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Cumulative Trauma Exposure and Post-Traumatic Stress Symptoms Among Older Adults in South Africa: Does Post-Traumatic Growth Moderate This Link?

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ABSTRACT

The study explored the interplay between PTG and PTSS in older South African adults exposed to trauma. A quantitative cross-sectional design was employed. 195 participants from a low-resourced setting in South Africa were interviewed using the UCLA Life Adversities Screener, the PTSD Checklist (DSM-5), and the PTG-Inventory. Hayes Model SPSS Macro PROCESS for moderation was used. Overall, the relationship between cumulative trauma exposure and PTSS was moderated by the PTG level ($b = -0.09$, $SE = 0.04$, $p = .0113$). The findings suggest that cumulative trauma exposure is a significant predictor of PTSS, and the relationship is moderated by the threshold level of PTG. Higher levels of PTG mitigated the effect of cumulative trauma exposure on PTSS.

Trauma exposure in South Africa is linked to the development of Post-Traumatic Stress Symptoms (PTSS) (Atwoli et al., 2013). The Health and Aging in Africa: A Longitudinal Study of an INDEPTH Community in South Africa (HAALSI) study revealed an average of five traumatic events for older adults (individuals 60 years and older), associated with the violent political history of the country (Payne et al., 2020). Researchers have expressed that the harsh social, political, and economic restrictions during the apartheid era, police brutality, and consequent resistance to the regime may have led to the development and maintenance of the current pervasive culture of violence within the country (Misago, 2017). The apartheid era significantly impacted nonwhite individuals in underdeveloped segregated areas, known as townships, leading to exposure to violence for older adults in these communities (Manaliyo, 2014).

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The literature describes both the long- and short-term mental health consequences for individuals who have experienced violent traumatic events, with PTSS characterized by intrusive memories (Clark & Mackay, 2015; Marks et al., 2018), negative cognitions, and hyper-arousal (Maslahati et al., 2023; Smith et al., 2021). For instance, Fileborn (2016) reported experiences of PTSS by older survivors of sexual violence and intimate partner violence (IPV), including sleep disturbances, anxiety, and difficulty in regulating mood. However, conflicting findings exist regarding PTSS in middle-aged and older adults, possibly due to reduced stress reactivity or a reluctance to acknowledge symptoms (Gaffey et al., 2016; Kaiser et al., 2019; Vahia et al., 2020). Alternatively, this may be due to personal growth that might occur after exposure to trauma called Post-Traumatic Growth (PTG) (Tedeschi & Calhoun, 1996).

Since its conception in the 1990s, PTG research has expanded and various authors have noted a range of positive mental and physical health outcomes related to the phenomenon (Hamby et al., 2022; Menger et al., 2021; Tedeschi & Calhoun, 1996; Yasdiman et al., 2022). For instance, after a significantly challenging event or series of events, individuals may cognitively reassess themselves or others, providing them with opportunities to develop an enhanced appreciation for life, meaningful interpersonal relationships, spiritual changes, and personal strengths which are domains of PTG (Hamby et al., 2022; Henson et al., 2021; Levi-Belz et al., 2021). Research suggests that PTG can lead to positive psychological changes beyond pre-trauma levels, impacting self-perception, interpersonal relationships, and life philosophy (Zhang et al., 2022). Furthermore, PTG has been linked to enhanced emotional processing, which can promote growth and improve mental health, particularly during challenging events such as the COVID-19 pandemic (Zhai et al., 2021). PTG has been associated with positive well-being, improved quality of life, greater job satisfaction, and work productivity, particularly in the healthcare workforce (Okoli & Seng, 2021). PTG has been linked to both adaptive and maladaptive coping strategies following exposure to stress-inducing events (Finstad et al., 2021), leading to a lack of consensus on whether PTG represents a maladaptive coping response, akin to cognitive avoidance (Eisma et al., 2019).

Longitudinal studies and meta-analyses have provided insights into the relationships between PTSS and PTG in various populations, indicating a co-occurrence (Xie et al., 2023) of these phenomena. While some researchers suggest that PTG may negatively predict PTSS (Van Der Hallen & Godor, 2022) potentially playing a role in reducing long term distress, others highlight a bi-directional association between PTSS and PTG, with PTG potentially moderating the relationship between PTSS and outcomes like depression and quality of life (Chen et al., 2015; Shand et al., 2014). This suggests that simple bivariate associations may not capture the complex interplay between these variables (Shand et al., 2014), indicating a need for moderation-mediation studies to explain the underlying mechanisms of these relationships.

Studies have shown that PTG is associated with perceived- and post-traumatic stress, with stress indicators partially mediating the relationship between positive reframing and PTG (Kalaitzaki et al., 2023). Research on cancer patients have revealed a curvilinear relationship, where initially, PTSS is associated with increased PTG, but as PTSS severity increases (Hamdan et al., 2021) PTG decreases. A research gap remains regarding whether PTG directly reduces PTSS or if the reduction in PTSS is due to perceived change over time in PTG, especially in older adult populations (Ochoa et al., 2020).

South African research regarding trauma tends to exclude a focus on PTG, instead prioritizing post-traumatic stress, such as post-traumatic stress disorder (PTSD). Research conducted by Payne et al. (2020) and Atwoli et al. (2013) highlighted older adults' experiences of stressful traumatic events in South Africa but did not delve into the concept of PTG (Atwoli et al., 2013; Mhlongo et al., 2018; Payne et al., 2020). Given older adults' vulnerability to the negative consequences of cumulative trauma exposure and PTSS (such as increased probability of developing cardiovascular diseases, or a higher risk of depression) (Albert et al., 2017; Chen et al., 2022; de Frias & Whyne, 2015; Xiang & Wang, 2021), it is imperative to explore this relationship within a local context to better understand and contextualize this phenomenon.

Therefore, this study attempts to:

- Investigate the association of cumulative trauma exposure on PTSS and PTG.
- Assess the moderating effect of PTG on the relationship between cumulative trauma exposure and PTSS.
- Determine the threshold level of PTG's effect on cumulative trauma exposure and PTSS.

Understanding these interactions may provide researchers with a foundational comprehension of the interplay between cumulative trauma exposure, PTSS, and PTG, which may subsequently assist in identifying the underlying mechanisms involved in the relationship between these three variables. This exploration could inform the development of targeted and contextually appropriate interventions for older adults in lower socio-economic settings.

Method

Participants

The study originally conveniently sampled 217 lower-income community dwelling older adults, recruited through community organizations between September 2022 to April 2023. Flyers and word-of-mouth were used to recruit possible participants who then contacted the mental health interviewer and expressed their interest in the study. The mental health interviewer then

explained the study purpose and the interview process. The "Decision-Making Capacity Assessment Tool" was used to evaluate the cognitive ability of potential participants to ensure that it did not affect their capacity to sign the informed consent form. Only three participants were excluded from the study based on their inability to comprehend what the study was about. Additionally, 19 participants had incomplete data and were excluded from data analysis. Only 195 participants were included in the final study. The sample comprised both male ($n = 53$, 27.8%) and female ($n = 140$, 71.4%) participants and the mean age of the participants was 67.2 years, with an age range from 60 to 90 years. In this sample most participants identified as Black ($n = 189$, 96.9%), followed by White ($n = 3$, 1.5%), Unspecified ($n = 2$, 1.0%), and Coloured[1] ($n = 1$, 0.5%). A significant proportion of the participants reported not being in a relationship ($n = 119$, 60.7%), and 39.0% of participants were in a relationship ($n = 76$) either married or cohabitating. Education levels among participants varied, with the majority having completed only primary education (60.2%), followed by secondary education (26.5%). A smaller fraction of the sample had no education (11.2%), and a negligible number reported having college education or Adult Based Education Training (ABET) (0.5% each). Most participants reported being unemployed (95.9%) and the primary source of income for the majority of participants was social security benefits from the South African Social Security Agency (SASSA), accounting for 95.4% of the sample. Living arrangements were diverse, with a preference for nuclear (46.4%) and extended (36.7%) family setups; a smaller percentage were living with friends (2.6%), relatives (5.1%), or alone (7.7%).

Instruments

The study's measures were analyzed on a full scale rather than divided into subscales or dimensions. The following measures were used for data collection: UCLA Life Adversities Scale (LADS), PTSD Checklist for the DSM-5 (PCL-5), and the Post-Traumatic Growth Inventory (PTGI).

UCLA life adversities scale (LADS)
UCLA LADS is a measure with five items that take at least 15 minutes to complete in an interview setting (Liu et al., 2015). The five items were used for the present study to evaluate older adults' history of trauma exposure and serious life stressors. This included; (a) whether they perceived that they had been discriminated against due to their race, gender, or other marginalized identities during the past month (item weight = .30), (b) whether they had been exposed to a situation in which they feared impending death or serious

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[1] "The Coloured group is often considered a mixed-race or creolized group in South Africa, with origins in racial mixing dating back to colonial conquest in the 1600s, but the category includes indigenous groups, such as the Khoi and San people, as well as other groups unable to fit into categories of White and Black" (Laster Pirtle, 2022, p. 2).

bodily harm (item weight = .22), (c) whether a past or current partner had physically hurt them (IPV; item weight = .18), (d) whether there had been any hitting or throwing of objects amongst any family members (family violence; item weight = .17), and (e) whether they had ever been sexually assaulted as a child (sexual abuse; item weight = .13).

The application of these weights is rooted in rigorous statistical validation methods, including the confirmatory factor analysis and Item Response Theory, which substantiate the screener's internal consistency and discriminant utility (Liu et al., 2015). Such a weighted approach not only supports the LADS' predictive capabilities for conditions like PTSD, depression, and anxiety, but also highlights its practical utility in clinical and multicultural research settings (Liu et al., 2015; Loeb et al., 2018, 2023; Myers et al., 2015; Wyatt et al., 2023). Because of the LADS' descriptive nature, the responses to these items are added together to create a score between 0 and 1, based on the weights of each item endorsed. An optimal cutoff of .33 has been reported for identification of patients at high risk for mental health challenges (Liu et al., 2015).

PTSD checklist for DSM-5 (PCL-5) with life events checklist for DSM-5 (LEC-5) and criterion A

The PTSD Checklist for DSM-5 (PCL-5) with the Life Events Checklist for DSM-5 (LEC-5) and Criterion A is a comprehensive assessment tool designed to evaluate the presence and severity of PTSS following trauma exposure (Weathers et al., 2013). In this study, the PCL-5 was utilized in three ways:

Firstly, through conducting a detailed assessment of criterion A, carried out using the LEC-5. The LEC-5 comprises 17 items and is designed to investigate exposure to potentially traumatic events meeting diagnostic criterion A for PTSD according to the DSM-5. These items include life events such as natural disasters, physical or sexual aggression, severe injuries, violent death (homicide or suicide), and others. The scale took at least 10 minutes to complete.

Secondly, via a brief evaluation of criterion A which assessed how participants had experienced the traumatic events, whether it was direct personal experiences, witnessing events, learning about events affecting close others, or repeated exposure to aversive details of traumatic events. The criteria included "the worst event," which evaluated the most distressing event previously listed in the LEC-5 and provided additional details about the experience, including how it happened and its aftermath. The scale took at least 15 minutes to complete.

Thirdly, the assessment of symptoms of PTSS, as per the DSM-5 criteria, through a 20-item self-report measure. PCL-5 can serve multiple purposes, including monitoring symptom changes during and after treatment, screening individuals for PTSS, and facilitating provisional PTSS diagnosis. The scale took approximately 20 minutes to complete and included items such as, "In the past month, how much have you been bothered by repeated, disturbing, and unwanted memories of the stressful experience?." To compute the total

symptom severity score, which ranged from 0 to 80, the scores for all 20 items can be summed. While the PCL-5 was analyzed as a full scale in the study, its domains, which include intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity, were specifically considered. The PCL-5 provided a practical and efficient way to screen for PTSS and a Cronbach alpha of .95 was confirmed in the current study.

Post-traumatic growth inventory

Post-traumatic growth was assessed using the Post-Traumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996) which comprises 21 items, based on five growth areas: New Possibilities (e.g., developing new interests), Relating to Others (e.g., making more effort in relationships), Inner Strength (e.g., handling difficulties more easily), Spiritual Change (e.g., acquiring a better understanding of spiritual issues), and Appreciation of Life (e.g., realizing what is important in life, i.e., priorities). The interviews took 20 minutes to complete and the participants were asked to indicate their responses to examples of items such as, "*I did not experience this change as a result of my crisis*" and "*I experienced this change to a very great degree as a result of my crisis*" on a six-point Likert scale ranging from 1 (not at all) to 6 (very much). A high mean score for the 21 items indicated a greater PTG threshold. The scale has been used in South Africa with acceptable psychometric properties (Cronbach alpha .93 and .82) (Peltzer, 2000). The current study recorded a Cronbach alpha of .881.

Procedure

The study employed a quantitative research approach with a cross-sectional design. The independent variable was cumulative trauma exposure, while the dependent variable was PTSS. PTG was the moderating variable in this model. The model tested the role of PTG in the relationship between cumulative trauma exposure and PTSS.

A trained mental health interviewer administered the questionnaires, which included the (1) UCLA LADS, (2) PTSD Checklist for DSM-5 (PTSS) scale (PCL 5), and (3) PTGI, through face-to-face interviews. These interviews typically lasted between 70–90 minutes. Each participant was compensated with R100 ($5.19) grocery store vouchers for their time.

Data analysis

The analysis of the data was carried out using Pearson correlations and the PROCESS Procedure for SPSS Version 3.2, as described by Hayes (2018). A moderation model utilized the Model 1 of the PROCESS procedure. The effects of cumulative trauma exposure, PTG, and their interaction with PTSS

was explored. Elements of a regression model such as R^2, Mean Squared Error (MSE), and the F statistic, along with the degrees of freedom and p-values to assess the overall model fit, were examined. Furthermore, regression coefficients, standard errors, t-values, p-values, and confidence intervals were calculated for each predictor and the interaction term. The significance of the interaction effect was established by analyzing the change in R^2, complemented by F statistics and p-values. Using the Johnson-Neyman technique, the conditional effects of cumulative trauma exposure at different levels of PTG were analyzed to determine the threshold level of PTG on cumulative trauma exposure and PTSS. A scatterplot was also created to graphically represent the interaction effect between cumulative trauma exposure, PTSS, and PTG.

Ethical considerations

This study was approved by the relevant review boards. Participants provided informed consent before their enrollment in the study. Referral options for further counseling were provided in case they needed the service.

Results

Trauma exposure results

The UCLA LADS was used to explore the different types of traumas experienced by older adults in the current study. A portion of the sample reported trauma experiences and stressors in the form of childhood penetrative sexual abuse ($n = 18$, 9.2%), discrimination based on race, ethnicity, nationality, gender, or sexual orientation ($n = 94$, 48.2%), fear that they might be killed or seriously injured ($n = 62$, 31.8%), family violence ($n = 37$, 19.0%), and IPV ($n = 45$, 23.1%). In examining the extent of trauma exposure among the sample, the analysis revealed a varied distribution of trauma experiences. Specifically, 24.6% of participants reported no experience of trauma ($n = 48$), indicating a quarter of the sample had not been exposed to the types of traumas assessed in this study. A significant proportion of the sample, 40.0%, reported experiencing one type of trauma ($n = 78$), representing the most common level of trauma exposure among participants. Meanwhile, 21.0% of participants reported exposure to two types of traumas ($n = 41$), followed by 9.2% who reported three types ($n = 18$), 4.1% who reported four types ($n = 8$), and a small fraction, 1.0%, reporting exposure to all five types of traumas assessed ($n = 2$). Regarding the .33 cutoff scores for identification of potential mental health risks (Liu et al., 2015), analysis revealed that 24.5% participants scored below this risk threshold. The most frequently reported score being 0.30, representing 28.1% of the sample. Notably, 35.4% of the sample surpassed the risk-indicative threshold of 0.33, underscoring a substantial segment of the population potentially at risk for mental health issues.

To substantiate the LADS results, the LEC-5 and Criterion A of the PCL-5 were utilized to evaluate the types of cumulative trauma exposure and "worst event identification." Regarding the worst event, participants specified the most distressing event previously listed in the LEC-5 and provided additional details about the experience, including how it happened and its aftermath.

When examining the "worst event" reported by participants on the PCL-5, the most frequently endorsed were related to car accidents (23.7% of responses) and gender-based violence (22.0%). Other significant stressful experiences included rape (12.7%) and the death of a loved one (11.9%).

Participant experiences of these events were mostly direct (82.8% reported that the event happened to them), while smaller proportions witnessed events (12.1%) or learned about them indirectly (3.4%). Concerning perceptions of danger, a significant proportion of participants felt that their lives were in danger during these events (79.5% reported danger to their own lives), while only 0.9% perceived danger to someone else's life. Additionally, when considering injuries, 56.4% of participants indicated that they had been seriously injured.

Regarding the analysis, firstly, a Pearson bivariate correlation coefficient was calculated to assess the relationship between cumulative trauma exposure, PTSS and PTG. There was a moderate, positive correlation between trauma exposure and PTSS ($r = .313$, $p < .001$, $p < .001$). This indicates that, as cumulative trauma exposure increases, PTSS also tends to increase. However, the correlation between trauma exposure and PTG was not statistically significant ($r = -.015$, $p = .838$). There was a strong, negative correlation between PTSS and PTG ($r = -.479$, $p < .001$), indicating that higher levels of PTSS are associated with lower levels of PTG.

Secondly, a regression analysis was performed to determine the relationship between PTSS as the outcome variable, cumulative trauma exposure as the predictor, and PTG as the moderator. The overall model was significant, with ($F(3, 191) = 33.65$, $p < .0001$). This explains approximately 34.58% of the variance in PTSS ($R^2 = .3458$). The constant was significant ($b = 18.08$, $SE = 3.96$, $p < .0001$), indicating a baseline PTSS level. In terms of individual predictors, cumulative trauma exposure was significantly positively associated with PTSS ($b = 9.56$, $SE = 2.50$, $p < .0002$), suggesting that higher levels of cumulative traumatic exposures were associated with higher levels of PTSS. However, PTG had a significant negative association with PTSS ($b = -0.20$, $SE = 0.05$, $p < .0004$), indicating that higher levels of PTG are associated with lower levels of PTSS.

The interaction between cumulative trauma exposure and PTG (Int_1) was significant ($b = -0.09$, $SE = 0.04$, $p = .0113$). This indicates that the relationship between cumulative trauma exposure and PTSS is moderated by the level of PTG. This interaction accounted for an additional 2.24% of the variance in the PTSS (R^2 change $= .0224$, $F(1, 191) = 6.54$, $p = .0113$) (See Table 1).

Table 1. Regression analysis predicting PTSS from trauma exposure, PTG, and their interaction.

Variable	Coefficient	Standard Error	t-value	p-value	95% CI Lower	95% CI Upper
Constant	18.0793	3.9645	4.5603	<.0001	10.2596	25.8991
TExp	9.5630	2.5008	3.8241	.0002	4.6304	14.4957
PTG	−0.1958	0.0546	−3.5875	.0004	−0.3035	−0.0882
Int_1 (TExp x PTG)	−0.0899	0.0352	−2.5578	.0113	−0.1593	−0.0206

Int_1 represents the interaction term between Trauma Exposure and PTG. CI = Confidence Interval.

The conditional effects of the focal predictor at different moderator values were examined. At a PTG level of 52.0000, the effect of cumulative trauma exposure on PTSS was pronounced (Effect = 4.8866, SE = 0.8744, t = 5.5882, p < .0001). Furthermore, confidence intervals indicate a robust increase in symptoms (95% CI [3.1618, 6.6114]). This suggests that individuals with relatively low PTG levels may experience heightened vulnerability to PTSS. As PTG levels rose to 72.0000, there was an observed reduction in the effect of cumulative trauma exposure on PTSS (Effect = 3.0879, SE = 0.6585, t = 4.6896, p < .0001), with narrower confidence intervals (95% CI [1.7891, 4.3868]). This decrease implied that moderate levels of PTG conferred a protective buffer against PTSS. Finally, at the highest examined PTG level of 90.0000, the effect of cumulative trauma exposure on PTSS further declined to a point where it was not statistically significant (effect = 1.4692, SE = 0.9905, t = 1.4832, p = .1397), and the confidence intervals include the possibility of a negative effect (95% CI [−0.4846, 3.4230]). This indicates that individuals who achieve high levels of growth following trauma may not only be protected against an increase in PTSS but may also experience a form of psychological resilience that protects them from the effect of cumulative trauma exposure.

The Johnson-Neyman technique explains that the distribution of PTG among participants was determined to be a value of 86.5476. This value served as a threshold to differentiate between varying levels of growth experienced by individuals after encountering traumatic events. Our findings revealed that a significant majority (77.95%) of participants reported PTG scores below this threshold. This indicates that, while PTG is a common outcome of cumulative trauma exposure, the extent of subsequent growth is often moderate. Conversely, a smaller proportion (22.05%) of the sample exhibited PTG scores above the threshold level. This suggests a substantial level of growth post-exposure to cumulative traumas. Bootstrap analyses with 5000 samples confirmed these findings, providing additional support for the robustness of the model (see Table 2).

Table 2. Conditional effects of trauma exposure on PTSS at selected values of PTG.

PTG Level	Effect	Standard Error	t-value	p-value	95% CI Lower	95% CI Upper
52.0000	4.8866	0.8744	5.5882	<.0001	3.1618	6.6114
72.0000	3.0879	0.6585	4.6896	<.0001	1.7891	4.3868
90.0000	1.4692	0.9905	1.4832	.1397	−0.4846	3.4230

This table shows the effects of Trauma Exposure on PTSS changes at different levels of PTG.

A scatterplot was also created to graphically represent the conditional effects of Trauma Exposure on PTSS at Selected Values of PTG (see Figure 1).

In summary, the findings suggest that cumulative trauma exposure is a significant predictor of PTSS, and that this relationship is moderated by the threshold level of PTG, with higher levels of growth mitigating the effect of cumulative trauma exposure on PTSS.
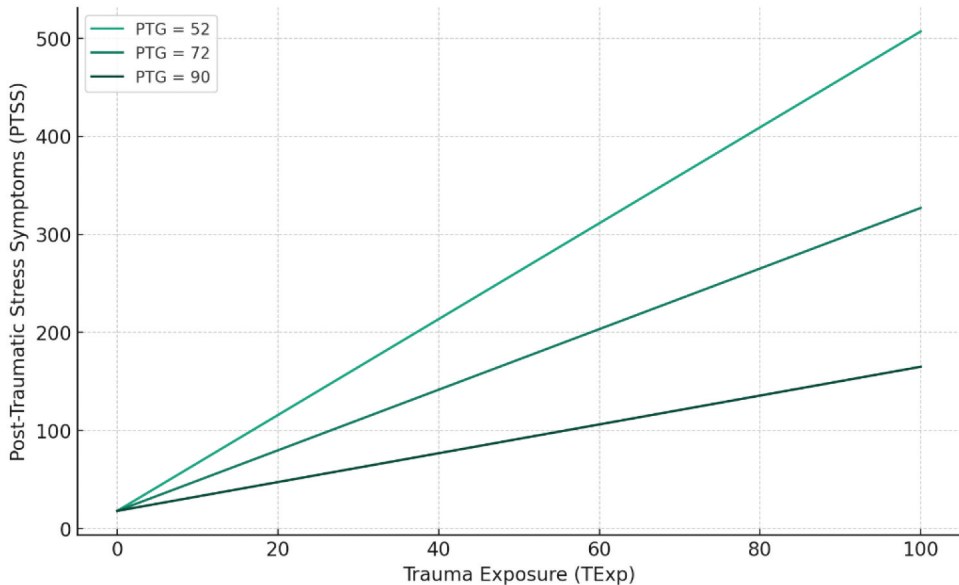

Figure 1. Conditional effects of trauma exposure on PTSS at selected values of PTG.

Discussion

This study explored the interplay between cumulative trauma exposure, PTSS, and PTG in older South African adults in the post-apartheid context. It also problematizes the lack of contextually relevant studies that address the older South African population in general and aims to add to the existing literature. Cumulative trauma exposure, PTSS, and PTG in older adults are a combination of variables that are important to consider together, due to the high and rising levels of cumulative trauma exposure in older adults in the South African context (Kotzé, 2018). Despite the expectations of decreased trauma in post-apartheid South Africa, high levels persist, particularly in townships (Breetzke, 2012; Manaliyo, 2014). The continued effects of apartheid provide a background that emphasizes the necessity of this study. We acknowledge that the sociopolitical context contributes to the epidemiology of trauma expressions such as PTSS and PTSD (Atwoli et al., 2013). Our study contributes to the development of the ongoing understanding of cumulative trauma exposure in older adults in low income, marginalized, adult populations by investigating PTG as a protective factor.

Our study reveals that higher cumulative trauma exposure is associated with elevated PTSS in older adults, emphasizing the need for focused research on this population in South Africa. Unique factors in this country's older adult community exacerbate trauma outcomes, such as underreporting in lower-income areas (Lee et al., 2020; Peltzer & Phaswana-Mafuya, 2013), the tendency to overlook psychological outcomes in primary health care (Padayachey et al., 2017), and insufficient mental health support in high-risk communities (Benjamin & Carolissen, 2015).

Our study finds that PTG acts as a protective factor, reducing PTSS expression in older adults. This aligns with Kadri et al. (2022), p. 10) who suggested that "older adults can experience substantial levels of PTG, both in the context of historical traumas, and from those during later life or across the lifespan." Our results indicate that older adults may not only recover from cumulative trauma, i.e., return to pre-trauma functioning after a period of trauma exposure, but may also be able to use the experience as an opportunity for further individual development. Older adults may be able to overcome trauma with improved psychological changes in specific life domains, such as increased appreciation of life, the setting of new life priorities, a sense of increased personal strength, identification of new possibilities, improved closeness of intimate relationships, and positive spiritual change (Padayachey et al., 2017).

We surmise that there is still a need for more nuanced studies that address theoretical and context-specific gaps in the area of cumulative trauma exposure, PTSS and PTG research in older adults in the South African context. The dynamic interplay between PTG and PTSS, and the presentation following trauma exposure, is suggested to be dependent on various contextual factors (Henson et al., 2021). Our study highlights the importance of developing tailored interventions that enhance and promote PTG among older adults in South Africa. Tailored interventions may include themes of social support as research has suggested that there are significant positive associations between social support and PTG, especially for older trauma survivors (Ning et al., 2023). Additionally, social support is particularly beneficial from healthcare professionals, family, and friends (Şirin Gök & Çiftçi, 2023), indicating that this might be a potential pathway for future research in South Africa.

Conclusion

Our study found a positive relationship between cumulative trauma exposure and PTSS in older adults in South Africa. Furthermore, we noted that PTG was a protective factor following cumulative trauma exposure. Our findings underscore the importance of critically considering both cumulative trauma exposure and PTG in understanding PTSS expression. We recommend that future

studies focus on social support within the South African context as a primer for fostering PTG as a variety of South African cultures tend to be primarily communitarian in nature (Akpa-Inyang & Chima, 2021).

Limitations of the present study include an acknowledgment that the measures used in this study were not exhaustive and may have overlooked significant types of cumulative trauma exposure, such as living in abject poverty or having a life-threatening condition. This is particularly important to recognize given the socioeconomic challenges experienced by our chosen demographic group, specifically in the South African context. We also recognize the limitations presented by cross-sectional study designs, as they offer limited insight into potential long-term consequences regarding the interplay of cumulative trauma exposure, PTSS, and PTG. Lastly, while the study has limitations, we wish to highlight the valuable insights captured through this trauma research by emphasizing the effectiveness of the LADS screening tool. This study illustrated its associative and predictive abilities in trauma research. Moreover, the study did not only utilize bivariate correlations, but also included the Hayes model which allows for complex analyses of moderation and mediation effects within relationships, offering insights beyond the simple associations captured by bivariate correlations, such as the PTG thresholds.

Disclosure statement

Funding

Ethical standards and informed consent

All procedures followed in this study were in accordance with the ethical standards of the UCLA Institutional Review Board (IRB), which served as the responsible committee on human experimentation, and with the Helsinki Declaration of 1975, as revised in 2000. Prior to participation, all older adult participants provided written informed consent after receiving a comprehensive explanation of the study's purpose, procedures, potential risks and benefits, and their right to withdraw at any time without consequence. To protect participant confidentiality, all data were de-identified and stored securely. No identifying information about the participants is included in this article.

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