, all participants reported experiences of being stigmatised by health professionals, although most also reported positive experiences (Brinsdon et al., 2017). These studies suggested that people living with HIV were still being stigmatised, even up to recent years.

Stigma was found to be negatively related to PTG in a sample of 126 long-term HIV survivors (Zeligman et al., 2016). Another study found that stigma reduced the possibility of disclosing and was associated with reduced PTG (Kamen et al., 2016). These two studies supported the notion that stigma represented a rejected social environment that impeded the processes of PTG. Stigma as a stressor also caused emotional distress and resulted in lowered self-esteem (Kalomo, 2018). According to Tedeschi and Calhoun's (2004) PTG model, when stress violates people's assumptions, this can trigger cognitive processing and the processes of PTG. Being stigmatised can be highly stressful and theoretically could be a potential trigger for PTG, but few studies have examined stigma as a direct stressor. This study will also explore the impact of stigma on PTG.

Summary

In summary, people living with HIV still face a potentially shortened life and stigma. However, ongoing physical and social challenges also imply possible opportunities for growth. This study will use qualitative methods to investigate the processes of PTG in people living with HIV who have been diagnosed in the ART era.

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Methodology

This study explored the processes of PTG in people living with HIV in NZ. It used thematic analysis as the analytic method. This chapter will illustrate the conceptual framework, rationale and design, recruitment procedure, ethical considerations, data collection and analysis, as well as considerations relating to the quality of the research.

Conceptual Framework

PTG is considered to be a complex and dialectical concept (Tedeschi et al., 2018), and quantitative scales may not be able to measure its complexity. Thus, Study 2 uses a qualitative method to focus on meanings and how people make sense of their experiences. Through interviews, participants are able to tell their stories in a more spontaneous way, guided by neutrally-worded questions. The qualitative study aims to provide rich, complex, and specific information. This section explains the conceptual framework of Study 2. As Study 1 is quantitative and Study 2 is qualitative, methodological tensions between these two studies (Table 13) are illustrated as well.

Table 13

Comparing Research Paradigm of Studies 1 and 2

	Study 1	Study 2
Ontology	Realism	Critical realism
Epistemology	Positivism	Contextualism
Analysis	Deductive	Inductive
Generalisability	Statistical generalisability	Context-specific, transferability
Researcher Stance	Detached and value-free	Engaged and value laden
Data Collection	Structured questionnaires	Semi-structured interviews
Question Format	Closed-ended	Open-ended

Philosophical Stances. Qualitative research highlights ontological and epistemological stances. Ontology determines whether, for example, we think reality exists entirely separate from human practices and understanding (Braun & Clarke,

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2013). Study 1 takes a realist stance which assumes reality is entirely comprehensible through research, whereas Study 2 takes a critical realist stance which assumes reality can be partially accessible. Epistemology is about the nature of knowledge, and it determines what counts as trustworthy knowledge (Braun & Clarke, 2013). Study 1 takes a positivist stance which assumes knowledge can be discovered through research, whereas Study 2 takes a contextualist stance which assumes that knowledge is emerging from contexts and reflecting the researchers' positions (Madill et al., 2000).

Therefore, Study 2 takes a critical realist ontology and contextualist epistemological stance. This stance claims that reality can be accessed through language on some level but is always situated and provisional. From the standpoint of Study 2, HIV is a stigmatised chronic medical condition, and the physical symptoms, impairments, opportunistic infections, side effects of medication, and explicit stigma from others are real. The way that people living with HIV perceive and interpret their experiences interacts with their personal and social contexts. The researcher's background also has the potential to influence data collection, interpretation and reporting of the results of Study 2.

In line with the theoretical stance of Study 2, thematic analysis is used to explore the processes of PTG in people living with HIV. Thematic analysis is a qualitative method used to identify and analyse patterns within data (Braun & Clarke, 2006). It is a relatively flexible method and compatible with various theoretical and epistemological approaches, including critical realism (Braun & Clarke, 2006). Study 2 uses inductive thematic analysis, which means the patterns are generated from data not derived from preexisting theories (Patton, 1990).

Generalisability and Transferability. Quantitative studies primarily consider generalisability, while qualitative studies primarily discuss transferability.

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Generalisability refers to whether the findings in one study can be applied to wider or other populations (Braun & Clarke, 2013). Quantitative studies value objectivity and recognise that the influences of researchers can give rise to bias (Patton, 1990). On the other hand, qualitative studies assume that researchers will inevitably influence the process and results of a study (Yardley, 2008). The engagement of researchers is also valued in qualitative studies. Transferability is a similar concept to generalisability, which refers to the extent that qualitative findings can be transferred to other groups of people and contexts (Lincoln & Guba, 1985). Thus, qualitative researchers need to provide contextual information so that readers can decide whether the findings of a qualitative study can be transferred to their situations.

In line with these paradigms, Study 1 used closed-ended structured questionnaires to measure concepts. This design was chosen to minimise the influence of the researcher and achieve better objectivity and generalisability. In contrast, Study 2 collected data through semi-structured interviews and open-ended questions. This method enabled the collection of rich contextual information, which enhanced the transferability of the findings of Study 2. Other guidelines to evaluate the trustworthiness of a qualitative study are considered in the Quality and Validity Assessment section of Chapter 3.

Rationale and Design

The interviews were conducted by phone for several reasons. First, concerns about confidentiality can be the main reason for people living with HIV to refuse to take part in interviews (Jarman et al., 2005), and telephone interviews could increase the sense of confidentiality and therefore response rates. Phone interviews can also reach participants who are hard to access, such as those living rurally or remotely (Miller, 1995; Sturges & Hanrahan, 2004). Phone interviews also save travel time and transport

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costs for participants and interviewer. Third, it is easier for interviewees to terminate the interview if they wish to withdraw. Fourth, participants may speak more freely without the physical presence of the interviewer (Miller, 1995). Although phone interviews cannot contribute to some contextual cues, such as body language, this study focused on the reported cognitive processes of participants, and so the phone interview was seen as a suitable way to collect data.

Data were collected through semi-structured interviews. The interview schedule consisted of 10 open-ended questions, along with possible prompts (Appendix F). The interview schedule was designed to guide participants towards reflection on their experiences since receiving the diagnosis of HIV, with an emphasis on the processes of PTG. The interview started with neutral and general questions which were relatively easy to answer and helped to put participants at ease before they answered more personal questions. More specific questions with prompts for details followed. Participants were encouraged to provide their own stories with minimal interruption.

The study design and interview schedule were approved by the Massey Human Ethics Committee (Southern A-18/61, Appendix H). Before carrying out the interviews, the researcher also consulted with a counsellor at the New Zealand AIDS Foundation in Wellington to understand how questions should be asked and to ensure the interviews would respect participants and not make them feel uncomfortable. In particular, potentially uncomfortable questions, such as “How did you get it?”, were not the focus of this study and were avoided. A few participants spontaneously mentioned that such questions went nowhere and had been asked of them in the past in stigmatising circumstances.

The interview schedule was sent to participants together with the information sheet (Appendix G) and a consent form (Appendix I). The information sheet aimed to

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provide a general outline of the study. Participants were informed that the interview schedule was a general guideline and not fixed, and that their responses might direct the interview into new areas. Those who agreed to take part in the study then signed and returned the consent forms and were scheduled for interviews.

Recruitment

The recruitment phase lasted for 6 months, from mid-October 2018 to mid-April 2019. Advertising posters (Appendix J) were put up in the waiting rooms of clinics at the Auckland, Wellington, and Christchurch centres of the New Zealand AIDS Foundation in, as well as in the waiting rooms of Body Positive and Positive Women. Advertising flyers (Appendix K) were put on desks in the same waiting rooms. These three HIV-related organisations also included study information and an invitation to contact the researcher on their Facebook pages and e-newsletters.

People who were interested in this study were invited to contact the researcher by phone or email and to provide a contact email address and phone number. Then a letter which included an information sheet, the interview schedule, consent form, demographics questionnaire (Appendix L), and a stamped self-addressed envelope was posted to them. After the participants signed and returned the consent form, an interview time was arranged.

Additional criteria for participation were added to those of Study 1. First, participants needed to have been diagnosed in the ART era, as Study 1 showed that people diagnosed with HIV in the pre-ART era reported higher levels of PTG compared to people who were diagnosed in the ART era. Second, only those who had been diagnosed at least 1 year prior were included, as newly diagnosed people might have been at a more vulnerable stage. Third, only people who were on HIV medication were included. Fourth, to avoid potential interference between this study and psychological

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intervention, people who were engaged in psychological therapy were excluded.

However, people who were in peer support groups were eligible to participate.

Therefore, the following criteria were used in this study:

- Speak English and live in NZ
- Diagnosed with HIV after the year 1996
- Diagnosed with HIV at the age of 18 or older
- Diagnosed with HIV for at least 1 year
- On HIV medication

Exclusion criterion: Engaged in psychological therapy

Participants

In total, 20 participants expressed interest in this study, and 17 of them signed and returned consent forms. As the researcher could not contact one of them, 16 finally completed the study (Table 14). The age of participants ranged from 30 years to 67 years old, with an average of 48.6 years old, and time since diagnosis ranged from 1.1 years to 19.1 years, with an average of 8.6 years. Table 14 shows the details of the participants.

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Table 14*Description of Participants*

Name	Gender	Age	TSD (years)	Ethnicity
Andrew	Man	67	7.4	European
Bella	Woman	57	1.1	Asian
Charlie	Man	37	6.4	European
Daisy	Woman	42	18	European
Eric	Man	51	19.1	European
Frank	Man	36	11	European
Grace	Woman	60	5	European
Hasson	Man	63	4.7	European
Jacob	Man	53	14.7	European
Kjel	Trans woman	45	9	European
Louis	Man	30	2.1	European
Miranda	Woman	42	3	European
Nelson	Man	34	2.7	European
Oliver	Man	39	10.5	European
Peter	Man	65	15.3	European
Rachel	Woman	56	8.1	European

Note. Participants' names are substituted with pseudonyms unless they requested the use of their own names. TSD = time since diagnosis

Data Collection

As far as possible, interviews were carried out in quiet, uninterrupted and private places where they could not be overheard. The researcher phoned from home, and participants were recommended to stay at home for the interview.

At the beginning of the interview, participants were informed of their right to withdraw from the study if they wished and to have any of their questions answered. This introductory segment lasted about 8 minutes on average. Two digital recorders were used to allow for back-up in case one recorder failed. Interviews lasted from 37 to 93 minutes, with an average of 57 minutes per interview, excluding the introduction.

During the interview, the interviewer remained alert to participants' emotional state. When one participant became emotional, the interviewer offered to pause the interview, but the participant wished to continue. After the interview, she said that

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crying and talking had made her feel better. During a follow-up phone call, the participant expressed that she was fine and not distressed by the interview.

At the end of each interview, participants were asked how they felt and were encouraged to ask any questions. One participant said recalling the past was a little stressful, but she felt it contributed to her processing, which she felt was beneficial. Others reported no concerns. All participants were asked whether they would like to receive and revise the transcript and whether they would like to receive the summary of findings (Appendix M). The interview ended with thanks for their participation.

After each interview, each participant was sent an email with the contact information of psychological counsellors of the Health Services team of the New Zealand AIDS Foundation or clinical psychologists. Participants who chose to receive and revise the transcript had 2 weeks to return the revised version if they wished. A post-interview letter was sent which included a transcript release agreement form (Appendix N), a \$40 gift card, a receipt for the gift card, and a stamped self-addressed envelope. Those who did not wish to receive and revise the transcripts were sent the post-interview letter soon after the interview. No information was included in the analysis unless the researcher had received the signed transcript release agreement.

Ethical Considerations

Full ethical approval was granted by the Massey Human Ethics Committee (Appendix H). Relevant documents including consent forms, the information sheet, advertisement flyer and poster, and interview schedule were included in the application. Ethical issues considered in this study were informed consent, confidentiality, potential risk of harm, debriefing, release of transcripts, incentives, and data storage.

Participants were asked to give written consent if they wished to participate in this study. The information sheet and interview schedule were sent to those who

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indicated interest in the study. All participants were informed that participation was voluntary and confidential, and that they had the right to withdraw from the study without penalty and without giving a reason, at any time before the audio recording was transcribed (2 weeks post-interview).

This study was completely confidential but not anonymous. All participants provided a phone number and a postal address. Any information that might lead to participants' identity (any names or places) was removed or replaced with pseudonyms in the transcripts, unless they requested the researcher to use their real names. Only the researcher had details of the participants' contact information, and this information was destroyed once the findings of the study had been sent to participants who had requested it. After transcription, the audio recordings were erased. The de-identified transcriptions, consent forms and transcription release agreement forms will be stored for 5 years and then destroyed under the supervision of the main supervisor. Only the researcher and supervisors can access the raw data.

An interview about the experience of living with HIV might be stressful for some participants, so all participants were reminded of their right to withdraw from the study or to decline to answer any questions. During the interview, the researcher remained attentive to participants' emotional state. If participants expressed distress, the researcher offered to pause the recording for a while. The contact information of counsellors from the Health Services team of the New Zealand AIDS Foundation and clinical psychologists were provided in the information sheet, and participants were reminded of this after each interview.

Following each interview, the researcher debriefed with the main supervisor, a clinical psychologist, by phone and in person. This was done to discuss the general conduct of the interview without revealing the details.

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Before delivering a summary of findings to participants, the researcher asked a counsellor from the New Zealand AIDS Foundation to review the draft to make sure the report was worded appropriately and would not be likely to make participants or other people living with HIV feel uncomfortable. Following this, the researcher delivered the summary of findings by email to participants who had requested it.

Data Analysis

The researcher and the two supervisors worked as a team and met regularly during the analysis. This study used the analysis framework suggested by Braun and Clarke (2006), which follows the steps below.

Step 1 was familiarisation with the data. This step included reviewing the recordings, transcribing the interviews and repeatedly reading the transcriptions. This enabled in-depth engagement with the data, allowing the researcher to develop and note down initial ideas about themes and key ideas in the interviews.

Each interview recording was transcribed verbatim. During transcription, the researcher listened to the audio repeatedly and continually checked transcripts against the audio recordings. The transcription used Braun and Clarke's (2013) notation system. Non-verbal utterances like "um" were also written down. Laughter and sighs were signalled with ((laugh)) and ((sigh)). Inaudible words and sound were signalled with ((inaudible)), and single parentheses were used to signal a best guess as to what was said. Five participants chose to receive a copy of transcript and returned it to the researcher after checking and correcting factual errors. Three of them made minor corrections, and the other two expressed satisfaction with their transcription.

Step 2 comprised initial coding. Through repeated reading and note-taking, the researcher aimed to identify ideas and patterns within the data that might be assessed in a meaningful way. All the transcripts were coded. More than 100 initial codes were

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identified. The coding was done using QSR International's NVivo 12 software, which allowed the researcher to keep contextual information when coding. The two supervisors independently went through one transcript as a sample and reviewed the researcher's coding to see if it made sense to them and if any important information was missed or overstated.

Steps 3 and 4 involved searching for themes and reviewing the themes, respectively. Codes were analysed, categorised and merged into potential themes at Step 3, and the researcher reviewed the themes, collated and reorganised them at Step 4. Extracts were reread to ensure consistency with themes. Rereading of the transcripts enabled any data missed previously to be coded and included. Themes were reviewed and adjusted by the researcher to obtain a relatively clear and coherent overall structure.

After the initial coding, the researcher and the two supervisors started to discuss how the codes might map and merge into potential themes. They worked closely and exchanged ideas through emails and at regular meetings. At first, the researcher and her supervisors identified two themes: event-related cognitive processing and the rebuilding of assumptions. However, some codes remained. The team continued to refine and develop these and consequently identified another theme: challenges. The remaining codes (i.e., humour and providing support to family) were deemed not rich enough to constitute further themes.

Steps 5 and 6 were defining and naming themes and producing the report. The essence of each theme was described, and these were named to clearly represent their meanings. The three themes were: challenges, event-related cognitive processing, and rebuilding of assumptions. The second theme was initially named "deliberate rumination" and then "event-related coping". However, the term "deliberate rumination" overlapped with one of the variables in Study 1, which could have caused

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confusion. The subthemes of the second theme were mainly cognitive, so the name “event-related coping” was less precise. After discussion with her supervisors, the researcher named the second theme “event-related cognitive processing”. The themes and supporting information are reported in the Results and Discussion below.

Quality and Validity Assessment

Suggested several guidelines were considered to enhance the quality and validity of this study. These included sensitivity to context, commitment and rigour, transparency and coherence (including credibility checking and reflexivity), and impact and importance (Braun & Clarke, 2013; Elliott et al., 1999; Tracy, 2010; Yardley, 2008). The following sections discuss each guideline to assess the quality and validity of this study.

Sensitivity to context was maintained in several ways, as Yardley (2008) suggests. The interview consisted of open-ended questions that encouraged participants to talk freely. Before each interview, participants completed and returned demographic questionnaires which provided the researcher information about the general background of participants. One participant was Asian, and during the interview, care was taken to include a discussion about how her cultural background had impacted her way of coping with HIV. The researcher was familiar with the literature on the research topic, and ethical considerations were independently assessed, as explained above.

Commitment and rigour were also considered. The design and analysis of this study were closely linked to its purpose. A purposive sample of people living with HIV was selected to ensure consistency with Study 1 and the aims of this research. Before the interviews, the researcher consulted with a counsellor from the New Zealand AIDS Foundation in order to better conduct the interviews. The researcher also undertook training in qualitative research and data analysis. During the analysis, there were

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ongoing discussions between the researchers and supervisors. Substantial effort and time were invested in achieving a rigorous and thorough analysis.

Transparency and coherence were additional guidelines followed. The theoretical stance, rationale, data collection, and analysis are described in detail in preceding sections in this thesis to ensure the transparency of this study. Each argument or interpretation made in this study was supported by verbatim extracts from the interviews, to help ensure participants' perspectives were adequately presented. Themes, subthemes, and examples of extracts (Appendix O) and the endorsement of themes and subthemes by participants (Appendix P) were provided to enhance transparency.

Coherence refers to the degree of fit between the research questions, the theoretical framework, and methods used to collect and analyse the data (Braun & Clarke, 2013; Yardley, 2008). In this study, coherence was maintained through theoretical and methodological means. The study aimed to find out the process of PTG among people living with HIV with a specific focus on cognitive processing. It was situated within current theories of PTG in general and cognitive processing in particular and provided details to enrich these theories. The semi-structured interviews, analysis procedures, and critical realist stance were also compatible with thematic analysis (Braun & Clarke, 2013).

Credibility checking was conducted in several ways. Member checking refers to checking the analysis with participants and asking them to comment on its authenticity or to contribute to the analysis itself (Braun & Clarke, 2013). Participants were offered a chance to receive and correct errors in the transcript of their interview. This study did not use member checking in data analysis. Madill et al. (2000) suggested that reliability in a qualitative analysis should be situated in the epistemology of the study. Member

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checking assumes a positivist stance (Braun & Clarke, 2013). It is essential in studies that aim to present “the truth” of personal experiences. However, this study investigated the processes of PTG in people living with HIV. It took a contextualist stance and was underpinned by Study 1 and theories of PTG. In addition, people living with HIV were difficult to access. A member checking process may have made participants reluctant to engage as they would have had to spend extra time checking, which may have provided little or no additional contribution to the findings (Birt et al., 2016; Thomas, 2017).

Triangulation means using more than one method to collect or analyse data, and it is considered to be an important way of establishing credibility in thematic analysis (Braun & Clarke, 2013). The two supervisors independently went through one transcript as a sample and reviewed the researcher’s coding to see if it made sense to them and if any important information was missed. During the analysis of all transcripts, ongoing refinement and development of themes were undertaken in discussion with supervisors. Upon completion of the analysis, the researcher asked a counsellor at the New Zealand AIDS Foundation to review and comment on the emergent themes. The findings were also compared with other qualitative and quantitative studies and PTG theories. The triangulation process allowed the researcher to gain more insight into the complexity of the processes of PTG in people living with HIV (Tracy, 2010).

Reflexivity was also considered as part of ensuring transparency. Reflexivity refers to recognition of the influence of the researcher on the research process and interpretation (Willig, 2012). The experiences and professional knowledge of the researcher were involved in the interview and interpretation processes. The researcher has a Bachelor of Medicine degree, which helped her to take a non-judgemental stance in understanding participants’ experiences. Also, the researcher’s educational background enabled a critical realist stance, as she tended to see HIV from a broader

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bio-psycho-social-spiritual perspective rather than a purely physical or psychological perspective. The researcher was an international student and informed participants of this before the interview. Her identity as an international student might have been a disadvantage if the study had taken a positivist stance, whereas in this qualitative study, interpretation from a researcher with a different cultural background can offer alternative and additional perspectives on the findings.

The impact and importance of this study are represented in theoretical, practical, and moral aspects (Tracy, 2010; Yardley, 2008). This study identified three main pathways that might be related to PTG. The findings both support and extend current theories of PTG by providing detail and depth and in particular point out the role of supportive and stigmatising environments in the processes of PTG in people living with HIV. This study also showed that stereotypes about HIV and people living with HIV still existed in NZ. Better education and media coverage of up-to-date information on HIV, especially in rural areas, may help reduce stigma and promote the well-being of people living with HIV. Phone interviews were found to be viable when conducting qualitative studies among marginalised or vulnerable populations and facilitated reaching people who were less likely to engage in face-to-face interviews by providing greater confidentiality. This study identified the challenges that people living with HIV encountered and their efforts to cope with these challenges. It highlighted the activity and positivity of people living with HIV, which might help readers develop less stigmatising and more empathetic perspectives on people living with HIV. In addition, it might remind people living with HIV of more positive perspectives towards themselves.

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Summary

This chapter has outlined the conceptual framework, explained the rationale of critical realistic epistemology and the use of thematic analysis that applied in this study, and demonstrated the methods used. The following chapter presents the findings.

Results and Discussion

This study identified three main themes that might contribute to PTG: challenges, event-related cognitive processing, and rebuilding of assumptions (Table 15). Challenges represented the perceived discrepancies between event-related information and previous assumptions. Event-related cognitive processing was the strategies that participants used to deal with HIV-related events. Rebuilding of assumptions described participants' attempts to rebuild their beliefs and goals in a more meaningful or positive way.

Table 15

Themes and Subthemes

Themes	Subthemes
1. Challenges	Disruptions to life and goals Threats to meaningfulness Threats to perceived benevolence Threats to self-worth
2. Event-Related Cognitive Processing	Sensemaking Reinterpretation Downward comparison Problem solving Avoidance
3. Rebuilding of Assumptions	Reaffirmation Reinterpretation Connective comparison Reflection

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Theme 1: Challenges

The Challenges theme describes perceived violations of beliefs and goals due to HIV-related issues. It represents a meaning-related appraisal based on participants' understandings of HIV and their basic assumptions about life, the world, and the self. These assumptions or systems of belief are called world assumptions (Janoff-Bulman, 1989), core beliefs (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010) or global meaning (Park, 2010). For example, people tend to believe that the world is meaningful, controllable, and safe, that people around them are trustworthy, and that they themselves are capable and worthy (Janoff-Bulman, 1992). People are also likely to have life plans or goals for achievement and well-being (Park et al., 2016). However, stressful experiences can violate some of these beliefs and goals.

HIV is still a stigmatising chronic medical condition which used to be a death sentence. Being diagnosed with HIV implies a life with multiple potential stressful events. Participants reported experiencing life threat, enacted and self-stigma, and physical and social uncertainties, which might have violated their beliefs and goals.

Four subthemes were identified under the Challenges theme:

- Disruption to life and goals
- Threat to meaningfulness
- Threat to perceived benevolence
- Threat to self-worth

Disruptions to Life and Goals. Participants who were diagnosed in the early ART-era and with severe symptoms reported that they had experienced a strong fear of death. Daisy and Eric were diagnosed nearly 20 years ago. Both said that back then, HIV was “a death sentence”, because “at that stage, they hadn’t really completely got the medication. So, I thought it. I knew still people were dying a lot” (Daisy).

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Participants who were diagnosed with a severe opportunistic infection had felt that mortality was close. Jacob described his experience:

The [a hospital] there at a time, you know, they basically almost pulled the plug on me a couple of times. You know, I was ((inaudible)) absolutely, I mean I literally was a full-blown AIDS... I knew I wasn't going to die, but I knew that I was very close to it.

Participants who were diagnosed in the last 10 years also reported a fear of death as a result of ongoing stereotypes. Bella and Kjel thought HIV had “no cure” and was “fatal”. Kjel was diagnosed at the age of 36 but living in a rural area limited her access to HIV-related education.

On the other hand, participants who had up-to-date knowledge of HIV, for example, Andrew and Hanson who were diagnosed around the age of 60 years, and Frank and Louis who were diagnosed in their 20s, did not think they were facing death. It seemed that participants' preexisting knowledge rather than the time of being diagnosed (early ART-era or recent) or their age at diagnosis impacted their initial appraisals.

Participants who reported feeling that their existence was threatened also reported that their life goals were disrupted. Participants who were diagnosed in the early days and at a relatively younger age reported more severe life disruptions due to concerns about mortality and physical health. Daisy was diagnosed in her early 20s, 18 years ago. She described her experience:

I really feel like I have quite limited myself because of my um my lack of ambition, no, my lack of, not ambition, career-wise, just my holding back,

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because I've always had this fear that why would I dream if I might not be here to live it. Yeah, it's really hard to explain, but yeah, dreaming, I don't really do.

After some years of treatment, many participants reported fewer concerns about their physical health. They described stigma rather than physical issues as the main problem. They reported disruptions and limitations due to stigma, such as difficulties and concerns in building intimate relationships, because HIV can be a sexually transmitted disease. Some participants experienced rejection. Kjel said, "Most people will change their minds about starting a relationship once they find out a person, well, um positive." Charlie and Rachel said some people just ran away after learning their HIV status. Jacob reported that he had not been able to find a partner since he had been diagnosed 15 years before.

Many of the participants' lives may be made harder by their diagnoses. The challenges they faced were not only related to the initial shock of the diagnosis but also a life with ongoing disruptions and difficulties. Daisy and Rachel felt that life in itself was not easy and HIV "makes everything harder". Daisy explained:

... different things came up. So you think, you know, you're fine physically, but there'll be challenges like um, so yeah, there is a relationship, and then I overcome that hurdle, and then there is um, you know, maybe um um, oh, disclosing to partner, that there's another hurdle.

Some participants, like Andrew and Hanson who had been diagnosed in recent years and around the age of 60 years, did not report such concerns. When mentioning the influence of the diagnosis, Hanson said:

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I face that like fifty- um how old was I? Um probably was about fifty-eight or something. That makes a big difference, because you've lived a lot of your life already and likely to live a lot, you know, I'm gonna live a normal life span.

It is possible that older participants had already been through many life experiences and had built relatively successful careers and stable relationships. As advanced treatment meant their lives were less likely to be shortened, they reported fewer life disruptions or concerns. Another possibility is that they were more mature and had had richer life experiences, and thus were better able to adapt to a life with HIV. Andrew's life was rarely changed by HIV according to himself. He said, "I think you just have a lot of experience you can call on from life and things you've encountered and things like that." Similarly, Hanson mentioned he had "fallen apart before" and slowly learnt "how to emotionally survive situations in life". It seemed that Andrew and Hanson had gained experiences and perhaps PTG through other life events earlier.

Threats to Meaningfulness. People tend to believe that the world is meaningful and what happens makes sense, and that they can control their lives through managing their behaviours (Janoff-Bulman, 1989). An unexpected diagnosis and enacted stigma might challenge this sense of meaningfulness.

Many participants reported being shocked when diagnosed. Grace described her experience:

I was stunned. I was shocked, because I had no experience of being positive.

The only thing... I just felt completely shut down, because I couldn't understand why and how I would have got it. And so, yeah, it was a real shock.

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Grace further explained, “I didn’t really understand it at all. Because to me, that was a gay men’s disease”. “A gay men’s disease” was a typical stereotype of HIV. Participants often reported that their knowledge had been very limited and, in some cases, dated back to the 1980s. Kjel said:

The only thing I knew about it was, you know, publicised cases a long time ago... an Australian girl came to New Zealand, seeking asylum and things... And it was all... (It) was a long time ago ((laugh)), but it was all.

The case referred to here is that of Eve van Grafhorst, one of the first Australian children to be infected with HIV, via a blood transfusion. In 1986, after experiencing considerable stigma in Australia, she and her family moved to NZ, where they reported being welcomed (Royal, 2018). Other participants also mentioned having heard about Eve’s case. Two other participants’ early knowledge about HIV/AIDS was that “Freddie Mercury died of it” (Rachel and Bella). These impressions were formed many years previously from the media. No participants reported that they received up-to-date information about HIV from the mainstream media. It seemed that the media did not provide much information about advanced treatment, “U equals U”, or up-to-date information around HIV. As Andrew said, “all these findings of the *World Health Organization* and everything won’t be reported by media, because it doesn’t sell newspapers.” Media silence may have helped create and maintain ignorance and stereotypes about HIV and people living with HIV on a societal level, and societal ignorance and structural stigma may have set the ground for stigma on interpersonal and intrapersonal levels.

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Although gay men are a high HIV prevalence population, some gay participants reported they had not known much about HIV, and some mentioned that their gay friends were surprisingly ignorant about it. Oliver said:

It's amazing how uneducated about sexual health in some gay, it's astonishing. You'd think that because they are a part of a community that faces STIs, and sometimes high rates, they would be sort of more educated but they're not.

Others reported having knowledge but that they had never expected to become infected. Daisy said, "I was educated about it, but I didn't picture (it)." Charlie described:

I knew enough about it to not be scared of someone in my company who had HIV. Back then, a few friends of mine had HIV. And it was just... I mean I learned enough to feel with it from that perspective but not from the perspective of actually having it myself.

It seemed that participants had overoptimistic beliefs about the probability of being infected by HIV. As Janoff-Bulman (1992) mentioned, people are less likely to believe bad things will happen to them than to others, and being infected challenged such beliefs. Participants realised that "we're not invincible and we have to be careful and more self-aware" (Miranda).

Participants who had been aware of the possibility of being infected did not report a threat to their assumptions of meaningfulness. Andrew and Hanson had been aware of the possibility of being infected before their diagnoses. They found out about their positive status in one of their regular tests. Andrew said, "because of the way I was conducting my life, I suppose, I had the feeling that it would possibly happen at some

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stage.” They had both learnt about HIV before the diagnoses and accepted the diagnoses relatively easily. Hanson’s awareness also made him concerned, and he explained that “it was a threat for us always on the edge of whatever you did, you know, with any partner that you might have, with any situation, there was always that threat.” Hanson’s understanding of the situation was maintained even though his sense of controllability was compromised by the diagnosis.

Threats to Perceived Benevolence. The experience of enacted stigma violated participants’ assumptions about benevolence. In general, we assume that the people around us are trustworthy and the world is a safe place (Janoff-Bulman, 1992). However, for participants, enacted stigma undermined this belief. Participants reported a range of experiences of enacted stigma. These included loss of relationships and opportunities for working and studying, information about their health status being spread without permission, rejection, and being treated rudely. Eric described his experiences from 6 years before:

A man was attacking a lady, and I gave him a bear hug, and I got my finger cut. So...and the top of my finger got cut off, and I actually said to the policeman. And so people knew I got the thing of HIV... and then all the neighbours started calling me ‘You’re walking hazard’, ‘You’re harmful’, ‘You’re bad’, you know, ‘You’ve got disease’. And I was isolated in that apartment block. That was sort of abuse because I told the policeman and the police told everybody.

Eric showed kindness and honesty but was stigmatised in return. He was also stigmatised by his colleagues and friends, which ruined his trust in others. Eric said, “I couldn’t trust anyone because there were people I knew... abusing me.” To him, the

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outside world was not safe, nor was the personal world. Eric's benevolent world assumption was severely challenged, and he started withdrawing and isolating himself.

It seemed that participants who were exposed to more interpersonal stigma, especially from close and trusted ones, reported more negative perceptions and less trust of people in their personal worlds. Eric's experience was one example of this. Rachel also experienced stigma from friends, health professionals, and colleagues, and felt less trust in others.

Participants who only occasionally experienced stigma from strangers and at a societal level might have felt the injustice of society rather than less trust in the people in their personal worlds. Peter said, "It makes you realise how... how the world sort of has opinions that marginalised people."

Some participants did not experience direct or explicit interpersonal stigma but did feel social uncertainty. They expected that they might get stigmatised. Miranda was also nervous about other people knowing her HIV status: "I know of someone, yeah, and I could contact them, but just, yeah, will they keep quiet?" The world was less safe for people who had been diagnosed with HIV, especially when they were living in a different culture. Oliver was diagnosed overseas, but he did not seek treatment during the 2 years he was in that country. He explained, "I didn't know how [people in that country] would respond. Will they stigmatise me? So I wasn't... I didn't want that to happen. And I didn't know how they would react, because they're from a different culture." The language barrier, a complicated health system and insurance were also the reasons that Oliver made this decision.

Participants' previous assumptions would be maintained or even strengthened if they already held less benevolent assumptions. Louis disclosed his status in an online dating application. He said, "...one person told me that, 'Everybody with HIV should

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be shot’.” Louis did not feel shocked, and he explained that “I think that the world is pretty messed up, and this hasn’t changed that. That has supported that as a matter of fact, that hasn’t contradicted it.” Louis reported that his relatively negative perception of the world was a result of having been stigmatised as gay when he was young. Another possible reason was that the stigma was from a stranger and Louis was aware that “those messages are very rare”.

Threats to Self-Worth. One basic self-related assumption is that we believe we are good, capable and worthy (Janoff-Bulman, 1992). Physical impairment and enacted stigma can violate this assumption and manifest as self-stigma. Grace was affected by HIV-related visible and irreversible physical impairments. She had to retire from her job as a result of her compromised physical status. She said, “I think the challenge (is) in the sense that how do I see myself now, do I see myself as flawed or diseased?”

Participants who internalised the enacted stigma, either at the structural or interpersonal level, reported feeling that they were less capable and dirty and worthless. For example, Nelson’s self-stigma was initiated by the health professional who informed him of his diagnosis. He explained, “Because this is the way she delivered it. I just felt like the criminal sort of thing.” Nelson further described his feelings:

Devastating, like I just wanted to hide and crawl under a rock and never be seen really. Because I felt like... like a walking disease, like I’m very infectious, and that I’m gonna harm and hurt everybody, and that I’m horrible and was just an ugly disease-ridden person. That, yeah, you feel not nice, yeah. And it made me scared. So I just didn’t want to really come out and see anyone or hurt anyone, coz that’s how I felt at the time.

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This study found that young people who identified with sexual minority groups and who had self-image issues were more vulnerable to self-stigma. Louis said, “Obviously those things kind of stick with you. And they link to the body shame trigger that we all have.” Kjel was a transgender woman who reported having used self-harmful behaviours before her diagnosis. She said, “Because I was non-binary, and I wasn’t really sure what I was, you know, it felt like a combination, and I felt like I deserved it. That really devastated me.”

Participants with relatively stable self-worth or less socially dependent self-worth may be more resistant to enacted stigma. Two gay men who were in their 60s did not report self-stigma. Hanson said, “I don’t feel guilty (or) negative about any of that... And there are plenty of other parts in my life that are very positive and successful.” Andrew reported a similar situation. Both of them were diagnosed around the age of 60 years and reported having relatively stable self-worth. Hence, it seems that they were less likely to be influenced by structural stigma. However, they did not experience unwanted release of personal information about their health status and did not report experiencing interpersonal stigma. Jacob, on the other hand, experienced stigma from his father and multiple interpersonal stigmas from strangers when Kaposi Sarcoma lesions covered his skin. However, Jacob did not feel ashamed or dirty, and interpersonal stigma or a devalued social identity were not central to his identity and life. He ignored the stigma and continued his social life. However, Jacob suffered extreme physical tiredness as a side effect of ART and experienced doubt about his working ability, which was more central to his identity.

Less stigmatising social environments also reduced the impact of enacted stigma. Frank said, “Mostly my friends have got it. Well, they...If they don’t know about it already, if they do know, they’ll be fine with it.” Frank was in his 30s and did

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not report self-stigma. It seemed that being HIV positive was normal in his personal world as he said “It’s common in (the) gay community.”

Summary and Discussion. The theme of Challenges refers to the perceived violations of beliefs and goals, which are the results of meaning-related appraisals. It is described as shattered assumptions (Janoff-Bulman, 1992), disrupted core beliefs (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010) or violation of global meaning (Park et al., 2016). Whether an event will violate an individual’s beliefs and goals depends on whether the event-related information is consistent with previous beliefs and goals (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010; Park, 2010). If it is consistent, the assumption will not be violated. If it is not consistent, beliefs and goals are likely to be violated. The findings of this study support this point of view.

The two main types of events that people living with HIV faced were physical health issues and enacted stigma. These might violate participants’ goals of living a healthy life, having a normal life span, achieving career success and intimacy, beliefs in a meaningful and benevolent world, and a worthy self. Park et al. (2016) suggested three types of global meaning violations: violation of intrinsic goals (i.e., relationships and physical health), of extrinsic goals (i.e., career and education), and of beliefs (i.e., safety and justice). These kinds of global meaning violations were also evident in the current data.

Perceptions of a shortened life and disrupted future, loss of control over life, less trust of others, and low self-esteem have been found in other qualitative studies of people living with HIV (Mphande-Finn & Sommers-Flanagan, 2007; Schaefer & Coleman, 1992; Schwartzberg, 1993). The challenges that participants of this study reported mainly referred to the impact of physical health and stigma. Unlike earlier studies of people living with HIV that widely reported participants experiencing a threat

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to existence (Davies, 1997; Tross & Hirsch, 1988), participants of this study who were more likely to report these concerns were those with severe symptoms or those who had been diagnosed at the beginning of the ART era.

The challenges referring to physical issues in this study were similar to the challenges of people with cancers, such as perceptions of an ongoing physical threat, health anxiety, a feeling of a limited future, and shame or fear about deformity (Ochoa Arnedo et al., 2019). From a physical perspective, HIV is a chronic medical condition rather than a death sentence, and participants more frequently mentioned experiences of stigma than threats to existence. Participants reported stigma from societal, interpersonal and intrapersonal levels, which was consistent with other studies in people living with HIV (Magno et al., 2019; Mo & Ng, 2017).

Perceived challenges as the meaning discrepancies between event-related information and participants' previous beliefs and goals were impacted by both the event's nature and the participants' personal contexts. The nature of events may have included the severity and duration of illness, effectiveness and availability of treatment, and severity and sources of stigma. The participants' personal contexts may have included their previous goals and beliefs, physical and socioeconomic status, previous knowledge of HIV, and perceived social support. Moreover, threats related to illness progression and stigma were ongoing and could have continued to challenge participants' beliefs and goals.

The impacts of violated beliefs and goals were related to event centrality or salience. Event centrality refers to how much an event is likely to impact an individual's identity and change their life (Berntsen & Rubin, 2006). More central events were more likely to violate people's core beliefs and cause life disruption. For example, work performance and ability were more central to Jacob than social rejection, so Jacob felt

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lower self-worth when his working ability was compromised but did not care as much about stigma from others. Assimilation of event-related information seemed relatively easier if it was not as stressful or central to participants, such as when Peter realised the social injustice. However, participants whose core beliefs and goals were violated needed to put more effort into cognitively processing the information in order to keep a coherent inner world, learn knowledge, and develop new skills to manage their lives with HIV.

Theme 2: Event-Related Cognitive Processing

There are two types of event-related cognitive processing: intrusive and deliberate rumination (Tedeschi & Calhoun, 2004). Participants in this study reported more deliberate and effortful rumination, rather than intrusive rumination. Five subthemes were identified:

- Sensemaking
- Reinterpretation
- Downward comparison
- Problem solving
- Avoidance

Sensemaking. The unexpected diagnosis and experiences of enacted stigma violated participants' assumptions of a comprehensible world. Questions like "why?" and "why me?" were proposed. Louis understood his diagnosis under the assumption of "a just world" (Janoff-Bulman, 1989). Louis reported that he was in a "numb shock" after being diagnosed. He tried to make sense of the question "why me?" by proposing another question, which was "why not me?" and then recognising that everyone who did not practise safe sex faced the possibility of being infected, including himself. In this way, Louis' assumption of fairness was maintained. When assumptions about the

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world are recovered or maintained without integrating event-related information, this has been called assimilation (Joseph & Linley, 2005). Louis reported feeling few changes due to HIV. Therefore, it seems that for him, making sense through assimilation was related to acceptance and reduced emotional distress rather than to PTG.

Another form of sensemaking was self-attribution. Daisy made sense of her diagnosis by behavioural self-attribution (Janoff-Bulman, 1992). She said, “I should have known better. And I guess my stupidity... I paid the price for stupidity. It took me a really long time to accept myself, and there’s still an element of shame with that.” Daisy’s self-attribution helped her recover her sense of control, as she saw her own behaviour rather than randomness as causing the infection. Daisy further described:

Everybody’s got a bit of a path or journey, and things happen for a reason. And um I believed that probably before, you know, those happened for a reason. And like I said, it helped me and my processing, um so has that changed? No, it fits me.

However, this sort of attribution caused self-blame which might have impaired the recovery of self-worth.

Failure to make a positive behavioural self-attribution could leave people assuming that their world is less controllable. Bella found it confusing to understand why her partner and herself contracted HIV as they were “always loyal to each other”. Bella reattributed her diagnosis to randomness, explaining that she had been “just unlucky”. Her reattribution of randomness consolidated rather than contradicted her violated sense of control. Revising assumptions in line with traumatising information has been termed negative accommodation (Joseph & Linley, 2005). Bella found her

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way to accept her diagnosis: “I accept it that maybe it happens to me because I am a strong person.” This way of thinking did not recover her previous assumptions, but it reduced negative emotion.

Participants also tried to make sense of their experiences of being stigmatised by close ones. When describing how her friends spread information regarding her HIV status to others, Rachel said, “I felt quite betrayed in the early days, and I felt really hurt. And a little bit angry and bitter, but now um I’m not bitter, because I like, well, you know, it wasn’t an intentional thing.” Rachel understood and accepted it, but she still had negative perceptions of people. She said she became “a lot more cynical” and “a little bit less trusting of people”, which indicated negative accommodation. Here, making sense of the event seems to have promoted acceptance and less negative emotion rather than rebuilding a benevolent world assumption.

Failure to make sense of events can lead to depressogenic rumination and suffering (Davis et al., 1998). After being stigmatised repeatedly and extensively, Eric mentioned, “‘Why me?’ And ‘Am I not good enough and I deserve this?’, ‘Why did it happen to me?’ And ‘Why did they speak like that?’” Eric could not find answers to these questions and reported suffering from depression and anxiety for years after. To him, the world was malevolent and uncontrollable, and he did not find anything positive about his experiences with HIV. Failing to make sense of the event may be related to poor adaptation and negative outcomes.

Reinterpretation. Some participants saw HIV as a threat to their existence, based on their previous knowledge and assumptions. Many worries or catastrophic thoughts were created by stereotypes. In these situations, reinterpretation was mainly about destigmatising. After learning more and living with HIV longer, they realised that

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HIV was a manageable chronic medical condition. As participants' stereotypes were corrected, their fear and anxiety reduced. Hanson described:

I realised that I had been over traumatised. I realised that it was just another thing, it's a medical condition, like many others, and less severe than many others that you can treat, successfully treat. So, a lot of my anxiety went around it, and yeah, till this day it hasn't returned.

Destigmatising was an important task to relieve people from fear of death and self-stigma. As the false alarm resolved, so did the negative emotions. Participants' assumptions were no longer threatened, and they did not feel a need to further process the information. However, Hanson did not report either positive or negative changes in his life or assumptions.

Reinterpretation might also be undertaken in a more meaningful form. Rachel reinterpreted her experiences of enacted stigma in this way: "a little bit philosophical, as people choose to gossip about me, then it means they're not gossiping about someone else. You know, I don't really care anymore." She understood herself being stigmatised in an altruistic way. It was as if she replaced the negative and stigmatised meaning with a positive one, which removed or reduced its threat to herself and her world assumptions. The result promoted her acceptance and possibly a level of positive self-perception. Together with her self-affirmation (i.e., "I'm a problem solver"), Rachel reported her self-perception as "I probably did... not so much change but regained my strength."

Peter and Grace deliberately reinterpreted the diagnosis of HIV in a more positive light. Grace said, "You can either long-term stay angry and, you know, hurt, or you can long-term think how can I use the positive effect." Grace chose the latter.

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Similarly, Peter saw HIV as “a lifelong motivator” to make sure he stayed healthy. Such positive reinterpretation helped them to accept the diagnosis and their physical condition.

It seems that Hanson and Rachel were able to regain their previous assumptions (assimilation) rather than develop new assumptions of a more meaningful world or worthy self. Grace and Peter, on the other hand, reported rich and transformational positive changes. However, Grace and Peter also reflected on life (a subtheme under the Rebuilding of Assumptions theme), which may be related to the processes of PTG.

Social support facilitated and enhanced the destigmatising process. Participants gained up-to-date information and neutral or positive perspectives from health professionals and peers. Hanson mentioned, “they really reinforced the idea that I’m likely to lead a long life and end up dying of natural causes, not of anything related to this. So I believe them.” The supportive environment also provided social feedback and reduced catastrophic thinking. Peter reported that he used to think that he would lose all his relationships, but after being accepted by people around him “friendships didn’t stop, and relationships with family didn’t stop. It just went on as usual. And my expectations didn’t come true at all.”

Not all discrepancies could be resolved by removing HIV’s bad reputation or adding a good one. For participants who had been diagnosed in early ART era and had experienced severe symptoms or compromised immunities, HIV was still considered a threat to life. Daisy, who was diagnosed 19 years ago, said, “I just think I’m going to die from that. I don’t think I’m going to be like next week or next year, but I think that my life will be cut short”. For others such as Grace and Peter, who had been close to death, they also needed to rebuild their sense of meaningfulness of life. Likewise,

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participants who did not have stable self-worth, especially young marginalised people, also needed to find ways to rebuild their self-worth after being stigmatised by others.

Downward Comparison. Another way that participants facilitated acceptance was downward comparison. Downward comparison refers to people enhancing their subjective well-being by comparing themselves with those less fortunate (Wills, 1981). Through downward comparison, participants reduced their negative emotions and gained some positive perceptions of their situation. For example, when describing the effects of HIV and ART, Peter said, “I have a friend with really bad diabetes, and he’s probably gonna die way before me.” Through comparison, Peter normalised and accepted the effects of HIV and its treatment.

Participants realised that things could be worse. Daisy said, “So I feel pretty lucky. It (feels) like the people that were diagnosed, you know, five years earlier than me pretty much aren’t alive anymore.” Some participants felt more connected and satisfied with life and with the people in their lives, and no longer took life and everything in it for granted. Bella said,

Every morning, I’m just grateful (I’m) still alive... I’m so grateful for what I am having, I’m so grateful I’m having people around me who love me, I’m so grateful I have a roof over my head, and I have a job.

Similarly, participants who experienced anticipated or actual stigma felt greater appreciation for the good relationships they had and so put more effort into them.

Rachel described:

probably what it’s done is made me really value my family, and I really value my friends. Like they have been really good friends and true friends and I do everything I can to look out for my friends, because I just so appreciate how

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much they have looked out for me. So yeah, it probably just made me value them so much more. You know, not take that relationship for granted.

Unlike sensemaking and reinterpretation, which might have worked to dismiss the discrepancy between event-related information and assumptions, downward comparison did not directly provide information related to people's assumptions. Instead, it worked on the emotional and affective aspects, and not only reduced the negative emotions but also generated positive ones. Obviously, the social environment enabled the comparison. Appreciation of life and others is a part of PTG (Tedeschi & Calhoun, 2004). It seems that downward comparison also contributed to PTG.

Problem Solving. In this study, problem solving represented peoples' attempts to manage physical and social uncertainties in order to regain a sense of control. Participants needed to learn more knowledge and to develop healthier lifestyles and disclosing strategies to cope with uncertainties and regain a normal life. Problem solving might take the form of learning, planning, and advocating.

Learning improved participants' understanding of events and situations. Participants learnt a lot from health professionals, peers, books, and websites, and kept updating their knowledge around HIV. Daisy said, "I think knowledge is power" and Nelson described learning and reading about HIV as "empowering". The new knowledge allowed participants to change their stereotypes around HIV and accept their own status. Grace said, "I had to understand it before I could accept it." Participants felt less distress after learning more about HIV. Oliver described, "I learned a lot, which was able to help me deal with it more." It seemed that through reduced emotional distress and better understanding, participants gained confidence and a sense of control.

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Participants reported that gaining knowledge and a better understanding of HIV improved their cognitive preparedness for the potential risks associated with their health status, and this prompted healthier lifestyles and proactive coping strategies.

Participants reported close adherence to medication and physical fitness regimes. Eric said, “I take medication all the time” and “try to go to the gym every day”. Louis and Oliver took the flu vaccine. Charlie, Grace and Peter did more physical exercise. Either with assimilation or negative or positive accommodations, participants developed healthier lifestyles, indicating that problem solving might relate to new adaptive coping skills, and these skills may be independent of rebuilding adaptive assumptions.

Participants made plans to manage communication of the information about their status and applied these plans. Daisy described, “Everything was very yeah contemplated. Whom I was going to tell, and how I was going to tell them, in what order, so it’s very calculated.” Then Daisy “told them each one and each one as planned”. Planning promoted the adoption of adaptive coping strategies. A disclosing strategy is crucial in living with a stigmatised medical condition. No matter what participants’ decisions were, they had considered whether, why, what, when, and whom to tell, and modified their strategies accordingly. An effective disclosing strategy also prevented unnecessary exposure to interpersonal stigma.

Participants reported that they selectively disclosed their status to close ones and adjusted their disclosing policies based on the feedback they received. Jacob and Peter disclosed to “every man and his dog” initially for more emotional support, and both received considerable support. Later, Peter realised that his privacy had been compromised. He likened disclosing to opening “a Pandora’s box” and started to conceal his status after relocating. Supportive feedback from close ones could enhance self-worth, as Nelson said, “They really helped validate me as a person.” Participants

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also reported that knowing that they were still accepted, needed, and loved by family and friends empowered them. In contrast, stigmatising feedback became a challenge, so many participants developed selective interpersonal disclosing strategies.

On the other hand, some participants chose to become public speakers. The project of Positive Speaker was first developed in the United States from the late 1980s to the 1990s and was set up in NZ from the late 1990s (Positive Speakers Bureau, 2020). People living with HIV were able to receive training from the Positive Speakers Bureau and discuss their personal experiences in a supportive environment. Becoming a positive speaker contributes towards reducing HIV-related ignorance and stereotypes among broader audiences. By feeling that they were benefitting not only themselves but all people living with HIV, participants felt empowered, and their self-perceptions became more positive. Nelson stated that “I feel like, yeah, I’m part of something and I can help. Um and that it’s given me a bit more confidence.”

Disclosing and sharing their experiences in a supportive public environment also reduced self-stigma. Grace said, “I thought I was sort of like a leper... and then when I started to tell my story, I felt less like that.” Rachel reported an enhanced sense of control and personal strength. She said, “I’m taking control of my story. I’m on my narrative.” Talking about their stories was a way to highlight their active management in coping with HIV. Meaning was reconstructed, and PTG developed through this narrative speaking (Neimeyer, 2006).

Participants who reported becoming positive speakers had been diagnosed more recently. It may have been the result of the publication of the *Swiss Statement* (Vernazza, 2008, as cited in Pearshouse, 2008). Nelson said, “I feel passionate about reducing the stigma. Because I know that, you know, I’m just like everybody else. I’m not, I’m not um infectious, I’m undetectable.” Moreover, participants who were positive

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speakers also reported they had suffered from self-stigma. Louis said, “if I’m not willing to fight that, I don’t... I can’t expect anyone will do that for me.” Miranda was considering becoming a positive speaker, even though she was currently struggling and hiding her status. She said: “That’s probably one of my goals, be able to be (a) public speaker one day, ((laugh)) with a lot of help.”

With effective strategies, participants experienced less emotional distress and a greater sense of control and gained knowledge, practical coping skills, healthy behaviours, and less negative and even more positive self-perception. Knowledge and new strategies are important for people encountering irreversibly changed situations. Failure to develop them may lead to maladaptation and more potential risks going forwards. Healthier lifestyles have also been found in other studies of people living with HIV and are considered to be an important behavioural element of PTG (Fauk et al., 2020; Siegel & Schrimshaw, 2000).

Avoidance. In this study, avoidance referred to people cognitively disengaging from coping with HIV-related issues. Charlie and Kjel both denied their diagnoses at first. Kjel said, “I didn’t seek help to process it or anything. You know, I went into a state of ignoring or denial.” Both reported turning to consumption of “massive amounts” of alcohol, food or marijuana, and became sicker. Charlie said, “It wasn’t until I sort of broke down and hit rock bottom that I actually started dealing with it.” Both of them experienced significant PTG in the following several years. It seemed that avoidance at the initial stage did not necessarily impede them from developing PTG later.

On the other hand, continuous avoidance may lead to poorer adaptation and less PTG. Eric also turned to “self-medicating” and drinking at first. He was diagnosed at the beginning of the ART era and experienced various forms of stigma. His basic

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assumptions about life, world, people, and self were all threatened by his diagnosis.

Subsequently, Eric learnt more about HIV, managed his physical health, and corrected his catastrophic thinking about HIV with the help of a psychiatrist. However, when mentioning how he managed stigma, Eric said:

So, it was always like a toothache. A toothache I didn't deal with. I didn't really deal with it. Because I was scared of it in a way, sort of like that I had a fear, psychological fear, you understand? of trying to deal with it. That's funny. I still probably (do) today.

Eric suffered from mental illness for years and did not report any PTG. He further explained:

It's been a very negative influence in my life. I feel like it stopped me from being who I am from a point. So I have um more absolute negative approach about that a lot of things that comes with rather than the positive. I don't see a positive outcome really for me. I don't think I could think anything positive about it or a part of the fact that.

Extremely negative emotion and cognitive disengagement can limit opportunities to access new or positive information that is inconsistent with traumatising expectations (Foa et al., 2006). Eric regained his sense of control over his physical health on some level through problem solving and seeking professional help, but he did not report actively engaging in rebuilding meaningful assumptions. Repeatedly experiencing stigma and helplessness seems to have consolidated his assumptions of a malevolent world and exacerbated his self-isolation and avoidance. Avoidance, distress and helplessness may have formed a vicious circle and restrained

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Eric from rebuilding positive assumptions and developing PTG. Eric said, “I missed my opportunities because I haven’t seized my opportunities... I’ve been alone. I don’t have a partner. I don’t trust anyone. I don’t engage in sex. I don’t have any friends”, and he felt “worthless and dirty”.

Jacob, who reported that his life expectations and self-worth were also threatened, was more focused on problem solving. He learnt about HIV, managed his health and adjusted his life plans. However, he did not report making sense of or reinterpreting events or rebuilding his sense of the meaning of life and self-worth. He kept himself occupied to distract himself from thinking about it and feeling anxious. His unresolved health anxiety and self-stigma persisted. He reported experiencing “constant” health concerns and “regular” self-doubt. Side effects of ART like severe tiredness and muscle wasting were other causes of ongoing distress. Jacob worked hard to resume his previous life but did not report positive changes. Thus, long-term avoidance might impede PTG and prolong distress.

Summary and Discussion. Violated assumptions and beliefs can be rebuilt through the three processes of assimilation (recovering previous assumptions and goals), negative accommodation (modifying assumptions and goals according to stressful events), and positive accommodation (rebuilding more positive or meaningful assumptions and goals) (Joseph & Linley, 2005). The event-related cognitive processing strategies under this theme might be related to these three processes.

This theme included five subthemes: sensemaking, reinterpretation, downward comparison, problem solving, and avoidance. These strategies are involved in resolving the violated beliefs and goals. This theme supported the idea that people may resolve violated beliefs and goals through deliberate event-related cognitive processing (Cann et al., 2011; Tedeschi & Calhoun, 2004). Tedeschi and Calhoun (2004) and Cann et al.

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(2011) suggested that deliberate rumination involved elements of sensemaking, reinterpretation and problem solving. Downward comparison and self-blaming or behavioural self-attribution were also suggested as ways to rebuild violated assumptions (Janoff-Bulman, 1992). The findings related to this theme supported these theories.

Sensemaking and reinterpretation might be meaning-focused strategies in relation to events, which involve amending or modifying violated beliefs and goals. Sensemaking helped participants to understand the events, and reinterpretation helped them to understand the implications of the events and to destigmatise HIV. Both of these may have helped participants understand and accept HIV as a part of life through assimilation and negative accommodation, and so reduce distress. Other studies also support the findings of this study in that higher levels of sensemaking and reinterpretation were associated with reduced distress (Davis et al., 1998; Neimeyer et al., 2006).

Participants who recovered their assumptions through assimilation did not seem to report changes in their assumptions. However, through negative accommodation, participants reported becoming more psychologically prepared and resistant to future risks. Loss of positive illusions and developing assumptions that are more closely related to general reality can be a part of increasing wisdom (McKee & Barber, 1999; Walsh, 2015). These realisations could be considered as a part of epistemic PTG but were not included in Tedeschi and Calhoun's PTG concept (Tedeschi & Calhoun, 1996, 2004).

Downward comparison might contribute to affective PTG. Through comparing their situation with possible worse situations, participants reported less distress, more positive perception and acceptance of the current situation, and more appreciation of life. The positive correlation between downward comparison and PTG was also found

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in undergraduates and stroke survivors (Gangstad et al., 2009; Williams et al., 2002).

Further studies to examine the association between downward comparison and appreciation would be helpful.

Problem solving was aimed directly at managing or resolving the events that were causing distress (Folkman & Moskowitz, 2000). In this study, it included acquiring knowledge and skills to manage a life with HIV and changing a stigmatising social environment. Participants might gain behavioural PTG (healthy behaviours) and epistemic PTG (increased sense of personal strength) through problem solving. This finding supported the theory that people can feel increased personal strength through successful management of stressful events and situations (Tedeschi & Calhoun, 2004). The finding of an increase in healthy behaviours has also been found by other studies of people with HIV (Dibb & Kamalesh, 2012; Siegel & Schrimshaw, 2000) and other life-threatening diseases (Hefferon et al., 2009). Social advocacy in pre-ART era might have been in the form of making complaints and attempting to change relevant social policies (Schaefer & Coleman, 1992), but in this study it was conducted via the Positive Speaker Project. Advanced treatment and U = U might have helped promote the changes.

The four active coping strategies under this theme might contribute to acceptance and better adaptation to a life with HIV and to PTG. These findings were supported by a number of studies (McIntosh & Rosselli, 2012; Moskowitz et al., 2009; Shand et al., 2015). Acceptance and reduced distress may also help rebuild more resistant and practical beliefs and goals (Tedeschi & Calhoun, 1995). While short-term avoidance may have few longer-term consequences, long-term avoidance may reduce opportunities for PTG and for building more adaptive assumptions. The findings on relationships between avoidance coping and PTG were mixed in quantitative studies as reviewed in Study 1. The findings here provided a possible explanation. Future studies

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need to examine the role of avoidance coping at different stages with multiple data collecting points.

The social environment facilitated participants' coping with HIV-related events from three aspects: providing information, enabling downward comparison, and promoting advocacy. Participants gained knowledge and treatment from health professionals, HIV-related organisations, and peers, which helped reduce their stereotypes and catastrophic thinking about HIV. Thus, some of the challenges due to ignorance were resolved. The social environment enabled downwards comparison which could help participants feel less distressed and more accepting and appreciative of their situation. Moreover, HIV-related organisations provided participants with training and opportunities to share their personal stories in a supportive environment, and hence to develop a more positive self-perception.

Self-disclosure played a crucial role in the process of PTG and was one of the main functions of social support in Tedeschi et al.'s theory (Tedeschi & Calhoun, 2004; Tedeschi et al., 2018). Self-disclosure promoted the release of negative emotion and fostered cognitive processing, and the response from others also impacted the outcomes of self-disclosure (Neimeyer, 2006; Tedeschi et al., 2018). The findings of this study supported this point of view. Moreover, disclosure also meant revealing their positive status and some were stigmatised after disclosing. Thus, self-disclosure and social response might interact with each other to affect the processes of PTG.

The findings in this theme suggested that self-disclosure could occur on interpersonal and societal levels. Supportive feedback from close family and friends reduced self-stigma by confirming participants' social value. Supportive feedback from wider social networks reduced anticipated and self-stigma. In addition, participants reported more personal strength and self-confidence. It seemed that support from family

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and friends might reduce the negative influence of enacted stigma, whereas self-disclosure with supportive responses from the community or society might foster greater PTG related to self-worth. In addition, advocating also contributed to social justice and benevolence. Similar findings were also reported in other studies among people living with HIV (Bogart et al., 2020; Paxton, 2002). It seemed that advocating might contribute to both personal and social growth.

Theme 3: Rebuilding of Assumptions

Participants regained their feelings of comprehensibility and controllability of HIV-related events through event-related cognitive processing. This theme describes how participants cognitively processed their challenged assumptions rather than the event itself. The main task was to build less threatening or more positive assumptions on the basis of negative accommodation.

Four main ways were identified:

- Reaffirmation
- Reinterpretation
- Connective comparison
- Reflection

Reaffirmation. Reaffirmation describes how people view themselves in a positive light or selectively focus on their positive qualities, values and relationships in order to maintain their perceived self-worth (Major et al., 2018). In this study, participants reported using reaffirmation to regain a sense of self-worth. Louis and Rachel reminded themselves of their good qualities or encouraged themselves to consolidate their sense of self-worth. Louis encouraged and empowered himself with words like “I can get through this” and “It doesn’t affect my life.” Louis felt “Those kinds of things, they’re really helpful.” Rachel described this in more detail:

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I do self-talk now... like 'I'm a good person', and 'I'm not doing anything terrible to people', 'I'm allowed to be happy' and 'I'm allowed to have a lot of fun'... 'I am a hard worker, and I'm a problem solver, and I'm an overcomer, and I have a positive outlook'.

Reaffirmation might relate to assimilation rather than positive accommodation. Self-worth might recover to some extent but not go beyond the previous level. Louis reported a positive self-perception, perhaps as a result of successfully managing a life with HIV, as he said, "I see that I'm an assertive, strong person, and I'm willing to fight for that what I think is important."

Nevertheless, assimilation did not bring immunity to further instances of similar events. Louis and Rachel were advocates and relatively open about their status and reported being more exposed to stigma. They had to repeat the same cognitive recovery process multiple times. Rachel said:

... like this's going pretty good, and I felt like 'go back to normal' and 'just my normal world'... and 'it's been better, better than before, better than before the HIV'. And then every time you think like that, there will be something, probably because I've talked too much, I shouldn't ever talk about it. So you talk and all of a sudden somebody pulled the rug out from under your feet. That's been my experience.

Louis said, "I have actively worked to be more reflective on myself, and I think that is caused by the diagnosis". By reflective thinking, he meant building his understanding of events, for example, "somebody said something that bothers me in a way, maybe it's because of shame which made me angry, and I'll think about why that

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is and what the triggers are.” It seems that Rachel and Louis repeatedly used cognitive processing as a part of their regular strategies in living a life with HIV, but such processing did not seem to contribute to PTG directly.

Reinterpretation. Participants reported realising that their life might be shortened. In this situation, Daisy reconsidered the priorities of her life. She said, “I think at twenty-four faced with your own mortality, it really made you very quickly realise what was important and what wasn’t.” Participants reevaluated their lives by focusing on life significance rather than on length of life. They reported starting to value the present and the richness of life. For example, Bella became more “here and now” focused, Daisy thought “it was about the quality of my life, not the quantity.” Rachel suggested that “Life is short, you should grab it, and you should enjoy it.” Their ways of reevaluation could also have become a new life philosophy which was more adaptive to a less predictable life. Altruism was also a way to make life more meaningful. Bella said:

... make the most of it. Maybe something you can put into the world. You know, whatever you can help, bring out the best of you. You know, bring, bring out what you can from yourself, you know. As you might be... maybe you can make someone’s life better too (for) them.

It was important to note, however, that a new life philosophy did not necessarily reduce participants’ fear of death or health anxiety or increase their life satisfaction. At the time of the interview, Bella had been diagnosed for about 1 year and also had experienced HIV-related bereavement. She was still processing her grief. Daisy and Jacob had been diagnosed about 18 and 15 years prior, respectively. Daisy said, “I’m afraid of leaving before my time”, and Jacob said, “It’s constantly on my mind. Well,

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you know, it's like, 'Fuck, I might have some growth'." Their health concerns were not unreasonable. Daisy had once been suspected of having cancer, and Jacob was waiting for the result of his biopsy test, which he had been told had a "ninety per cent chance" of being cancer.

Participants also adjusted their life goals. Jacob said, "not knowing, you know, what the future is going to be, you know. So, you know, I kind of always work on five-year plans, and now I probably work on two-year plans." Rachel's work opportunities were compromised due to stigma, so she made alternative plans. Rachel said, "I'm doing a course in [a major], and I'm doing some more [a university] papers. You know, like you just... you think, 'Okay, something isn't working now, and you make a new plan'." These new goals or plans were adaptive and compensated for reduced opportunities due to HIV-related limitations. Hence, giving up unattainable goals and turning to pursue more achievable ones were protective and adaptive (Wrosch et al., 2003).

New life philosophies, altruism, and new goals are components of PTG (Tedeschi & Calhoun, 2004). Participants reported rebuilding their sense of meaningfulness and life goals, and these changes were adaptive and practical in a lifespan that was probably shortened. However, these changes did not necessarily resolve their distress.

Connective Comparisons. Connective comparisons are horizontal comparisons focused on whether others are similar to or different from the self (Locke, 2003). This study found that participants might have rebuilt their self-worth and assumptions about a benevolent world through connective comparisons. Similar others and peers were the groups with whom they reported connecting and making comparisons.

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Stigmatised populations are seen as deviations from the social norm (Goffman, 1963). People with self-stigma may take a negatively biased perspective and see themselves as deviations from the social norm. Participants with self-stigma may regain a sense of normality by finding similar others. Speaking about her initial feelings after diagnosis, Daisy recalled, “I was desperate to normalise. That’s probably why I wanted to connect with people who also had it. Because I wanted to feel normal, and so I connected as quickly as I could to a support group.” Daisy found it was helpful and recovered part of her self-worth. However, she felt self-stigma “hanging over you like a cloud. I think you carry it with you. It goes with you everywhere you go.” Similarly, when talking about how she managed self-stigma, Miranda said:

... think about other people, especially people at the retreat that of Positive Woman, ... or how I see them, ‘Are they okay?’, ‘Are they okay to me?’ ... read things, more online, other people’s stories. Sometimes I find that really helpful, yeah, find similarity we all have.

Miranda had been diagnosed for about 3 years and reported feeling better about herself but was still working on self-stigma. Through comparing themselves with similar others, participants realised that imperfections were shared experiences and that they were not alone. It seemed that connective comparisons could reduce self-stigma on some level, but did not resolve it completely. This type of self-evaluation was still based on social approval and acceptance, although with different populations or social contexts (previous social network or peer groups). Participants did not report that this led to more positive perceptions of the self.

Connective comparisons also contributed to building deeper affiliation with similar others and a more benevolent personal world. Participants felt a more profound

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sense of connectiveness with peers by sharing similar experiences and feelings. Daisy explained, “Because they got it like nobody else did, like they really understood what I was going through.” It seemed that after experiencing or anticipating social exclusion, the participants regained a sense of belonging with a peer group. Oliver said, “You realise that you’re not alone. Other people from various backgrounds and they’re just like you, and on the same boat and same situation... I love these people that go to that group and become friends.”

There were some limits on connective comparisons. Unlike Daisy and Oliver, who could easily access peer groups and HIV-related organisations, some participants could not, due to geographical location, and were constrained from connecting with peers. In addition, some participants did not feel a sense of belonging and connectiveness with peers. Peter, who was a straight man, found that the peer groups were mainly for gay people and felt isolated in these groups, although the HIV-related education was helpful. Peter said, “They were talking about their relationships and how it affected their sexuality, and how they had sex. And they weren’t particularly interested in um... in my experience.” Some others reported that they preferred to stay in their preexisting or non-HIV-specific social network, and these participants also reported less anticipated stigma (Charlie, Hanson, and Jacob). On the other hand, those who felt relatively stronger anticipated stigma reported deeper affiliation with peers (Daisy, Miranda, and Oliver).

Peers and a few trustworthy family members and friends provided understanding, acceptance, caring and love, which created a benevolent personal world. Stigma and support were involved in reshaping participants’ world assumptions. The inside world could be benevolent, whereas the outside could be malevolent. The contrast could form a metaphorical closet. When describing her “in closet” life, Miranda

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said, “It’s been quite hard. Now I’m thinking of starting to come out, thinking a lot of times. Yeah, crazy. Emotionally it’s really difficult because you’re actually living (with) a secret. You want to tell everyone, but it’s tricky to describe.”

Connective comparisons may promote compassion for similar others. Grace experienced concerns about the loss of health and potential mortality, which she acknowledged all people face at some point. She felt interested in “working with people with grief and loss, so we’re like one another”, and she said she had developed “a real love for humanity”. Participants reported engaging in altruistic behaviour to reduce others’ suffering. Nelson, who experienced stigma, became a public speaker to work towards reducing enacted stigma. Nelson said, “just trying to make things better really. Coz I feel that all the problems, and what I face myself.” Compassion for similar others seemed to contribute to their decisions to become positive speakers. Participants reported increased self-worth, more positive emotion, and a more meaningful life.

Benevolence, or compassion and willingness to reduce people’s suffering and enhance their well-being, is an important aspect of wisdom (Walsh, 2015). Compassion and benevolence belong to the affective dimension of PTG, along with the sense of becoming a better person generated by personal benevolence (Park et al., 1996; Staub & Vollhardt, 2008; Walsh, 2015). Besides enabling connection and comparison with others, social support facilitated prosocial behaviour. Participants who got support from peers were also more likely to help similar others. Rachel said, “I’ve probably been quite active in the HIV community and try to support coz they helped me.” A reciprocal, benevolent environment within an HIV community was formed. On the other hand, participants who isolated themselves might have had less access to social support and fewer opportunities to develop affective PTG.

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Reflection. Reflection refers to a curious and intellectual exploration of people's beliefs and goals (Trapnell & Campbell, 1999). Participants reflected on life and self to rebuild their basic assumptions. Charlie and Nelson, whose self-worth was challenged, reflected more on the self, whereas Grace and Peter, who faced life threats, reflected more on their lives. In this study, reflection was mainly in the forms of mindfulness meditation and life review. Nelson described his self-reflection:

I have a lot of reflection time...thinking about myself and reflecting on me, like 'How (do) I feel about myself?', like 'What do I want in life?', 'Am I even worth it?', you know, just being like that, and 'What do I like?', yeah, 'What my passion's about?', 'What am I?'. Yeah, just a lot of about my self-reflecting.

Participants gained self-awareness, as Charlie said, "I discovered who I truly am and what my beliefs are and what I stand for." Nelson gained "a lot of realisation about the world and myself." These participants reported gaining self-acceptance and developing a more personally oriented self-evaluation, which was more resistant to social judgement. Charlie mentioned, "I guess in some way just have to say I've become a lot harder to other people about what they think and say." Participants also reported developing more self-affection, articulating this as "I love myself" (Charlie and Nelson).

Participants also reported finding new goals and greater freedom. Charlie said, "I knew I wanted more, I wanted more with my life, and I didn't want to be ruled by any one thing that was going to hold me back." Likewise, Nelson used to be "pretty aimless", but he found direction through reflection. He said, "It took a few years to deal with the diagnosis before I started um getting back on my feet. And then started to think about like a new direction and carrying on with my life."

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Grace and Peter reflected on their lives. Peter said, “I went on a path of seeing what I could do about it, and ended up you know doing lots of meditation and mindfulness, and going to sort of Buddhist retreat rather than sort of party retreats.” Peter focused more on the “here and now”, while Grace was determined to “make the best of what I am and what I have.” They reported experiencing significant PTG and more satisfaction with life and the self. Grace and Peter became more spiritual and less constrained by their physical health. They did not report fear or anxiety around health when being interviewed. Grace said, “It may have shortened my physical life. But it’s not anxiety. You know what I mean? I don’t... It’s not something in front of my mind. I’m just aware of it.” Peter said, “I accept that. I don’t worry about it.”

It seemed that participants who applied reflection gained more self-awareness and became more critical about external perspectives and judgements, and their rebuilt assumptions were more resistant to potential risks. This phenomenon was termed self-transcendence (Levenson et al., 2005), which meant an individual’s self-concept was less reliant on external definitions and more reliant on interiority and spirituality.

Ways to transcendence could involve a long, personal journey. Grace and Peter spent more than 1 year reflecting on life, Charlie spent about 5 years rebuilding himself, and Nelson had spent 3 years and was still working on it. They also spent more time alone during reflection. It seemed that a certain distance from the external world was helpful. Grace summarised it:

Friends and family are very important. But I think it’s the way I’ve been learnt or travelled the road on my own. It’s been a very personal journey... But in the end, I think, you know, it’s you that decide your world or the way you look at the world.

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Kjel reviewed her life and rebuilt her self-worth with the help of a psychological counsellor. She gained “self-awareness” and “coping skills”, and solved “body image” issues during 3 years of counselling. Kjel described, “I’ve gone from a very shy person and, you know, hiding away from the world, spending a lot of time by myself to someone who’s, you know, making friends all over the country” and “I made my transition, but it only happened because I got that counselling.” It seemed that long-term psychological counselling could facilitate self-transcendence.

These participants reported significant PTG in the form of greater self-affection, increased resistance to social disapproval, greater openness, more spirituality, a stronger sense of liberation, new life philosophies and new goals. They described their changes as “dramatic” (Nelson), “completely different” (Charlie), “couldn’t be more different” (Kjel), “set me free about how I am” (Grace), or “radical” (Peter). They also felt greater satisfaction with life and self. Self-transcendence was a special type of PTG. People with typical PTG have been described as “sadder but wiser” (Calhoun & Tedeschi, 2006, p. 8), but participants who reported self-transcendence were “happier and wiser”. Further studies would be helpful to examine this finding.

Participants’ personal contexts may have been relevant to their choice of reflection. Rachel had strong religious beliefs, and Peter had been interested in Buddhism before his diagnosis. Charlie, Kjel, and Nelson did not initially have stable or high self-worth, and they expressed that they had not liked themselves much before the diagnosis. Charlie and Kjel reported indulging in self-destructive behaviours and so may have been less likely to see themselves in a positive light and to utilise reaffirmation. Additionally, Charlie reported having been excluded by his gay community, Nelson did not get support from his friends, and Kjel avoided social contact

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for years. These situations made these participants less able to apply connective comparisons.

Summary and Discussion. This study found four rebuilding strategies: reaffirmation, reinterpretation, connective comparison, and reflection. These strategies were suggested to be forms of meaning-focused coping (Folkman & Moskowitz, 2007). Reaffirmation was more likely to be involved in assimilation and did not seem to contribute to PTG, whereas the other three strategies were more likely to be involved in positive accommodation. Participants reported various aspects of PTG. These were new life philosophies and goals, deeper connections with peers, compassion and personal benevolence, more positive self-perception, and increased spirituality.

New life philosophies and possibilities were two of the five domains of PTG according to Tedeschi and Calhoun (1996). This finding was reported in many studies of PTG in people with life-threatening illnesses, as reviewed by Hefferon et al. (2009). This study found two ways that might be related to changes in life philosophies: reinterpretation and reflection. Participants reported similar changes in life philosophies and goals. However, participants who undertook reflection reported less distress and fewer perceived limitations. This study found participants who undertook reflection reported less attachment to the external world and greater interest in the internal and spiritual world. In other words, physical and social uncertainties were less central to them. Vago and Silbersweig (2012) suggested that contemplative thinking or reflection might decouple the connection between stressors and emotional reactions by suppressing the activity of the hypothalamic-pituitary-adrenal axis. Reflection or meditation has been associated with positive affect or better well-being in studies of people living with HIV (Gayner et al., 2012; Moskowitz et al., 2015). It seems that participants were able to gain PTG by amending violated beliefs and goals through

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reinterpretation and reflection, but that they were more likely to perceive less distress and greater happiness through decentralising the challenges. Future studies are needed to examine this finding.

Connective comparison might contribute to compassion and personal benevolence. The role of connective comparison has received little mention in studies of PTG. Janoff-Bulman (1992) suggested that people could rebuild their self-worth through downward comparison. By comparing with someone in a worse situation, people might feel better about themselves. It was not clear if the stigmatised population would have been more likely to benefit from connective comparison rather than downward comparison. This study found that connective comparison might have helped in generating personal benevolence and altruism. The idea that suffering might cultivate altruism is not new (Fosha et al., 2019; Staub & Vollhardt, 2008; Vollhardt, 2009). Some have found that psychosocial mechanisms, such as greater empathy and reduced intragroup bias, mediated the relationships between suffering and altruism (Vollhardt & Staub, 2011). This study found that connective comparison was able to promote compassion and affiliation with peers. Thus, it might mediate the relationships between suffering and altruism. Future studies need to explore such a possibility.

Three of the rebuilding strategies might contribute to rebuilding self-worth: reaffirmation, connective comparison, and reflection. Participants selectively focused on their positive qualities, changed the social groups with whom they compared themselves, and developed greater self-awareness. Those who undertook reflection reported greater self-worth and increased resistance to social judgements. Park and Crocker (2008) have also found that less socially dependent self-evaluation is more stable and associated with more positive emotion. In comparison, participants who utilised reaffirmation and connective comparison recovered some self-worth. These can

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be considered self-enhancing strategies, which could defend against threats to self-worth and restore self-strength (Sherman & Cohen, 2006; Taylor et al., 1983). However, participants might have felt more worthy by becoming more altruistic, which could have been promoted by connective comparison. In positive accommodation, participants rebuilt their basic assumptions by integrating negative event-related information and maximising the possibility of gaining a meaningful and benevolent world and a worthy self. The rebuilt assumptions were more adaptive or applicable in the new context and reduced distress, although participants who reported PTG did not necessarily report feeling happier.

This study found that the social environment could promote the rebuilding of self-worth. Social networks, especially peers, enabled connective comparison, and reduced self-stigma. Professional support, such as psychological counselling, especially long-term, might have facilitated individual's self-transcendence. However, geographical location and anticipated stigma might have impeded participants from acquiring social support. Higher levels of stigma were associated with less PTG through suppressing the impact of emotional support (Kamen et al., 2016).

The structure of social support was another aspect. Participants with stronger anticipated stigma reported greater benefit through connecting with peers, while those with lower levels of anticipated stigma were more likely to remain in their previous social networks and gain emotional support from them. These participants reported that the information they gained from HIV-related organisations was helpful but did not report much emotional support from peers. It seemed that participants might have benefitted differently from connecting with peers and HIV-related communities and organisations.

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Summary and Conclusion

This study investigated the processes of PTG in people living with HIV with a special focus on cognitive processing. This chapter first summarises and discusses the findings in a sequence of the processes of PTG, social context and PTG, and PTG as a multidimensional construct. Then the implications, limitations, and conclusion are illustrated.

Processes of Posttraumatic Growth

This study identified three main themes: challenges, event-related cognitive processing, and rebuilding of assumptions. Challenges describe the perceived violations of beliefs and goals which might initiate the processes of cognitive processing or deliberate rumination (Tedeschi & Calhoun, 2004), meaning making (Park, 2010) or affective-cognitive processing (Joseph et al., 2012). Event-related cognitive processing emphasises the cognitive processing of HIV-related events (i.e., diagnosis, structural stigma, and interpersonal stigma), and rebuilding of assumptions describes the cognitive effort of rebuilding violated beliefs and goals. Other studies have also found the direct effects of violated beliefs and goals, event-related cognitive processing, and rebuilding of assumptions on PTG (Groleau et al., 2012; Lancaster et al., 2015; Triplett et al., 2012).

Event-related cognitive processing and rebuilding of assumptions might mediate the relationship between challenges and PTG. Participants who disengaged from previous assumptions and goals, and accepted the new situation and event-related information, reported less emotional distress. These changes were the basis for developing more meaningful and practical beliefs and goals. Tedeschi et al. (2018) also suggested that disengagement from previous goals was an essential step in the processes of PTG. This study found that this step was mainly achieved by event-related cognitive

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processing. Further studies should examine event-related cognitive processing and rebuilding of assumptions as mediators between challenges and PTG.

Social Context and Posttraumatic Growth

This study found that the social environment of people living with HIV could be supportive, as well as stigmatising. Compared to the findings of less recent studies of people living with HIV, challenges and coping may have changed, and stigma rather than physical condition may now be a more significant stressor. Stigma still exists, as there are those in the community who are still under the impression that HIV is a lethal sexually transmitted disease. For participants, enacted stigma may have violated assumptions of benevolence and self-worth, and anticipated stigma might have impeded participants from seeking support.

Some quantitative studies have found that stigma was related to lower levels of social support (Mak et al., 2007), and that stigma suppressed PTG through reducing perceived emotional support (Kamen et al., 2016). However, social support might not counterbalance the impact of enacted stigma. Participants reported appreciation of supportive relationships and a benevolent personal world, but the outside world could have been less benevolent. Both social support and stigma can come from various sources (e.g., previous personal social networks, peers, and health professionals) and levels (e.g., interpersonal, communal, and societal). This complexity requires future studies to investigate stigma, support, and social perception as multi-level constructs.

Participants reported differences in the functions of the social support that they received, including physical and psychological treatment, information and advice, and emotional support. Participants recovered physically, corrected their own stereotypes and catastrophic thinking, and gained more confidence and a sense of control through physical treatment and learning more about HIV. Long-term psychological counselling

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could have helped in rebuilding self-worth and achieving self-transcendence. Effective and trustworthy therapeutic relationships, as well as the availability of free counselling services, were important for some. Emotional support reinforced participants' social value, reduced emotional distress, and enhanced compassion for similar others.

All of these types of support promoted involvement in social advocacy roles. Participants not only rebuilt their benevolent assumptions, they also rebuilt or attempted to rebuild a more benevolent community and society. Similar to event-related cognitive processing and rebuilding of positive assumptions, advocacy helped in reducing the discrepancy between the medical meaning and social meaning of HIV. It seemed that just as the social environment facilitated or impeded personal PTG, personal PTG was able to promote social PTG. Social support also promoted this process by providing practical, information and emotional support resources.

Posttraumatic Growth as a Multidimensional Construct

People gain wisdom through PTG (Staudinger, 2013; Tedeschi & Calhoun, 2004). Wisdom is a multidimensional construct, which was categorised into epistemic, affective, behavioural, and spiritual aspects. This study found that PTG as reported by participants also fitted into these four categories. This categorisation will make it easier to quantify the relationships between PTG and various coping strategies and potential outcomes (e.g., wisdom) in future studies.

Whether PTG is a unidimensional or multidimensional construct is controversial (Park & Lechner, 2006). Schaefer and Moos (1992) suggested that PTG could reflect an increase in social resources, personal resources, and coping skills. However, this lacked empirical support. Park et al. (1996) developed the Stress-Related Growth Scale (SRGS) based on Schaefer and Moos' (1992) theory but found that PTG was a unidimensional construct. In contrast, Tedeschi and Calhoun (1996) developed the

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Posttraumatic Growth Inventory (PTGI) and suggested that PTG included five domains: relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. They focused on cognitive aspects as they suggested that “the experiences of PTG are essentially ‘cognitive’” (Tedeschi et al., 2018, p. 10).

Tedeschi and Calhoun’s (1996) five domains covered cognitive, spiritual, and affective elements of PTG, but not behavioural ones. However, qualitative studies of PTG in people with medical conditions have found that positive health behaviours are common changes (Hefferon et al., 2009), and Hobfoll et al. (2007) claimed that PTG must include increased active actions. For some participants, increased healthy behaviours seemed to be the only positive changes, but others reported becoming more “here and now” focused, which might not be represented behaviourally. Moreover, effective coping skills, such as developing appropriate disclosing policies, were crucial in positive adaptation. Overall, then, participants reported epistemic PTG (a more realistic world-view and better psychological preparedness, new life philosophies and goals, and self-awareness), behavioural PTG (increased healthy behaviours, disclosing strategies, and altruistic behaviours), and affective PTG (appreciation of life and others, deeper connection with similar others, compassion, and self-affection), and greater spirituality. The findings support PTG as a multidimensional construct, which can also occur on community and societal levels as people build a more prosocial HIV community and social justice.

Implications for Theory

This study suggested that PTG is a multidimensional construct. Tedeschi and Calhoun’s (2004) PTG theory and Park’s (2010) meaning-making theory are based on the notion that stressful events can violate people’s beliefs and goals, which initiates further coping processes to diminish the discrepancy between event-related meaning or

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information and people's basic assumptions. Coping might involve work on events, assumptions, or both, and develop into PTG (Joseph & Linley, 2005; Park, 2010; Tedeschi & Calhoun, 2004; Tedeschi et al., 2018). These theories were relatively consistent on this point of view. The findings of this study also supported this, confirmed the complexity of cognitive processing, and provided potential explanations of how these strategies might contribute to PTG.

Cognitive processing might be focused on meaning, problem solving and managing emotion, and may occur on two levels: coping with events and rebuilding of assumptions. Studies which investigate coping need to carefully consider which aspects are being examined. Reducing the discrepancies between previous and new beliefs and goals may contribute to personal growth, while reducing negative and inaccurate beliefs and stereotypes in the general population might contribute to the growth of society.

Rebuilt assumptions could be negative as well as positive. For example, participants might have perceived deeper and more meaningful relationships in their personal world and a more malevolent outside world. Even participants with positive self and life perspectives could still feel distressed. Joseph and Linley (2005) distinguished three outcomes of cognitive processing: assimilation, negative accommodation, and positive accommodation. In this study, negative and positive accommodation may have coexisted.

Living with HIV implies a life with multiple ongoing challenges. The processes of PTG might be more complicated or at least different from PTG associated with a single acute event. The interference of multiple events might help explain the inconsistent findings in relationships between PTG and well-being.

This study highlighted the importance of social context in the processes of PTG among people living with HIV. Both stigma and support impacted appraisal, coping,

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and PTG. Enacted stigma and social support did not counterbalance each other. Both reshaped participants' benevolence assumptions in different ways.

Implications for Future Research

It will be helpful for future studies to investigate the interrelationships of event-related cognitive processing and rebuilding of assumptions in the context of perceived violations of core beliefs and goals, and PTG. Future studies need to consider disclosing strategies, stigma, and support from multiple levels (intrapersonal, interpersonal, communal, and societal) and to be aware of the possible interactions between them. In addition, researchers need to be aware that PTG is a multidimensional construct and might happen within communities and even society. Communal and societal PTG are worth further exploration.

Implications for Practice

Mainstream media can play a more active role in disseminating up-to-date knowledge of HIV to the public. This study found that many participants reported that they formed impressions of HIV through media during the 1990s. Mainstream media can reach a broader section of society and help in reducing ignorance and enacted stigma.

Appropriate training for health professionals can reduce interpersonal stigma. Many participants reported experiencing interpersonal stigma from health professionals as they had to disclose their status when seeking health services. Training in up-to-date knowledge and appropriate attitudes when conducting treatment might help to reduce stigma from health professionals and promote treatment seeking by people living with HIV.

More accessibility of resources might benefit people living with HIV, especially those who live in rural areas. Participants reported that HIV-related organisations

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provided them with information, emotional support, meditation workshops, and training to become positive speakers. These organisations also enabled connective comparison among peers and provided a supportive environment for participants to disclose and process their status. Free psychological services, especially long-term ones, also facilitated participants' self-transcendence. These resources promoted the processes of PTG. However, some people living with HIV may not have access to these resources, especially those who live in rural areas. More financial support for HIV-related organisations may help them reach and serve more people living with HIV.

Finally, straight men diagnosed with HIV may need specific attention. This study suggested that connecting with similar others might benefit participants in various ways. Among people living with HIV, the proportion of men who have sex with men is about 89% in NZ (AIDS Epidemiology Group, 2019). Therefore, it is understandable that the majority of people in HIV-related peer groups are men who have sex with men. Moreover, there is an HIV-related organisation that mainly caters to women in NZ, known as Positive Women. Therefore, straight men with HIV may feel isolated and marginalised and may be less likely to benefit from connective comparison. It would be helpful to organise peer groups of people living with HIV with perceived similar others.

Limitations

The sample size of 16 was relatively small, all participants were diagnosed in the ART era, and were living in NZ. Therefore, the findings cannot be generalised to all people living with HIV in NZ or people living with HIV in countries with different cultural and social environments (e.g., health care and insurance, availability and expenses of treatment, social support and stigma, HIV-related organisations, and sexual minorities' rights). The data were all collected through interviews and based on retrospective self-report, without objective indicators of physical health, well-being or

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growth. This study mainly focused on cognitive processing, but there could be other strategies relevant to PTG not described and interpreted.

Conclusion

This study supports the conclusion that PTG is related to the processing of violated assumptions and disruptions to life goals. Personal, physical, psychological and social contexts influenced the processes of PTG, and PTG may be related to greater wisdom but not necessarily more happiness. Future studies need to consider PTG as a multidimensional construct and to consider both personal context and societal contexts and associated changes.

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Chapter 4: General Discussion and Conclusion

Studies 1 and 2 investigated posttraumatic growth (PTG) in people living with HIV quantitatively and qualitatively, respectively. Study 1 examined the processes of PTG by merging Tedeschi and Calhoun's (2004) theory with Schaefer and Moos' (1992) model. Study 2 mainly focused on cognitive processing related to PTG. The discussion that follows will integrate both studies and their contribution to understanding the processes of PTG in people living with HIV in terms of coping, demographics and personal characteristics, social environment, and well-being. Then implications for practice and conclusions of Study 1 and 2 are also illustrated.

Construct of Posttraumatic Growth

Study 1 used the Posttraumatic Growth Inventory-Short Form (PTGI-SF, Cann, Calhoun, Tedeschi, Taku, et al., 2010) to measure PTG. Although Study 1 examined PTG as a unidimensional construct, the PTGI-SF included items that measured the factors of relating to others, new possibilities, personal strength, spiritual change, and appreciation of life (Cann, Calhoun, Tedeschi, Taku, et al., 2010). Study 2 found that many participants reported increased health behaviours and suggested that PTG in people living with HIV was better examined as a multidimensional construct, including epistemic, emotional, behavioural, and spiritual aspects. This finding would help clarify the implications of different dimensions of PTG on wisdom and well-being outcomes.

Study 2 suggested that PTG might occur at the communal and societal levels as well as individual level. As a marginalised and stigmatised population, participants reported experiences or awareness of social ignorance and injustices. Their suffering and compassion for similar others motivated them to become social advocates to reduce ignorance and promote social justice. Future studies need to consider PTG at intrapersonal, interpersonal, communal, and societal levels.

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Coping

Theories of PTG are relatively consistent in that PTG is initiated by perceived meaning discrepancies or violated beliefs and goals and mainly achieved through cognitive processing, event-related deliberate rumination, meaning making, or affective-cognitive processing (Joseph & Linley, 2005; Joseph et al., 2012; Park, 2010; Tedeschi & Calhoun, 2004). The findings of Studies 1 and 2 are, in general, consistent with these theories.

Studies 1 and 2 confirmed the importance of appraisals of event centrality and perceived challenges to beliefs and goals in the processes of PTG. Event centrality is concerned with the extent to which an event impacts an individual's identity and life (Berntsen & Rubin, 2006), while perceived challenges are related to discrepancies in meaning between event-related information (diagnosis or enacted stigma) and people's previous assumptions (Park et al., 2016). Both are the results of primary and secondary appraisals.

While event centrality affected the vulnerability of participants, it also implied the importance and necessity of rebuilding violated core assumptions. Study 2 suggested that violated noncentral assumptions were more likely to be ignored, whereas violated central ones required further cognitive processing. Event centrality and perceived challenges to assumptions prompted recognition of the importance and necessity of cognitive processing. On the other hand, central events seemed to contain stressful information that violated people's beliefs and goals (Gruen et al., 1988; Tedeschi & Calhoun, 1995). Further research could help to test the interactive effects between event centrality and challenges to assumptions on PTG.

Study 1 found that event centrality was related to PTG through the mediation of deliberate rumination and avoidance coping, and that these variables explained 27% of

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the variance in PTG and 64% of the variance in posttraumatic stress symptoms (PTSSs). These findings are in line with other studies of PTG in people who have experienced adverse events (Brooks et al., 2017; Gul & Karanci, 2017). These findings indicate the need to examine other variables which may explain additional variance in PTG. Study 2 also found that the rebuilding of assumptions might contribute to PTG, which suggested that multiple cognitive strategies might be related to PTG.

Study 2 suggested that violation of central beliefs and goals may be related to coping and PTG and PTSSs. PTG or meaning may be developed through resolving or minimising the discrepancies between event-related information and previous assumptions, while lower levels of PTSSs may be related to strategies that decrease the centrality of events. Coping strategies (i.e., reflection or spiritual contemplation) that can both reduce perceived meaning discrepancies and event centrality may be associated with higher levels of PTG and lower levels of PTSSs. Future studies need to consider the impact of various coping strategies on perceived meaning discrepancies and event centrality. Appropriate event-related coping strategies seem to be associated with better understanding and management of changed situations, fewer PTSSs, and preparations for the further rebuilding of assumptions. Future studies need to investigate the role of event-related coping and rebuilding of assumptions in relations to both PTSSs and PTG.

Demographics and Life Experiences

In Study 1, participants who were diagnosed at a younger age were likely to report greater PTG than those diagnosed at an older age, and this relationship was not mediated by event centrality. Younger people with HIV might perceive more life disruptions, as was reported by participants in Study 2. Study 2 also found that knowledge of and preparedness for the diagnosis, illness severity, geographical location,

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sexual orientation, and socioeconomic status may impact on perceived challenges.

Participants who had considered the likelihood of becoming infected with HIV prior to their actual diagnosis were less likely to appraise the diagnosis as stressful and were less likely to experience PTG. Participants who received their diagnoses at the beginning of the ART era or with more severity were more likely to appraise HIV as an existential threat, which prompted life reflection and renewed perceptions of life. Geographical locations (e.g., living in rural areas or being diagnosed overseas) impacted on access to up-to-date knowledge of HIV and the availability of medical resources, as well as on stigma, which may have also increased the risk of distress. People from sexual minorities and those with fewer economic resources may also be more vulnerable to stigma.

Appraisals and coping strategies were related to previous experiences. For example, participants who self-identified with sexual minorities reported a less benevolent world assumption due to previous experiences of enacted stigma, and participants with religious or spiritual beliefs reported adopting more religious or spiritual strategies. Personal resources were also important: participants with higher levels of sense of coherence and optimism were more likely to report higher levels of PTG from experiencing a central event. Future studies are required to explore other personal characteristics, for example, self-efficacy, resilience, personality and hardness.

Personal and social contexts did, however, change over time. The subjective stressfulness of the diagnosis could change with advances in treatment, increased social acceptance, and personal experiences. As time went on, people also had more time to process the challenges and impacts. All of these factors made the relationships between demographics and PTG inconsistent. Thus, personal characteristics and life experiences

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may impact on appraisal of centrality, perceived challenges, coping, and PTSSs and PTG. These relationships require further empirical confirmations.

Social Environment

Participants living with HIV may receive both support and stigma from the social environment, and stigma and support are involved in appraisal and coping. Enacted stigma could be a direct stressor as it threatened participants' assumptions of a benevolent world and a worthy self, while acceptance and support from family, friends, and peers may confirm participants' self-worth and reduce anticipated and self-stigma. A supportive environment could encourage disclosure, provide opportunities to support others or work towards social change, provide a sense of empowerment, and enable social comparisons. In experiencing both stigma and support, participants may have realised that good relationships cannot be taken for granted, which may have led to greater appreciation for positive social support and compassion for similar others through connective comparison. This provides some interesting ideas as to how emotional support may contribute to PTG. Studies of PTG need to consider the interactions between disclosing and social feedback on their disclosing (support and stigma) in people living with HIV.

Moreover, advisory support and professional support helped with the processes of PTG. Participants reported gaining new knowledge and perspectives from similar others or professionals. By knowing peers' stories, learning from peers, and comparing themselves with similar others, participants reported gaining a broader understanding, more skills and greater confidence in managing their own lives. Professional support helped in reducing health concerns and rebuilding a positive self-image, but severely anticipated stigma could constrain participants from seeking treatment and emotional support, even when available. A more nuanced approach which considers, for example,

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the availability, use of and satisfaction with, social support may help clarify the role of social support in the processes of PTG.

Both stigma and support shaped participants' perceptions of relationships. Participants reported feeling both less trust in the outside world and greater appreciation for and reliance on their personal world. Enacted stigma and social support did not counterbalance each other, but this complexity is rarely evident in the PTG levels in quantitative studies. This could be another reason for inconsistent relationships between social support and PTG. Social support and stigma impact on appraisal, coping, stress, and growth in various ways. Future studies need to investigate the social support and stigma, and their interactions on the processes of PTG in people living with HIV.

Posttraumatic Growth and Well-Being

The relationship between PTG and well-being remains controversial. Study 1 found that PTG and PTSSs were parallel constructs with some overlapping pathways, and that they did not correlate with each other, while Study 2 found that participants who reported PTG could be “wiser but sadder” or “wiser and happier”. Participants who did not report much PTG had either felt less affected and distressed by their diagnosis or had not rebuilt a positive world-view but had experienced enduring distress. This indicates a wide range of possible outcomes, complicated by participants' experiences of multiple physical and social stressors, with likely changes over time. The relationships between appraisal, coping, personal and social contexts, physical and mental health, distress, and growth need to be explored in different conditions with multiple data collection points.

Implications for Practice

Health professionals and HIV-related organisations need to aware that PTG can exist on personal, communal, and societal levels, and provide the necessary support to

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promote PTG on these multiple levels. HIV-related organisations need to consider the accessibility and availability of support to people living with HIV across the country. Various types of social support might contribute to well-being, including stigma reduction, peer support, and up-to-date information. Organisations need to consider individual needs, opportunities and contexts for supportive resources.

Conclusion

People living with HIV face multiple stressful events related to their status. Findings from the two studies reported in this thesis are generally consistent with the theories of PTG (Joseph & Linley, 2005; Park, 2010; Tedeschi & Calhoun, 2004; Tedeschi et al., 2018). Violations of central beliefs and goals are likely to relate to cognitive processing and PTG. Cognitive processing may be related to events, beliefs and goals, or all of these, and may focus on problem solving, meaning, and/or emotions. Cognitive processing may contribute to the acceptance of and adaptation to changed situations, increased knowledge, strategies for managing stigma, and rebuilding of assumptions. Future studies are required to examine the interrelationships of appraisal, coping, individual characteristics, various types and levels of social environment, and PTG among people living with HIV.

PTG may be related to increased wisdom and better perceived physical health in people living with HIV longer, but it may not be related to better mental health or reduced distress. People living with HIV may experience multiple stressful events and ongoing physical and social uncertainties, which interfere with these relationships. Future studies need to be aware that PTG is a multidimensional construct and can occur at intrapersonal, interpersonal, communal, and societal levels. It will be helpful to examine the relationships between each dimension of PTG and wisdom or well-being outcomes.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

References

- Abernathy, B. E. (2009). *The role of identity in posttraumatic growth and psychological adjustment for adults with cancer* [Doctoral dissertation, Florida Atlantic University]. Semantic Scholar. <https://www.semanticscholar.org/paper/The-role-of-identity-in-posttraumatic-growth-and-Abernathy/db0ce453192d3c8d75c31551cbc262c4d3b2d465>
- AIDS Epidemiology Group. (2017). AIDS-New Zealand. (76). <https://www.otago.ac.nz/aidsepigroup/otago714418.pdf>
- AIDS Epidemiology Group. (2019). AIDS-New Zealand. (78). <https://www.otago.ac.nz/aidsepigroup/otago714416.pdf>
- AIDS Epidemiology Group. (2020). AIDS-New Zealand. (79). <https://www.otago.ac.nz/aidsepigroup/otago737423.pdf>
- Algoe, S. B., & Stanton, A. L. (2009). Is benefit finding good for individuals with chronic disease? In C. L. Park, S. C. Lechner, M. H. Antoni, & A. L. Stanton (Eds.), *Medical illness and positive life change: Can crisis lead to personal transformation?* (pp. 173-193). American Psychological Association. <https://doi.org/10.1037/11854-010>
- Allen, D. S. (2016). *The impact of shortening a long survey on response rate and response quality* [Doctoral dissertation, Brigham Young University]. Semantic Scholar. <https://www.semanticscholar.org/paper/The-Impact-of-Shortening-a-Long-Survey-on-Response-Allen/8b08216776512b0925bdb25f7f2a92dddcf93555>
- Altman, L. K. (1989). A new therapy approach: Cancer as a model for AIDS. *New York Times*. June, 13, C3.
- American Cancer Society. (2016). *Managing Cancer as a Chronic Illness*. <https://www.cancer.org/treatment/survivorship-during-and-after-treatment/when-cancer-doesnt-go-away.html>
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders: DSM-IV* (4th ed.). Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.). Author.
- Andysz, A., Najder, A., Merecz-Kot, D., & Wójcik, A. (2015). Posttraumatic growth in women after breast cancer surgery—preliminary results from a study of Polish patients. *Health Psychology Report*, 3(4), 336-344. <https://doi.org/10.5114/hpr.2015.52383>
- Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*. Jossey-Bass.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Antonovsky, A. (1993). The structure and properties of the Sense of Coherence scale. *Social Science & Medicine*, 36(6), 725-733. [https://doi.org/10.1016/0277-9536\(93\)90033-Z](https://doi.org/10.1016/0277-9536(93)90033-Z)
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International*, 11(1), 11-18. <https://doi.org/10.1093/heapro/11.1.11>
- Armeli, S., Gunthert, K. C., & Cohen, L. H. (2001). Stressor appraisals, coping, and post-event outcomes: The dimensionality and antecedents of stress-related growth. *Journal of Social & Clinical Psychology*, 20(3), 366-395. <https://doi.org/10.1521/jscp.20.3.366.22304>
- Arnberg, F. K., Hultman, C. M., Michel, Per-Olof, & Lundin, T. (2012). Social support moderates posttraumatic stress and general distress after disaster. *Journal of Traumatic Stress*, 25(6), 721-727. <https://doi.org/10.1002/jts.21758>
- Aspinwall, L. G., Richter, L., & Hoffman, R. R., III. (2001). Understanding how optimism works: An examination of optimists' adaptive moderation of belief and behavior. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 217-238). American Psychological Association. <https://doi.org/10.1037/10385-010>
- Aspinwall, L. G., & Tedeschi, R. G. (2010). The value of positive psychology for health psychology: Progress and pitfalls in examining the relation of positive phenomena to health. *Annals of Behavioral Medicine*, 39(1), 4-15. <https://doi.org/10.1007/s12160-009-9153-0>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Barskova, T., & Oesterreich, R. (2009). Post-traumatic growth in people living with a serious medical condition and its relations to physical and mental health: A systematic review. *Disability And Rehabilitation*, 31(21), 1709-1733. <https://doi.org/10.1080/09638280902738441>
- Barton, S., Boals, A., & Knowles, L. (2013). Thinking about trauma: The unique contributions of event centrality and posttraumatic cognitions in predicting PTSD and posttraumatic growth. *Journal of Traumatic Stress*, 26(6), 718-726. <https://doi.org/10.1002/jts.21863>
- Baumgartner, L. M. (2012). The perceived effect of time on HIV/AIDS identity incorporation. *The Qualitative Report*, 17(23), 1-22. <https://nsuworks.nova.edu/tqr/vol17/iss23/1>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Baumgartner, L. M., & David, K. N. (2009). Accepting being poz: The incorporation of the HIV identity into the self. *Qualitative Health Research*, 19(12), 1730-1743. <https://doi.org/10.1177/1049732309352907>
- Bellizzi, K. M., & Blank, T. O. (2006). Predicting posttraumatic growth in breast cancer survivors. *Health Psychology*, 25(1), 47-56. <https://doi.org/10.1037/0278-6133.25.1.47>
- Bellizzi, K. M., Smith, A. W., Reeve, B. B., Alfano, C. M., Bernstein, L., Meeske, K., Baumgartner, K. B., & Ballard-Barbash, R. R. (2010). Posttraumatic growth and health-related quality of life in a racially diverse cohort of breast cancer survivors. *Journal of Health Psychology*, 15(4), 615-626. <https://doi.org/10.1177/1359105309356364>
- Berntsen, D., & Rubin, D. C. (2006). The Centrality of Event Scale: A measure of integrating a trauma into one's identity and its relation to post-traumatic stress disorder symptoms. *Behaviour Research and Therapy*, 44(2), 219-231. <https://doi.org/10.1016/j.brat.2005.01.009>
- Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of Behavioral Medicine*, 4(2), 139-157. <https://doi.org/10.1007/BF00844267>
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802-1811. <https://doi.org/10.1177/1049732316654870>
- Boals, A., & Schuettler, D. (2011). A double-edged sword: Event centrality, PTSD and posttraumatic growth. *Applied Cognitive Psychology*, 25(5), 817-822. <https://doi.org/10.1002/acp.1753>
- Boals, A., Steward, J. M., & Schuettler, D. (2010). Advancing our understanding of posttraumatic growth by considering event centrality. *Journal of Loss & Trauma*, 15(6), 518-533. <https://doi.org/10.1080/15325024.2010.519271>
- Bogart, L. M., Matovu, J. K. B., Wagner, G. J., Green, H. D., Storholm, E. D., Klein, D. J., Marsh, T., MacCarthy, S., & Kambugu, A. (2020). A pilot test of game changers, a social network intervention to empower people with HIV to be prevention advocates in Uganda. *AIDS And Behavior*. <https://doi.org/10.1007/s10461-020-02806-4>
- Boomsma, A. (1985). Nonconvergence, improper solutions, and starting values in LISREL maximum likelihood estimation. *Psychometrika*, 50(2), 229-242. <https://doi.org/10.1007/BF02294248>
- Boyle, C. C., Stanton, A. L., Ganz, P. A., & Bower, J. E. (2017). Posttraumatic growth in breast cancer survivors: Does age matter? *Psycho-Oncology*, 26, 800-807. <https://doi.org/10.1002/pon.4091>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Bozo, O., Gündoğdu, E., & Büyükaşık-Colak, C. (2009). The moderating role of different sources of perceived social support on the dispositional optimism-posttraumatic growth relationship in postoperative breast cancer patients. *Journal of Health Psychology, 14*(7), 1009-1020. <https://doi.org/10.1177/1359105309342295>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. SAGE Publications.
- Brinsdon, A., Abel, G., & Desrosiers, J. (2017). "I'm taking control": How people living with HIV/AIDS manage stigma in health interactions. *AIDS Care, 29*(2), 185-188. <https://doi.org/10.1080/09540121.2016.1204420>
- Brockhouse, R., Msetfi, R. M., Cohen, K., & Joseph, S. (2011). Vicarious exposure to trauma and growth in therapists: The moderating effects of sense of coherence, organizational support, and empathy. *Journal of Traumatic Stress, 24*(6), 735-742. <https://doi.org/10.1002/jts.20704>
- Brooks, M., Graham-Kevan, N., Robinson, S., & Lowe, M. (2017). Rumination, event centrality, and perceived control as predictors of post-traumatic growth and distress: The Cognitive Growth and Stress model. *British Journal of Clinical Psychology, 56*(3), 286-302. <https://doi.org/10.1111/bjc.12138>
- Büyükaşık-Çolak, C., Gündoğdu-Aktürk, E., & Bozo, O. (2012). Mediating role of coping in the dispositional optimism-posttraumatic growth relation in breast cancer patients. *Journal of Psychology: Interdisciplinary and Applied, 146*(5), 471-483. <https://doi.org/10.1080/00223980.2012.654520>
- Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2010). The posttraumatic growth model: Sociocultural considerations. In T. Weiss & R. Berger (Eds.), *Posttraumatic growth and culturally competent practice: Lessons learned from around the globe* (pp. 1-14). John Wiley & Sons Inc.
- Calhoun, L. G., & Tedeschi, R. G. (2006). *The handbook of posttraumatic growth: Research and practice* Lawrence Erlbaum Associates.
- Canavarro, M. C., Silva, S., & Moreira, H. (2015). Is the link between posttraumatic growth and anxious symptoms mediated by marital intimacy in breast cancer patients? *European Journal of Oncology Nursing, 19*(6), 673-679. <https://doi.org/10.1016/j.ejon.2015.04.007>
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Kilmer, R. P., Gil-Rivas, V., Vishnevsky, T., & Danhauer, S. C. (2010). The Core Beliefs Inventory: A brief measure of

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- disruption in the assumptive world. *Anxiety, Stress & Coping: An International Journal*, 23(1), 19-34. <https://doi.org/10.1080/10615800802573013>
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Taku, K., Vishnevsky, T., Triplett, K. N., & Danhauer, S. C. (2010). A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress & Coping: An International Journal*, 23(2), 127-137. <https://doi.org/10.1080/10615800903094273>
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Triplett, K. N., Vishnevsky, T., & Lindstrom, C. M. (2011). Assessing posttraumatic cognitive processes: The Event Related Rumination Inventory. *Anxiety, Stress & Coping: An International Journal*, 24(2), 137-156. <https://doi.org/10.1080/10615806.2010.529901>
- Cárdenas, M., Arnoso, M., & Faúndez, X. (2016). Deliberate rumination and positive reappraisal as serial mediators between life impact and posttraumatic growth in victims of state terrorism in Chile (1973-1990). *Journal of Interpersonal Violence*, 34(3), 545-561. <https://doi.org/10.1177/0886260516642294>
- Carrico, A. W., Ironson, G., Antoni, M. H., Lechner, S. C., Durán, R. E., Kumar, M., & Schneiderman, N. (2006). A path model of the effects of spirituality on depressive symptoms and 24-h urinary-free cortisol in HIV-positive persons. *Journal of Psychosomatic Research*, 61(1), 51-58. <https://doi.org/10.1016/j.jpsychores.2006.04.005>
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4(1), 92-100. https://doi.org/10.1207/s15327558ijbm0401_6
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Catz, S. L., Gore-Felton, C., & McClure, J. B. (2002). Psychological distress among minority and low-income women living with HIV. *Behavioral Medicine*, 28(2), 53-60. <https://doi.org/10.1080/08964280209596398>
- Centers for Disease Control and Prevention. (2017). *About HIV/AIDS*. <https://www.cdc.gov/hiv/basics/whatishiv.html>
- Chan, M. W. C., Ho, S. M. Y., Tedeschi, R. G., & Leung, C. W. L. (2011). The valence of attentional bias and cancer-related rumination in posttraumatic stress and posttraumatic growth among women with breast cancer. *Psycho-Oncology*, 20(5), 544-552. <https://doi.org/10.1002/pon.1761>
- Cieslak, R., Benight, C., Schmidt, N., Luszczynska, A., Curtin, E., Clark, R. A., & Kissinger, P. (2009). Predicting posttraumatic growth among Hurricane Katrina survivors living with HIV: The role of self-efficacy, social support, and PTSD

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- symptoms. *Anxiety, Stress & Coping*, 22(4), 449-463.
<https://doi.org/10.1080/10615800802403815>
- Cohen, S., & Syme, S. L. (1985). Issues in the study and application of social support. In S. Cohen & S. L. Syme (Eds.), *Social support and health* (pp. 3-22). Academic Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310-357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Cordova, M. J., Cunningham, L. L. C., Carlson, C. R., & Andrykowski, M. A. (2001). Posttraumatic growth following breast cancer: A controlled comparison study. *Health Psychology*, 20(3), 176-185. <https://doi.org/10.1037/0278-6133.20.3.176>
- Cordova, M. J., Giese-Davis, J., Golant, M., Kronenwetter, C., Chang, V., & Spiegel, D. (2007). Breast cancer as trauma: Posttraumatic stress and posttraumatic growth. *Journal of Clinical Psychology in Medical Settings*, 14(4), 308-319.
<https://doi.org/10.1007/s10880-007-9083-6>
- Coroiu, A., Körner, A., Burke, S., Meterissian, S., & Sabiston, C. M. (2016). Stress and posttraumatic growth among survivors of breast cancer: A test of curvilinear effects. *International Journal of Stress Management*, 23(1), 84-97.
<https://doi.org/10.1037/a0039247>
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 504-553). McGraw-Hill.
- Croxford, S., Kitching, A., Desai, S., Kall, M., Edelstein, M., Skingsley, A., Burns, F., Copas, A., Brown, A. E., & Sullivan, A. K. (2017). Mortality and causes of death in people diagnosed with HIV in the era of highly active antiretroviral therapy compared with the general population: An analysis of a national observational cohort. *The Lancet Public Health*, 2(1), e35-e46.
[https://doi.org/10.1016/S2468-2667\(16\)30020-2](https://doi.org/10.1016/S2468-2667(16)30020-2)
- Danhauer, S. C., Case, L. D., Tedeschi, R. G., Russell, G., Vishnevsky, T., Triplett, K., Ip, E. H., & Avis, N. E. (2013). Predictors of posttraumatic growth in women with breast cancer. *Psycho-Oncology*, 22(12), 2676-2683.
<https://doi.org/10.1002/pon.3298>
- Davies, M. L. (1997). Shattered assumptions: Time and the experience of long-term HIV positivity. *Social Science & Medicine*, 44(5), 561-571.
[https://doi.org/10.1016/S0277-9536\(96\)00177-3](https://doi.org/10.1016/S0277-9536(96)00177-3)
- Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: Two construals of meaning. *Journal of Personality and Social Psychology*, 75(2), 561-574.
<https://doi.org/10.1037/0022-3514.75.2.561>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Deacon, H. (2006). Towards a sustainable theory of health-related stigma: Lessons from the HIV/AIDS literature. *Journal of Community & Applied Social Psychology*, 16(6), 418-425. <https://doi.org/10.1002/casp.900>
- Dibb, B., & Kamalesh, T. (2012). Exploring positive adjustment in HIV positive African women living in the UK. *AIDS Care*, 24(2), 143-148. <https://doi.org/10.1080/09540121.2011.597710>
- Dickson, N. (2015). The first 30 years of HIV in New Zealand: Review of the epidemiology. *New Zealand Medical Journal*, 128(1426), 31-48.
- Dong, Y., & Peng, C.-Y. J. (2013). Principled missing data methods for researchers. *Springerplus*, 2(1), 222-222. <https://doi.org/10.1186/2193-1801-2-222>
- Dunbar, H. T., Mueller, C. W., Medina, C., & Wolf, T. (1998). Psychological and spiritual growth in women living with HIV. *Social Work*, 43(2), 144-154. <https://doi.org/10.1093/sw/43.2.144>
- Elliott, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology*, 38(3), 215-229. <https://doi.org/10.1348/014466599162782>
- Ellis, D. E., & Gardner, D. (2018). Psychosocial factors relating to adaptive capacity in a New Zealand District Health Board. *Journal of Loss and Trauma*, 23(5), 395-418. <https://doi.org/10.1080/15325024.2017.1415730>
- Eriksson, M., & Lindström, B. (2006). Antonovsky's Sense of Coherence Scale and the relation with health: A systematic review. *Journal of Epidemiology and Community Health*, 60(5), 376-381. <https://doi.org/10.1136/jech.2005.041616>
- Eriksson, M., & Lindström, B. (2007). Antonovsky's sense of coherence scale and its relation with quality of life: A systematic review. *Journal of Epidemiology & Community Health*, 61(11), 938-944. <https://doi.org/10.1136/jech.2006.056028>
- Fauk, N. K., Merry, M. S., & Mwanri, L. (2020). Meaning-making as a coping strategy among transgender women living with HIV in Indonesia. *AIDS Care*, 1-5. <https://doi.org/10.1080/09540121.2020.1716934>
- Fee, E., & Fox, D. M. (1992). *AIDS: The making of a chronic disease*. University of California Press.
- Field, A. P. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). SAGE Publications.
- Foa, E. B., Huppert, J. D., & Cahill, S. P. (2006). Emotional processing theory: An update. In *Pathological anxiety: Emotional processing in etiology and treatment*. (pp. 3-24). The Guilford Press.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist*, 55(6), 647-654. <https://doi.org/10.1037//0003-066x.55.6.647>
- Folkman, S., & Moskowitz, J. T. (2007). Positive affect and meaning-focused coping during significant psychological stress. In M. Hewstone, H. A. W. Schut, J. B. F. De Wit, K. Van Den Bos, & M. S. Stroebe (Eds.), *The scope of social psychology: Theory and applications* (pp. 193-208). Psychology Press.
- Fosha, D., Thoma, N., & Yeung, D. (2019). Transforming emotional suffering into flourishing: Metatherapeutic processing of positive affect as a trans-theoretical vehicle for change. *Counselling Psychology Quarterly*, 32(3-4), 563-593. <https://doi.org/10.1080/09515070.2019.1642852>
- Fritz, M. S., Taylor, A. B., & MacKinnon, D. P. (2012). Explanation of two anomalous results in statistical mediation analysis. *Multivariate Behavioral Research*, 47, 61-87. <https://doi.org/10.1080/00273171.2012.640596>
- Gangstad, B., Norman, P., & Barton, J. (2009). Cognitive processing and posttraumatic growth after stroke. *Rehabilitation Psychology*, 54(1), 69-75. <https://doi.org/10.1037/a0014639>
- Gayner, B., Esplen, M. J., DeRoche, P., Wong, J., Bishop, S., Kavanagh, L., & Butler, K. (2012). A randomized controlled trial of mindfulness-based stress reduction to manage affective symptoms and improve quality of life in gay men living with HIV. *Journal of Behavioral Medicine*, 35(3), 272-285. <https://doi.org/10.1007/s10865-011-9350-8>
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Prentice-Hall.
- Grierson, J., Pitts, M., Whyte, M., Misson, S., Hughes, A., Saxton, P., & Thomas, M. G. (2004). Living with HIV in New Zealand: Balancing health and quality of life. *New Zealand Medical Journal*, 117(1200), U1017.
- Groleau, J. M., Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2012). The role of centrality of events in posttraumatic distress and posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5(5), 477-483. <https://doi.org/10.1037/a0028809>
- Gruen, R. J., Folkman, S., & Lazarus, R. S. (1988). Centrality and individual differences in the meaning of daily hassles. *Journal of Personality*, 56(4), 743-762. <https://doi.org/10.1111/j.1467-6494.1988.tb00475.x>
- Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component patterns. *Psychological Bulletin*, 103(2), 265-275. <https://doi.org/10.1037/0033-2909.103.2.265>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Gueler, A., Moser, A., Calmy, A., Gunthard, H. F., Bernasconi, E., Furrer, H., Fux, C. A., Battegay, M., Cavassini, M., Vernazza, P., Zwahlen, M., Egger, M., Swiss, H. I. V. C. S., & Swiss Natl, C. (2017). Life expectancy in HIV-positive persons in Switzerland: Matched comparison with general population. *AIDS*, 31(3), 427-436. <https://doi.org/10.1097/QAD.0000000000001335>
- Gul, E., & Karanci, A. N. (2017). What determines posttraumatic stress and growth following various traumatic events? A study in a Turkish community sample. *Journal of Traumatic Stress*, 30, 54-62. <https://doi.org/10.1002/jts.22161>
- Hatzenbuehler, M. L., & Link, B. G. (2014). Introduction to the special issue on structural stigma and health. *Social Science & Medicine*, 103, 1-6. <https://doi.org/10.1016/j.socscimed.2013.12.017>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science*, 24(10), 1918-1927. <https://doi.org/10.1177/0956797613480187>
- Hefferon, K., Greal, M., & Mutrie, N. (2009). Post-traumatic growth and life threatening physical illness: A systematic review of the qualitative literature. *British Journal Of Health Psychology*, 14(2), 343-378. <https://doi.org/10.1348/135910708X332936>
- Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, 74(5), 797-816. <https://doi.org/10.1037/0022-006X.74.5.797>
- Herzberg, P. Y., Glaesmer, H., & Hoyer, J. (2006). Separating optimism and pessimism: A robust psychometric analysis of the Revised Life Orientation Test (LOT-R). *Psychological Assessment*, 18(4), 433-438. <https://doi.org/10.1037/1040-3590.18.4.433>
- Ho, S. M. Y., Chan, M. W. Y., Yau, T. K., & Yeung, R. M. W. (2011). Relationships between explanatory style, posttraumatic growth and posttraumatic stress disorder symptoms among Chinese breast cancer patients. *Psychology and Health*, 26(3), 269-285. <https://doi.org/10.1080/08870440903287926>
- Hobfoll, S. E., Hall, B. J., Canetti-Nisim, D., Galea, S., Johnson, R. J., & Palmieri, P. A. (2007). Refining our understanding of traumatic growth in the face of terrorism: Moving from meaning cognitions to doing what is meaningful. *Applied Psychology: An International Review*, 56(3), 345-366. <https://doi.org/10.1111/j.1464-0597.2007.00292.x>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41(3), 209-218.
<https://doi.org/10.1097/00006842-197905000-00004>
- Horowitz, M. J. (1986). *Stress response syndromes* (2nd ed.). Jason Aronson.
- House, J. S., Kahn, R. L., McLeod, J. D., & Williams, D. (1985). Measures and concepts of social support. In S. Cohen & S. L. Syme (Eds.), *Social support and health*. (pp. 83-108). Academic Press.
- Jallow, A., Ljunggren, G., Wändell, P., Wahlström, L., & Carlsson, A. C. (2017). HIV-infection and psychiatric illnesses—A double edged sword that threatens the vision of a contained epidemic: The Greater Stockholm HIV cohort study. *Journal of Infection*, 74(1), 22-28. <https://doi.org/10.1016/j.jinf.2016.09.009>
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, 7(2), 113-136.
- Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. The Free Press.
- Jarman, M., De Lacey, G., & Walsh, S. (2005). Keeping safe, keeping connected: A qualitative study of HIV-positive women's experiences of partner relationships. *Psychology and Health*, 20(4), 533-551.
<https://doi.org/10.1080/14768320500083667>
- Joseph, S., & Linley, P. A. (2005). Positive adjustment to threatening events: An organismic valuing theory of growth through adversity. *Review of General Psychology*, 9(3), 262-280. <https://doi.org/10.1037/1089-2680.9.3.262>
- Joseph, S., Murphy, D., & Regel, S. (2012). An affective-cognitive processing model of post-traumatic growth. *Clinical Psychology & Psychotherapy*, 19(4), 316-325.
<https://doi.org/10.1002/cpp.1798>
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and psychological measurement*, 20(1), 141-151.
<https://doi.org/10.1177/001316446002000116>
- Kalomo, E. N. (2018). Associations between HIV-related stigma, self-esteem, social support, and depressive symptoms in Namibia. *Aging & Mental Health*, 22(12), 1570-1576. <https://doi.org/10.1080/13607863.2017.1387763>
- Kamen, C., Vorasarun, C., Canning, T., Kienitz, E., Weiss, C., Flores, S., Etter, D., Lee, S., & Gore-Felton, C. (2016). The impact of stigma and social support on development of post-traumatic growth among persons living with HIV. *Journal of Clinical Psychology in Medical Settings*, 23(2), 126-134.
<https://doi.org/10.1007/s10880-015-9447-2>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Kaniasty, K., de Terte, I., Guilaran, J., & Bennett, S. (2020). A scoping review of post-disaster social support investigations conducted after disasters that struck the Australia and Oceania continent. *Disasters*, 44(2), 336-366. <https://doi.org/10.1111/disa.12390>
- Kleim, B., & Ehlers, A. (2009). Evidence for a curvilinear relationship between posttraumatic growth and posttrauma depression and PTSD in assault survivors. *Journal of Traumatic Stress*, 22(1), 45-52. <https://doi.org/10.1002/jts.20378>
- Kornblith, A. B., Herndon, J. E., Zuckerman, E., Viscoli, C. M., Horwitz, R. I., Cooper, M. R., Harris, L., Tkaczuk, K. H., Perry, M. C., & Budman, D. (2001). Social support as a buffer to the psychological impact of stressful life events in women with breast cancer. *Cancer*, 91(2), 443-454. <https://doi.org/ckbfrg>
- Koutrouli, N., Anagnostopoulos, F., Griva, F., Gourounti, C., Kolokotroni, F., Efstathiou, V., Mellon, R., Papastylianou, D., Niakas, D., & Potamianos, G. (2016). Exploring the relationship between posttraumatic growth, cognitive processing, psychological distress and social constraints in a sample of breast cancer patients. *Women & Health*, 56(6), 650-667. <https://doi.org/10.1080/03630242.2015.1118725>
- Kraaij, V., Garnefski, N., Schroevers, M. J., van der Veek, S. M. C., Witlox, R., & Maes, S. (2008). Cognitive coping, goal self-efficacy and personal growth in HIV-infected men who have sex with men. *Patient Education and Counseling*, 72(2), 301-304. <https://doi.org/10.1016/j.pec.2008.04.007>
- Kroemeke, A., Bargiel-Matusiewicz, K., & Kalamarz, M. (2017). Mixed psychological changes following mastectomy: Unique predictors and heterogeneity of post-traumatic growth and post-traumatic depreciation. *Frontiers in Psychology*, 8, 1245. <https://doi.org/10.3389/fpsyg.2017.01245>
- Lancaster, S. L., Klein, K. R., Nadia, C., Szabo, L., & Mogerman, B. (2015). An integrated model of posttraumatic stress and growth. *Journal of Trauma & Dissociation*, 16(4), 1-20. <https://doi.org/10.1080/15299732.2015.1009225>
- Lancaster, S. L., Kloep, M., Rodriguez, B. F., & Weston, R. (2013). Event centrality, posttraumatic cognitions, and the experience of posttraumatic growth. *Journal of Aggression, Maltreatment & Trauma*, 22(4), 379-393. <https://doi.org/10.1080/10926771.2013.775983>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lechner, S. C., & Antoni, M. H. (2004). Posttraumatic growth and group-based interventions for persons dealing with cancer: What have we learned so far? *Psychological Inquiry*, 15(1), 35-41.
- Lepore, S. J. (2001). A social-cognitive processing model of emotional adjustment to cancer. In A. Baum, B. L. Andersen, A. Baum, & B. L. Andersen (Eds.),

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Psychosocial interventions for cancer*. (pp. 99-116). American Psychological Association. <https://doi.org/10.1037/10402-006>
- Levenson, M. R., Jennings, P. A., Aldwin, C. M., & Shiraishi, R. W. (2005). Self-transcendence: Conceptualization and measurement. *The International Journal of Aging and Human Development*, 60(2), 127-143. <https://doi.org/10.2190/XXM-FYRA-7U0X-GRC0>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.
- Linley, P. A., Joseph, S., & Loumidis, K. (2005). Trauma work, sense of coherence, and positive and negative changes in therapists. *Psychotherapy and Psychosomatics*, 74(3), 185-188. <https://doi.org/10.1159/000084004>
- Little, T. D. (2013). *Longitudinal structural equation modeling*. Guilford Press.
- Littlewood, R. A., Vanable, P. A., Carey, M. P., & Blair, D. C. (2008). The association of benefit finding to psychosocial and health behavior adaptation among HIV+ men and women. *Journal of Behavioral Medicine*, 31(2), 145-155. <https://doi.org/10.1007/s10865-007-9142-3>
- Locke, K. D. (2003). Status and solidarity in social comparison: Agentic and communal values and vertical and horizontal directions. *Journal of Personality and Social Psychology*, 84(3), 619-631. <https://doi.org/10.1037/0022-3514.84.3.619>
- López, J., Camilli, C., & Noriega, C. (2015). Posttraumatic growth in widowed and non-widowed older adults: Religiosity and sense of coherence. *Journal of Religion & Health*, 54(5), 1612-1628. <https://doi.org/10.1007/s10943-014-9876-5>
- Luszczynska, A., Sarkar, Y., & Knoll, N. (2007). Received social support, self-efficacy, and finding benefits in disease as predictors of physical functioning and adherence to antiretroviral therapy. *Patient Education and Counseling*, 66(1), 37-42. <https://doi.org/10.1016/j.pec.2006.10.002>
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2), 130-149. <https://doi.org/10.1037/1082-989X.1.2.130>
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593-614. <https://doi.org/10.1146/annurev.psych.58.110405.085542>
- Madill, A., Jordan, A., & Shirley, C. (2000). Objectivity and reliability in qualitative analysis: Realist, contextualist and radical constructionist epistemologies. *British Journal of Psychology*, 91(1), 1-20. <https://doi.org/10.1348/000712600161646>
- Magno, L., da Silva, L. A. V., Veras, M. A., Pereira-Santos, M., & Dourado, I. (2019). Stigma and discrimination related to gender identity and vulnerability to

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- HIV/AIDS among transgender women: A systematic review. *Estigma y discriminación relacionados con la identidad de género y la vulnerabilidad al VIH/SIDA entre mujeres transgénero: revisión sistemática.*, 35(4), e00112718. <https://doi.org/10.1590/0102-311X00112718>
- Major, B., Dovidio, J. F., & Link, B. G. (2018). *The Oxford handbook of stigma, discrimination, and health*. Oxford University Press.
- Mak, W. W. S., Cheung, R. Y. M., Law, R. W., Woo, J., Li, P. C. K., & Chung, R. W. Y. (2007). Examining attribution model of self-stigma on social support and psychological well-being among people with HIV+/AIDS. *Social Science & Medicine*, 64(8), 1549-1559. <https://doi.org/10.1016/j.socscimed.2006.12.003>
- Mangelsdorf, J., & Eid, M. (2015). What makes a thriver? Unifying the concepts of posttraumatic and postecstatic growth. *Frontiers in Psychology*, 6, Article 813.
- Manning-Jones, S., de Terte, I., & Stephens, C. (2017). The relationship between vicarious posttraumatic growth and secondary traumatic stress among health professionals. *Journal of Loss and Trauma*, 22(3), 256-270. <https://doi.org/10.1080/15325024.2017.1284516>
- Marshall, E. M., Frazier, P., Frankfurt, S., & Kuijer, R. G. (2015). Trajectories of posttraumatic growth and depreciation after two major earthquakes. *Psychological Trauma: Theory, Research, Practice, and Policy*, 7(2), 112-121. <https://doi.org/10.1037/tra0000005>
- Martin, L. L., Shrira, I., & Startup, H. M. (2004). Rumination as a function of goal progress, stop rules, and cerebral lateralization. In C. Papageorgiou & A. Wells (Eds.), *Depressive Rumination* (pp. 153-175). John Wiley & Sons. <https://doi.org/10.1002/9780470713853.ch8>
- Martin, L. L., & Tesser, A. (1989). Toward a motivational and structural theory of ruminative thought. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended Thought* (pp. 306-326). Guilford Press.
- Martin, L. L., & Tesser, A. (1996). Clarifying our thoughts. In R. S. Wyer, Jr. (Ed.), *Ruminative thoughts*. (pp. 189-208). Lawrence Erlbaum Associates.
- McGuire, A. P., Gauthier, J. M., Anderson, L. M., Hollingsworth, D. W., Tracy, M., Galea, S., & Coffey, S. F. (2018). Social support moderates effects of natural disaster exposure on depression and posttraumatic stress disorder symptoms: Effects for displaced and nondisplaced residents. *Journal of Traumatic Stress*, 31(2), 223-233. <https://doi.org/10.1002/jts.22270>
- McIntosh, R. C., & Rosselli, M. (2012). Stress and coping in women living with HIV: A meta-analytic review. *AIDS And Behavior*, 16(8), 2144-2159. <https://doi.org/10.1007/s10461-012-0166-5>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- McKee, P., & Barber, C. (1999). On defining wisdom. *The International Journal of Aging & Human Development*, 49(2), 149-164. <https://doi.org/10.2190/8G32-BNV0-NVP9-7V6G>
- Milam, J. E. (2004). Posttraumatic growth among HIV/AIDS patients. *Journal of Applied Social Psychology*, 34(11), 2353-2376. <https://doi.org/10.1111/j.1559-1816.2004.tb01981.x>
- Milam, J. E. (2006a). Positive changes attributed to the challenge of HIV/AIDS. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and practice*. (pp. 214-224). Lawrence Erlbaum Associates.
- Milam, J. E. (2006b). Posttraumatic growth and HIV disease progression. *Journal of Consulting and Clinical Psychology*, 74(5), 817-827. <https://doi.org/10.1037/0022-006X.74.5.817>
- Milan, S., Ickovics, J., Vlahov, D., Boland, R., Schoenbaum, E., Schuman, P., & Moore, J. (2005). Interpersonal predictors of depression trajectories in women with HIV. *Journal of Consulting and Clinical Psychology*, 73(4), 678-688. <https://doi.org/10.1037/0022-006X.73.4.678>
- Miller, C. (1995). In-depth interviewing by telephone: Some practical considerations. *Evaluation & Research in Education*, 9(1), 29-38. <https://doi.org/10.1080/09500799509533370>
- Mo, P. K. H., & Ng, C. T. Y. (2017). Stigmatization among people living with HIV in Hong Kong: A qualitative study. *Health Expectations: An International Journal of Public Participation in Health Care & Health Policy*, 20(5), 943-951. <https://doi.org/10.1111/hex.12535>
- Morrill, E. F., Brewer, N. T., O'Neill, S. C., Lillie, S. E., Dees, E. C., Carey, L. A., & Rimer, B. K. (2008). The interaction of post-traumatic growth and post-traumatic stress symptoms in predicting depressive symptoms and quality of life. *Psycho-Oncology*, 17(9), 948-953. <https://doi.org/10.1002/pon.1313>
- Morris, B. A., & Shakespeare-Finch, J. (2011). Rumination, post-traumatic growth, and distress: Structural equation modelling with cancer survivors. *Psycho-Oncology*, 20(11), 1176-1183. <https://doi.org/10.1002/pon.1827>
- Morris, B. A., Shakespeare-Finch, J., Rieck, M., & Newbery, J. (2005). Multidimensional nature of posttraumatic growth in an Australian population. *Journal of Traumatic Stress*, 18(5), 575-585. <https://doi.org/10.1002/jts.20067>
- Mosack, K. E., Abbott, M., Singer, M., Weeks, M. R., & Rohena, L. (2005). If I didn't have HIV, I'd be dead now: Illness narratives of drug users living with HIV/AIDS. *Qualitative Health Research*, 15(5), 586-605. <https://doi.org/10.1177/1049732304271749>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Moser, A., Stuck, A. E., Silliman, R. A., Ganz, P. A., & Clough-Gorr, K. M. (2012). The eight-item modified Medical Outcomes Study Social Support Survey: Psychometric evaluation showed excellent performance. *Journal of Clinical Epidemiology*, 65(10), 1107-1116. <https://doi.org/10.1016/j.jclinepi.2012.04.007>
- Moskowitz, J. T., Duncan, L. G., Moran, P. J., Acree, M., Epel, E. S., Kemeny, M. E., Hecht, F. M., & Folkman, S. (2015). Dispositional mindfulness in people with HIV: Associations with psychological and physical health. *Personality and Individual Differences*, 86, 88-93. <https://doi.org/10.1016/j.paid.2015.05.039>
- Moskowitz, J. T., Hult, J. R., Bussolari, C., & Acree, M. (2009). What works in coping with HIV? A meta-analysis with implications for coping with serious illness. *Psychological Bulletin*, 135(1), 121-141. <https://doi.org/10.1037/a0014210>
- Mphande-Finn, J. T., & Sommers-Flanagan, J. (2007). The experience of HIV/AIDS among rural women in the Northwestern United States: A qualitative analysis. *Journal of Community Psychology*, 35(1), 3-12. <https://doi.org/10.1002/jcop.20130>
- Mundt, S., & Briggs, S. (2016). HIV-related stigma and discrimination in the New Zealand healthcare setting: A mixed-methods study. *Sexual Health*, 13, 582-588. <https://doi.org/10.1071/SH16063>
- National Institute of Allergy and Infectious Disease. (2018). *Antiretroviral drug discovery and development*. <https://www.niaid.nih.gov/diseases-conditions/antiretroviral-drug-development>
- Neimeyer, R. A. (2006). Re-storying loss: Fostering growth in the posttraumatic narrative. In *Handbook of posttraumatic growth: Research and practice* (pp. 68-80). Lawrence Erlbaum Associates.
- Neimeyer, R. A., Baldwin, S. A., & Gillies, J. (2006). Continuing bonds and reconstructing meaning: Mitigating complications in bereavement. *Death Studies*, 30, 715-738. <https://doi.org/10.1080/07481180600848322>
- Newman, D. A. (2014). Missing data five practical guidelines. *Organizational Research Methods*, 17(4), 372-411. <https://doi.org/10.1177/1094428114548590>
- Nielsen, M. B., Matthiesen, S. B., & Einarsen, S. (2008). Sense of coherence as a protective mechanism among targets of workplace bullying. *Journal of Occupational Health Psychology*, 13(2), 128-136. <https://doi.org/10.1037/1076-8998.13.2.128>
- Nightingale, V. R. (2010). *Processes and outcomes of posttraumatic growth in individuals with HIV* [Doctoral dissertation, Illinois Institute of Technology]. ProQuest Dissertations and Theses.
- Nightingale, V. R., Sher, T. G., & Hansen, N. B. (2010). The impact of receiving an HIV diagnosis and cognitive processing on psychological distress and

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- posttraumatic growth. *Journal of Traumatic Stress*, 23(4), 452-460.
<https://doi.org/10.1002/jts.20554>
- Nolen-Hoeksema, S. (2004). The response styles theory. In C. Papageorgiou & A. Wells (Eds.), *Depressive Rumination* (pp. 105-123). John Wiley & Sons.
<https://doi.org/10.1002/9780470713853.ch6>
- Noone, E. K. (2015). *Cognitive processing pathways to posttraumatic growth* [Doctoral dissertation, Canterbury Christ Church University]. EThOS.
<http://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.667887>
- Ochoa Arnedo, C., Sánchez, N., Sumalla, E. C., & Casellas-Grau, A. (2019). Stress and growth in cancer: Mechanisms and psychotherapeutic interventions to facilitate a constructive balance. *Frontiers in Psychology*, 10, 177.
<https://doi.org/10.3389/fpsyg.2019.00177>
- Olf, M., Langeland, W., Draijer, N., & Gersons, B. P. (2007). Gender differences in posttraumatic stress disorder. *Psychological Bulletin*, 133(2), 183-204.
<https://doi.org/10.1037/0033-2909.133.2.183>
- Owe-Larsson, B., Sall, L., Salamon, E., & Allgulander, C. (2009). HIV infection and psychiatric illness. *African Journal of Psychiatry*, 12(2), 115-128.
<https://doi.org/10.4314/ajpsy.v12i2.43729>
- Pallant, J. F., & Lae, L. (2002). Sense of coherence, well-being, coping and personality factors: Further evaluation of the sense of coherence scale. *Personality and Individual Differences*, 33(1), 39-48. [https://doi.org/10.1016/S0191-8869\(01\)00134-9](https://doi.org/10.1016/S0191-8869(01)00134-9)
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136(2), 257-301. <https://doi.org/10.1037/a0018301>
- Park, C. L., & Blank, T. O. (2012). Associations of positive and negative life changes with well-being in young and middle-aged adult cancer survivors. *Psychology & Health*, 27(4), 412-429. <https://doi.org/10.1080/08870446.2011.586033>
- Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality*, 64(1), 71-105.
<https://doi.org/10.1111/j.1467-6494.1996.tb00815.x>
- Park, C. L., & Fenster, J. R. (2004). Stress-related growth: Predictors of occurrence and correlates with psychological adjustment. *Journal of Social and Clinical Psychology*, 23(2), 195-215. <https://doi.org/10.1521/jscp.23.2.195.31019>
- Park, C. L., & George, L. S. (2013). Assessing meaning and meaning making in the context of stressful life events: Measurement tools and approaches. *Journal of Positive Psychology*, 8(6), 483-504.
<https://doi.org/10.1080/17439760.2013.830762>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Park, C. L., & Lechner, S. C. (2006). Measurement issues in assessing growth following stressful life experiences. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and practice* (pp. 47-67). Lawrence Erlbaum Associates.
- Park, C. L., Riley, K. E., George, L. S., Gutierrez, I. A., Hale, A. E., Cho, D., & Braun, T. D. (2016). Assessing disruptions in meaning: Development of the Global Meaning Violation Scale. *Cognitive Therapy and Research*, 40(6), 831-846. <https://doi.org/10.1007/s10608-016-9794-9>
- Park, L. E., & Crocker, J. (2008). Contingencies of self-worth and responses to negative interpersonal feedback. *Self and Identity*, 7(2), 184-203. <https://doi.org/10.1080/15298860701398808>
- Parkes, C. M. (1971). Psycho-social transitions: A field for study. *Social Science & Medicine*, 5(2), 101-115. [https://doi.org/10.1016/0037-7856\(71\)90091-6](https://doi.org/10.1016/0037-7856(71)90091-6)
- Patterson, S., Cescon, A., Samji, H., Chan, K., Zhang, W., Raboud, J., Burchell, A. N., Cooper, C., Klein, M. B., Rourke, S. B., Loutfy, M. R., Machouf, N., Montaner, J. S. G., Tsoukas, C., & Hogg, R. S. (2015). Life expectancy of HIV-positive individuals on combination antiretroviral therapy in Canada. *BMC Infectious Diseases*, 15, 274. <https://doi.org/10.1186/s12879-015-0969-x>
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications.
- Paxton, S. (2002). The impact of utilizing HIV-positive speakers in AIDS education. *AIDS Education and Prevention*, 14(4), 282-294. <https://doi.org/10.1521/aeap.14.5.282.23874>
- Pearshouse, R. (2008). Switzerland: statement on sexual transmission of HIV by people on ART. *HIV/AIDS Policy & Law Review*, 13(1), 37-38.
- Positive Speakers Bureau. (2020). *Our History*. <https://www.positivespeakers.org.nz/what-we-do-1#anchorhistory>
- Prati, G., & Pietrantonio, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma*, 14(5), 364-388. <https://doi.org/10.1080/15325020902724271>
- Raker, A. R., Feldman, M. B., Hile, S. J., & Chandraratna, S. (2019). Positive side effects: The perceived health and psychosocial benefits of delivering an HIV self-management program for peer educators living with HIV [published online ahead of print]. *Journal of the Association of Nurses in AIDS Care*, Publish Ahead of Print. <https://doi.org/10.1097/JNC.000000000000102>
- Rinaldis, M., Pakenham, K. I., & Lynch, B. M. (2012). A structural model of the relationships among stress, coping, benefit-finding and quality of life in persons

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

diagnosed with colorectal cancer. *Psychology & Health*, 27(2), 159-177.

<https://doi.org/10.1080/08870441003768047>

Rodger, A. J., Cambiano, V., Bruun, T., Vernazza, P., Collins, S., Degen, O., Corbelli, G. M., Estrada, V., Geretti, A. M., Beloukas, A., Raben, D., Coll, P., Antinori, A., Nwokolo, N., Rieger, A., Prins, J. M., Blaxhult, A., Weber, R., Van Eeden, A., Brockmeyer, N. H., Clarke, A., del Romero Guerrero, J., Raffi, F., Bogner, J. R., Wandeler, G., Gerstoft, J., Gutiérrez, F., Brinkman, K., Kitchen, M., Ostergaard, L., Leon, A., Ristola, M., Jessen, H., Stellbrink, H.-J., Phillips, A. N., Lundgren, J., Coll, P., Cobarsi, P., Nieto, A., Meulbroek, M., Carrillo, A., Saz, J., Guerrero, J. D. R., García, M. V., Gutiérrez, F., Masiá, M., Robledano, C., Leon, A., Leal, L., Redondo, E. G., Estrada, V. P., Marquez, R., Sandoval, R., Vicianá, P., Espinosa, N., Lopez-Cortes, L., Podzamczek, D., Tiraboschi, J., Morenilla, S., Antela, A., Losada, E., Nwokolo, N., Sewell, J., Clarke, A., Kirk, S., Knott, A., Rodger, A. J., Fernandez, T., Gompels, M., Jennings, L., Ward, L., Fox, J., Lwanga, J., Lee, M., Gilson, R., Leen, C., Morris, S., Clutterbuck, D., Brady, M., Asboe, D., Fedele, S., Fidler, S., Brockmeyer, N., Potthoff, A., Skaletz-Rorowski, A., Bogner, J., Seybold, U., Roider, J., Jessen, H., Jessen, A., Ruzicic, S., Stellbrink, H.-J., Kümmerle, T., Lehmann, C., Degen, O., Bartel, S., Hüfner, A., Rockstroh, J., Mohrmann, K., Boesecke, C., Krznaric, I., Ingiliz, P., Weber, R., Grube, C., Braun, D., Günthard, H., Wandeler, G., Furrer, H., Rauch, A., Vernazza, P., Schmid, P., Rasi, M., Borso, D., Stratmann, M., Caviezel, O., Stoeckle, M., Battegay, M., Tarr, P., Christinet, V., Jouinot, F., Isambert, C., Bernasconi, E., Bernasconi, B., Gerstoft, J., Jensen, L. P., Bayer, A. A., Ostergaard, L., Yehdego, Y., Bach, A., Handberg, P., Kronborg, G., Pedersen, S. s., Bülow, N., Ramskov, B., Ristola, M., Debnam, O., Sutinen, J., Blaxhult, A., Ask, R., Hildingsson-Lundh, B., Westling, K., Frisen, E.-M., Cortney, G., O'Dea, S., De Wit, S., Necsoi, C., Vandekerckhove, L., Goffard, J.-C., Henrard, S., Prins, J., Nobel, H.-H., Weijnsfeld, A., Van Eeden, A., Elsenburg, L., Brinkman, K., Vos, D., Hoijenga, I., Gisolf, E., Van Bentum, P., Verhagen, D., Raffi, F., Billaud, E., Ohayon, M., Gosset, D., Fior, A., Pialoux, G., Thibaut, P., Chas, J., Leclercq, V., Pechenot, V., Coquelin, V., Pradier, C., Breaud, S., Touzeau-Romer, V., Rieger, A., Kitchen - Maria Geit, M., Sarcelletti, M., Gisinger, M., Oellinger, A., Antinori, A., Menichetti, S., Bini, T., Mussini, C., Meschiari, M., Di Biagio, A., Taramasso, L., Celesia, B. M., Gussio, M., & Janeiro, N. (2019). Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): Final results of a multicentre, prospective, observational study. *The Lancet*, 393(10189), 2428-2438. [https://doi.org/https://doi.org/10.1016/S0140-6736\(19\)30418-0](https://doi.org/https://doi.org/10.1016/S0140-6736(19)30418-0)

Rodger, A. J., Cambiano, V., Bruun, T., Vernazza, P., Collins, S., Van Lunzen, J., Corbelli, G. M., Estrada, V., Geretti, A. M., & Beloukas, A. (2016). Sexual activity without condoms and risk of HIV transmission in serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy. *JAMA*, 316(2), 171-181. <https://doi.org/10.1001/jama.2016.5148>

Rodriguez, M. S., & Cohen, S. (1998). Social support. In H. Fredman (Ed.), *Encyclopedia of mental health* (Vol. 3, pp. 535-544). Academic Press.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Royal, S. (2018). *Eve van Grafhorst was diagnosed with HIV and hounded out of Australia, but her legacy endures*. <https://www.abc.net.au/news/2018-11-18/remembering-eve-van-grafhorst-after-hiv-diagnosis/10491934>
- Rzeszutek, M., Oniszczenko, W., & Firląg-Burkacka, E. (2016). Gender differences in posttraumatic stress symptoms and the level of posttraumatic growth among a Polish sample of HIV-positive individuals. *AIDS Care*, 28(11), 1411-1415. <https://doi.org/10.1080/09540121.2016.1182615>
- Rzeszutek, M., Oniszczenko, W., & Firląg-Burkacka, E. (2017). Social support, stress coping strategies, resilience and posttraumatic growth in a Polish sample of HIV-infected individuals: Results of a 1 year longitudinal study. *Journal of Behavioral Medicine*, 40(6), 942-954. <https://doi.org/10.1007/s10865-017-9861-z>
- Sawyer, A., Ayers, S., & Field, A. P. (2010). Posttraumatic growth and adjustment among individuals with cancer or HIV/AIDS: A meta-analysis. *Clinical Psychology Review*, 30(4), 436-447. <https://doi.org/10.1016/j.cpr.2010.02.004>
- Saxton, P., Dickson, N., McAllister, S., Hughes, A., & Sharples, K. (2012). HIV prevalence among men who have sex with men in New Zealand 1985–2009: 25 years of public health monitoring. *International Journal of STD & AIDS*, 23(4), 274-279. <https://doi.org/10.1258/ijsa.2011.011213>
- Schaefer, J. A., & Moos, R. H. (1992). Life crises and personal growth. In B. N. Carpenter (Ed.), *Personal coping: Theory, research, and application* (pp. 149-170). Praeger Publishers/Greenwood Publishing Group.
- Schaefer, S., & Coleman, E. (1992). Shifts in meaning, purpose, and values following a diagnosis of human immunodeficiency virus (HIV) infection among gay men. *Journal of Psychology & Human Sexuality*, 5(1-2), 13-29.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219-247. <https://doi.org/10.1037/0278-6133.4.3.219>
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063-1078. <https://doi.org/10.1037/0022-3514.67.6.1063>
- Schrimshaw, E. W., Siegel, K., & Lekas, H. M. (2005). Changes in attitudes toward antiviral medication: A comparison of women living with HIV/AIDS in the pre-HAART and HAART eras. *AIDS And Behavior*, 9(3), 267-279. <https://doi.org/10.1007/s10461-005-9001-6>
- Schuettler, D., & Boals, A. (2011). The path to posttraumatic growth versus posttraumatic stress disorder: Contributions of event centrality and coping.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Journal of Loss and Trauma, 16(2), 180-194.
<https://doi.org/10.1080/15325024.2010.519273>

Schwartzberg, S. S. (1993). Struggling for meaning: How HIV-positive gay men make sense of AIDS. *Professional Psychology: Research and Practice*, 24(4), 483-490. <https://doi.org/10.1037/0735-7028.24.4.483>

Schwartzberg, S. S. (1994). Vitality and growth in HIV-infected gay men. *Social Science & Medicine*, 38(4), 593-602. [https://doi.org/10.1016/0277-9536\(94\)90256-9](https://doi.org/10.1016/0277-9536(94)90256-9)

Schwarzer, R., Bowler, R. M., & Cone, J. E. (2014). Social integration buffers stress in New York police after the 9/11 terrorist attack. *Anxiety, Stress & Coping*, 27(1), 18-26. <https://doi.org/10.1080/10615806.2013.806652>

Sears, S. R., Stanton, A. L., & Danoff-Burg, S. (2003). The yellow brick road and the emerald city: Benefit finding, positive reappraisal coping, and posttraumatic growth in women with early-stage breast cancer. *Health Psychology*, 22(5), 487-497. <https://doi.org/10.1037/0278-6133.22.5.487>

Segerstrom, S. C., Stanton, A. L., Alden, L. E., & Shortridge, B. E. (2003). A multidimensional structure for repetitive thought: What's on your mind, and how, and how much? *Journal of Personality and Social Psychology*, 85(5), 909-921. <https://doi.org/10.1037/0022-3514.85.5.909>

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14. <https://doi.org/10.1037/0003-066X.55.1.5>

Shakespeare-Finch, J., & Armstrong, D. (2010). Trauma type and posttrauma outcomes: Differences between survivors of motor vehicle accidents, sexual assault, and bereavement. *Journal of Loss and Trauma*, 15(2), 69-82. <https://doi.org/10.1080/15325020903373151>

Shakespeare-Finch, J., & Lurie-Beck, J. (2014). Review: A meta-analytic clarification of the relationship between posttraumatic growth and symptoms of posttraumatic distress disorder. *Journal of Anxiety Disorders*, 28, 223-229. <https://doi.org/10.1016/j.janxdis.2013.10.005>

Shakespeare-Finch, J., Martinek, E., Tedeschi, R. G., & Calhoun, L. G. (2013). A qualitative approach to assessing the validity of the Posttraumatic Growth Inventory. *Journal of Loss and Trauma*, 18(6), 572-591. <https://doi.org/10.1080/15325024.2012.734207>

Shand, L. K., Cowlshaw, S., Brooker, J. E., Burney, S., & Ricciardelli, L. A. (2015). Correlates of post-traumatic stress symptoms and growth in cancer patients: A systematic review and meta-analysis. *Psycho-Oncology*, 24(6), 624-634. <https://doi.org/10.1002/pon.3719>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science & Medicine*, 32(6), 705-714. [https://doi.org/10.1016/0277-9536\(91\)90150-B](https://doi.org/10.1016/0277-9536(91)90150-B)
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 183-242). Elsevier Academic Press. [https://doi.org/10.1016/S0065-2601\(06\)38004-5](https://doi.org/10.1016/S0065-2601(06)38004-5)
- Sherr, L., Nagra, N., Kulubya, G., Catalan, J., Clucas, C., & Harding, R. (2011). HIV infection associated post-traumatic stress disorder and post-traumatic growth—A systematic review. *Psychology, Health & Medicine*, 16(5), 612-629. <https://doi.org/10.1080/13548506.2011.579991>
- Siegel, K., & Schrimshaw, E. W. (2000). Perceiving benefits in adversity: Stress-related growth in women living with HIV/AIDS. *Social Science & Medicine*, 51(10), 1543-1554. [https://doi.org/10.1016/S0277-9536\(00\)00144-1](https://doi.org/10.1016/S0277-9536(00)00144-1)
- Siegel, K., & Schrimshaw, E. W. (2005). Stress, appraisal, and coping: A comparison of HIV-infected women in the pre-HAART and HAART eras. *Journal of Psychosomatic Research*, 58(3), 225-233. <https://doi.org/10.1016/j.jpsychores.2004.09.002>
- Siegel, K., & Schrimshaw, E. W. (2007). The stress moderating role of benefit finding on psychological distress and well-being among women living with HIV/AIDS. *AIDS & Behavior*, 11(3), 421-433. <https://doi.org/10.1007/s10461-006-9186-3>
- Siegel, K., Schrimshaw, E. W., & Pretter, S. (2005). Stress-related growth among women living with HIV/AIDS: Examination of an explanatory model. *Journal of Behavioral Medicine*, 28(5), 403-414. <https://doi.org/10.1007/s10865-005-9015-6>
- Silva, S. M., Moreira, H. C., & Canavarro, M. C. (2012). Examining the links between perceived impact of breast cancer and psychosocial adjustment: The buffering role of posttraumatic growth. *Psycho-Oncology*, 21(4), 409-418. <https://doi.org/10.1002/pon.1913>
- Soo, H., & Sherman, K. A. (2015). Rumination, psychological distress and post-traumatic growth in women diagnosed with breast cancer. *Psycho-Oncology*, 24(1), 70-79. <https://doi.org/10.1002/pon.3596>
- Splevins, K., Cohen, K., Bowley, J., & Joseph, S. (2010). Theories of posttraumatic growth: Cross-cultural perspectives. *Journal of Loss and Trauma*, 15(3), 259-277. <https://doi.org/10.1080/15325020903382111>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Stanton, A. L., Bower, J. E., & Low, C. A. (2006). Posttraumatic growth after cancer. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research & practice*. (pp. 138-175). Lawrence Erlbaum Associates.
- Staub, E., & Vollhardt, J. (2008). Altruism born of suffering: The roots of caring and helping after victimization and other trauma. *American Journal of Orthopsychiatry*, 78(3), 267-280. <https://doi.org/10.1037/a0014223>
- Staudinger, U. M. (2013). The need to distinguish personal from general wisdom: A short history and empirical evidence. In M. Ferrari & N. Weststrate (Eds.), *The scientific study of personal wisdom* (pp. 3-19). Springer. https://doi.org/10.1007/978-94-007-7987-7_1
- Steger, M. F., Frazier, P. A., & Zacchanini, J. L. (2008). Terrorism in two cultures: Stress and growth following September 11 and the Madrid train bombings. *Journal of Loss and Trauma*, 13(6), 511-527. <https://doi.org/10.1080/15325020802173660>
- Stump, T. K., LaPergola, C. C., Cross, N. A., & Else-Quest, N. M. (2016). The measure of disease-related stigma: Construction, validation, and application across three disease contexts. *Stigma and Health*, 1(2), 87-100. <https://doi.org/10.1037/sah0000012>
- Sturges, J. E., & Hanrahan, K. J. (2004). Comparing telephone and face-to-face qualitative interviewing: A research note. *Qualitative Research*, 4(1), 107-118. <https://doi.org/10.1177/1468794104041110>
- Svetina, M., & Nastran, K. (2012). Family relationships and post-traumatic growth in breast cancer patients. *Psychiatria Danubina*, 24(3), 298-306.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Allyn & Bacon/Pearson Education.
- Taku, K. (2013). Posttraumatic growth in American and Japanese men: Comparing levels of growth and perceptions of indicators of growth. *Psychology of Men & Masculinity*, 14(4), 423-432. <https://doi.org/10.1037/a0029582>
- Taylor, S. E., Wood, J. V., & Lichtman, R. R. (1983). It could be worse: Selective evaluation as a response to victimization. *Journal of Social Issues*, 39(2), 19-40. <https://doi.org/10.1111/j.1540-4560.1983.tb00139.x>
- Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma & transformation: Growing in the aftermath of suffering*. SAGE Publications. <https://doi.org/10.4135/9781483326931>
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9(3), 455-472. <https://doi.org/10.1002/jts.2490090305>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, 15(1), 1-18. https://doi.org/10.1207/s15327965pli1501_01
- Tedeschi, R. G., Shakespeare-Finch, J., Taku, K., & Calhoun, L. G. (2018). *Posttraumatic growth: Theory, research, and applications*. Routledge.
- Tennen, H., & Affleck, G. (1998). Personality and transformation in the face of adversity. In *Posttraumatic growth: Positive changes in the aftermath of crisis*. (pp. 65-98). Lawrence Erlbaum Associates.
- Thoits, P. A. (1982). Conceptual, methodological, and theoretical problems in studying social support as a buffer against life stress. *Journal of Health and Social Behavior*, 23(2), 145-159. <https://doi.org/10.2307/2136511>
- Thomas, D. R. (2017). Feedback from research participants: are member checks useful in qualitative research? *Qualitative Research in Psychology*, 14(1), 23-41. <https://doi.org/10.1080/14780887.2016.1219435>
- Thomas, J. L., Britt, T. W., Odle-Dusseau, H., & Bliese, P. D. (2011). Dispositional optimism buffers combat veterans from the negative effects of warzone stress on mental health symptom and work impairment. *Journal of Clinical Psychology*, 67(9), 866-880. <https://doi.org/10.1002/jclp.20809>
- Tomich, P. L., & Helgeson, V. S. (2004). Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychology*, 23(1), 16-23. <https://doi.org/10.1037/0278-6133.23.1.16>
- Tracy, S. J. (2010). Qualitative quality: Eight “big-tent” criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837-851. <https://doi.org/10.1177/1077800410383121>
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology*, 76(2), 284-304. <https://doi.org/10.1037/0022-3514.76.2.284>
- Triplett, K. N., Tedeschi, R. G., Cann, A., Calhoun, L. G., & Reeve, C. L. (2012). Posttraumatic growth, meaning in life, and life satisfaction in response to trauma. *Psychological Trauma: Theory, Research, Practice, and Policy*, 4(4), 400-410. <https://doi.org/10.1037/a0024204>
- Tross, S., & Hirsch, D. A. (1988). Psychological distress and neuropsychological complications of HIV infection and AIDS. *American Psychologist*, 43(11), 929-934. <https://doi.org/10.1037/0003-066X.43.11.929>
- Updegraff, J. A., Taylor, S. E., Kemeny, M. E., & Wyatt, G. E. (2002). Positive and negative effects of HIV infection in women with low socioeconomic resources.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Personality and Social Psychology Bulletin, 28(3), 382-394.

<https://doi.org/10.1177/0146167202286009>

Urcuyo, K. R., Boyers, A. E., Carver, C. S., & Antoni, M. H. (2005). Finding benefit in breast cancer: Relations with personality, coping, and concurrent well-being. *Psychology & Health*, 20(2), 175-192.

<https://doi.org/10.1080/08870440512331317634>

Vago, D. R., & Silbersweig, D. A. (2012). Self-awareness, self-regulation, and self-transcendence (S-ART): A framework for understanding the neurobiological mechanisms of mindfulness. *Frontiers in Human Neuroscience*, 6, Article 296.

<https://doi.org/10.3389/fnhum.2012.00296>

Vanable, P. A., Carey, M. P., Blair, D. C., & Littlewood, R. A. (2006). Impact of HIV-related stigma on health behaviors and psychological adjustment among HIV-positive men and women. *AIDS And Behavior*, 10(5), 473-482.

<https://doi.org/10.1007/s10461-006-9099-1>

Vernazza, P. (2008). HIV-infizierte Menschen ohne andere STD sind unter wirksamer antiretroviraler Therapie sexuell nicht infektiös. *Schweizerische Ärztezeitung*, 89(5), 165-169. <https://doi.org/10.4414/saez.2008.13252>

Vollhardt, J. R. (2009). Altruism born of suffering and prosocial behavior following adverse life events: A review and conceptualization. *Social Justice Research*, 22(1), 53-97. <https://doi.org/10.1007/s11211-009-0088-1>

Vollhardt, J. R., & Staub, E. (2011). Inclusive altruism born of suffering: The relationship between adversity and prosocial attitudes and behavior toward disadvantaged outgroups. *American Journal of Orthopsychiatry*, 81(3), 307-315.

<https://doi.org/10.1111/j.1939-0025.2011.01099.x>

Walsh, R. (2015). What is wisdom? Cross-cultural and cross-disciplinary syntheses. *Review of General Psychology*, 19(3), 278-293.

<https://doi.org/10.1037/gpr0000045>

Wamser-Nanney, R., Howell, K. H., Schwartz, L. E., & Hasselle, A. J. (2018). The moderating role of trauma type on the relationship between event centrality of the traumatic experience and mental health outcomes. *Psychological Trauma: Theory, Research, Practice, and Policy*, 10(5), 499-507.

<https://doi.org/10.1037/tra0000344>

Ware, J. E. (2001). *How to score and interpret single-item health status measures: A manual for users of the SF-8 health survey*. QualityMetric.

Weiss, D. S., & Marmar, C. R. (1997). The Impact of Event Scale-Revised. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 399-411). Guilford Press.

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- Weiss, T., & Berger, R. (2010). *Posttraumatic growth and culturally competent practice: Lessons learned from around the globe*. John Wiley & Sons Inc.
- Williams, R. M., Davis, M. C., & Millsap, R. E. (2002). Development of the Cognitive Processing of Trauma Scale. *Clinical Psychology & Psychotherapy*, 9(5), 349-360. <https://doi.org/10.1002/cpp.343>
- Willig, C. (2012). *Qualitative interpretation and analysis in psychology*. McGraw-Hill Education.
- Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin*, 90(2), 245-271. <https://doi.org/10.1037/0033-2909.90.2.245>
- Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality and Social Psychology Bulletin*, 29(12), 1494-1508. <https://doi.org/10.1177/0146167203256921>
- Yardley, L. (2008). Demonstrating validity in qualitative psychology. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (2 ed., pp. 235-251). SAGE Publications.
- Yu, N. X., Chen, L., Ye, Z., Li, X., & Lin, D. (2017). Impacts of making sense of adversity on depression, posttraumatic stress disorder, and posttraumatic growth among a sample of mainly newly diagnosed HIV-positive Chinese young homosexual men: The mediating role of resilience. *AIDS Care*, 29(1), 79-85. <https://doi.org/10.1080/09540121.2016.1210073>
- Zeligman, M., Barden, S. M., & Hagedorn, W. B. (2016). Posttraumatic growth and HIV: A study on associations of stigma and social support. *Journal of Counseling & Development*, 94(2), 141-149. <https://doi.org/10.1002/jcad.12071>

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendices

Appendix A: Ethics Approval Letter of Study 1



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

16 June 2015

Danni Chi



Dear Danni

Re: HEC: Southern A Application – 15/09
The cognitive process and medical outcome of posttraumatic growth among HIV population

Thank you for your letter dated 12 June 2015.

On behalf of the Massey University Human Ethics Committee: Southern A I am pleased to advise you that the ethics of your application are now approved. Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Mr Jeremy Hubbard, Chair
Massey University Human Ethics Committee: Southern A

cc Dr Ian de Terte
School of Psychology
WELLINGTON

Prof James Liu, HoS
School of Psychology
ALBANY


Massey University Human Ethics Committee
Accredited by the Health Research Council

Research Ethics Office, Research and Enterprise

Massey University, Private Bag 11222, Palmerston North 4442, New Zealand T 06 3505573; 06 3505575 F 06 350 5622
E humanethics@massey.ac.nz; animalethics@massey.ac.nz; gtc@massey.ac.nz www.massey.ac.nz

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix B: Advertising Flyer of Study 1



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PUKENGĀ TANGATA

Positive Psychological Changes and Health Status Study

Are you


1. 18 years of age or older and
2. HIV positive and
3. living in New Zealand

Kia ora/Hello,

If you answered YES to the questions above, you might be eligible to participate in this study. Living with HIV is a highly challenging experience and may impact on one's life both physically and psychologically. However, positive changes through facing and struggling with HIV have been reported by many people. This study evaluates positive psychological changes in people living with HIV. By being a part of this research, you will have the chance to help clarify what kind of thinking and actions lead to positive psychological changes and whether these changes impact ones' health, and further assist to improve clinical services. Also, you will have the option to enter a draw of 1 of 10 \$100 supermarket vouchers from New World.

The anonymous survey will take about 20 minutes to complete. You have the right to withdraw from the study at any time during the research. If there are questions you do not wish to answer, please leave those questions blank.


This study is being conducted by Ms Danni Chi at Massey University, for her PhD research, under the supervision of Dr. Ian de Terte and Dr. Dianne Gardner. If you would like more information about participating, please check the information sheet on next page, or visit the website <http://tinyurl.com/hkrlv4t>, or scan the following QR code with your smartphone.



You can also contact the researcher by e-mail at danni.chi.1@uni.massey.ac.nz or the main supervisor Dr Ian de Terte by e-mail at I.deTerte@massey.ac.nz or by phone: (04) 979 3603.

Thank you for your interest in this research.

Yours faithfully




Danni Chi
BM, MA

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 15/09. If you have any concerns about the conduct of this research, please contact Mr Jeremy Hubbard, Acting Chair, Massey University Human Ethics Committee: Southern A, telephone 04 801 5799 x 63487, email humanethicsoutha@massey.ac.nz.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix C: Advertising Poster of Study 1



MASSEY
UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Participants Needed

For Study on Psychological Changes and Health Status

What is the study about?
Living with HIV is a highly challenging experience and may impact on one's life both physically and psychologically. However, positive changes through facing and struggling with HIV have been reported. This study evaluates positive psychological changes in people living with HIV


You are eligible to participate if you are:

- ✓ 18 years of age or older and
- ✓ HIV positive and
- ✓ living in New Zealand

What will you be asked to do?
This anonymous survey will take about 20 minutes. You will be asked to complete several questionnaires about thoughts and behaviours regarding your experience of living with HIV


What are the benefits?
You will have the chance to help clarify what kind of thinking and actions lead to positive psychological changes and whether these changes impact on an individual's health, and will further assist to improve clinical services. Also, you will have the option to enter a draw of 1 of 10 \$100 supermarket vouchers from New World

For more information, please check the information sheet, or visit the website
<http://tinyurl.com/hkrlv4t>,
or scan the following QR code with your smartphone
(Please input the password "Massey123" to start the online survey)



If you have any questions or would prefer a paper copy of the survey, please contact the researcher by email at
danni.chi.1@uni.massey.ac.nz or the main supervisor Dr Ian de Terte by email at I.deTerte@massey.ac.nz or by phone: (04) 979 3603.

THE ENGINE
OF THE NEW
NEW ZEALAND



Thank you for considering participating in this study!

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix D: Information Sheet of Study 1



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

The Process of Posttraumatic Growth in People Living with HIV

INFORMATION SHEET

You are invited to take part in a study that will investigate the thoughts and behaviours relevant to your experience of living with HIV.

Who is doing this research?

My name is Danni Chi, a PhD student in the School of Psychology, Massey University. This research is a PhD project under the supervision of Dr Ian de Terte and Dr Dianne Gardner.

What is this research about?

Living with HIV is a highly challenging experience and may impact one's life both physically and psychologically. However, positive changes have been reported by some people who live with HIV, such as more self-reliance and deeper understanding of life. These positive changes have been called posttraumatic growth (PTG). PTG is not uncommon though not everyone experiences. This research project is aimed at assessing whether and how PTG happened, and whether PTG impacts one's general health status.

Participant eligibility

You are eligible to take part in the study if you:

- are 18 years of age or older and
- have been tested as HIV positive and
- live in New Zealand

Why is the study important?

This study will aid future research by examining the processes of PTG. It will also enable healthcare professionals to better understand the impact of coping and social support on general health, and it will help to develop psychological therapies by integrating the perspective of PTG into some common approaches.

What will you be asked to do?

This survey will take approximately 20 minutes. You will be asked to complete several questionnaires. These questionnaires include questions about thoughts, behaviours, social support, and your current health status of living with HIV.

The study is totally anonymous. However, if you want to be in the draw and/or receive the summary of research findings, then you will need to provide contact information. Please note that your name cannot be linked to your questionnaire data.

Data Management

The data will be used only for the purposes of this study and only reported as group data. Only the investigator and supervisors will have access to data, and this will be kept secure and strictly confidential. At the end of this study, the list of participants will be destroyed. Data from the project has to be retained for five years, after that all raw data will be destroyed.

What are the benefits and risks of taking part in this study?

You will receive a report summarizing the main findings of the project via mail or e-mail according to your preference and the contact information you have provided. Also as part of this study, all participants will have the option of entering a draw for one of ten \$100 supermarket vouchers from New World.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Where can you get support from?

It is possible for some people to feel uncomfortable from completing this survey and in the small chance that this happens to you, please seek assistance from a psychologist. A list of psychologists can be accessed via the internet at www.nzccp.co.nz or www.psychology.org.nz. A further place you can seek support is from your general practitioner. Note there would be a fee charged to you for making an appointment with these professionals. Or you can seek help from Health Services team of New Zealand AIDS Foundation at <http://www.nzaf.org.nz/about-us/staff/health-services-1/>. Their team is comprised of qualified counsellors and psychotherapists, and the counselling service is free.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- ask any questions about the study at any time;
- provide information on the understanding that your name will not be used;
- be given access to a summary of the project findings when it is concluded.

In addition, completion of the survey implies consent.

What to do now?

If you would like to take part in this study, you can:

- go to the website <http://tinyurl.com/hkrlv4t> and input the password "Massey123" to start, or scan the following QR code with your smartphone and input the same password to begin.



- Or contact the investigator and ask for the paper version, complete the enclosed survey and return it in the self-addressed stamped envelope.

The survey is envisaged to stop on 31st October 2016, and the draw will be completed when the survey is ended. The summary of the study findings will be expected at 2017.

Project Contacts

If you have any questions about the research, please contact the principal researcher by e-mail at danni.chi.1@uni.massey.ac.nz or the researcher's main supervisor Dr Ian de Terte by e-mail at I.deTerte@massey.ac.nz or by phone: (04) 979 3603.

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 15/09. If you have any concerns about the conduct of this research, please contact Mr Jeremy Hubbard, Acting Chair, Massey University Human Ethics Committee: Southern A, telephone 04 801 5799 x 63487, email humanethicsoutha@massey.ac.nz.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Danni Chi', written over a horizontal line.

Danni Chi
BM, MA

Thank you for considering participating in this study!

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix E: Research Summary of Study 1



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

Research Summary: Positive Changes After Receiving a Diagnosis of HIV

Prepared by Danni Chi

School of Psychology

Massey University

Wellington

Thank you for participating in my research into the experiences of posttraumatic growth among people living with HIV in New Zealand.

Introduction

Since the development of antiretroviral therapy in 1996, HIV has been known as a chronic medical condition, but it is still very stressful for those who must live with HIV. People living with HIV face difficulties such as the symptoms of HIV, financial difficulties, stigma, sadness, depression, side-effects of treatment, fear of disease progression and death. Even so, some describe the diagnosis as a “wake up call” to remind them to live a more healthy and meaningful life, and many report that they have experienced positive changes such as more empathy for others, more appreciation of families and friends, better recognition of personal strength and deeper understanding of life. These positive changes are known as posttraumatic growth. Not everyone will experience growth and many who do not report it still adapt well. The aim of my research was to find out what factors might relate to experiences of growth and stress, and whether growth might relate to better health or less stress.

Participants

Seventy-seven participants provided complete data for this study: 58 were men, 16 were women, two were transgender people, and one did not provide gender information. Their average age was 47 years (ranging from 23 to 67 years) and the average length of time living with HIV was 11 years (ranging from 4 months to 30 years).

Main Findings

Forty percent of participants reported moderate to high levels of growth. Participants who had received their diagnosis at a younger age, and for whom a longer time had elapsed since

1 / 2

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

diagnosis, experienced more growth. Growth was not related to experiences of stress: 18% of participants reported moderate to high levels of stress. Men and women did not differ in their levels of growth or stress or health status.

Some respondents reported that receiving the diagnosis of HIV disrupted their lives and future goals and became a central part of their life stories. The more strongly people felt this way, the more likely they were to experience repetitive thoughts about it, to adopt different ways of coping with it, and to experience growth as well as stress. Ruminating, or repetitively thinking, about the diagnosis over months and years could help people understand, come to terms with and find meaning in their experiences, and adapt to their situation, but rumination could also lead to stress.

Adaptive ways of coping with the diagnosis included making plans or taking actions to deal with problems; these approaches were related to more growth. Less adaptive ways which were related to more stress and less growth included ignoring or denying the diagnosis, overeating, using alcohol and non-medication drugs, and reducing or avoiding connections with other people.

People who had more social support, especially company, comfort, and understanding from others and a more positive and optimistic outlook experienced more growth and less stress. Growth was not related to better physical or mental health or less stress, but stress was related to worse physical and mental health.

Thank you again for supporting my study. Please feel free to contact me or my supervisors if you would like more information about this study.

Danni Chi

Email: Danni.Chi.1@uni.massey.ac.nz

Supervisors:

Dr. Ian de Terte

Email: I.deTerte@massey.ac.nz

Dr. Dianne Gardner

Email: D.H.Gardner@massey.ac.nz

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix F: Interview Schedule of Study 2

Positive Psychological Changes in People Living with HIV

Interview Schedule

As this study is qualitative in nature, the following questions are merely a basis for a conversation and are indicative of the broader subject area that will be explored during the interview. The questions are not fixed or prescriptive, and your responses may direct the interview into new areas of interest.

You are reminded that if at any minute in the interview you feel uncomfortable or wish to stop talking about a particular topic, you have the right and choice to not respond to a question or to stop the interview.

Indicative Questions

1. Can you tell me a bit about yourself?
2. Can you tell me what was it like for you when you found out you were HIV positive?
Possible prompts: What did you think/do at that time? How did you feel?
3. What do you think that helps you the most in dealing with the diagnosis of HIV?
4. Who helped you the most in dealing with the diagnosis of HIV?
5. How has your life changed because of the diagnosis? Possible prompts: In what ways?
6. Have the diagnosis changed the way you think or feel about yourself/relationships with families, friends/future plans/worldviews? Possible prompts: In what ways?
7. Have you changed the way you feel or think about HIV? Possible prompts: What kind of changes? Can you please provide more details, like anything or anybody causes the changes? What did you do after that?
8. How do you describe your current life with HIV?
9. How do you see yourself in the future? Possible prompts: can you tell me more about that?
10. Is there anything else that is important to understand your experience?

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix G: Information Sheet of Study 2



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

Positive Psychological Changes in People Living with HIV

INFORMATION SHEET

You are invited to take part in a study that will investigate the thoughts and changes relevant to your experience of being diagnosed with HIV. I have received a few kind emails saying the survey in the previous study cannot represent their experiences, and everyone's story is different. That is why this study invites you to tell us your experience. Feel free to forward it to anyone who might be interested.

Who is doing this research?

My name is Danni Chi, a PhD student in the School of Psychology, Massey University. This research is a PhD project under the supervision of Dr Ian de Terte and Dr Dianne Gardner.

What is this research about?

Being diagnosed with HIV is a challenging experience and may impact one's life both physically and psychologically. However, positive changes have been reported by some people who are living with HIV, such as more self-reliance and deeper understandings of life. These positive changes have been called posttraumatic growth (PTG). PTG is not uncommon though not everyone experiences it. This research project is aimed at investigating how PTG happened.

Participant eligibility

You are eligible to take part in the study if you:

- speak English and live in New Zealand
- were diagnosed with HIV at the age at 18 or older, and after the year 1996
- have lived with HIV for at least one year
- are on HIV medication
- are not currently engaged in psychological therapy

Why is the study important?

This study will investigate the experience of being diagnosed and living with HIV. It will aid future research by examining how PTG develops. It will also help to develop psychological therapies by integrating the perspective of PTG into some common approaches.

What will you be asked to do?

This study is totally voluntary. It will be conducted through a phone interview. The interview will take place in a quiet, uninterrupted place, where you feel comfortable, can speak openly and will not be overheard (probably in your home). It will take approximately 1 hour and will be audio-recorded.

Data Management

The audio recording will be transcribed and used only for the purposes of this study. Only the investigator and supervisors will have access to the audio recording, and this will be kept securely and strictly confidential. The audio recording will be erased after the transcription is finished. At the end of this study, the list of participants will be destroyed. The transcription, consent form, demographic questionnaire, and transcript release authority will be retained for five years, after that all raw data will be destroyed. The researcher may publish documents that contain quotations by you using a made-up name (pseudonym). If any of the information from interview is quoted in the researcher's thesis or academic journals, it would be a few sentences to help explain a particular theme or point.

What are the benefits and risks of taking part in this study?

You will receive a report summarising the main findings of the project via mail or email according to your preference and the contact information you have provided. Also as part of this study, you will receive a \$40 supermarket gift card from New World as compensation for your time.

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Where can you get support from?

It is possible for some people to feel uncomfortable from the interview and in the small chance that this happens to you, please seek assistance from a psychologist. A list of psychologists can be accessed via the internet at www.nzccp.co.nz or www.psychology.org.nz. A further place you can seek support is from your general practitioner. Note there would be a fee charged to you for making an appointment with these professionals. Or you can seek help from Health Services team of New Zealand AIDS Foundation at <http://www.nzaf.org.nz/about-us/staff/health-services-1/>. Their team is comprised of qualified counsellors and psychotherapists, and the counselling service is free.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question
- have the recording stopped at any time for any reason
- withdraw from this study without giving a reason at any time before the audio recording is transcribed (2 weeks post-interview)
- ask any questions about the study at any time
- provide information on the understanding that your name will not be used
- receive a copy of the interview transcript and correct any factual errors, this process might take about an hour, you have the right to choose to receive it or not
- be given access to a summary of the project findings when it is concluded

What to do now?

If you would like to take part in this study, you will need to

- contact me by email at danni.chi.1@uni.massey.ac.nz or by phone at [REDACTED]. I will need your postal address so that I can send you out a consent form, a demographic questionnaire and a self-addressed stamped envelope;
- sign the consent form and demographic questionnaire and return them with the self-addressed stamped envelope if you have decided to take part in. Then I will contact you and arrange an interview time that suits you.

The recruitment is envisaged to stop on June 30, 2019. A summary of the study findings will be prepared in 2019.

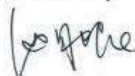
Project Contacts

If you have any questions about the research, please contact me by email at danni.chi.1@uni.massey.ac.nz or by phone at [REDACTED] or contact my main supervisor Dr Ian de Terte by email at I.deTerte@massey.ac.nz or by phone at (04) 979 3603.

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application SOA 18/61. If you have any concerns about the conduct of this research, please contact Dr Lesley Batten, Chair, Massey University Human Ethics Committee: Southern A, telephone +64 63569099 x 85094, email humanethicsoutha@massey.ac.nz

Yours faithfully



Danni Chi
BM, MA

Thank you for considering participating in this study!

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix H: Ethics Approval Letter of Study 2



Date: 01 October 2018

Dear Danni Chi

Re: Ethics Notification - SOA 18/61 - The cognitive process of posttraumatic growth in people living with HIV: An interpretative phenomenological analysis

Thank you for the above application that was considered by the Massey University Human Ethics Committee: Human Ethics Southern A Committee at their meeting held on Monday, 1 October.

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.


If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Craig Johnson
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix I: Consent Form of Study 2


MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES

Positive Psychological Changes in People Living with HIV

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time. By signing this consent form, I confirm that:

I agree to the phone interview being sound recorded, and

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: _____

Date: _____


Full Name - printed _____

**Te Kunenga
ki Pūrehuroa**

College of Humanities and Social Sciences
PO Box 756, Wellington 6140, New Zealand T +64 4 801 5799 F +64 4 801 2796 www.massey.ac.nz

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix J: Advertising Poster of Study 2



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Participants Needed

For Study on Positive Psychological Changes in People Living with HIV

What is the study about?
This study will help clarify what kind of thinking and actions lead to positive psychological changes, and further assist to improve clinical services.

You are eligible to participate if you:

- ✓ speak English and live in New Zealand
- ✓ were diagnosed with HIV at the age of 18 or older and after the year 1996
- ✓ have lived with HIV for at least one year
- ✓ are on HIV medication
- ✓ are not currently engaged in psychological therapy

What will you be asked to do?
This study is totally voluntary and all information that would lead to your identities will be confidential. It will be conducted through the phone interview, which will take approximately 1 hour.

What are the benefits?
You will receive a copy of research findings and a \$40 supermarket gift card from New World as compensation for your time.

If you have interest, please contact the researcher Danni Chi
Email: danni.chi.1@uni.massey.ac.nz
Phone: [REDACTED]
or the main supervisor Dr Ian de Terte
Email: I.deTerte@massey.ac.nz
Phone: (04) 979 3603.

More details of the study including a schedule of interview questions will be sent to you via email. You may then consider whether to take part in or not.

If you are simply interested in the findings of this study, please contact the researcher, a copy of research findings will be sent to you via email at the end of the study.

Thank you for considering participating in this study!

THE ENGINE OF THE NEW NEW ZEALAND

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix K: Advertising Flyer of Study 2



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

Positive Psychological Changes in People Living with HIV

Kia ora/Hello,

Are you

- speaking English and living in New Zealand
- diagnosed with HIV at the age of 18 or older
- diagnosed with HIV for at least one year
- diagnosed with HIV after the year 1996
- on HIV medication
- not currently engaged in psychological therapy

If you answered YES to the questions above, you might be eligible to participate in this study. Living with HIV is a challenging experience and may impact on one's life both physically and psychologically. However, positive changes through facing and struggling with HIV have been reported by many people.

Everyone's experience is different. This study invites you to help us understand your experience. We will not ask you to share the stories and knowledge that you are not comfortable sharing. This study will be conducted through a phone interview, and it is confidential. It will take about one hour. You have the right to not answer the questions you do not want to, and you also have the right to withdraw from the study without giving any reason.

By being a part of this research, you will have the chance to help clarify what kind of thinking and actions lead to positive psychological changes, and further assist to improve clinical services. Also, as compensation for your time, you will receive a \$40 supermarket gift card from New World.

This study is being conducted by Ms Danni Chi at Massey University, for her PhD research, under the supervision of Dr Ian de Terte and Dr Dianne Gardner. If you would like more information about participating, please contact the researcher by email at danni.chi.1@uni.massey.ac.nz or by phone at [REDACTED] or the main supervisor Dr Ian de Terte by email at I.deTerte@massey.ac.nz or by phone at (04) 979 3603. More details of the study including a schedule of interview questions will be sent to you via email. You may then consider whether to take part in or not. Please feel free to forward it to anyone who might be interested.

Thank you for your interest in this research!

Yours faithfully

Danni Chi
BM, MA

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix L: Demographics Questionnaire of Study 2*Positive Psychological Changes in People Living with HIV***PARTICIPANTS DEMOGRAPHIC QUESTIONNAIRE**

Please enter the following demographic information

1. Your age: _____
2. Your gender: ☐ Male ☐ Female ☐ Transgender
3. Your ethnicity: ☐ European ☐ Maori ☐ Pacific ☐ Asian
☐ Other (please state) _____
4. How long since you received a diagnosis of HIV infection?
_____ years _____ months

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Appendix M: Research Summary of Study 2**RESEARCH SUMMARY****Personal Growth in People Living with HIV**

DATE:	June 2020
RESEARCHER:	Danni Chi
SUPERVISORS:	Dr Ian de Terte Dr Dianne Gardner

POSTTRAUMATIC GROWTH IN PEOPLE LIVING WITH HIV

Thank you for participating in my research into the experiences of personal growth among people living with HIV in New Zealand, and thank you for sharing your stories with me. This report provides a summary of the findings of my study. It represents only one possible interpretation of the data, so it may not apply to your situation. It does, however, aim to represent the overall themes and findings from my data analysis.

It is possible for some people to feel uncomfortable reading this report, and in the chance that this happens to you, please seek support from your regular general practitioner/doctor or a psychologist. A list of psychologists can be accessed via the internet at www.nzccp.co.nz or www.psychology.org.nz. Please note there would be a fee charged for appointments with these professionals. Support and help can also be sought from the Health Services team of the New Zealand AIDS Foundation at <http://www.nzaf.org.nz/about-us/staff/health-services-1/>. Their team is comprised of qualified counsellors and psychotherapists, and the service is free.

This research is part of my doctoral study, and thank you for contributing. Please feel free to contact my supervisors or me if you would like more information about this study.

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Introduction

Living with HIV can be stressful, but some people perceive positive changes or growth from this experience. People who do not report growth can also adapt well. This study explored how people living with HIV experienced personal growth. Sixteen participants were interviewed for this study. All of them were diagnosed with HIV after the year 1996 and had been diagnosed for at least one year. In addition, all of them were on HIV treatment and were not engaged in psychotherapy at the time of the interview. The ages of participants ranged from 30 to 67 years old. The interviews covered topics such as experiences of receiving the diagnosis, HIV-related challenges and changes, management of a life with HIV, and social support.

Main Findings

The study identified three main themes from the interviews: the challenges that participants faced, the ways they coped with challenges, and how they were able to rebuild a positive inner world and wellbeing.

Challenges

There were four main challenges to participants' beliefs and goals.

Disruption to life and goals

Many participants reported a strong fear of death when they were first diagnosed. Some participants stopped planning for the future, and some found it difficult to build relationships. However, participants who were diagnosed recently or had up-to-date knowledge of HIV reported less fear than those who had been diagnosed in early days or had less knowledge.

Threat to meaningfulness

Many participants felt shocked when they were first diagnosed. Some participants reported that they never thought it could happen to them, and this belief was challenged. Participants who were more aware of this possibility accepted the diagnosis more easily.

Stigma

Many participants reported that they had experienced stigma, such as breaches of confidentiality about their status, rejection, rude treatment, and loss of jobs, relationships, and studying opportunities. Some responded by withdrawing and isolating themselves while others became much more careful about who they disclosed their health status to.

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Reduced feelings of self-worth

Some participants felt ashamed of their positive status and reported that they had lost some of their self-esteem. On the other hand, participants who had a supportive social environment were less likely to report feeling shame and lost self-worth.

Coping with Challenges

Participants mainly used five strategies to deal with HIV-related challenges.

Sensemaking

Participants tried to make sense of why and how they got infected. Some thought that they were among many people who risked infection; others blamed themselves for not being careful enough. Understanding their experiences without self-blame helped participants accept what happened and feel less distress.

Reinterpretation

Some participants reported that they came to see HIV in a less stigmatising and more scientific way. After learning more about HIV and living with it for a while, they realised that it was manageable and were concerned less about their physical health. A supportive environment helped, as it provided more positive perspectives and a sense of being accepted and loved.

Downward comparison

Some participants compared their situations with possibly worse conditions. In doing so, they felt more connected and satisfied with their life and relationships, and no longer took life and everything in it for granted. Appreciation of life and relationships is a part of personal growth.

Problem solving

Participants tried to solve problems and regain a sense of control by learning, planning, and developing disclosing strategies. Participants who kept updating their knowledge and engaged in healthy behaviours (e.g., exercise and diet) felt less distressed and more confident. Effective disclosing strategies could help reduce stigma, and some participants became public speakers to reduce ignorance and stigma in the community. Disclosing in a supportive environment seemed to increase participants' self-confidence and sense of control.

Avoidance

Some participants denied their diagnosis and avoided thinking about their status at first. Some reported drinking more alcohol, eating more food, and using marijuana as ways of avoidance.

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This was temporary, and participants eventually started to deal with their status. Early avoidance did not necessarily impede growth, although continuous avoidance may lead to poorer outcomes.

Rebuilding

Participants seemed to use four strategies to rebuild their beliefs and goals.

Reaffirmation

Reaffirmation described the way people focused on their positive qualities, values, and relationships to maintain their self-worth. Some participants encouraged and empowered themselves with words like “I can get through this” and “I’m an overcomer”.

Reinterpretation of life

Realising that life might be shortened, participants reconsidered their life priorities by focusing on the significance rather than the length of life. They reported starting to value the present and the richness of life. Altruism was also a way to make life more meaningful. Participants adjusted their life goals to be more realistic, and new life philosophies and goals were parts of their growth.

Connecting with peers

Participants reported that connecting with peers made them feel normal as they found similarities and a sense of belonging. They realised that imperfections and suffering were shared experiences and felt deep connections with peers, more compassion, and altruism. Some—especially those who received help from peers—became advocates and peer supporters to build a prosocial HIV community and a more benevolent society. It appeared that connecting with peers helped participants contribute to personal, communal, and societal growth.

Reflection

Some participants reflected on themselves and found who they really were and what they wanted while developing more self-affection. Some reported becoming more spiritual and less influenced by health concerns. Long-term psychological counselling sometimes helped this process. Participants became more resistant to social disapproval and reported greater spirituality, a sense of liberation, new life philosophies and goals, and more satisfaction with themselves and with life.

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Summary

While many participants reported that they had experienced fear, stigma, and feelings of reduced self-worth, they also reported experiencing growth through coping with HIV-related issues, rebuilding their goals, and building a strong sense of self-worth. Some contributed to building a better community and society; others reported gaining practical wisdom (i.e., knowledge and skills) and general wisdom (i.e., closeness to general reality, altruism, and spirituality). Social support from peers, community, and organisations was reported as being valuable by many participants in this study. Personal strategies that were reported as being helpful included gaining a more realistic perspective on life and wellbeing, revising personal goals, becoming better prepared psychologically for future challenges, and building new life philosophies and deeper connections with others. New beliefs and goals that were more practical, meaningful, and positive in some way were reported to be part of personal growth.

This study had some limitations. It could not represent all people living with HIV in New Zealand. Besides, the findings could not be generalised to people in overseas environments with different social-economic-cultural backgrounds. This study provided one possible interpretation of the participants' stories. There might be other strategies relevant to growth that are not described or interpreted in this study.

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Appendix N: Transcript Release Agreement of Study 2

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES

Positive Psychological Changes in People Living with HIV**AUTHORITY FOR THE RELEASE OF TRANSCRIPTS**

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: _____ Date: _____

Full Name - printed _____

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Appendix O: Themes, Subthemes, and Example Quotes from Study 2

Themes and subthemes	Example quotes
1. Perceived challenges	
1a. Disruption to life and goals	<p>I don't know what my life would be like without the diagnosis ((laugh)). Um so okay so I'm being a bit of pedantic. But you understand what I'm saying. I don't know what I don't know. The path that in my life has been made anyway. (Daisy, Lines 241-247)</p> <p>I feel like it stopped me from being who I am from a point. (Eric, Line 372)... But...yeah, I would have those what I would dream about reality, they were they were absolutely achievable before the diagnosis. When I get the diagnosis, it's like, 'oh no, you gonna die', and no one want to be with you, because you got this life-threatening disease. That's all it was like at the time. (Eric, Lines 402-406)</p> <p>And I thought I was gonna die ((laugh)). And I... yeah, my life('s) completely ruined, my life... it was over. What existed of my life now ruined. (Rachel, Lines 67-68)</p>
1b. Threat to meaningfulness	<p>I knew about it, and I've done a little bit of research. But I don't know a hell of lot about it. Um, yeah, I mean I knew enough about it to not be scared of someone in my company who had HIV. Back then, a few friends of mine had HIV. And it was just... I mean I learned enough to feel with it from that perspective but not from the perspective of actually having it myself. Um I basically trashed. (Charlie, Lines 52-59)</p> <p>I was stunned. I was shocked, because I had no experience of being positive. The only thing... I just felt completely shut down, because I couldn't understand why and how I would have got it. And so, yeah, it was a real shock. (Grace, Lines 50-57)</p> <p>When they first told me, I was like shocked, like, you know, I kind of thought that this couldn't happen to me. So, I was... I was really shocked. (Oliver, Lines 45-50)</p>
1c. Threat to perceived benevolence	<p>Um though in the process of that I actually lost a lot of friends. Well, they obviously were not real friends. And then there were also people that I thought I could trust who then told the whole gay community. And that became too difficult to live and blend in [the city where I used to live]. I get people pushing me out of the blue saying that I shouldn't be, I shouldn't be having sex with people because I'm HIV positive and then I was just gonna spread the virus on to everyone else. (Charlie, Lines 92-99)</p> <p>I don't want to go out anywhere. Because I was... people were abusing me, you know. And my friends, I don't ...my friends... I couldn't trust anyone because there were people I knew... abusing me. My friendships become very small. So now I...now I have like two friends in my whole life. (Eric, Lines 134-140)</p> <p>I think that outer world... I think that the world is pretty messed up, and this hasn't changed that. That has supported that as a matter of fact, that hasn't contradicted it. Just it is what it is. (Louis, Lines 358-362)</p>

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Themes and subthemes	Example quotes
	<p>People are scare of us, and... nobody really welcomes (us), no. People treat you like you are ... just treat you badly, basically. (Rachel, Lines 197-199) ... And that really hurts. Some people... that's where the gossip started ((laugh)). They can tell... you know. It was thanks to a couple of people I thought I could trust, really, just like 'Woo!' ((laugh)) But yeah, so yeah, definitely I felt quite betrayed in the early days, and I felt really hurt. (Rachel, Lines 581-586)</p>
1d. Threat to self-worth	<p>I felt really dirty and disgusting and I burnt all my hands initially from the mishandled cigarettes. It because I wanted to wash myself. (Daisy, Lines 85-86)</p> <p>Because I was gay. Well, you know, because I was non-binary, and I wasn't really sure what I was. Um, you know, it felt like a combination. And I felt like I deserved it, that really devastated me. (Kjel, Lines 28-31)</p> <p>Devastating, like I just wanted to hide and crawl under a rock and never be seen really. Because I felt like... like a walking disease, like I'm very infectious, and that I'm gonna harm and hurt everybody, and that I'm horrible and was just an ugly disease-ridden person. That, yeah, you feel not nice, yeah. And it made me made me scared. So, I just didn't want really come out and see anyone or hurt anyone, coz that's how I felt at the time. (Nelson, Lines 316-324)</p>
2. Event-related cognitive processing	
2a. Sensemaking	<p>I was just unlucky, you know. Who knows when did I get it. And I accept it that maybe it happens to me because I am a strong person. I consider myself as a strong person. (Bella, Lines 581-583)</p> <p>I should have known better. And I guess my stupidity... I paid the price for stupidity. It took me a really long time to accept myself and there's still an element of shame um with that. (Daisy, Lines 315-316) ... Everybody's got a bit of a path or journey and things happen for a reason. And um I believed that probably before, you know, those happened for a reason. And like I said, it helped me and my processing, um so has that changed? No, it fits me. (Daisy, Lines 405-409)</p> <p>'Why me?' And 'Am I not good enough and I deserve this?', 'Why did it happen to me?' And 'why did they speak like that?' You know. I keep um it all to myself psychologically. (Eric, Lines 582-583)</p> <p>Why did those things happen to other people not to you? Um when that passed, I was less upset about it. (Louis, Lines 39-41)</p>
2b. Reinterpretation	<p>It's almost like I used to feel like it was tattooed on my forehead, you know - "HIV positive". Because I felt sad, that dark I could see it in myself. But as I grow older, (have) lived with it for longer, I know that it's not. I can walk down the street, you know, and people don't know it, no one knows that I'm HIV positive. (Eric, Lines 219-225)</p> <p>I realised that I had been over traumatised. I realised that it was just another thing, it's a medical condition, like many others, and less severe than many others that you can treat, successfully treat. So, a lot of my anxiety went around it, and yeah, till this day it hasn't returned. (Hanson, Lines 673-680)</p>

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Themes and subthemes	Example quotes
	I thought I would end up with a group of people around me that were all from, you know from a circle of people that are different from the people that I would like to associate with. That's what I expected but it never happened. And now, you know, I mean, life didn't stop, and friendships didn't stop, and relationship with family didn't stop. It just it just went on as usual. And my expectation didn't come true at all. (Peter, Lines 912-919)
2c. Downward comparison	<p>I just (tried) to think of the positive side of it. There are more people who are unlucky than I am. Every morning, I'm just grateful (I'm) still alive. and I open my eyes, and thank you, I'm still alive and I've been here. And that's all. I am thankful about it. (Bella, Lines 100-106)</p> <p>So I feel pretty lucky. It feels like the people that were diagnosed, you know, five years earlier than me pretty much aren't alive anymore, so very lucky. (Daisy, Lines 518-519)</p> <p>I mean any medication has side effects, even paracetamol, so I accepted it. (Peter, Lines 93-94)... You know if I've gotten any other illness... I have a friend with really bad diabetes, and he's probably gonna die way before me. (Peter, Lines 604-605)</p> <p>It probably just made me value people actually. Yeah, probably what it's done is made me really value my family, and I really value my friends. Like they have been really good friends and true friends and I do everything I can to look out for my friends, because I just so appreciate how much they have looked out for me. So yeah, it probably just made me value them so much more. You know, not take that relationship for granted. (Rachel, Lines 833-843)</p>
2d. Problem solving	<p>Everything was very um yeah contemplated. Whom I was going to tell, and how I was going to tell them, in what order, so it's very calculated ((laugh)). (Daisy, Lines 98-100) ... And you know, I guess what helped, because you have a sense of no control. And so what really can be really important to me, you have control of who you talk and who you talk to and how you tell people. (Daisy, Lines 142-144)</p> <p>And so some part of me just looks at something like that and all I want to do really is um... is not... well, what can we do about it? What's... What's a good response to it? What good can come of that? How do we... How do we um... How do we respond to it really? (Hanson, Lines 261-263)</p> <p>I certainly know a hell of a lot more now. You know I wanted to read, I wanted to know, I needed to understand. So you know, I did a lot of a lot of research about it. You know, what's wrong, what's good, what's not. (Jacob, Lines 134-137)</p>
2e. Avoidance	I went down the path of the self-destruction. Um, I expensed alcohol a lot, I ate wrong food, I became quite a bit more moderately obese than I was. And yeah, that was... It wasn't until I sort of broke down and hit rock bottom that I actually started dealing with it. (Charlie, Lines 61-65)

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Themes and subthemes	Example quotes
	<p>I um probably went out and partied, you know. And I cope- I probably cope, Danni, by self-medicating, drinking or... drinking... drinking or... not that I was really into drugs. But maybe a slight little bit of marijuana some time. Or just drinking and you can't live... it's so much and you can't live all senses or real, because you're hiding part of yourself. (Eric, Lines 161-169)</p> <p>I didn't seek help to process it or anything. You know, I went into a state of ignoring or denial. It was certainly denial that I was getting sick from HIV. So yeah, um at that time, I was drinking heavily, smoked marijuana. You know, you know HIV is never the only part of my life. You know, it's only half of the equation, when you think that I am transgender as well. So, coming to terms with that... (Kjel, Lines 46-56)</p>
3. Rebuilding of assumptions	
3a. Reaffirmation	<p>... saying things out loud, so I am. 'I can get through this', 'It doesn't affect my life'. Those kinds of things, they're really helpful. (Louis, Lines 259-264)</p> <p>Um just thinking about, 'You still got...you've still got a chance', 'You're not going to die' or and 'I'm lucky that I've got medication', and they help a lot of bit, and 'I'm gonna be okay'. 'It's not the end of the world'. (Miranda, Lines 135-141)</p> <p>I do that self-talk thing, and tell myself what I would say to my daughter, 'Well, what do you deserve?' So, yeah, I probably say things like that to myself without thinking about it, like 'What do I deserve?' and 'I deserve to be happy'... You know, 'I deserve to be happy as much as anybody else deserve to be happy'. Kind of that way, yeah, like 'I'm a good person', and 'I'm not doing anything terrible to people', 'I'm allowed to be happy' and 'I'm allowed to have a lot of fun'. (Rachel, Lines 205-213)</p>
3b. Reinterpretation	<p>One thing that made me realise is how important you have to live for the now, for the present, and make the most of it. That's how I look at it. (Bella, Lines 437-438)</p> <p>I guess about life, when you when you face life-threatening illness, whatever the cause, it changes your attitude of life too (Grace, Lines 180-181)</p> <p>In that way, I think I have probably changed. I don't I don't take life that seriously anymore, you know I mean. You know, we're not here for that long, you know, that's been fifteen years for me (since I) had this diagnosis. In those fifteen years, for me I've divided them into life "before HIV" and "after HIV". Because that point in time made me a different person. I have a different outlook on life and (am) more focused on the here and now. (Peter, Lines 544-548)</p> <p>When I was forty-eight or when I was thirty, and I wanted to do something and like, 'Oh, I can't do that, I'm too old, too hard, too this, too that...' Yeah, but now I'm like 'Actually, I want to do that', then 'I can do that', and 'I should do that', and 'Why can I not do that?'. So, um probably that because of the HIV... partly because of the HIV, you have to um realise that, you know, appreciate life. Probably, I probably appreciate my life and I appreciate my health. (Rachel, Lines 872-880)</p>

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Themes and subthemes	Example quotes
3c. Connective comparison	<p>I was desperate to normalise. That's probably why I wanted to connect with people who also had it. Because I wanted to feel normal. And so I connected as quickly as I could to a support group and anybody that was out there to support that I could... I could talk to and listen where they were coming from. (Daisy, Lines 88-92)</p> <p>I know that it's stuff that I haven't worked through yet, that I need to still work on. (Daisy, Lines 649-652)</p> <p>The peer support, people help me a lot. Talking to other people who live with HIV, who have similar issues as me, is a big help. (Frank, Lines 90-94)</p> <p>Then I just go on the internet and read stuff or talk to other positive people. I've talked to a few of them, just grasp how they feel and sometimes someone rings me, the other day, who's positive, and ((inaudible)), just finding a common ground with someone else who's going through the same thing. (Miranda, Lines 144-147)</p>
3d. Reflection	<p>I get through it all just I discovered who I truly am and what my beliefs are and what I stand for. (Charlie, Lines 115-116) ... I guess just being true to myself and what I stand for. Um, learning how to draw a line in the sand with other people and searching senses. Um, I guess having the virus has made me a lot released, tolerant of other people's um lack of knowledge around the subject. I guess in some way I just have to say I've become a lot harder to other people about what they think and say. (Charlie, Lines 129-136)</p> <p>Now you know, I've gone from a very shy person and, you know, hiding away from the world, spending a lot of time by myself to someone who's, you know, making friends all over the country, and having a blast being, you know, like in parades and um parades and things. Yeah, ((laugh)), couldn't be more different. I made my transition, but it only happened because I got that counselling. (Kjel, Lines 262-270)</p> <p>A lot of self-searching, a lot of like alone time, spending time alone, um and just with me, thinking about myself and reflecting on me, like 'How (do) I feel about myself?', like 'What do I want in life?', 'Am I even worth it?', you know, just being like that, and 'What do I like?', yeah, 'What my passion's about?', 'What am I' yeah just a lot of about my self-reflecting. (Nelson, Lines 692-699)</p>

Appendix P: Endorsement of Themes and Subthemes of Study 2

Themes	Subthemes	Presence of Themes in Participants																
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R
1. Challenges	Disruptions to Life and Goals	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Threats to Meaningfulness	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Threats to Perceived Benevolence	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Threats to Self-Worth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Event-Related Cognitive Processing	Sensemaking	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Reinterpretation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Downward Comparison	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Problem Solving	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Avoidance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Rebuilding of Assumptions	Reaffirmation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Reinterpretation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Connective Comparison	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Reflection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note. Participants are presented with their initials.