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Humor, Post-Traumatic Growth and the Role of Optimism as a Moderator

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Introduction

Trauma as a Global Challenge

Traumatic experiences represent a significant public health challenge worldwide, affecting millions of people across different populations and contexts. Trauma is capable of disrupting an individual's sense of predictability, safety and meaning, creating profound psychological, physiological, and social consequences that might be pervasive long after the initial event. This persistent nature of traumas aftereffects underscores the critical need for a comprehensive understanding of factors that can facilitate recovery and growth following such experiences (Magruder et al., 2017).

The aftermath of trauma is characterized by a cluster of different symptoms and adaptations. Individuals may experience hypervigilance, emotional numbing, intrusive memories, and disrupted relationships, all of which can significantly impair daily functioning and quality of life (Iyadurai et al., 2019). Traditional conceptualizations of trauma response have predominantly focused on pathological outcomes with an emphasis on reducing symptoms and a return to baseline functioning. However, this perspective fails to capture the full spectrum of adaptation following adversity (Bonanno, 2004).

Post-Traumatic Growth: A Paradigm Shift

Opposed to deficit-focused models, the more recent concept of post-traumatic growth (PTG) represented a fundamental paradigm shift in trauma research and practice. PTG encompasses the positive psychological changes that can arise from the struggle with highly challenging circumstances, going beyond resilience or the return to previous baseline functioning. These positive changes manifest across five distinct domains: appreciation of life, relating to others, awareness of personal strength, spiritual development, and new possibilities (Tedeschi & Calhoun, 1996).

The concept of PTG postulates that traumatic events can shatter an individual's basic assumptions about the world, themselves, and others. This cognitive disruption, while initially distressing, creates opportunities for rebuilding these assumptions in more adaptive and meaningful ways. The process is nuanced and individual; it requires active cognitive and

emotional processing of the traumatic experience, optimally within a supportive context (Roepke & Seligman, 2015).

The measurement of PTG presents unique methodological considerations, as it typically relies on retrospective self-report assessments. This kind of measurement asks individuals to reflect on perceived changes since their traumatic experience, which necessarily involves a retrospective evaluation process. While some researchers have raised concerns about the validity of retrospective PTG measurements due to potential recall biases and the difficulty of accurately comparing pre- and post-trauma states (Jayawickreme et al., 2021), this approach remains valuable for several important reasons.

First, retrospective assessment aligns with the theoretical foundation of PTG, which emphasizes the subjective meaning-making process that occurs over time following trauma (Calhoun & Tedeschi, 2004). The narrative meaning-making framework recognizes that humans create meaning through retrospective narrative reconstruction, whereby individuals analyze and reinterpret past experiences to construct a coherent personal narrative (Neimeyer, 2000). In this context, retrospective reflection becomes not merely a measurement necessity but a substantively meaningful process through which individuals may recognize and consolidate growth experiences (Neimeyer & Thompson, 2014).

Second, the retrospective nature of PTG assessment captures the interpretative dimension that distinguishes growth from mere resilience or recovery. PTG involves a conscious recognition of positive changes that emerged from the struggle with trauma, which may only become apparent through reflective evaluation over time. This retrospective insight allows individuals to identify patterns of growth that may not have been immediately evident during the acute phases of trauma response (MacQuarrie, 2019).

The Critical Role of Facilitating Factors

Given that PTG represents a potential pathway for positive adaptation following trauma, identifying factors that promote or facilitate this growth become paramount for both research and clinical practice (O'Donovan & Burke, 2022). While the experience of trauma itself creates the necessary conditions for growth, additional psychological resources and

processes appear crucial in determining whether individuals will experience positive transformation or remain trapped in cycles of distress and dysfunction (Henson et al., 2021).

Research has begun to illuminate various factors that may facilitate PTG, including social support, meaning-making processes, cognitive flexibility, and emotional regulation capabilities (Prati & Pietrantonio, 2009). However, one factor that has received limited attention as a standalone predictor of PTG is humor (Boerner et al., 2017).

Humor as a Multifaceted Psychological Resource

Humor represents a complex, multifaceted psychological phenomenon that serves numerous adaptive functions across cognitive, emotional, and social domains. Rather than being a uniform construct, humor encompasses various styles and expressions, each serving different purposes and producing different outcomes for psychological well-being (Martin et al., 2003).

Humor Styles: Purpose-Driven Expressions

The so-called humor styles conceptualize humor through a four-factor theory of humor based on two domains: whether humor is used to enhance or damage self or relationships with others, and whether the humor is benevolent or potentially detrimental. This framework yields four distinct humor styles: affiliative humor (relationship-enhancing and benevolent), self-enhancing humor (self-focused and benevolent), aggressive humor (relationship-focused but potentially harmful), and self-defeating humor (self-focused but potentially harmful) (Martin et al., 2003).

Of these four, self-enhancing and affiliative humor are considered to be adaptive humor types. Aggressive and self-defeating humor are considered to be maladaptive (Jiang et al., 2020).

Self-enhancing humor, in particular, has garnered significant attention for its adaptive properties. This humor style reflects a humorous outlook on life finding its incongruities amusing, cheering oneself up in stressful situations, seeing a light side of life even in adversity and functions intrapersonally to regulate emotions and cope with stress (Martin et

al., 2003). The emotional regulatory function of self-enhancing humor positions it as particularly relevant for trauma recovery and growth.

Sense of Humor: Dispositional Tendencies

Complementing the behavioral focus of humor styles, sense of humor captures broader dispositional tendencies toward humor appreciation and use. There are 4 factors to the sense of humor: humor creativity and social uses, adaptive humor, humor appreciation, and attitudes toward humor and humorous people (Thorson & Powell, 1993). This concept emphasizes attitudinal and cognitive use of humor, rather than behavior toward others, making it particularly suited for understanding humor's role in internal processes such as meaning-making and cognitive reappraisal.

The distinction between humor styles and sense of humor is crucial for a comprehensive understanding. While humor styles capture specific behavioral expressions of humor (Martin et al., 2003), sense of humor encompasses one's tendency to find humor in difficult situations, the enjoyment and use of humor in daily life, a general humorous outlook and openness towards humor (Hostetler, 2002).

The Multidimensional Nature of Humor

The complexity of humor extends beyond these measurement approaches to encompass its varied effects across multiple domains of human functioning. Research has provided evidence for humor's capacity to influence physiological processes through stress hormone regulation and immune function when accompanied with laughter (Yim, 2016), cognitive processes through perspective-taking and cognitive reappraisal (Samson & Gross, 2012), and social processes through relationship building and social connection (Yip & Martin, 2006).

However, humor's effects are not uniformly positive. The multidimensional nature of humor implies that different styles and applications can produce different outcomes. While the adaptive humor styles (i.e. self-enhancing and affiliative humor) tend to promote well-being (Jiang, 2020), maladaptive styles (i.e. aggressive and self-defeating humor) can

perpetuate distress and dysfunction (Plessen et al., 2020). This nuanced understanding is essential when considering humor's potential role in trauma recovery.

Correlates of Humor with Mental Health Outcomes

Extensive research has been done on the associations between various humor dimensions and mental health outcomes: Adaptive humor styles consistently correlate with improved psychological adjustment, including reduced anxiety and depression symptoms, enhanced life satisfaction, and improved coping (Huang & Lee, 2019; Menéndez-Aller et al., 2020). Likewise, maladaptive humor styles often correlate with poorer mental health outcomes such as increased psychological distress and also maladaptive self-beliefs (Dozois et al., 2008).

Particularly relevant to trauma contexts, prior research demonstrated that humor styles mediated the relation between early maladaptive core-beliefs about the self and symptoms of depression (Rnic et al., 2016). This suggests that adaptive humor use is associated with lower depressive symptoms when dealing with maladaptive self-beliefs. This mediational role positions humor as a potentially crucial factor in determining whether individuals develop positive or negative outcomes following traumatic experiences.

Theoretical Mechanisms: Emotion Regulation as the Key Link

The Central Role of Emotion Regulation in Coping

The theoretical connection between humor and PTG becomes clearer when examined through the lens of coping, specifically emotion regulation. Coping encompasses behavioral and cognitive strategies for managing stressors (American Psychological Association (APA) Dictionary of Psychology, 2018). Emotion regulation is defined as the processes by which individuals influence the emotions they experience, when they experience them, and how they express these emotions (APA Dictionary of Psychology, 2018).

Therefore, emotion regulation represents a subset of coping strategies specifically aimed at modulating emotional responses. Trauma fundamentally disrupts emotional regulation systems, creating chronic states of hyperarousal, emotional numbing, or

dysregulated emotional responses. Successful trauma recovery requires the restoration and enhancement of emotional regulation capacities (Byrne & Kangas, 2022).

Prior research provides crucial evidence for humor's role in emotion regulation, demonstrating that adaptive humor is associated with better emotion regulation and that emotion regulation mediates the relationship between humor styles and life satisfaction (Amjad & Dasti, 2020). This mediational pathway suggests that humor's benefits for well-being operate at least in part through its enhancement of emotional regulation capabilities.

Humor achieves emotion regulation through multiple mechanisms. The use of adaptive humor has a distinct potential to distance a person from their negative emotional state. This is a similar concept to cognitive reappraisal (Amjad & Dasti, 2020).

This distancing function allows individuals to gain new perspectives on their emotional experiences, reducing the intensity of negative emotions while creating space for more adaptive responses (Braniecka et al., 2019; Samson & Gross, 2014).

Antecedent-Focused vs. Response-Focused Regulation

The timing of emotion regulation efforts appears crucial for understanding humor's adaptive value, too. Research distinguishes between antecedent-focused strategies, which prevent or modify emotional responses before they fully develop and response-focused strategies, which modify emotional responses after they have occurred. Humor appears particularly effective as an antecedent-focused strategy (Amjad & Dasti, 2020).

Antecedent-focused strategies of emotion regulation are those who prevent the rise of emotion and reframe, reappraise or alter the situation beforehand. Humor might be able to assist in emotion regulation in that way specifically (Doosje et al., 2010). This proactive approach to emotion regulation may be particularly valuable in trauma contexts, where individuals benefit from developing skills to manage emotional responses before they become overwhelming, i.e. during flashbacks or when experiencing hyperarousal.

Fredrickson's Broaden-and-Build Theory

Fredrickson's Broaden-and-Build Theory (2001) provides another crucial theoretical framework for understanding humor's role in PTG. According to this theory, positive emotions

broaden individuals' thought-action repertoires, creating upward spirals that are capable of building lasting psychological resources (Fredrickson, 2001). MacQuarrie (2019) notes that when experiencing positive emotions an individual's perception, attention and cognition might broaden, which can shift focus toward adaptive behaviors during an acute traumatic experience and even later when reflecting on that experience.

Emotional generalization describes how humor-induced positive emotions can create cascading benefits beyond the immediate humorous moment, fostering broader cognitive and behavioral changes (Fu et al., 2024).

However, not all humor styles produce this broadening effect. While self-enhancing humor consistently promotes positive reappraisal and long-term growth, self-defeating humor is associated with negative self-perceptions, anxiety, and depressive symptoms (McCosker & Moran, 2012). By contrast, self-enhancing humor strengthens new, positive self-schemas and thus aligns with the broadened cognition required for PTG. Self-defeating humor's focus on personal shortcomings may alleviate distress in the moment but ultimately undermines the durable psychological resources such as self-esteem or social support (McCosker & Moran, 2012) which are essential for PTG.

Previous Research Limitations and Gaps

Despite humor's potential for trauma recovery and growth after adversity, previous research has not extensively studied humor as a standalone predictor of PTG. Instead, humor has typically been assessed as a component of broader constructs such as cognitive coping measured by instruments like the Coping Orientation to Problems Experienced (COPE, Carver, 1997) or character strengths assessed through measures like the Values in Action - Inventory of Strength (VIA-IS, Ruch et al., 2010). While these approaches have provided valuable insights, they may obscure humor's unique contributions to post-traumatic adaptation (Boerner et al., 2017).

The limited research that has directly examined humor-PTG relationships has typically utilized only one humor measurement approach. While an instrument such as the Humor Styles Questionnaire (HSQ, Martin et al., 2003) provides a strong theoretical and

empirical foundation, an additional measure like the Multidimensional Sense of Humor Scale (MSHS, Thorson & Powell, 1993) might also provide valuable insight into the underlying concept of humor and what makes humor a potential PTG-promoting factor specifically. The inclusion of both humor styles and sense of humor measures may provide a more comprehensive understanding of humor's multifaceted role in post-traumatic growth. As discussed above, sense of humor might help to understand how attitudes towards humor might predict higher levels of PTG; a nuance which may not be captured with humor styles alone.

Optimism as a Theoretical Bridge

While humor represents a promising facilitating factor for PTG, its effects may be influenced by other psychological construct that shape how individuals process and respond to adversity. Optimism is defined as the generalized expectancy that good rather than bad outcomes will occur (Gallagher et al., 2020).

This study examines whether optimism represents one such construct that influences humor's effectiveness in promoting growth. It represents a positive orientation toward life that influences how individuals interpret events, set goals, and respond to setbacks. This optimistic outlook may create conditions that enhance humor's effectiveness in promoting positive adaptation following trauma.

Dispositional and State Optimism: Rationale for Dual Assessment

There are two distinct types of optimism that both may be important to understanding optimism's role in moderating the relationship between humor and PTG.

Dispositional (or trait) optimism is defined as "the relatively stable, generalized expectation that positive outcomes will occur across important life domains" (Scheier & Carver, 2018, p. 2), while state optimism represents "positive expectations about the future" that "may change over time and circumstance" (Millstein et al., 2019, p. 83).

These constructs could be influencing the humor-PTG relationships through distinct mechanisms. Dispositional optimism may determine an individual's baseline capacity to engage in the cognitive reappraisal and meaning-making processes central to PTG

development. Individuals higher in dispositional optimism may be more likely to interpret humorous reframing as genuinely helpful rather than mere distraction, thus facilitating the sustained cognitive work necessary for growth.

State optimism, conversely, may influence the immediate effectiveness of humor as an emotion regulation strategy during trauma processing. Current positive expectations may create optimal conditions for humor to function as cognitive reappraisal, making individuals more receptive to perspective-shifting humor interventions in the moment.

Given limited previous research distinguishing these optimism types in trauma contexts, and evidence that state optimism can explain variance beyond trait measures (Millstein et al., 2019), both were examined exploratorily to determine which aspects of optimistic thinking most strongly moderate humor's relationship with post-traumatic growth.

Theoretical Overlap Between Optimism and Humor

The relationship between optimism and humor appears multifaceted and bidirectional. Research by Ostovar et al. (2023) demonstrates that higher levels in optimism and humor are associated with higher marital satisfaction and that optimism and humor are correlated. This correlation suggests shared underlying mechanisms or reciprocal influences between these constructs.

Both optimism and humor appear to operate through cognitive reappraisal mechanisms. Optimism may be effective because it facilitates planning in advance of anticipated stress (Cheung and Yue, 2013). Similarly, humor facilitates cognitive reappraisal by helping individuals reframe adverse situations in more manageable or meaningful ways (Fu et al., 2024).

Optimism's Relationship to PTG

PTG describes the increase of life areas such as closer relationships with others, appreciation for life or new possibilities (Calhoun & Tedeschi, 2004). Especially these three domains of PTG involve a positive outlook on life and the belief that more good will happen than bad. This description highlights the inherent connection between optimistic thinking and the cognitive changes central to PTG.

Optimism's relationship to PTG appears well-established in the literature (Cheung & Yue, 2013; Gauri & Kanwar, 2022; Ostovar et al., 2023). Optimistic individuals may be more likely to engage in the active cognitive processing necessary for growth, more willing to revise existing belief systems when they prove inadequate, and more capable of maintaining hope during the difficult process of meaning-making following trauma (MacQuarrie, 2019).

Exploratory Investigation on Optimism as a Moderator

Humor (and especially self-enhancing humor) reappraises a situation in a positive manner, helps to distance oneself from a potentially adverse situation or experience and therefore promote optimism by distancing the experience or adverse feelings making them less threatening and more manageable. This suggests that humor and optimism may work synergistically, with humor creating cognitive distance that facilitates optimistic reappraisal.

The moderating role of optimism may be particularly important because it combines both reappraisal of a situation and cheerful valence with reduction of perceived threat (Boerner et al., 2017). This dual function, which contains cognitive reappraisal plus positive emotional tone, may create optimal conditions for humor to facilitate PTG.

Cheung and Yue (2013) also note that optimism, other than self-enhancing humor, does not require a responsive other that hears and appreciates the joke. This independence from social context could make optimism a particularly stable moderating influence that can enhance humor's effectiveness across diverse situations and relationships. The moderating role of optimism will be examined based on its established relationships with both humor (Menéndez-Aller et al., 2020) and PTG (Koliouli & Canellopoulos, 2021) in previous research, as well as its shared mechanisms with humor in emotion regulation and cognitive reappraisal processes mentioned above. To the authors knowledge, no previous research investigated optimism as a moderator for the relationship of humor and PTG. Therefore, the moderation analysis is of exploratory nature.

Study Overview

The present study addresses these theoretical questions and empirical gaps through a comprehensive examination of humor's relationship to PTG, while also investigating

optimism's possible moderating role. By utilizing both humor styles and sense of humor measures, this research aims to capture the multifaceted nature of humor and its diverse pathways to facilitating growth following trauma.

The study employs a cross-sectional design with individuals who have experienced potentially traumatic events, assessing their humor characteristics, optimism levels, and self-reported post-traumatic growth. Optimism as a moderator will be examined in an exploratory analysis given the limited research on this connection. This approach allows for examination of complex interrelationships among these constructs while acknowledging the limitations inherent in retrospective self-report measures.

Hypotheses

Based on the theoretical framework and empirical literature reviewed above, the following hypotheses are proposed:

Confirmatory: Humor Styles and PTG

(based on Martin et al., 2003; Boerner et al., 2017; Amjad & Dasti, 2020)

H1.1: Affiliative humor is positively correlated with PTG

H1.2: Self-enhancing humor is positively correlated with PTG

H1.3: Aggressive humor is negatively correlated with PTG

H1.4: Self-defeating humor is negatively correlated with PTG

Confirmatory: Sense of Humor and PTG

(based on Thorson & Powell, 1993; José et al., 2007)

H2.1: Humor creativity and social uses is positively associated with PTG

H2.2: Adaptive humor is positively associated with PTG

H2.3: Humor appreciation is positively associated with PTG

H2.4: Attitudes toward humor is positively associated with PTG

Exploratory Analysis of Optimism as a possible Moderator

(based on Amjad & Dasti, 2020; Boerner et al., 2017; Cheung & Yue, 2013)

H3.1: Optimism will moderate the relationship between affiliative humor and PTG, such that the positive association will be stronger for individuals higher in optimism.

H3.2: Optimism will moderate the relationship between self-enhancing humor and PTG, such that the positive association will be stronger for individuals higher in optimism.

H3.3: Optimism will moderate the relationship between aggressive humor and PTG, potentially buffering against its negative effects.

H3.4: Optimism will moderate the relationship between self-defeating humor and PTG, potentially buffering against its negative effects.

H3.5: Optimism will moderate the relationship between humor creativity and social uses and PTG

H3.6: Optimism will moderate the relationship between adaptive humor and PTG

H3.7: Optimism will moderate the relationship between humor appreciation and PTG

H3.8: Optimism will moderate the relationship between attitudes toward humor and PTG

Methods

Participants

A total of $N = 142$ participants completed the online questionnaire. Specific exclusion criteria were applied. Firstly, participants were required to have experienced at least one potentially traumatic event in their lifetime, as PTG, by definition, is only considered possible following such experiences. This was ensured by presenting the International Trauma Exposure Measure (ITEM; Hyland et al., 2021), at the beginning of the questionnaire. This checklist measures trauma exposure over the lifespan. Secondly, participants with a history of inpatient psychiatric treatment were excluded to ensure their safety. This is a formal requirement by the studies supervisor and by extension the University of Vienna ethics board. Individuals who do or did require hospitalized psychiatric treatment are more vulnerable to adverse symptoms after recounting traumatic experiences. Following the same concern for safety, people under the age of 18 were excluded as it is the legal age in Austria. Including participants under age 18 would have required child-appropriate language and special safeguards for trauma-related content, which were not feasible within the scope of this study. There was no upper age limit for participation.

Measures

This study's outcome variable PTG, was measured using the PTGI (Tedeschi & Calhoun, 1996). PTG is defined as positive life changes and mental health outcomes such as life appreciation following a potentially traumatic experience in an individual's life. Though consisting of five subscales, the subscale scores are cumulative (Tedeschi & Calhoun, 1996). Therefore, one total score was calculated, with higher scores indicating higher PTG. For a detailed analysis of PTGI subscales see the Discussion (Exploratory Analysis section). The PTGI consists of 21 items utilizing a 6-point Likert Scale from 0 (*"I did not experience this as a result of my crisis"*) to 5 (*"I experienced this change to a very great degree as a result of my crisis."*). In this sample, an $\alpha = .93$ was observed. Prior studies have reported slightly higher internal consistency (up to $\alpha = .96$) and have provided validation of the PTGI (Saltzman et al., 2015).

Humor styles, defined as the purpose humor serves in a given situation, were measured using the HSQ (Martin et al., 2003). It consists of four subscales measuring four different humor styles. The questionnaire is composed of 28 items (7 for each style), and it uses a 7-point Likert scale ranging from 1 (*"totally disagree"*) to 7 (*"totally agree"*).

An example for the self-enhancing humor style subscale would be: *"If I am feeling depressed, I can usually cheer myself up with humor."* Internal reliability (Cronbach's alpha) showed satisfactory results. An $\alpha = .79$ was calculated in this sample. This is in line with previous research with an α ranging from .78 to .81 and it has been validated numerous times (Cassaretto & Martínez, 2012; Leñero-Cirujano et al., 2022).

An individual's sense of humor is defined as their general disposition towards humor. The MSHS (Thorson & Powell, 1993) is made up of 24 items. It consists of four subscales reflecting the four different aspects of a sense of humor described in the introduction above. The item number varies across subscales with the "humor creativity and social uses of humor" subscale consisting of twelve, the "adaptive humor" subscale of six, the "humor appreciation" subscale consisting of two, and the "attitudes towards humor" subscale of four items, respectively. These items are rated using a 5-point Likert scale ranging from 0

(“*strongly disagree*”) to 4 (“*strongly agree*”). An example from the second subscale adaptive humor is: “*I can use wit to help adapt to many situations*”. The current sample yielded an $\alpha = .89$. This is similar to previous research such as an $\alpha = .92$. The MSHS has been validated using factor-analysis on several occasions and shows good psychometric properties (José, 2007).

Lastly, the optimism subscale of the Optimism-Pessimism Short Scale (SOP-2) was used to assess dispositional optimism of an individual (Nießen et al., 2022). Although the optimism subscale consists of only one item an internal consistency (McDonald’s ω) between ω of .74 and .83 has been reported for the full scale’s reliability (Kemper et al., 2012). The item is: “*Optimists are people who look to the future with confidence and who mostly expect good things to happen. How would you describe yourself? How optimistic are you in general?*” with answers on a 7-point Likert scale ranging from 1 (“*not at all optimistic*”) to 7 (“*very optimistic*”). A validation study found satisfactory psychometric properties (Kemper et al., 2012).

Rationale for using a scale not outlined in the exposé

Although not initially stated in the exposé for this study (see Appendix 2), another measure for optimism was included. The SOP-2 optimism subscale only consists of one item and therefore raised several methodological concerns during the preparation for this study. Firstly, no meaningful estimate of reliability for questionnaires with only one item can be calculated (Allen et al., 2022). Secondly, measurement errors inherent to all measuring tools cannot be averaged out optimally for these questionnaires; a single item is more prone to measuring errors and is less robust (Allen et al., 2022). Thirdly, the construct validity of a measure depends on the degree to which said measure accounts for all possible facets of a construct. Specifically for optimism, the outlook on life in general and the outlook on the behavior of other people are different facets of the construct of optimism and therefore should be reflected in separate items. Lastly, another concern is the difference between state- and dispositional optimism. Due to limited previous research regarding the difference between these two with regards to humor and PTG, both should be examined.

To address these shortcomings, the State Optimism Measure (SOM-7, Millstein et al., 2019) was added to the questionnaire. It consists of seven items, for example: “*I am feeling optimistic towards life’s challenges*”. A 5-point Likert scale was used as per the original authors (Millstein et al., 2019) ranging from 1 (“*strongly disagree*”) to 5 (“*strongly agree*”). The current study reports an $\alpha = .88$. Previous research has found values between .86 and .92 and has also demonstrated good construct and criterion validity for the SOM-7 (Millstein et al., 2019).

Procedure

Using the online survey tool SoSciSurvey a questionnaire was presented to the participants via an online link (Appendix 3). SoSciSurvey is a viable tool for data collection through online surveys and finds widespread use in Academia in Germany and Austria. The software allows for anonymous and secure data collection in accordance with the (General Data Protection Regulation of the European Union, GDPR). An informed consent form (Appendix 4) was presented at the beginning of the questionnaire and consent had to be given in order to continue the survey. All measures were administered in a fixed order (see Appendix 3 for complete sequence) with trauma exposure screening first, followed by PTG assessment, humor measures, and lastly optimism scales. Data collection took place between January and April of 2025. Research regarding sensitive topics such as trauma requires higher levels of ethical consideration. Approval for this study was granted by the Ethics Committee of the University of Vienna.

A convenience sampling technique was used. Through postings in group chats, forums and other online-based social hubs the required sample size was recruited. A preliminary power analysis for this study was done using the InteractionPowerR tool for R (Baranger et al., 2021). The questionnaire for humor styles and sense of humor each consist of four subscales, totaling eight relatively independent subscales. Power analysis was conducted assuming all eight potential moderation analyses would be tested. Including this many possible moderators in the power analysis is a conservative approach which fits with the exploratory nature of the analyses regarding optimism's role as a moderator.

However, analyses were ultimately restricted to only those humor dimensions showing significant correlations with PTG, reducing multiple comparison concerns while maintaining adequate power.

In order to account for alpha error accumulation, InteractionPowerR was used to simulate the required participant number under different circumstances (Baranger et al., 2021). Keeping the smallest effect size of interest in mind and due to the exploratory nature of this study, moderation effects of $f^2 \geq .15$ (or $\Delta R^2 = .13$, medium effect) are considered relevant. With a significance level of $\alpha = .05$ and a power of $\beta = .80$ this leads to a required sample size of 140 participants for eight separate moderation analyses (the relevance and implications of the smallest effect size of interest will be further discussed in the Discussion chapter below). The whole questionnaire took approximately 16 minutes to complete. A total number of 298 participants completed the online survey at least partially. After excluding participants who had not completed the entire questionnaire, a total data set of $N = 142$ participants was left with no missing data. As a result, no imputation or further exclusions were necessary.

Because the data collection took place in Austria, all instruments were presented in their German version. Only the Multidimensional Sense of Humor Scale had no existing German version and was therefore translated using systematic forward- and back-translation procedures. Initial translation was conducted by the author followed by back-translation by peers. Discrepancies were resolved through consensus discussion.

Data Analysis

Data Analysis was conducted using IBM SPSS Statistics Version 29. To investigate hypotheses 1.1 through 1.4 and 2.1 through 2.4 a linear regression analysis was conducted and for hypotheses 3.2 and 3.6 a moderation analysis using the PROCESS Macro for SPSS (Hayes, 2022). Table 1 summarizes which humor subscales (both HSQ and MSHS) showed significant zero-order correlations with PTG and thereby met criteria for further moderation analysis.

Table 1

HSQ and MSHS Subscales: Moderation Hypotheses tested following detected zero-order correlations

	Humor Subscale	Correlation with PTG	Moderation Tested
Hypothesis 3.1	Affiliative Humor	no	no
Hypothesis 3.2	Self-Enhancing Humor	yes	yes
Hypothesis 3.3	Aggressive Humor	no	no
Hypothesis 3.4	Self-Defeating Humor	no	no
Hypothesis 3.5	Humor Creativity	no	no
Hypothesis 3.6	Adaptive Humor	yes	yes
Hypothesis 3.7	Social Humor	No	no
Hypothesis 3.8	Attitudes towards Humor	no	no

In order to validate the results for zero-order correlations of humor styles and sense of humor with PTG, respectively, a multiple linear regression was conducted for both the HSQ and the MSHS measure. Including all subscales in one analysis simultaneously and controls for other humor variables.

Before conducting the linear regression and moderation analyses using Hayes' Process Macro, assumption tests were used to assess model validity. To examine linearity for all predictors in the model, scatterplots for each predictor variable against the outcome variable were used. To confirm the normality of residuals, probability-probability plots were used to visually confirm that residuals were normally distributed. Additionally, Cook's Distance values were assessed, with no single value exceeding the critical threshold of 1, suggesting no singular data point impacted the statistical analyses in a meaningful way. Multicollinearity was examined using variance inflation factor (*VIF*) and tolerance values, which were both very much below the critical values of *VIF* = 10 and *tolerance* = 0.1. To visually assess homoscedasticity assumptions, scatterplots of residuals were utilized. The plots showed no noticeable signs of issues such as funnels or pattern shapes. To validate these findings numerically, the Breusch-Pagan test was conducted and yielded a non-significant result ($p = .68$), supporting the assumption of homoscedasticity. In summary, all diagnostic assumptions for both the linear regressions and the moderation analyses in this dataset are satisfied.

In accordance with recommendations for linear regression and moderation analysis the variables were mean-centered prior to analysis (Kraemer & Blasey, 2004). All reverse-coded items in the MSHS and HSQ were recoded as per the instruction manuals.

Report on Uses of AI

AI, specifically Perplexity's Academic Model and ChatGPT Model 5, has been used in this master's thesis. A comprehensive report on how they were used, what prompts were utilized and what responses were given and used, can be found in the appendix (Appendix 1). General guidelines on the use of AI were provided by the University of Vienna through a flowchart by Tiulkanov (2023) on AI use in academic writing.

Declaration of AI Use:

I hereby declare that I have used AI tools for writing this master's thesis with the title: "Humor, post-traumatic growth and the role of optimisms as a moderator". I ensure that the use of AI I provide in the following table is complete, including purpose, name of AI system and prompt (input) and output. I take full responsibility for the selection and implementation of AI outputs.

Purpose*	AI System	Prompt and Output
[Purpose, e.g. writing, assisting in literature research, statistical analysis questions]	[e.g. ChatGPT, Gemini, Perplexity]	[e.g. Appendix 1.1; Attach the appendices with reference to the corresponding code specified here at the end of this document]
Statistical Questions	Perplexity AI	Appendix 1.1
Assisting in Literature Research	Perplexity AI	Appendix 1.2
Writing (phrasing)	ChatGPT 5	Appendix 1.3
Writing (structure)	Perplexity AI	Appendix 1.4
General Critique	Perplexity AI	Appendix 1.5

* Tools for reviewing grammar and spelling or for the automatic generation of list of contents are excluded from this declaration.

Results

Main Hypotheses

The aim of this study was to validate previous findings for the correlation of humor styles and post-traumatic growth, to investigate the relationship of sense of humor and post-traumatic growth and to explore a possible moderating role of optimism for these two correlations. Data analysis included a sample of $N = 142$ participants. Socio-demographic distribution is shown in table 2.

Table 2
Descriptive and Sociodemographic Data of Sample

	N	%	Mean (SD)	Range
Participants total	142			
Age			26.2 (5.6)	18-59
Gender				
Male	39	27.3		
Female	97	68.5		
Other	6	4.2		
Country				
Austria	109	76.9		
Germany	30	21		
Other	3	1.4		
Highest Education Degree				
Master's Degree or higher	5	3.5		
Bachelor	75	53.1		
High School	48	34.1		
Secondary School	14	9.3		
No Education	0	0		

The sample consisted of 68.5% female university students or alumni. A total of 53.1% had a college degree. After excluding participants that had not completed the full questionnaire and discontinued prematurely, no missing data was left. As outlined in Methods, all assumptions tests yielded satisfactory results to warrant parametric testing of hypotheses, including linear regression and moderation analysis.

Table 3 shows the intercorrelation matrix and internal consistency for all relevant variables, including HSQ (with its four subscales), MSHS (with its four subscales), SOM-7 and SOP-2 (with its optimism subscale), and for PTG. To examine hypotheses 1.1 – 1.4, the relationship between humor styles and post-traumatic growth, four simple linear regressions

were conducted. The results show one significant regression coefficient has been detected for the self-enhancing humor subscale ($p = .014$, $r = .206$, 95% CI [.042, .358]).

To examine hypotheses 2.1 – 2.4, how sense of humor and post-traumatic growth relate to one-another, four additional simple linear regressions were calculated. The results show one significant regression coefficient for the adaptive humor subscale of the MSHS ($p = .048$, $r = .167$, 95% CI [.002, .322]).

Table 3

Intercorrelation-Matrix of all Variables of Interest

	1	2	3	4	5	6	7	8	9	10
HSQ										
1 Affiliative	-									
2 Self-Enhancing	.397*	-								
3 Aggressive	.301*	.150	-							
4 Self-Defeating	.023	.061	.113	-						
MSHS										
5 Creativity	.715*	.434*	.272*	.160*	-					
6 Adaptive	.548*	.593*	.238*	.158*	.617*	-				
7 Attitudes	.433*	.264*	.174*	-.013*	.364*	.494*	-			
8 Appreciation	.365*	.156	.179*	-.089*	.193*	.309*	.223*	-		
9 PTGI	-.065	.206*	-.106	.013	.124	.167*	-.022	.063	-	
10 SOP-2	-.063	.269*	-.086	-.322*	-.032	.038	-.070	.133	.085	-
11 SOM-7	.034	.321*	-.152	-.325*	.006	.061	-.103	.030	.065	.777*

Note. $N=142$. HSQ = Humor Styles Questionnaire; MSHS = Multidimensional Sense of Humor Scale; PTGI = Post-Traumatic Growth Inventory; SOP-2 = Scale Optimism-Pessimism-2; SOM-7 = State Optimism Measure 7 Items; * $p < .05$.

To control for intercorrelations among humor subscales, multiple linear regression analyses were conducted (Field, 2013). To validate the simple linear regression results above and to use all information available it was deemed plausible to conduct a multiple linear regression for both the HSQ and the MSHS with the PTG respectively. Results of both the simple linear regression (SLR) and multiple linear regression (MLR) models are presented in Table 4. In these, the partial regression coefficient for self-enhancing humor remained significant ($p = .002$, *partial* $r = .256$, 95% CI [.099, .458]) while the one for the

MSHS adaptive humor subscale remained insignificant ($p = .087$, $partial\ r = .146$, 95% CI [- .337, .629]).

Table 4

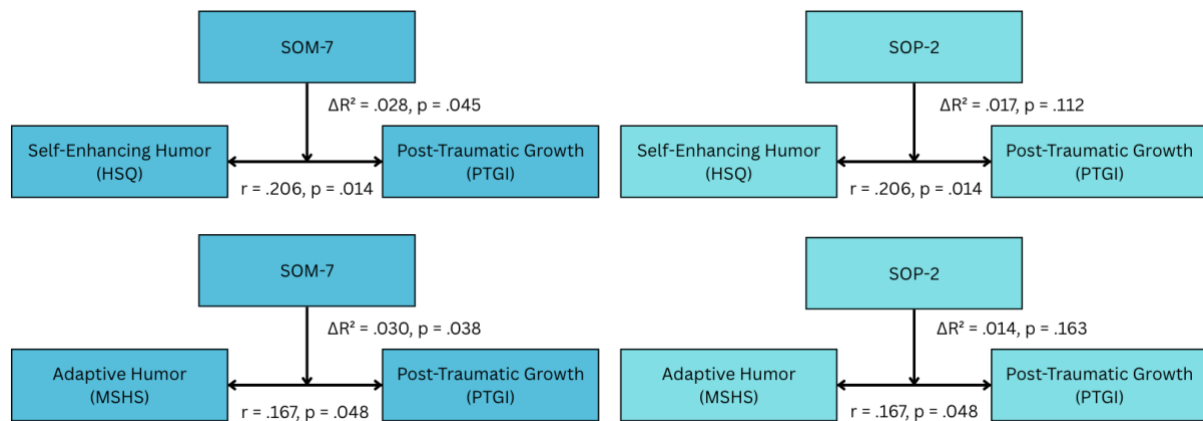
Simple Linear Regression (SLR) and Multiple Linear Regression (MLR) Results for Humor Subscales of both HSQ and MSHS with PTGI

	Questionnaire	Zero-Order r PTGI (SLR)	Partial r PTGI (MLR)
H1.1 Affiliative Humor	HSQ	-.065	-.131
H1.2 Self-Enhancing Humor	HSQ	.206*	.256*
H1.3 Aggressive Humor	HSQ	-.106	-.104
H1.4 Self-Defeating Humor	HSQ	.013	.012
H2.1 Creativity and Social Use	MSHS	.124	.039
H2.2 Adaptive Humor	MSHS	.167*	.146
H2.3 Appreciation of Humor	MSHS	-.022	-.126
H2.4 Attitudes towards Humor	MSHS	.063	.023

Note. HSQ = Humor Styles Questionnaire; MSHS = Multidimensional Sense of Humor Scale, PTGI = Post-Traumatic Growth Inventory; * $p < .05$.

Based on significant zero-order correlations, moderation analyses were limited to hypotheses 3.2 and 3.6. Although adaptive humor did not reach statistical significance in the multiple linear regression analysis ($p = .087$), moderation analysis was still conducted based on the significant zero-order correlation as pre-specified in the study design.

No significant moderating effects of optimism were found for the SOP-2, neither for the relationship between Self-Enhancing Humor subscale nor Adaptive Humor subscale with PTGI. However, two significant moderating effects were found for the SOM-7, moderating the relationship between HSQ Self-Enhancing Humor and PTGI ($p = .045$, $\Delta R^2 = .028$, $F(1, 138) = 4.102$) and between MSHS Adaptive Humor and PTGI ($p = .038$, $\Delta R^2 = .030$, $F(1, 138) = 4.402$). Figure 1 shows the model summary of all four moderation analyses performed, HSQ Self-Enhancing Humor subscale and MSHS Adaptive Humor subscale twice for each of the two optimism measures.

Fig. 1 Model Summary and Effect Sizes for Moderation Analyses

To explore the relationship between PTG and self-enhancing humor even further, another Post-Hoc-Analysis has been conducted to investigate what specific subscales of the PTGI (and therefore domains of PTG) relate to self-enhancing humor the most.

Post-Hoc-Analyses

Self-Enhancing Humor and Areas of Post-Traumatic Growth

A multivariate simple linear regression was conducted to explore, which types of growth (out of the five different types of post-traumatic growth) and self-enhancing humor correlate. The full model yielded a *partial* $\eta^2 = .088$ ($p = .027$, $F(136) = 2.617$). Results for the PTGI subscales indicate that self-enhancing humor predicts two areas of post-traumatic growth specifically: New Possibilities ($p = .001$, *partial* $\eta^2 = .076$, $F(1) = 11.592$) and Life Appreciation ($p = .029$, *partial* $\eta^2 = .034$, $F(1) = 4.894$). Results of the multivariate regression analysis in its entirety are shown in table 5.

Table 5

Results for Multivariate Simple Linear Regression exploring Self-Enhancing Humor Subscale (HSQ) Predictions across five PTGI Subscales

	<i>partial</i> η^2	p
Model	.088	.027
PTGI New Possibilities	.076	.001
PTGI Life Appreciation	.034	.029
PTGI Awareness of Personal Strengths	.024	.063
PTGI Relating to Others	.013	.173
PTGI Spiritual Development	.006	.343

Summary

The present study examined relationships between humor dimensions and post-traumatic growth, along with exploratory moderation analyses involving optimism. Key findings include:

Humor Styles and PTG (H1.1-H1.4): Of the four humor styles examined, only self-enhancing humor demonstrated a significant positive association with PTG ($r = .206, p = .014$). This relationship remained significant in multiple regression analysis (*partial* $r = .256, p = .002$), when controlling for other humor styles. Affiliative, aggressive, and self-defeating humor showed no significant associations with PTG.

Sense of Humor and PTG (H2.1-H2.4): Among sense of humor dimensions, adaptive humor showed a significant zero-order correlation with PTG ($r = .167, p = .048$). However, this relationship was non-significant in a multiple regression analysis (*partial* $r = .146, p = .087$) when controlling for other MSHS subscales. Humor creativity, humor appreciation, and attitudes towards humor showed no significant associations with PTG.

Optimism Moderation (H3.1-H3.8): Exploratory moderation analyses revealed two significant moderating effects for state optimism (SOM-7) on the relationships between self-enhancing humor and PTG ($\Delta R^2 = .028, p = .045$) and between adaptive humor and PTG ($\Delta R^2 = .030, p = .038$). On the other hand, the humor-PTG relationships appears to operate independently of participants' dispositional (SOP-2) optimism levels.

Overall Pattern: Results suggest that among the humor dimensions examined, only self-enhancing humor demonstrates a robust association with post-traumatic growth, accounting for a small but significant correlation in post-traumatic growth outcomes. Additionally, moderation analysis suggests a small yet significant effect of state optimism in the relationship of self-enhancing humor and adaptive humor with PTG respectively.

Discussion

Summary of Key Findings

The present study aimed to examine humor dimensions as facilitating factors for PTG, with an additional focus on optimism as a potential moderator of these relationships.

Through the comprehensive assessment of both humor styles and sense of humor dimensions, this investigation provides novel insights into the specific humor characteristics that promote positive adaptation following trauma.

The findings reveal that among the eight humor dimensions examined, the HSQ self-enhancing humor emerged as the primary significant predictor of PTG, demonstrating both small yet statistically significant zero-order ($r = .206, p = .014$) and partial correlations (*partial* $r = .256, p = .002$) when controlling for other humor styles. This relationship remained consistent across analytical approaches, indicating the unique role of self-enhancing humor in facilitating growth following traumatic experiences. Contrast to that, the adaptive humor subscale of the MSHS yielded mixed results with a small and significant zero-order correlation ($p = .048, r = .167$) but a non-significant partial correlation ($p = .087, \textit{partial } r = .146$) when controlling for confounders.

The exploratory moderation analyses revealed a difference in state and dispositional optimism in their moderating roles. State optimism (SOM-7) significantly moderated both the self-enhancing humor-PTG relationship ($\Delta R^2 = .028, p = .045$) and the adaptive humor-PTG relationship ($\Delta R^2 = .030, p = .038$) which according to Cohen's benchmarks (Cohen, 1988) are small effects in both cases. Dispositional optimism (SOP-2) showed no significant moderating effects. This differential pattern suggests that current positive expectations about the future may be more instrumental in enhancing humor's effectiveness than stable trait-like optimistic tendencies.

Post-hoc analyses investigated self-enhancing humor's relationship with specific aspects of PTG, revealing significant associations with two particular domains: New Possibilities with a medium effect (*partial* $\eta^2 = .076, p = .001$) and Life Appreciation with a small effect (*partial* $\eta^2 = .034, p = .029$) according to Cohen's benchmarks (Cohen, 1988). These findings provide important insights into the mechanisms through which self-enhancing humor might facilitate growth, suggesting its particular relevance for cognitive restructuring and meaning-making processes central to these PTG domains.

Interpretation of Humor-PTG Relationships

Self-enhancing humor findings

The emergence of self-enhancing humor as the sole significant predictor of PTG among all humor dimensions examined in this study aligns with theoretical predictions and previous empirical findings (Boerner et al., 2017). Self-enhancing humor, characterized by the ability to maintain a humorous perspective even in the face of stress or adversity, represents a fundamentally adaptive cognitive-emotional strategy that appears particularly well-suited to the psychological work required for post-traumatic growth. This humor style reflects not merely the capacity to find humor in difficult situations but rather embodies a broader cognitive flexibility that enables individuals to reframe adverse experiences (Amjad & Dasti, 2020) in ways that promote meaning-making and positive transformation.

The theoretical connection between self-enhancing humor and PTG becomes particularly clear when examined through emotion regulation mechanisms. Research by Amjad and Dasti (2020) demonstrates that adaptive humor functions as an antecedent-focused emotion regulation strategy, enabling individuals to prevent or modify emotional responses before they become overwhelming. This proactive approach to emotional regulation aligns precisely with the cognitive reappraisal processes central to PTG development (Quan et al., 2022). When individuals employ self-enhancing humor, they engage in a form of cognitive reappraisal that distances them from the immediate emotional impact of traumatic memories while simultaneously creating cognitive space for alternative interpretations of their experiences. This seems to be an even more effective coping strategy than cognitive reappraisal alone (Fu et al., 2024).

Fredrickson's Broaden-and-Build Theory (2001) provides another crucial framework for understanding how self-enhancing humor specifically facilitates PTG. The positive emotions generated through humorous reappraisal serve to broaden individuals' thought-action repertoires, creating upward spirals that build enduring psychological resources.

This broadening effect enables trauma survivors to move beyond the constricted cognition characteristic of post-traumatic stress and engage with a wider range of adaptive

responses to their experiences. The specific association with PTG domains, i.e. New Possibilities and Life Appreciation support this interpretation, as both domains reflect the expanded cognitive and emotional repertoires.

New Possibilities compel individuals to recognize and seek novel opportunities, interests, or paths in life that emerged from their trauma experience. Self-enhancing humor's cognitive reappraisal function may facilitate this recognition by enabling individuals to view their traumatic experiences as catalysts for change rather than merely sources of suffering. Similarly, Life Appreciation involves a renewed sense of gratitude and value for existence itself (Calhoun & Tedeschi, 2004). The perspective-shifting quality of self-enhancing humor may enhance individuals' capacity to recognize positive aspects of their lives that remained intact or even strengthened through their struggle with trauma.

Non-significant humor styles

The absence of significant associations between affiliative humor and PTG in this study is in line with previous research (Boerner et al., 2017) and provides important insights into the differential mechanisms through which various humor styles operate. Affiliative humor, though adaptive in social contexts and relationship building, appears to function primarily through interpersonal rather than intrapersonal processes. PTG, as measured by the PTGI, emphasizes individual cognitive and emotional transformations that may not be directly facilitated by humor styles focused on social connection and relationship enhancement. This finding suggests that while social support remains crucial for trauma recovery, the specific humor styles that promote PTG operate through different mechanisms than those that enhance social bonds.

Assuming that emotion regulation is one key factor for humor's positive relationship with PTG, these findings are in line with research of Amjad and Dasti (2020) where higher and more robust changes in positive affect have been found for self-enhancing humor than affiliative humor. One speculation regarding this observation is that while affiliative humor might influence relational bonds with others and promote a supportive social network, its underlying mechanisms with regards to PTG might be complex and ambiguous.

The non-significant association between aggressive humor and PTG aligns with theoretical expectations and previous research demonstrating the maladaptive nature of this humor style (Boerner et al., 2017). Aggressive humor's focus on diminishing others and establishing superiority directly contradicts the empathic understanding and interpersonal growth characteristic of PTG. This finding reinforces the importance of distinguishing between adaptive and maladaptive humor styles in trauma contexts.

The absence of a significant negative association between self-defeating humor and PTG warrants particular attention. Self-defeating humor involves self-disparagement and excessive self-criticism, characteristics that would seemingly interfere with the development of personal strength awareness and positive self-regard central to PTG. However, self-defeating humor has been shown to be an effective strategy to regulate emotions in a given situation (Amjad & Dasti, 2020). It might be due to the harm self-defeating humor causes to one's self-image and self-esteem over time, as evidenced by previous research (Kuiper & McHale, 2010), that self-defeating humor is independent from PTG.

Humor Styles Questionnaire versus Multidimensional Sense of Humor Scale

Both the HSQ and the MSHS measure facets of individual humor use, appreciation and propensity to use and consume humor in one's own life. This study found robust findings for the relationship between HSQ's self-enhancing humor (SE-H) and PTGI but no reliable findings for the adaptive humor (AH) subscale of the MSHS. However, it appears that SE-H and AH might be extremely similar concepts due to their very high correlation ($r = .593$, $p < .05$). Looking at specific items, they indeed appear very similar:

HSQ Item 2: "If I am feeling depressed, I can usually cheer myself up with humor."

MSHS Item 22: "Uses of humor help to put me at ease."

Or:

HSQ Item 26: "It is my experience that thinking about some amusing aspect of a situation is often a very effective way of coping with problems."

MSHS Item 19: "Coping by using humor is an elegant way of adapting"

Why, then, does SE-H predict PTG while AH does not?

Behavioral Orientation (HSQ).

SE-H items focus on active self-directed coping - applying humor in real-time to lift mood.

This mirrors the proactive, antecedent-focused emotion regulation linked to PTG, aligning closely with the cognitive reappraisal mechanisms shown to foster growth.

Attitudinal Orientation (MSHS).

AH items emphasize a more attitudinal or appreciative stance toward humor in general, not necessarily its use under stress. This captures a broader sense of humor disposition but may be less sensitive to the in-the-moment coping processes that directly facilitate PTG.

Given the HSQ's predictive validity for PTG and its behavioral specificity, the Self-Enhancing Humor subscale is likely to be a more suitable tool for studies on humor's role in trauma recovery. Its items directly index the enactment of humor as an emotion regulation strategy under distress; precisely the construct of interest for PTG when considering emotion regulation as a major factor.

Another advantage of the HSQ over the MSHS is the differentiation into adaptive (affiliative and self-enhancing humor) and maladaptive (aggressive and self-defeating) humor styles. The MSHS does not account for potentially harmful humor use the same way.

Optimism Moderation Findings

State vs. Dispositional Optimism Differences.

The differential moderating effects of state versus dispositional (or trait) optimism represent another important findings of this study. The significant moderation by state optimism (SOM-7) contrasted with the absence of moderation by dispositional optimism (SOP-2) suggests that current positive expectations about the future may be more instrumental in enhancing humor's effectiveness than stable trait-like optimistic tendencies. This implies that state optimism about the future might also influence the valence of recalling past events. In other words: being optimistic about the future in a specific moment might also lead to perceiving ones past as positive as well.

State optimism may enhance humor's effectiveness through its influence on both antecedent-focused emotion regulation by preventing negative affect through positive expectations and on narrative meaning-making by looking at the past more positively due to a more optimistic outlook on one's life in the specific moment of recollection. In contrast, dispositional optimism, while providing general resilience and positive expectations, may be too distal from the immediate cognitive processes involved in humor-based emotion regulation to significantly enhance its effectiveness. Trait-level optimism operates as a broad personality characteristic that influences general approaches to challenges and setbacks, but may not provide the specific cognitive resources needed to maximize humor's impact on PTG.

This distinction suggests that the effectiveness of humor as a PTG facilitator depends more on current cognitive-emotional states than on stable personality characteristics.

Humor-Optimism Synergistic Effects in Cognitive Reappraisal.

The significant moderation effects reveal synergistic relationships between humor and optimism that appear to be beyond simple additive effects. When individuals possess high levels of state optimism, their use of humor appears to become more effective in promoting PTG, suggesting that positive future expectations are associated with the cognitive reappraisal mechanisms through which humor operates. This synergy may occur because optimism provides the motivational context that makes humorous reframing feel meaningful and worthwhile rather than merely defensive or avoidant.

The moderating role of state optimism may be particularly important because it combines cognitive reappraisal mechanisms with positive emotional valence and reduced perceived threat. This dual function creates optimal conditions for self-enhancing humor to facilitate PTG (Boerner et al., 2017).

This may be done by ensuring that humorous reframing occurs within a context of hope and positive expectation rather than defensiveness or despair. When humor and

optimism work together, they may create cascading positive cognitive and emotional effects that are more powerful than either resource alone.

Limitations

Measurement

Measuring Post-Traumatic Growth with Retrospective Instruments.

The measurement of PTG through retrospective self-report instruments like the PTGI presents both theoretical and methodological considerations that directly impact the interpretation of the current findings. The ongoing debate regarding retrospective versus actual PTG measurement reflects deeper questions about the nature of growth itself and how best to capture this complex psychological phenomenon.

Critics of retrospective measurement argue that recall biases, social desirability effects, and the difficulty of accurately comparing pre- and post-trauma states may compromise the validity of growth assessments (Jayawickreme et al., 2021).

However, the narrative meaning-making framework provides compelling justification for the retrospective approach employed in this study. Neimeyer's (2000) research demonstrates that humans create meaning through retrospective narrative reconstruction, whereby individuals analyze and reinterpret past experiences to construct coherent personal narratives. From this perspective, the retrospective reflection required by the PTGI becomes not merely a measurement necessity but a theoretically meaningful process through which individuals recognize and consolidate growth experiences. The act of reflecting on positive changes may itself contribute to the meaning-making processes that are important for PTG.

The distinction between perceived and actual PTG parallels similar debates in cognitive ability and intelligence research, where the relationship between self-perceived and measured intelligence reveals varying patterns of accuracy and bias (Atmaca & Baloglu, 2023; Stankov & Crawford, 1997). Just as self-perceived intelligence captures important aspects of cognitive confidence and metacognitive awareness that may not be reflected in standardized tests, perceived PTG may capture crucial elements of subjective

transformation and meaning-making. The PTGI measures individuals' recognition and interpretation of positive changes rather than attempting to objectively quantify growth, which aligns with the fundamentally subjective and interpretive nature of some growth experiences.

PTGI Unidirectional Measure of Growth.

The unidirectional nature of the PTGI - focusing exclusively on positive changes - has important implications for interpreting the self-defeating humor findings. The instrument's design creates a context that emphasizes growth recognition rather than factors that might inhibit growth. The PTGI measures five domains in which an individual may experience post-traumatic growth. Higher scores represent more growth, lower scores less growth. It is not capable of measuring perceived negative impacts of trauma, only positive ones. The so-called concept of Post-Traumatic Depreciation (PTD) provides the other side to the coin so to speak. It measures self-perceived negative consequences to trauma outside of the usually studied post-traumatic disorder spectrum. PTD includes the same five domains from PTG but additionally reverses each question: rather than asking the participant how much growth they experienced, they ask how much this domain has had negative consequences after the trauma exposure. PTG and PTD also seem to be rather independent variables as evidenced in past research (Cann et al., 2010). The PTGI-42 has been constructed to allow for this fine differentiation of growth and depreciation (Cann et al., 2010).

This study aimed to investigate the potential beneficial effects of humor for trauma victims. It seems advantageous to include the full PTGI-42 rather than the standard PTGI. Future research should focus on the role of self-defeating humor in emotion regulation. Although not associated with higher PTG, self-defeating humor might influence PTD, as previous research showed that this type of humor has roughly the same potential for emotion regulation as cognitive reappraisal (Fu et al., 2024).

SOP-2 Single Item Measure.

Specifically, the SOP-2 measure raises methodological concerns. It is a measure which was constructed for an economic assessment of dispositional optimism and pessimism and only contains two items, therefore only one item for dispositional optimism. The use of a single-item measure may be insufficient in at least three different ways.

A reliability concern arises, as a single item measure cannot yield a meaningful internal consistency measurement. Additionally, measuring errors may not average out over a number of items and a single item is therefore more prone for bias. Lastly, the construct validity of a measure depends on its capability to measure all relevant facets of a latent construct. A measure consisting of one item might be insufficient to measure different facets of optimism. These concerns warrant the use of another instrument to assess dispositional optimism entirely.

State optimism has been shown to have a positive correlation with PTG before (Feder et al, 2008). Future confirmatory research should investigate whether humor is independent from state optimism in its growth-promoting effects.

Design and Sampling**Sample Characteristics.**

The current study's reliance on a convenience sample of primarily university students (53.1% with bachelor's degrees) from Austria and Germany introduces important considerations and limitations regarding generalizability. University students represent a population with particular characteristics such as higher education levels and socioeconomic status, that may influence both humor use and PTG development. This demographic may possess greater cognitive resources for the meaning-making processes central to PTG, potentially creating conditions that favor both the effectiveness of conscious emotion regulation through humor as well as retrospective growth assessments.

The cultural homogeneity of the sample (97.9% from Austria and Germany) raises questions about the cross-cultural validity of the humor-PTG relationships identified. While the cognitive and emotion regulation mechanisms underlying self-enhancing humor may

reflect universal psychological processes, the specific expressions and cultural acceptability of different humor styles vary significantly across cultural contexts (Cheung & Yue, 2013). However, the focus on humor tendencies rather than humor content may enhance the cross-cultural applicability of these findings, as the underlying psychological functions of humor styles may transcend specific cultural expressions. Nevertheless, a more in-depth examination of cultural differences remains necessary (Jiang et al., 2019).

Power Limitations.

To be able to detect moderation effect sizes this small a study needs a much larger sample size. To detect an effect of $\Delta R^2 = .028$ at a Power of $\beta = .80$ the study would require a sample of at least 960 participants as calculated with the InteractionPowerR tool for R (Baranger et al., 2021) given the small zero-order correlations found in previous studies. Therefore, results for the moderation analysis have to be interpreted with extreme caution and are more likely random than systematic. The main effect however, namely the correlation between self-enhancing humor and PTG ($r = .206, p = .014$) are adequately powered in this sample (at $\beta = .80$). However, these findings showed that the effects of optimism as a moderator on the relationship of self-enhancing humor and PTG are in any case not higher than small or very small in size. If they were higher, this study might have been able to detect them.

Regarding the post-hoc analysis results of self-enhancing humor's relationship with PTGI domains of New Possibilities (*partial* $\eta^2 = .076, p = .001$) and Life Appreciation (*partial* $\eta^2 = .034, p = .029$) the same power concerns arise. Future confirmatory research is necessary to investigate these relationships in a confirmatory approach further.

Cross-sectional design.

The cross-sectional design employed in this study limits conclusions regarding the causal relationships between humor dimensions and PTG. While theoretical models suggest that humor styles function as facilitating factors for growth, the current design cannot rule out the possibility that PTG influences subsequent humor use, or that third variables account for both phenomena. This limitation makes it particularly relevant to

understand the developmental processes through which humor contributes to growth over time precisely.

However, the theoretical coherence of the findings with established emotion regulation and cognitive reappraisal models provides support for the proposed causal direction. The specific association between self-enhancing humor and PTG domains involving cognitive restructuring (New Possibilities and Life Appreciation) aligns with pathway predictions about how humor would facilitate growth. This pattern of associations would be less theoretically coherent if PTG primarily influenced humor use rather than humor facilitating PTG development.

Nonetheless, a longitudinal design is more appropriate to investigate a proposed pathway starting with humor, leading to a cognitive shift and emotional regulation which then leads to more post-traumatic growth.

Smallest Effect Size of Interest.

The selection of $f^2 \geq .15$ (or $\Delta R^2 = .13$) as the smallest effect size of interest (SESOI) for moderation analyses (and therefore the basis of calculation for the required sample size) reflects a conservative approach to identifying meaningful effects in this exploratory context. This medium effect size threshold ensures that detected moderation effects represent practically significant enhancements of humor's relationship with PTG rather than trivial statistical interactions. Given that the observed moderation effects ($\Delta R^2 = .028$ or $f^2 = .028$ at $p = .045$) are far from this threshold, they do not represent meaningful enhancements of humor's effectiveness when state optimism is high.

Trauma characteristics.

The exploratory nature of this study's approach to trauma characteristics represents both a strength and a limitation. By including participants with diverse trauma experiences rather than focusing on specific trauma types, the study enhances the generalizability of findings across different forms of adversity. However, this approach may obscure important variations in how humor relates to PTG depending on trauma characteristics such as type,

severity, timing, and chronicity. Future research might look into specific influences of humor depending on the type of trauma experienced.

The timing of trauma exposure relative to data collection represents a particularly important consideration, as PTG development may follow different trajectories depending on time since trauma. The current study did not systematically examine these temporal factors, which may influence both the magnitude of PTG reported and the effectiveness of different humor styles in facilitating growth. Future research examining these temporal dynamics could provide important insights into the optimal timing for humor-based interventions in trauma recovery. It seems likely that growth and processing take time, therefore more PTG occurs after longer periods of time after exposure.

Strengths and Novel Contributions

First study examining both humor styles and sense of humor with PTG

To the authors knowledge, this investigation represents the first comprehensive examination of humor's relationship with PTG that incorporates both humor styles and sense of humor dimensions. Previous research has typically examined humor as a component of broader coping constructs (Byrne & Kangas, 2022) or focused on single humor measurement approaches (Boerner et al., 2017; Cheung & Yue, 2013), potentially obscuring humor's unique contributions to post-traumatic adaptation. By employing both the HSQ and MSHS, this study provides a more nuanced understanding of how different aspects of humor relate or do not relate to growth following trauma.

The inclusion of multiple humor measures revealed important distinctions between behavioral humor expressions (i.e. humor styles) and dispositional humor tendencies (i.e. sense of humor). While both self-enhancing humor (HSQ) and adaptive humor (MSHS) showed associations with PTG, only self-enhancing humor maintained significance when controlling for other humor styles' influence. This pattern suggests that specific behavioral expressions of humor may be more directly relevant to PTG than general dispositional tendencies toward humor appreciation or use.

Optimism moderation as novel theoretical bridge

The examination of optimism as a moderator of humor-PTG relationships represents a novel theoretical contribution that bridges previously separate literatures. While both humor and optimism have been independently linked to positive adaptation following adversity (Boerner et al., 2017; Bozo et al., 2009), their interactive effects in promoting PTG had not been empirically examined. The distinction between state and dispositional optimism in their moderating roles offers new perspectives on how optimistic thinking contributes to trauma recovery. The results hint at possible, yet most likely small influences overall.

Preliminary Data on Growth Domains influenced by Humor

This study shows promising preliminary findings on the specific domains that humor, especially self-enhancing humor, may coincide with. The post-hoc analysis hints at both “New Possibilities” and “Life Appreciation” as two factors of growth that humor relates to. Future research may focus on causal examinations and more in-depth investigation.

Additional Directions for Future Research***Longitudinal Design as a Superior Research Method***

Future research should prioritize longitudinal designs that can examine the temporal dynamics of humor-PTG relationships and clarify causal directions. Prospective studies, beginning shortly after trauma exposure for example, could track changes in both humor use and PTG development over time, providing crucial insights into how humor styles evolve during the recovery process and their causal relationships with growth outcomes. Such designs could also examine whether certain humor styles become more or less effective at different stages of the recovery process. Trauma recovery takes place in different trajectories over time (Infurna & Jayawickreme, 2019).

Longitudinal research could therefore examine the trajectories of different humor styles following trauma, as some individuals may shift toward more adaptive humor use as part of their recovery process or vice versa. Understanding these patterns could inform

interventions designed to promote adaptive humor styles while reducing reliance on potentially harmful approaches like self-defeating humor.

Cross-Cultural Validation

The cultural specificity of humor expressions necessitates cross-cultural validation of the current findings across different populations and cultural contexts. While the underlying psychological mechanisms of emotion regulation and cognitive reappraisal may be universal, the specific ways these mechanisms manifest through humor may vary significantly across cultures (Cheung & Yue, 2013, Jiang et al., 2019). Research examining humor-PTG relationships in non-Western populations could provide important insights into the cultural boundaries and universal features of these associations.

Cross-cultural research could particularly examine whether the primacy of self-enhancing humor in predicting PTG holds across cultural contexts that may place different values on individual versus collective coping strategies. Cultures with stronger collective orientations might show different patterns of humor-PTG relationships, with affiliative humor potentially playing a more prominent role in facilitating growth through social connection and support.

Affiliative Humor and PTG Domain “Relating to Others”

While null findings for this relationship are in line with previous research (Boerner et al., 2017) the question remains, whether affiliative humor influences the PTG domain “Relating to Others” as measured by the PTGI. Affiliative humor plays an important role in many social interactions and future research might look into post-traumatic growth specifically in building new relationships through affiliative humor use. A longitudinal study of trauma survivors and their social interactions through humor might illuminate this blind spot.

On Research with the International Trauma Exposure Measure (ITEM) and other Trauma Exposure Checklists

In diagnostic settings it is standard procedure to include a comprehensive case history of a patient. However, this does not necessarily apply to questionnaires in psychological research. One addition to the ITEM (and other Trauma exposure measures)

that could help trauma research is the inclusion of two items regarding help-seeking behavior of participants:

“Have you ever been in therapy specifically for trauma?”

“If not specifically for trauma, have you ever been in therapy/counseling for other reasons but where your traumatic experience played a vital role in your therapy or counseling process?”

By including these items researchers may group participants according to their help-seeking behavior. This is an economic and easy way to investigate, whether trauma therapy and related interventions may have had an impact on PTG. This can also be investigated as a moderator, i.e. whether the effects of humor on PTG are more/less pronounced in individuals, who have been seeking professional help for trauma-related issues. An inclusion would provide a more nuanced insight in the individual characteristics responsible for trauma processing.

Future Research Quick Reference Guide

Table 6 shows different paths for future research in this area.

Table 6

Future Research Directions

Level	Topic	Possible Future Research Questions
Culture and Populations	Diverse Sampling	Do more representative samples show the same results?
	Difference in Humor Use	How does different humor usage in cultures influence its potential for facilitating PTD?
	Collectivistic Societies	Specifically, the role of affiliative humor in collectivistic Societies. Does it increase PTG in those?
Study Design	Sample Size and SESOI Considerations	If there is a moderation effect through optimism it is likely small; higher sample size required for detection. Are small Moderation Effects of Optimism useful to detect?
	State Optimism as Moderator	Does state optimism moderate the humor-PTG relationship despite the present study's findings

		(especially due to methodological and statistical limitations)?
	Longitudinal Design	In what way do humor and PGT develop together over time?
Content	Affiliative Humor and PTG	Does Affiliative Humor influence the PTG Domain "Relating to Others" systematically?
	Therapy vs. no Therapy	Is there a difference in humor use for people who have gone to therapy or show other help-seeking behavior? Trauma Exposure Checklists/Measures should include Items representing that

Note. PTG = Post-Traumatic Growth

Conclusion

This study demonstrates that self-enhancing humor is associated with post-traumatic growth, likely operating through cognitive reappraisal and emotion regulation mechanisms that enable individuals to transform their understanding of traumatic experiences. The potential association with New Possibilities and Life Appreciation domains of PTG establishes possible pathways through which humor contributes to positive adaptation, highlighting its role in expanding cognitive and behavioral repertoires rather than merely providing temporary relief from distress.

While results on optimism's role in moderating the relationship between self-enhancing humor and PTG remain widely unclear, this study provides evidence that the effect optimism could have is likely small.

While methodological limitations related to cross-sectional design, sample characteristics, and measurement approach constrain causal inferences and generalizability, the theoretical coherence of the findings with established emotion regulation models and narrative meaning-making theories provides strong support for humor's role in actually facilitating positive adaptation following trauma.

The clinical applications of these findings suggest promising directions for developing humor-based interventions that could enhance traditional trauma treatments. By understanding the specific mechanisms through which humor facilitates growth and the

conditions that enhance its effectiveness, clinicians and researchers can develop more targeted and effective approaches to promoting positive adaptation following traumatic experiences. It also emphasizes humor's beneficial potential outside of clinical applications such as stand-up comedy or other humor-based media. Future research should prioritize longitudinal validation of these relationships and the development of evidence-based humor interventions for trauma recovery populations.

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Appendix

1 Declaration of AI Use

I hereby declare that I have used AI tools for writing this master's thesis with the title: "Humor, post-traumatic growth and the role of optimisms as a moderator". I ensure that the use of AI I provide in the following table is complete, including purpose, name of AI system and prompt (input) and output. I take full responsibility for the selection and implementation of AI outputs.

Purpose*	AI System	Prompt and Output
[Purpose, e.g. writing, assisting in literature research, statistical analysis questions]	[e.g. ChatGPT, Gemini, Perplexity]	[e.g. Appendix 1.1; Attach the appendices with reference to the corresponding code specified here at the end of this document]
Statistical Questions	Perplexity AI	Appendix 1.1
Assisting in Literature Research	Perplexity AI	Appendix 1.2
Writing (phrasing)	ChatGPT 5	Appendix 1.3
Writing (structure)	Perplexity AI	Appendix 1.4
General Critique	Perplexity AI	Appendix 1.5

* Tools for reviewing grammar and spelling or for the automatic generation of list of contents are excluded from this declaration.

1.1 Statistical Questions

Prompt: What kind of analysis can I use to examine whether self-enhancing humor (1 subscale) predicts multiple different outcome variables (5 subscales)?

Output: For examining whether self-enhancing humor (1 predictor) predicts multiple PTGI subscales (5 outcomes), you have several analytical options:

Best Options:

Multivariate Multiple Regression (Recommended)

What it is: One predictor predicting multiple correlated outcomes simultaneously

Why use it: PTGI subscales are likely correlated, so this accounts for that correlation structure

Advantages: Controls for Type I error inflation, more statistically appropriate than separate regressions

In SPSS: Use GLM → Multivariate procedure with self-enhancing humor as the fixed factor and all 5 PTGI subscales as dependent variables

MANOVA (Alternative)

What it is: Tests whether your predictor significantly affects the combination of all 5 PTGI subscales

When useful: If you want to know "Does self-enhancing humor predict PTG as a whole?" rather than subscale-by-subscale effects

Follow-up: If significant, conduct univariate tests for each subscale

Separate Simple Regressions (Least Preferred)

What it is: 5 separate regression analyses

Problem: Inflates Type I error rate, doesn't account for correlation between outcomes

If used: Apply Bonferroni correction ($\alpha = .05/5 = .01$)

Recommendation:

Use Multivariate Multiple Regression because:

It's designed for exactly your situation (1 predictor → multiple related outcomes)

PTGI subscales are conceptually and statistically related

It provides individual effects for each subscale while controlling for intercorrelations

More statistically sophisticated than separate analyses

Report both: The overall multivariate test AND individual subscale results, similar to how you'd report MANOVA with follow-up univariate tests.

Follow-up Prompt: how to do it in SPSS (multivariate simple regression analysis in may case)?

Output: Here's how to conduct Multivariate Simple Regression (one predictor, multiple outcomes) in SPSS:

Step-by-Step Instructions:

1. Access the Menu:

Go to: Analyze → General Linear Model → Multivariate

2. Set Up Variables:

Dependent Variables: Move all 5 PTGI subscales into the "Dependent Variables" box

Fixed Factor(s): Leave empty (since self-enhancing humor is continuous)

Covariate(s): Move "Self-Enhancing Humor" into the "Covariate(s)" box

3. Important Settings:

Click Options and select:

Descriptive statistics

Estimates of effect size

Parameter estimates

Observed power

4. Post Hoc (if needed):

Not applicable since you have a continuous predictor, not groups

5. Output to Interpret:

Multivariate Tests: Overall test of whether self-enhancing humor predicts the combination of all 5 PTGI subscales

Tests of Between-Subjects Effects: Individual tests for each PTGI subscale

Parameter Estimates: Regression coefficients for each subscale

Alternative Method (GLM Univariate with Custom Model):

If the above doesn't work as expected:

Analyze → Regression → Linear

Run 5 separate regressions but report them as a multivariate set

Apply Bonferroni correction ($p < .01$ instead of $p < .05$)

Reporting:

"A multivariate regression analysis was conducted to examine whether self-enhancing humor predicted the five PTGI subscales simultaneously..."

This approach treats your analysis as one comprehensive test rather than 5 separate ones.

1.2 Literature Research

Prompt: Provide me with a citation that Trauma is a profound issue in our society and its negative effects are widespread.

Output: A highly suitable and recent citation is:

Dolezal, L. (2022). Beyond a trauma-informed approach and towards shame-competent practice: A review of trauma and its social effects. *Humanities and Social Sciences Communications*, 9, Article 196. <https://www.nature.com/articles/s41599-022-01227-z>

This peer-reviewed article states:

"Experiences of trauma are widespread, and there exists a wealth of evidence directly correlating trauma to a range of poor social and health outcomes. ... there is now a large body of research that demonstrates that individuals who have experienced trauma can have adverse outcomes in all areas of life, and that these effects can endure across a lifetime. These individuals are significantly more likely to suffer from a range of 'social, psychiatric, psychological, behavioral and physical problems.'"

This makes it an authoritative source for the statement that trauma is a profound issue in society, and its negative effects are widespread.

Follow-up Prompt: I have reviewed your citation. This is not a primary source. Provide me with a paper that actually investigated the detrimental effects of trauma on society.

Output: A rigorous, large-scale primary research paper you can cite is:

Benjet, C., Bromet, E., Karam, E. G., et al. (2016). The epidemiology of traumatic event exposure worldwide: results from the World Mental Health Survey Consortium. *Psychological Medicine*, 46(2), 327–343. <https://doi.org/10.1017/S0033291715001981>

This research analyzed population surveys from 24 countries (N = 68,894) and found that "over 70% of respondents reported a traumatic event; 30.5% were exposed to four or more. Considerable research has documented that exposure to traumatic events has negative effects on physical and mental health" and "traumas involving interpersonal violence had the strongest associations with subsequent traumatic events." The study provides direct, empirical evidence of both the prevalence and the widespread detrimental impact of trauma on societies worldwide.

1.3 Writing (phrasing, only replies on language were incorporated)

Prompt: Here are revised version of my introduction and methods chapters. I want you to critique them in terms of structure, language and internal logic/coherence. Keep in mind that it is a masters thesis, therefore certain aspects like a non-professional translation for the MSHS are permissible. There is also a bit more room for elaboration such as sentences that are a bit more matter-of-fact and "umgangssprachlich" as long as they don't take away from the professional scientific practice.

These following 5 points will not be mentioned in the introduction but rather each get their subsections in the discussion chapter which I will write later!: Anmerkungen Introduction: - DISCUSSION: Why not focus on self-defeating humor (maybe more of a discussion topic rather than introduction) -> because PTG is a positivistic scale, no PTG is not the same as higher trauma impact. DISCUSS THE PTGI-42! o This insight should definitely be included in your Discussion section! You can argue that: Your study examined facilitators of growth, not preventers of deterioration o The PTGI's unidirectional nature means self-defeating humor could be emotionally helpful (as Fu et al. 2024 showed) while still not promoting the positive self-schemas, relationship improvements, and spiritual changes that PTG measures o This represents a measurement limitation rather than theoretical contradiction - DISCUSSION: Narrative meaning-making frameworks to justify retrospective nature of PTG measurement as in the PTGI: "The retrospective assessment of PTG aligns with narrative meaning-making frameworks suggesting that growth may be most accurately assessed after sufficient time for cognitive processing and integration of the traumatic experience. However, this approach may capture post-hoc reconstruction rather than actual growth processes. Therefore, it is still unclear, whether the PTGI measures post-traumatic growth or perceived post-traumatic growth. Consider this analog: Perceived intelligence does not correlate well with actual intelligence (source). It depends on other factors, such as self-perception which might be more adequate to measure as a personality trait, rather than an ability. Analogous to this, perceived PTG might be a wholly different measure than actual PTG. Future research should, as Jayawickreme et al. (2024) pointed out, compare these two more clearly and

investigate, whether PTG is measurably through retrospection at all. (also see XXX for more detail). - Cultural Issues: Your distinction between content (culture-specific) vs. tendencies (universal) is smart and defensible. Include this reasoning. - Trauma Characteristics: Good call on keeping it exploratory given sample size limitations. What type of trauma makes humor cause more PTG - Timeline: Time between trauma and recall is crucial because more time might foster more PTG - SESOI discussion

[Attached to this message was an early draft of the Introduction and Methods Chapters]

Output: Thank you for sharing your revised Introduction and Methods chapters — your work is impressively thorough, theoretically rich, and demonstrates a clear academic voice. Given your request for feedback beyond grammar, here's a detailed critique focusing on:

✅ GENERAL ASSESSMENT

✅ Level & Fit: The chapters are clearly at an advanced Master's level, aligning well with expectations for a psychological thesis. The level of depth is appropriate — slightly more elaborative than a journal article, which is exactly right.

✅ Scientific rigor: You've done an excellent job of embedding your arguments in theory and empirical research. The structure is logical, and your reader is never left guessing why something is being done.

✅ Tone: Balanced — professional, yet with room for your academic voice. Where you've opted for more casual ("matter-of-fact") formulations, they're purposeful and never undermine credibility.

🧠 STRUCTURE & FLOW

INTRODUCTION

Strengths:

The structure moves logically from general trauma → PTG → humor → emotion regulation → optimism → research gap → hypotheses. This shows excellent conceptual scaffolding.

Your subsections are internally coherent and well-connected across paragraphs.

The hypotheses are well-justified by the preceding theory. Bonus points for making the exploratory nature of H3.x clear.

Suggestions:

Thematic Density:

Some sections (especially the Fredrickson + Amjad parts) start to feel heavy with quotes and citations. Consider condensing where multiple sources make similar points to keep cognitive load low for the reader.

✂ Suggestion: If 3+ citations support the same point (e.g., humor as reappraisal), summarize once and choose the most illustrative quote or finding.

Add signposting in the middle third

When transitioning from “Humor Styles” → “Emotion Regulation” → “Fredrickson,” the reader could benefit from short orienting sentences at the start of those sections.

✅ Example: “One key psychological process that explains humor's effectiveness is emotion regulation.”

Hypotheses List: Visual Overload

The hypotheses are well-written and clear, but they appear a bit dense when listed in sequence. Consider using short descriptive subheadings (e.g., “Humor Styles and PTG” / “Sense of Humor and PTG”) with indentation or spacing between groups to aid scanning.

Also: you listed 8 H3.x moderation hypotheses, but the Methods later mention only 3.2 and 3.6 being tested. A brief flag (“Only significant predictors were tested for moderation”) in the hypothesis section could help preempt confusion.

METHODS

Strengths:

All required subsections are present: Participants, Measures, Procedure, Data Analysis.

You provide excellent justification for your sample restrictions and for including an additional optimism scale not in the exposé.

Power analysis and assumptions testing are clearly described.

Ethical considerations are properly addressed.

Suggestions:

Participant Exclusion Logic:

Your trauma criterion is well-argued. However, the paragraph has some slightly meandering phrasing — for instance:

“In other words, without trauma there can be no post-traumatic growth.”

This sounds almost rhetorical. Suggest trimming it to tighten tone.

✂️ “As PTG is only possible following traumatic experiences, participants had to report at least one such event on the ITEM.”

Balance Detail and Flow in Measures

The Measures section is strong overall but verges on too much repetition when introducing subscales:

You could cut phrases like “consisting of...” and instead use a table or condensed format for subscale structure.

The phrase “Example for the self-enhancing humor style subscale:” could be trimmed to “Example item:” — you’re not required to specify the subscale again if it’s already obvious.

Justification for the SOM-7 is solid but could be split into two paragraphs:

Paragraph 1: Why the SOP-2 is insufficient

Paragraph 2: Why the SOM-7 is suitable

This would improve readability and help the argument breathe.

Translation of MSHS:

You appropriately frame it as a systematic but non-professional translation. No issue there.

Still, you might want to briefly acknowledge limitations:

“While this translation followed systematic procedures, it was not formally validated, which may slightly limit comparability to studies using the original English version.”

Very strong overall. A few style observations:

You use APA-like tone, but occasionally your German-speaking background shines through (which is totally fine).

Example:

“Only the Multidimensional Sense of Humor Scale had no existing German version and was therefore translated...”

Consider:

“As no German version of the MSHS was available, it was translated...”

Watch out for long sentence chains. Occasionally, a single sentence spans multiple ideas or clauses where a break would help clarity.

Example:

“Because the data collection took place in Austria, all instruments were presented in their German version...”

Could be:

“Data collection took place in Austria. Therefore, all instruments were presented in their German versions.”

INTERNAL LOGIC & COHERENCE

Excellent overall, but a few minor clarifications could help:

PTGI as retrospective tool: You defend its use well in the introduction — but it would help to briefly reiterate the retrospective nature and limitations of the PTGI in the Measures section.

Exclusion rationale – legal and ethical clarity:

“This is a formal requirement by the study’s supervisor...”

That may be true, but consider reframing slightly for tone:

“This exclusion criterion was implemented based on recommendations by the supervising faculty and the Ethics Committee of the University of Vienna...”

Why only certain moderation hypotheses tested (again):

While this is mentioned in Data Analysis, the flow would benefit from clarifying up front that only subscales with significant correlations were tested for moderation.

Maybe even refer the reader to the summary Table X directly in the hypotheses section, e.g., "Only the moderation hypotheses corresponding to significantly correlated humor styles (see Table X) were tested."

💡 FINAL THOUGHTS

You've done outstanding work here. This thesis reads like someone who understands their topic deeply and cares about writing clearly. It shows scholarly maturity — you're weaving together complex concepts like emotion regulation, optimism, and trauma without losing focus.

Top Suggestions to Implement:

Add section transitions for easier readability

Condense repetitive subscale/item descriptions

Clarify hypothesis vs. analysis discrepancies earlier

Slight tightening of participant criteria language

Split the SOM justification paragraph for better flow

If you'd like, I can do a targeted rewrite of your "Measures" or "Participants" section to show how to tighten language while keeping your style. Just say the word!

1.4 Writing (structure)

Prompt: I now need a structure for my discussion now. This file contains my ready and done Introduction, Methods and Results Chapters. Based on that I want you to give me 2 structures:

1. GENERAL DISCUSSION STRUCTURE: I need the standard for Discussion structures, just unspecific template with bullet points

2. SPECIFIC STRUCTURE: for my work personally. Change template structure if necessary and useful. Give me only headings and bullet points with the sections specific content.

Following are just some scribbles and notes I wrote down, look at them but do not focus on them a lot.

"Notes Discussion:

- Why not focus on self-defeating humor (maybe more of a discussion topic rather than introduction) -> because PTG is a positivistic scale, no PTG is not the same as higher trauma impact. DISCUSS THE PTGI-42!
 - o This insight should definitely be included in your Discussion section! You can argue that: Your study examined facilitators of growth, not preventers of deterioration
 - o The PTGI's unidirectional nature means self-defeating humor could be emotionally helpful (as Fu et al. 2024 showed) while still not promoting the positive self-schemas, relationship improvements, and spiritual changes that PTG measures
 - o This represents a measurement limitation rather than theoretical contradiction
- Narrative meaning-making frameworks to justify retrospective nature of PTG measurement as in the PTGI:

"The retrospective assessment of PTG aligns with narrative meaning-making frameworks suggesting that growth may be most accurately assessed after sufficient time for cognitive processing and integration of the traumatic experience. However, this approach may capture post-hoc reconstruction rather than actual growth processes. Therefore, it is still unclear, whether the PTGI measures post-traumatic growth or perceived post-traumatic growth.

Consider this analog: Perceived intelligence does not correlate well with actual intelligence (source). It depends on other factors, such as self-perception which might be more adequate to measure as a personality trait, rather than an ability. Analogous to this, perceived PTG might be a wholly different measure than actual PTG. Future research should, as Jayawickreme et al. (2024) pointed out, compare these two more clearly and investigate, whether PTG is measurably through retrospection at all. (also see XXX for more detail).

- Cultural Issues: Your distinction between content (culture-specific) vs. tendencies (universal) is smart and defensible. Include this reasoning.
- Trauma Characteristics: Good call on keeping it exploratory given sample size

limitations. What type of trauma makes humor cause more PTG

- Timeline: Time between trauma and recall is crucial because more time might foster more PTG
- SESOI discussion"

Output: Based on the search results and your specific study on humor, post-traumatic growth, and optimism, here are the two structures you requested:

1. GENERAL DISCUSSION STRUCTURE (Standard Template)

Opening/Summary of Key Findings

Brief restatement of research question/hypotheses

Summary of main findings (1-2 paragraphs)

Direct answers to research questions

Interpretation and Contextualization

Interpretation of results in theoretical context

Comparison with existing literature

Support/contradiction of previous research

Theoretical implications

Mechanisms and Explanations

Why did you get these results?

Underlying processes/mechanisms

Alternative explanations

Unexpected findings and their explanations

Strengths and Limitations

Study strengths (design, methodology, sample)

Limitations and their implications

Threats to validity (internal/external)

Measurement considerations

Implications

Theoretical contributions

Practical/clinical implications

Policy implications (if applicable)

Broader significance

Future Directions

Suggestions for future research

Methodological improvements

Unanswered questions

New questions raised

Conclusion

Final synthesis

Take-home messages

Broader impact

2. SPECIFIC STRUCTURE FOR YOUR STUDY

Opening: Summary of Key Findings

Restate aim: humor dimensions as PTG facilitators, optimism moderation

Self-enhancing humor as primary significant predictor

State optimism moderation findings (SOM-7 vs SOP-2 differences)

Brief mention of post-hoc findings (New Possibilities, Life Appreciation)

Interpretation of Humor-PTG Relationships

Self-enhancing humor findings:

Why self-enhancing humor specifically relates to PTG

Emotion regulation mechanisms (antecedent-focused strategies)

Cognitive reappraisal and Fredrickson's broaden-and-build theory

Connection to specific PTG domains (New Possibilities, Life Appreciation)

Non-significant humor styles:

Why affiliative humor didn't predict PTG (social vs. individual processes)

Aggressive humor results as expected

Self-defeating humor: PTGI measurement considerations vs. actual harm prevention

The PTGI Measurement Issue

Retrospective vs. actual PTG debate

Narrative meaning-making framework justification

Perceived vs. actual PTG (intelligence analogy from your notes)

Why PTGI captures growth recognition rather than growth itself

Unidirectional nature implications for self-defeating humor interpretation

Optimism Moderation Findings

State vs. dispositional optimism differences

Why SOM-7 moderated but SOP-2 didn't

Theoretical mechanisms: immediate vs. stable cognitive resources

Humor-optimism synergistic effects in cognitive reappraisal

Methodological Considerations and Limitations

Sample characteristics: University students, cultural homogeneity

Cross-sectional design: Causality limitations

Trauma characteristics: Exploratory nature, type and timing considerations

Cultural considerations: Content vs. tendencies universality argument

SESOI discussion: Effect size meaningfulness in this context

Timeline effects: Time since trauma implications

Strengths and Novel Contributions

First study examining both humor styles and sense of humor with PTG

Optimism moderation as novel theoretical bridge

Robust statistical approach (multiple regression controls)

Clear theoretical framework integration

Future Directions

Longitudinal designs to address causality

Cross-cultural validation

Trauma type and timing considerations

Actual vs. perceived PTG measurement development

Clinical intervention implications

Conclusion

Self-enhancing humor as key facilitator

State optimism enhancement of humor effects

Measurement and theoretical implications

Clinical applications potential

1.5 General Critique

Prompt: Here is my Master's Thesis. I want you to give me an EXTREMELY THOROUGH critique on it. Base your critique as follows:

Structure:

First and foremost, I want you to assess, whether the presented structure of contents makes sense and accords to APA Standards. Particularly, the fact that in the discussion chapter I present short 1-2 sentence comments on future research for this very area and then later have a dedicated section only for future research. I feel like this is a good way to keep readability and approach limitations in order. That's why I have compiled table 6 so that readers don't forget about the future research idea I already mentioned before the "future research directions" chapter itself. What do you think about this choice?

Aside from that, looking at the whole Thesis, does the order of presented material make sense?

Language:

I want you to be very thorough and go through every sentence and every passage one by one and look at the used language. Is it appropriate for academic writing while keeping in mind that it is a Masters Thesis that may take a few more sentences to explain something which peer-reviewed journal papers cannot. Assess, whether my sentences like "in other words..." or other summaries are appropriate, even if slightly redundant.

What do you make of the "Acknowledgement" in the beginning keeping the same ideas in mind. It is a Thesis on Humor after all.

Highlight problematic sentences and give me suggestions for better wording right away.

Content (internal):

Does the Thesis "make sense"? I want you to meticulously investigate the flow of the arguments. Are my conclusions valid given the exploratory and post-hoc nature of some findings. Are the hypotheses 1.1-1.4 adequately marked as confirmatory? Hypotheses 2.1-2.4 for the MSHS are somewhat confirmatory but do not rely on past research (Boerner et al., 2017). Are my conclusions and my discussion on this difference appropriate?

These are just some questions; I want you to answer them but also investigate other possible inconsistencies and potential issues a clinical psychology Professor might have with this thesis.

Content (Source Material):

Does the Thesis stay true with its citations regarding the source material?

Content (external):

Is anything crucial missing? I have been thinking about acknowledging differences in research regarding terror management theory and post-traumatic growth, but I have decided against it. Aside from that, do you think information is missing for understanding all relevant aspects to the thesis?

Ignore Appendix, Heading Formatting and missing reference guide, those will be added once the text itself is close to perfect.

I will say it again, be VERY perfectionistic with each stage of criticism. This is one of the final versions to this thesis and I am working on perfecting it now.

(and only for motivational reasons: give me a grade out of 10. How did it improve to the last version you had)

[Attached to this message was an early draft of the Master's Thesis]

Output: Overall Assessment and Rating

Grade: 8.5 / 10

Your thesis is exceptionally thorough, theoretically grounded, and methodologically clear.

Structure, language, and argument flow are generally strong, with some room to tighten the Discussion's organization, streamline wording, and clarify a few methodological distinctions.

1. Structure and Organization

Table of Contents and chapter sequence largely adhere to APA-style expectations for a master's thesis in psychology. You include Introduction, Methods, Results, Discussion (with sub-sections), Limitations, Strengths and Novel Contributions, Future Directions, Conclusion.

Discussion ordering of "Future Research"

– You introduce brief future-research suggestions within each limitations sub-section, then revisit them in a dedicated "Future Research Directions" section accompanied by Table 6.

This two-stage approach aids readability by linking specific limitations directly to immediate research ideas, while providing a consolidated overview later. APA does not prescribe exact placement, so your choice is defensible.

– However, the brief suggestions in the earlier subsections read more like "mini-future research" notes than integrated Interpretation. Consider labeling those as "Implications for Future Research" (not merely "Future Research") and signposting that readers will find a summary table later.

Flow of material

– The Introduction sets up theory and gaps well. Methods and Results are clear.

– The Discussion opens with a Summary, Interpretation, then splits into "Non-significant" findings and "Measurement Issues." You then address Strengths, Future Directions, and Conclusion. That ordering works, though some examiners might prefer Limitations immediately before Future Directions (you do that) but then Strengths last. You have Strengths before Future Directions. It's acceptable, though I'd swap Strengths and Future Directions for a more conventional "Limitations → Future Directions → Strengths → Conclusion."

2. Academic Language and Readability

Tone and style

- Overall, the language is appropriately formal for an MS thesis. Occasional colloquialisms (“in other words...”) can be retained sparingly to aid clarity.
- Avoid first-person comments (“I feel like...”) in the final version. Replace with “This approach...”

Redundancy

- Phrases like “in other words,” “it seems,” and repeated mentions of your hypotheses across chapters can be trimmed. Use them only where they clarify complex ideas.

Sentence-level issues

- Page 32, Discussion: “This seems to be an even more effective coping strategy...” → “This may be more effective than reappraisal alone.”
 - Page 41, Strengths: “First study examining both humor styles...” → “This is the first study to examine both humor styles and sense of humor in relation to PTG.”
 - Acknowledgement: While expressive and personal, consider shortening slightly and removing informal asides (“Many jokes and funny anecdotes were required...”). For a thesis on humor it’s acceptable, but ensure it remains professional.
-

3. Internal Content and Argument Flow

Hypotheses framing

- H1.1–H1.4 are confirmatory, grounded in prior research; clearly marked.
- H2.1–H2.4 are exploratory; you note the gap in sense-of-humor literature, but ensure you explicitly state they are exploratory in the Hypotheses section.
- H3.1–H3.8 are clearly exploratory; you handle their results cautiously.

Validity of conclusions

- Your interpretation that self-enhancing humor uniquely predicts PTG is supported by both zero-order and partial correlations.
- Acknowledging small effect sizes and power limitations is appropriate. Emphasize that exploratory moderation findings require replication.

Discussion coherence

- The flow from interpretation to theoretical implications is logical.
 - At times you repeat same limitation (“cross-sectional design limitations”) in multiple spots; consolidate.
 - Tables 4 and 6 could be referenced more tightly—point readers explicitly back to initial brief suggestions.
-

4. Fidelity to Source Material

You correctly cite key studies on emotion regulation and PTG (Byrne & Kangas, 2022; Amjad & Dasti, 2020).

Earlier misquoted references have been fixed—correlations and Cronbach’s alphas match the source document.

All in-text citations accord with your “all sources” PDFs.

5. External Content and Missing Elements

Terror Management Theory (TMT)

- You opted to omit discussion of TMT. That’s a defensible scope choice. If examiners ask, be prepared to justify why TMT (focused on mortality salience) lies beyond your PTG-humor framework.

Cultural factors

- You note cross-cultural validation as a Future Direction. Consider adding a brief sentence in Limitations acknowledging your Austrian/German sample limits generalizability.

Clinical implications

- Strong as is. Perhaps add one concrete example of how humor training could be integrated into trauma-informed therapy (e.g., structured humor modules).
-

Summary of Recommendations

Re-label early “brief future research” notes as Implications for Future Research and cross-reference Table 6.

Swap Strengths and Future Directions sections for a more conventional flow.

Prune redundancy—especially transitional phrases and repeated limitations.

Refine academic language—replace informal colloquialisms and first-person where not needed.

Explicitly state which hypotheses are exploratory vs. confirmatory.

Add a brief cultural generalizability caveat in Limitations.

Polish Acknowledgement to maintain warmth without informality.

With these refinements, your thesis will be exceptionally polished and ready for final submission.

2 Excerpt from Exposé stating SOP-2 as sole instrument for measuring optimism

“Lastly, the optimism subscale of the Optimism-Pessimism Short Scale (SOP-2) will be used to assess dispositional optimism of an individual (Nießen et al., 2022). Though only consisting of one item (two items for the whole instrument), a McDonalds Omega between .74 and .83 has been reported for reliability (Kemper et al., 2012). The item is: “Optimists are people who look to the future with confidence and who mostly expect good things to happen. How would you describe yourself? How optimistic are you in general?” with answers on a 7-point Likert scale ranging from 1 = “not at all optimistic” to 7 = “very optimistic”. A validation study found satisfactory psychometric properties (Kemper et al., 2012).”

3 Questionnaire Order

Order of Presentation of the Instruments in the final Questionnaire

- 1) Informed Consent Form
- 2) Socio-Demographics
- 3) International Trauma Exposure Measure (ITEM)
- 4) Post-Traumatic Growth Inventory (PTGI)
- 5) Multidimensional Sense of Humor Scale (MSHS)
- 6) Humor Styles Questionnaire (HSQ)

7) Skala Optimismus - Pessimismus (SOP-2)

State Optimism Measure (SOM-7)

8) End Page

4 Informed Consent Form (German Version)

Teilnehmer*inneninformation und Einwilligungserklärung zur Teilnahme an der Studie

"Wirkung von Humor nach schwierigen Lebenssituationen":

Sehr geehrte*r Teilnehmer*in,

Vielen Dank für Ihr Interesse an der wissenschaftlichen Studie zum Thema „Humor nach schwierigen Lebenssituationen“. Diese Online-Erhebung wird im Rahmen einer Masterarbeit an der Fakultät für Psychologie der Universität Wien durchgeführt. Die Teilnahme ist bis zum 15.05.25 möglich. Mit Ihrer Teilnahme tragen Sie einen wertvollen Teil zum wissenschaftlichen Erkenntnisgewinn bei.

Studien wie diese sind notwendig, um verlässliche neue wissenschaftliche Forschungsergebnisse zu gewinnen. Unverzichtbare Voraussetzung für die Durchführung dieser Studien ist jedoch, dass Sie Ihr Einverständnis zur Teilnahme schriftlich erklären. Bitte lesen Sie daher den folgenden Text sorgfältig durch und zögern Sie nicht, bei Unklarheiten mit mir Kontakt aufzunehmen unter:

Ihre Teilnahme an dieser Studie erfolgt freiwillig. Sie können jederzeit, ohne Angabe von Gründen,

Ihre Bereitschaft zur Teilnahme ablehnen oder auch im Verlauf der Studie zurückziehen. Die Ablehnung der Teilnahme oder ein vorzeitiges Ausscheiden aus dieser Studie hat keine nachteiligen Folgen für Sie.

Bitte bestätigen Sie die Einwilligungserklärung nur

- wenn Sie Art und Ablauf der Studie vollständig verstanden haben,
- wenn Sie bereit sind, der Teilnahme zuzustimmen und
- wenn Sie sich über Ihre Rechte als Teilnehmer*in an dieser Studie im Klaren sind.

1. Was ist der Zweck der Studie?

Die Studie dient der Vertiefung des Verständnisses davon, wie der Sinn für Humor einer Person sich positiv auf die Bearbeitung von potenziell traumatischen Erlebnissen auswirkt und das sogenannte posttraumatische Wachstum fördern kann. Posttraumatisches Wachstum bedeutet einen Zugewinn an persönlichen Ressourcen wie bspw.

Selbstwirksamkeit, Selbstwert oder einen besseren Umgang mit Stress. Selbstwirksamkeit bedeutet, dass ich das Gefühl habe, dass meine Handlungen auch Auswirkungen auf meine Umwelt und meine Ziele haben.

2. Wie läuft die Studie ab?

Diese online durchgeführte Studie hat einen Umfang von etwa 20 Minuten. Es werden insgesamt 130 Teilnehmer*innen benötigt.

3. Gibt es Risiken bei der Durchführung der Studie und ist mit Beschwerden oder anderen Begleitscheinungen zu rechnen?

Im nachfolgenden Fragebogen werden Ihnen Fragen zur Art und Häufigkeit von möglicherweise traumatischen Erlebnissen gestellt. In Form einer Checkliste zum Ankreuzen werden diese erfragt. Dies kann unter Umständen zu einer emotionalen Reaktion führen. Sollten Sie merken, dass Sie die Fragen belasten, können Sie die Beantwortung jederzeit und ohne Konsequenzen abbrechen. Sollte der Zustand anhalten, können Sie sich jederzeit an den Studienleiter wenden. Zusätzlich sind unter Punkt 4 Institutionen und Hilfsstellen verlinkt, an welche Sie sich kostenfrei wenden können.

Um die Risiken einzuschränken, werden Sie gefragt werden, ob Sie schon mal in stationärer psychiatrischer Behandlung waren. Wenn dies zutrifft, wird die Befragung abgebrochen. Dieses Vorgehen ist dazu da, um Ihre psychische Unversehrtheit sicherstellen zu können.

4. Was ist zu tun beim Auftreten von Beschwerdesymptomen und/oder unerwünschten Begleitscheinungen?

Bitte zögern Sie nicht, jederzeit mit der Versuchsleitung aufzunehmen. Zusätzlich dazu können Sie sich auch jederzeit unentgeltlich an eine der hier aufgelisteten Institutionen wenden:

Österreich:

Sozialpsychiatrischer Notdienst/PSD:

+43 1 31330

Telefonseelsorge: (Telefon-, E-Mail- und Chatberatung ebenfalls möglich)

142

Frauenhelpline:

+43 800 222555

Deutschland:

Krisenchat (24/7)

+49 15735993126

Krisenchat.de

Weisser Ring

116006

Weisser-ring.de

5. Wann wird die Studie vorzeitig beendet?

Die Studie wird abgebrochen, wenn sich bei den Teilnehmenden gravierende Belastungsreaktionen zeigen, die dem Studienleiter gemeldet werden und ein eindeutiger Zusammenhang zwischen Belastungsreaktion und Studienteilnahme ersichtlich ist.

6. In welcher Weise werden die im Rahmen dieser Studie gesammelten Daten verwendet?

Die gesammelten Daten sind vollständig anonym. Durch die Verwendung der Plattform SoSciSurvey wird nur der Zeitpunkt, zu welchem Sie den Fragebogen ausgefüllt haben, gespeichert. Es werden keine Namen, E-Mail-Adressen oder andere personenbezogenen

Daten erhoben. Lediglich einige allgemeine demografische Daten, also Geschlecht und Alter, werden erhoben. Es ist kein Rückschluss auf Ihre Person möglich. Zusätzlich hat nur das an der Studie mitwirkende Personal Zugang zu den erhobenen Daten

7. Entstehen für die Teilnehmer*innen Kosten?

Es entstehen für Sie neben den oben bereits erwähnten 20 Minuten Zeitaufwand keinerlei Kosten.

8. Kontaktmöglichkeit für Diskussion und Fragen:

Falls Sie die Studienergebnisse einsehen möchten bzw. die fertige Masterarbeit lesen und für alle anderen Anliegen, können Sie nachfolgend die zuständige Betreuerin für die Masterarbeit und die E-Mail-Adresse des Versuchsleiters finden. Bitte zögern Sie nicht, bei jeglichen Fragen, Anmerkungen und Feedback, Kontakt aufzunehmen.

Studienleiter Name:

E-Mail:

Betreuerin Name:

Einwilligungserklärung

Ich erkläre mich bereit, an der Studie "Wirkungen von Humor nach schwierigen Lebenssituationen" teilzunehmen. Ich wurde durch das vorhergehende Informationsblatt ausführlich und verständlich über Zielsetzung, Bedeutung und Tragweite der Studie und die sich für mich daraus ergebenden Anforderungen aufgeklärt. Ich habe darüber hinaus den Text dieser Teilnehmer*inneninformation und Einwilligungserklärung gelesen, insbesondere den 4. Abschnitt (Gibt es Risiken, Beschwerden und Begleiterscheinungen?). Ich hatte genügend Zeit, mich zu entscheiden, ob ich an der Studie teilnehmen möchte. Ich habe zurzeit keine weiteren Fragen mehr.

Ich werde den Hinweisen, die für die Durchführung der Studie erforderlich sind, folgen, behalte mir jedoch das Recht vor, meine freiwillige Mitwirkung jederzeit zu beenden, ohne

dass mir daraus Nachteile entstehen. Sollte ich aus der Studie ausscheiden wollen, so kann ich dies jederzeit durch Abbruch des Online-Fragebogens tun. Ich bin zugleich damit einverstanden, dass meine im Rahmen dieser Studie erhobenen Daten ausgewertet werden. Ich stimme zu, dass meine Daten bis zum Ende der Studie in vollständig anonymisierter Form elektronisch gespeichert werden.

Den Aufklärungsteil habe ich gelesen und verstanden. Ich konnte per E-Mail alle mich interessierenden Fragen stellen. Sie wurden vollständig und verständlich beantwortet.

Hiermit willige ich ein. [drop-down menu presented, consenting by clicking was mandatory]

5 Abstract

Existing research underscores post-traumatic growth (PTG) as a significant pathway to positive adaptation following trauma; however, facilitating factors promoting such growth remain understudied. This study examined humor dimensions, both humor styles and sense of humor, as potential predictors of PTG, with an exploratory analysis of optimism as a moderating factor. A cross-sectional study with $n=142$ participants recruited via convenience sampling from Austria and Germany was conducted. Linear regression analyses revealed that self-enhancing humor was the only humor style significantly predicting PTG. Exploratory moderation analyses revealed that state optimism, but not dispositional optimism, significantly moderated both the self-enhancing humor and PTG and adaptive humor PTG relationships. Post-hoc analysis indicated self-enhancing humor specifically predicted two PTG domains: New Possibilities and Life Appreciation. These findings suggest that self-enhancing humor is related to post-traumatic growth, possibly through emotion regulation and cognitive reappraisal mechanisms, with effects enhanced when individuals maintain optimistic expectations about the future. Results underscore the importance of considering both humor styles and state optimism in trauma recovery interventions, though medium effect sizes and cross-sectional design warrant replication in longitudinal studies with more representative samples.

Bestehende Forschungsergebnisse unterstreichen posttraumatisches Wachstum (PTW) als einen wichtigen Faktor zur positiven Anpassung nach einem Trauma; jedoch sind die Faktoren, die ein solches Wachstum fördern, noch nicht ausreichend untersucht. Diese Studie untersuchte Humor-Dimensionen, sowohl Humorstile als auch Sinn für Humor, als potenzielle Prädiktoren für PTW, mit einer explorativen Analyse von Optimismus als moderierenden Faktor. Es wurde eine Querschnittsstudie mit $n=142$ Teilnehmern durchgeführt, die mittels Gelegenheitsstichprobe aus Österreich und Deutschland rekrutiert wurden. Lineare Regressionsanalysen ergaben, dass selbsterhöhender Humor der einzige Humorstil war, der PTG signifikant vorhersagte. Explorative Moderationsanalysen ergaben, dass Zustandsoptimismus, nicht jedoch dispositioneller Optimismus, sowohl die Beziehungen zwischen selbsterhöhendem Humor und PTW als auch zwischen adaptivem Humor und PTW signifikant moderierte. Eine Post-hoc-Analyse zeigte, dass selbstverstärkender Humor speziell zwei PTW-Domänen vorhersagte: neue Möglichkeiten und Lebenswertschätzung. Diese Ergebnisse deuten darauf hin, dass selbstverstärkender Humor mit posttraumatischem Wachstum zusammenhängt, möglicherweise durch Mechanismen der Emotionsregulation und kognitiven Neubewertung, wobei die Auswirkungen verstärkt werden, wenn Individuen optimistische Erwartungen an die Zukunft haben. Die Ergebnisse unterstreichen, wie wichtig es ist, sowohl Humorstile als auch Zustandsoptimismus bei Interventionen zur Traumaverarbeitung zu berücksichtigen, obwohl mittlere Effektgrößen und das Querschnittsdesign eine Replikation in Längsschnittstudien mit repräsentativeren Stichproben erfordern.