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Long-term post traumatic growth after moral- and victim-traumas among Norwegian UN military peacekeepers: the impact of emotional distress and leadership

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Abstract: This study investigated the relationship between traumatic experiences during peacekeeping operations in Lebanon (UNIFIL) between 1978 – 1998 and post traumatic growth (PTG), recalled and measured 17-38 years after, in a sample of 11 633 Norwegian military. Specifically, the study investigated how victim traumas (lethal danger) and moral traumas (moral failure) related to PTG, measured by the Posttraumatic Growth Inventory (Cann et al., 2010). Emotional distress experienced during the traumas served as a potential mediator of this relationship, and leadership by closest superior a potential moderator of the mediation. The results showed a significant positive relationship between number of victim traumas and PTG, while number of moral traumas did not contribute to explain variance above this effect. The trauma - PTG relationship was partially mediated by emotional distress, but authentic- and laissez faire leadership did not moderate this mediation. In sum, the veterans with most traumatic experiences, as recalled 17-38 years later, had higher PTG, and emotional distress related to trauma mediated this growth. The findings indicate that traumatic experiences may represent a resource for growth and subsequent hope for recovery. Given the retrospective study-design which might have hindered accurate measurement of PTG, advice on future research approaches is included.

Keywords: post traumatic growth, military UN peacekeepers, authentic leadership, laissez faire leadership, emotional distress, trauma

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1 Introduction

Traumatic events are often associated with psychological distress and mental and physical illness (Tedeschi et al. 2018). However, over the past 20 years, positive consequences of such experiences, labelled PTG, referring to 'significant positive change arising from the struggle with a major life crisis' (Calhoun et al. 2000, p. 521) have received increased attention. Thus, crises may offer possibilities for personal growth and increased quality of life, sometimes even coexisting with severe psychological distress (Tedeschi et al. 2018).

According to Maitlis (2020), PTG may be the outcome of a challenging sense-making process after a traumatic experience. A process closely related to reactions like insecurity, intrusive memories and dysregulated emotions can be stimulated by various modes of social support. To understand a growth process like this, it could be argued that the characteristics of the trauma itself may be of relevance (Shakespeare-Finch and Armstrong 2010). Some types of traumas may have a stronger impact on PTG than others. Conversely, it is argued that a more fruitful approach is to focus on the subjective experience and the level of emotional distress and existential insecurity followed by the trauma (Maitlis 2020) – rendering the characteristics of the trauma less relevant. However, in the present study, we combine these perspectives as potential predictors of PTG, in line with the Maitlis (2020) model of PTG development.

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We propose a distinction between trauma caused by one's own actions or errors, labelled as 'moral trauma', and trauma caused by others, labelled as 'victim trauma', – much in line with the distinction between moral injuries and posttraumatic stress disorder (PTSD) (Litz et al. 2009). Thus, it is possible that a moral trauma, like killing a civilian, leading a platoon into an ambush or observing moral transgressions from colleagues may have a different impact on PTG than a victim trauma, for example, due to differences in levels of emotional dysregulation following the experience or different challenges that needs to be tackled in the sense-making process towards PTG (Litz et al. 2009).

Leaders have a significant impact on followers' cognitions, emotions and well-being and often an explicit responsibility for taking care of their followers (Bass and Bass 2009). Leadership is a vital source of social support that may stimulate and support a PTG cycle (Maitlis 2020). However, few (if any) have investigated how leadership relates to PTG development. In the present study, we aim to explore leadership as a potential moderator of PTG. More specifically, authentic ethical leadership, given its suggested ability to stimulate trust and a care-oriented work environment (Olsen and Espevik 2017), and laissez-faire (LF) leadership, given its well-documented negative effects on the well-being of followers and high prevalence across various organisations (Aasland et al. 2010), are explored.

At this basis, we aim to provide several contributions to the literature: First, gain further insights into which types of traumas (moral trauma vs. victim trauma) are related to PTG and, thus, the basis for tailoring a recovery process contingent of the type of trauma. Second, add to the knowledge of why traumatic events may transform into growth by testing the role of emotional distress as a mediator between trauma type and PTG. Third, investigate if two distinct forms of leadership as a particular form of social support might influence the PTG process, by including leadership as a moderator of the above-mentioned mediation, as illustrated in Figure 1.

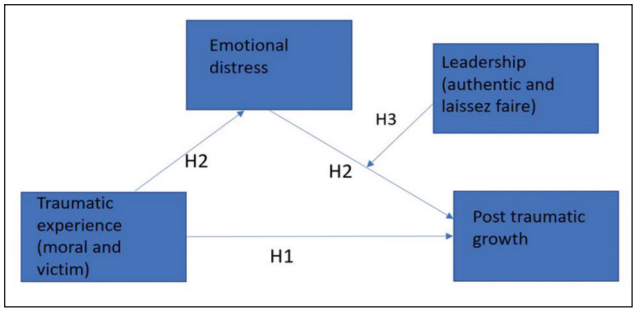


Fig. 1: Research model.

1.1 Moral and victim traumas as predictors of PTG

Tedeschi and Calhoun (2004) identified five major dimensions of PTG development, which include enhanced personal strength, new possibilities, relating to others, appreciation of life and spiritual change. According to the tenets of PTG theory, changes in these areas occur because of the cognitive processing and rumination that takes place in the aftermath of trauma (Calhoun and Tedeschi 2013), often triggered and motivated by emotional dysregulation and emotional pain (Maitlis 2020). In the present study, we build on previous studies introducing a distinction between moral and victim traumas (Litz et al. 2009). According to this theory, guilt and shame are the primary emotional responses to moral traumas, whereas fear and anxiety may be more pronounced after victim trauma. Hence, the content of emotional distress after a traumatic experience, which can be seen as an antecedent of a transformational sense-making process and subsequent PTG, may differ. More so, we suggest that a moral trauma may activate more intense emotional distress and more strain on the self-concept, compared with a victim trauma, which in turn may activate a more thorough (and challenging) cognitive reorientation and sense-making process. We base this on two somewhat overlapping theoretical perspectives. First, several studies show that perceptions of moral transgressions are generally evaluated as more severe violations, activating stronger emotional and cognitive responses, compared with other transgressions within the social domain (Rozin et al. 1997; Baumeister et al. 2001; Folger et al. 2005). Hence, a sense of moral failure may propel more intense emotional distress and disruptive cognitive processing and restructuring compared with a victim experience. Second, according to Aquino and Reed (2002), morals represent a vital domain of social identity and an individual's self-concept. This implies that moral behaviour, a positive view of one's own moral character, is closely related to a positive self-image and, conversely, that moral failures may represent a particularly disturbing and emotionally distressing threat to a positive self-view. Thus, moral violations may in a particular way challenge a person on an existential level, possibly accommodated by a state of self-condemnation, which in turn may activate a particularly profound sense-making process – and subsequently PTG.

1.2 Emotional distress mediating the trauma–PTG relationship

Several studies have shown that experiences of traumatic events may cause strong emotional distress (Tadeschi et al. 2018), which in turn is related to PTG. Emotional distress may challenge core beliefs and assumptions in a way that may stimulate PTG by facilitating continued efforts to make new meaning of the experience and move forward (Lowe et al. 2013; Maitlis 2020). This relationship between emotional distress and growth is supported by findings showing that higher levels of PTSD, encompassing emotional strain, is related to higher levels of PTG (Lowe et al. 2013; Maitlis 2020). Notably, some studies find this relationship to work together also over time, suggesting that PTG may not only be stimulated but also maintained by PTSD. Hence, emotional distress may trigger continued efforts to make new meanings and cognitive restructuring of the self, in line with PTG (Lowe et al. 2013; Maitlis 2020).

1.3 Does leadership moderate the mediation of emotional distress on the trauma vs. PTG relationship?

A trauma may challenge fundamental understandings of ourselves and the world and subsequently our sense of control and emotional security (Tedeschi et al. 2018; Maitlis 2020): A state accompanied by intrusive and invasive thoughts and memories that are difficult to control. Thus, to process traumatic experiences into a generative growth cycle, an important challenge is to manage distress and regulate severe emotions like anxiety, sadness, anger or guilt (Gross 1998; Van der Kolk 2014). Social support has been identified as a key enabler in this regulation process (Maitlis 2020). A relationship between social support and PTG is found in a range of work settings, including the military (e.g. Mark et al. 2018), and social support is suggested to stimulate both the managing of emotional distress and the process of sense-making (Maitlis 2020).

In the present study, we suggest that leaders', given their influence on their team, may provide important social support (Bass and Bass 2009). Particularly, in the earliest period after a trauma, where emotional support is found most valuable (Schroevers et al. 2010). However, *how* leaders lead may play a vital role in how effectively they provide social support.

On the one side, we suggest that leaders that display *authentic ethical leadership*, seen as behaviour focussed on stimulating a goal-oriented cooperation through high moral awareness and internalised moral values (Olsen and Espevik 2017), are better providers of social support, given that they are perceived as honest (Kernis 2003) with high moral standards and values, which is found to stimulate trust and cooperation (May et al. 2003; Walumbwa et al. 2008; Olsen and Espevik 2017). Hence, authentic ethical leaders are likely to follow a moral imperative to care for a traumatised follower and engage in an emotionally supporting and non-blaming manner which may reduce emotional distress (Kolokotroni et al. 2014). Given the moral orientation, it is also likely that these leaders will commit to the process, show patience and endure the process over time (Olsen and Espevik 2017). More so, followers may find it easier to open about vulnerabilities to a leader perceived as empathic and fair. This may in turn stimulate an effort to actively confront and manage traumatic memories, seen instrumental in transforming distress into PTG (Sattler et al. 2014). Such openness may be particularly relevant after moral trauma – which otherwise may be suppressed and covered from others and thus left unmanaged (Litz 2009).

On the other hand, LF leadership is seen as a passive and destructive form of leadership, characterised by leaders who steer away, avoid making decisions, avoid getting involved and are absent when needed (Skogstad et al. 2007). Notably, this form of leadership is found highly prevalent in organisational settings (Aasland et al. 2010). After a traumatic experience, LF leadership would typically implicate a high degree of avoidance and lack of social support. The leader will not utilise his/her impact to support the process of managing emotional distress, disregard the severity of the situation, not activate peer support and may leave the soldier in an enduring flooded state. Given a relationship between LF leadership and poor leader-member relational quality (Buch et al. 2015) – potential interaction with traumatised personnel will most likely be superficial and of low support:

Hypotheses

At this backdrop, we investigate the following hypotheses:

H1: *The degree of exposure to trauma during military service predicts PTG – and moral trauma predicts PTG above and beyond the effects of victim trauma.*

H2: *Emotional distress mediates the relationship between experience of traumatic events (both moral and victim trauma) and PTG.*

H3: *Authentic ethical leadership moderates (facilitates) the mediation of emotional distress in the relationship between trauma and PTG so that high levels of authentic leadership strengthen the association between emotional distress and PTG, while laissez-faire leadership buffers this association.*

2 Methods

2.1 Participants and procedure

This cross-sectional survey involved Norwegian military personnel from the United Nations Interim Force in Lebanon (UNIFIL) serving in 6-months contingent between 1978 and 1998. Their mission was to oversee an Israeli withdrawal from southern Lebanon and maintain peace and security in the area – under restrictive 'self-defence' rules of engagement. The area was frequently a war zone, and the soldiers encountered numerous life-threatening situations, and 21 of them lost their life during the operation. The survey was administered by the Norwegian Armed Forces Joint Medical Services between September 2014 and April 2015 (Norwegian Armed Forces Joint Medical Services 2016). The main objective was to assess the mental health of these veterans, on average 27 years after completion of their service, by mapping variables like general health, mental health, addictions and quality of life. It was sent to all 20,678 veterans who had served in the mission by mail or electronically via internet. The response rate was 56.3%, with 11,633 veterans responding to the survey. A total of 913 veterans answered that they did not want to participate, and 115 answers were so incomplete that they could not be included. A total of 97.1% of these are men. The average age of survey participants was 53 years: 75 of them were between 30 years and 39 years (0.7%), 3,054 were between 40 years and 49 years (28.8%), 5,027 were between 50 years and 59 years (47. 4%), 1,775 were between 60 years and 69 years (16.7%) and 674 were older than 70 years (6.4%). Most of the sample (56.1%) had participated in a single contingent, while 31% and 12.9% of them had participated in two and three contingents, respectively. Participation in the UNIFIL contingents was evenly distributed between the years 1978–1998 in our sample, with the highest percentage being the year 1989 (6.1%) and the lowest being 1997 (2.4%). For the purpose of our investigation (the relationship between trauma and PTG), we created a subsample by extracting those who had either experienced a victim trauma (n = 5,686) or a moral trauma (n = 1,967) from the total sample. This subsample was further reduced to 4,985 and 1,821 veterans who experienced victim trauma and moral trauma, respectively, due to missing data from those excluded. For our analyses, we collected (1) self-assessment of present PTG (related to trauma experiences from their service in Lebanon), (2) experiences of traumatic events during their service (3) emotional distress reactions to these traumas (as they recalled it) and (4) leadership behaviour from direct leaders (as they remembered it). All participants provided informed consent, and the study was approved by the Norwegian Armed Forces Health Registry.

2.2 Instruments

2.2.1 PTG

The short form of the posttraumatic growth inventory (PTGI-SF; Cann et al. 2010), previously shown to have acceptable reliability and validity (e.g., Cann et al. 2010), was used to measure PTG. It was translated into Norwegian through a simple two-step forward-back translation procedure, conducted by two bilingual subject matter experts. More specifically, a translation from English into Norwegian was conducted in step 1 by expert 1, and a back translation was conducted by expert 2. Minor deviances were discussed, and a final measure developed. The PTGI-SF comprises 10 items designed to measure five domains of PTG: (1) Relating to others (e.g., "I have a greater sense of closeness with others"), (2) new possibilities (e.g., "I am able to do better things with my life"), (3) personal strength (e.g., "I know better that I can handle difficulties"), (4) spiritual change (e.g., "I have a better understanding of spiritual matters") and (5) appreciation of life ("I have changed my priorities about what is important in life"). The respondents were asked to indicate the degree to which the change described in the 10 items occurred in their life as a result of their experiences in Lebanon on a 5-point Likert scale ranging from 1 (*to a small degree*) to 5 (*to a large degree*). Thus, higher scores are indicative of higher levels of PTG. A total PTG score was calculated by averaging the responses to all items (Cronbach's $\alpha = 0.91$).

2.2.2 Moral and victim trauma

The survey listed several potentially traumatic incidents particularly related to a military operational context, developed at the basis of input from subject matter experts for the purpose of this study. From this list, we selected three items that could be classified as moral trauma ("Were you involved in things that were morally questionable?", "Did you fail to do things that you now see that you should have done?" and "Did you take a life while serving in UNIFIL?") and three items that could be classified as victim trauma ("I came under fire with handguns, artillery missiles or other weapons", "I experienced

being surrounded/ambushed" and "I experienced a situation/a moment where I thought I was going to die").

The respondents gave their responses on a 4-point scale where 1 = *no*, 2 = *yes, between 1–2 times*, 3 = *yes, between 3–5 times*, and 4 = *yes, more than 5 times*. Total trauma scores were computed by summing the relevant items together. Only participants who reported at least one of the incidents within either moral- or victim-related trauma were included. Given the formative nature of these indices, Cronbach's α values were not computed. That is, the different trauma indicators can be viewed as causing rather than being caused by the trauma.

2.2.3 Emotional distress

In addition to the frequency of the incidents described above, participants were also asked to indicate the distress experienced in response to each incident on a scale ranging from 1 = *no distress* to 4 = *a high degree of distress*. The relevant ratings were therefore combined to create indices for perceived emotional distress in relation to moral and victim trauma.

2.2.4 LF leadership

LF leadership was measured with a previously translated version (Olsen et al. 2006) of four items from the Multifactor Leadership Questionnaire (MLQ; Bass and Avolio 1990). The LF items focussed on leadership behaviour from the closest (direct) leader as observed during the operation in Lebanon. Example items are 'My leader avoided making decisions' and 'My leader was absent when needed'. Response alternatives ranged from 1 = *never* to 5 = *frequently, if not always*. A total LF score was calculated by averaging the responses to all items (Cronbach's $\alpha = 0.91$). Previous studies demonstrate that LF, as a passive form of destructive leadership, had detrimental impact on outcomes like health and well-being in military settings (Fosse et al. 2019).

2.2.5 Authentic ethical leadership

Authentic ethical leadership (AL) was measured with two items from the Internalized Moral Perspective subfactor of the Authentic leadership Scale (ALQ; Walumbwa et al. 2008), based on a previous Norwegian translation of the scale (Olsen and Espevik 2017). The two items were 'My leader demonstrated beliefs that were consistent with his/her actions' and 'My leader made difficult decision based on high standards of ethical conduct'. Response alternatives ranged from 1 = *never* to 5 = *frequently, if not always*. A total AL score was calculated by averaging the responses to both items ($r = 0.64$). Notably, a previous study by Olsen and Espevik (2017) shows that AL and the subfactor internalised moral perspective is viewed as an ideal form of leadership by military officers (Olsen and Espevik 2017).

2.3 Statistical analyses

We employed a multiple regression analysis to test our first hypothesis and to examine the contributions of victim and moral trauma on PTG. The number of total contingents and time since first contingent were included as covariates in the analysis and were entered in the first step along with victim trauma. Moral trauma was subsequently entered in the second step.

Two different mediation models were computed to test the relationships proposed in our second hypothesis. In the first model, emotional distress in reaction to victim trauma was evaluated as a mediating variable in the relationship between victim trauma and PTG. In the second model, emotional distress in reaction to moral trauma was evaluated as a mediating variable in the relationship between moral trauma and PTG. Inferential judgements about the indirect effects are based on bootstrap confidence intervals (CIs). Bootstrap CIs can be considered as empirically derived sampling distributions for the indirect effects and are often preferred over the normal theory approach because no assumptions are made about normality in the sampling distribution of the indirect effect (Hayes 2013). From each resample, an indirect effect is computed, and then, an empirical sampling distribution is generated. From this distribution, a CI is computed that can be inspected to determine if zero is within the interval. There are several ways to compute bootstrap CIs, such as bias-corrected bootstrap intervals and percentile bootstrap intervals. Hayes and Scharkow (2013) have recommended using the former if statistical power is the major concern but the latter if type 1 error rate is the major concern. Given the substantial sample sizes for our different analyses, we therefore elected to compute percentile intervals. In our analyses, 5,000 bootstrap resamples were used to estimate 95% CIs.

Our third hypothesis proposes that the indirect effects of moral and victim trauma are conditional on levels of authentic and LF leadership. To test these

conditional effects, we combined mediation and moderation in what is commonly referred to as *second stage moderation* (Edwards and Lambert 2007). In second stage moderation, the effect of the mediator *M* on the outcome *Y* is allowed to vary as a function of the moderator *W*, while the $X \rightarrow M$ relationship is fixed to be unmoderated. We performed two different second stage moderation models: one for victim trauma and one for moral trauma. These are consequently based on two different subsamples: all reporting victim trauma (n = 4,985) and all reporting moral traumas (n = 1,821). Product terms representing the interactions between emotional distress and LF leadership and between emotional distress and authentic leadership were included simultaneously in the two models.

Inferential judgements about the conditional indirect effects are based on computation of the *index of moderated mediation* described by Hayes (2015). A second stage moderation model with a single moderator *W* can be described by two equations:

$$M = i_M + aX + e_M \tag{1}$$

$$Y = i_Y + c'X + b_1M + b_2W + b_3MW + e_Y. \tag{2}$$

The indirect effect (referred to as ω below) of *X* on *Y* through *M* in this model is the product of the effect of *X* on *Y* from Eq. (1) and the conditional effect of *M* on *Y* from Eq. (2):

$$\omega = \mathrm{a}\left(b_1 + b_3W\right), \tag{3}$$

which can be expressed in the form of an intercept and a slope for the indirect effect

$$\omega = ab_1 + ab_3\mathrm{W}. \tag{4}$$

The slope for *W* in Eq. 4, ab_3, quantifies the effect of *W* on the indirect effect of *X* on *Y* through *M* and is referred to as the index of moderated mediation by Hayes (2015).

We computed indices of moderated mediation for the indirect effect of victim trauma on PTG conditional on LF and authentic leadership, as well as for the indirect effect of moral trauma on PTG conditional on LF and authentic leadership. Like the unconditional mediation analyses tested in hypothesis 2, bootstrap CIs were used to make inferential judgements about the moderation of the indirect effects.

All analyses were conducted using Stata 17.0 (StataCorp. 2021.) and the *regression* and *SEM* packages.

3 Results

Of the total sample, 1,458 veterans reported having experienced both moral- and victim-related incidents. The multiple regression analysis is consequently based on this subsample. Descriptive information from this sample is presented in Table 1.

Victim trauma entered in the first step had a positive and statistically significant effect on PTG (β = 0.10, b = 0.04, 95% CI of b: 0.02; 0.07). Moral trauma entered in the second step did not make a statistically significant contribution in explaining PTG (β = – 0.02, b = –0.01, 95% CI of b: –0.05; 0.02). None of the covariates had statistically significant regression weights. The regression weight for victim trauma remained unchanged after moral trauma was added and should be considered as a small effect based on the partial eta-squared of $\eta_p^2 = 0.01$.

3.1 Indirect and conditional indirect effects of trauma

Of the total sample, 5,686 reported having experienced at least one victim trauma incident and 1,967 reported having experienced at least one moral trauma incident. The proportions of participants experiencing each incident are presented in Table X. The subsequent mediational analyses are based on these two samples, but due to missing information on other variables, the samples were reduced to n = 4,985 for the analyses involving victim trauma and n = 1,821 for the analyses involving moral trauma.

Results from the tests of the indirect effects of moral and victim trauma are presented in Figure 2. Our first mediation model showed that victim trauma had a positive and statistically significant relationship with emotional distress (a-path = 0.24, 95% CI: 0.22; 0.26). Emotional distress, in turn, had a positive and statistically significant relationship with PTG (b-path = 0.08, 95% CI: 0.05; 0.10). The indirect effect of victim trauma on PTG via emotional distress is the product of the a and b paths and was ab = 0.02, with a 95% bootstrap CI of 0.13–0.03. Since the CI does not contain zero within its boundaries, we can reject the null hypothesis and be confident that the indirect effect is in fact different from zero. The remaining direct effect of victim trauma on PTG (c'-path) was still statistically significant ($p < 0.001$).

Our second mediation model showed that moral trauma also had a positive and statistically significant relationship with emotional distress (a-path = 0.29, 95% CI: 0.26; 0.33) and that emotional distress had a positive and statistically significant relationship with PTG

Tab. 1: Descriptive based on the sample from regression analyses (n = 1458)

				Correlations				
	Mean	**SD**	**Possible range**	**1**	**2**	**3**	**4**	**5**
1. Post-traumatic growth	2.64	0.73	1 - 5	—				
2. Moral trauma	4.56	1.05	2 - 12	.01	—			
3. Victim trauma	5.50	1.59	2 - 12	.10	.24	—		
4. Number of contingents	1.83	1.12	—	.05	.04	.15	—	
5. Years since first contingent	28	5.71	—	.01	.05	-.19	.21	—

Correlations ≥ .10 are statistically significant at $p < .001$

Proportions experiencing each trauma

Victim trauma	***n***	**%**
I came under fire with handguns, artillery missiles or other weapons	4738	83.7
I experienced being surrounded/ambushed	1110	19.7
I experienced a situation/a moment where I thought I was going to die	2520	44.6
Moral trauma		
Were you involved in things that were morally questionable	1430	73.4
Did you fail to do things that you now see that you should have done	938	48
Did you take a life while serving in UNIFIL	152	7.9

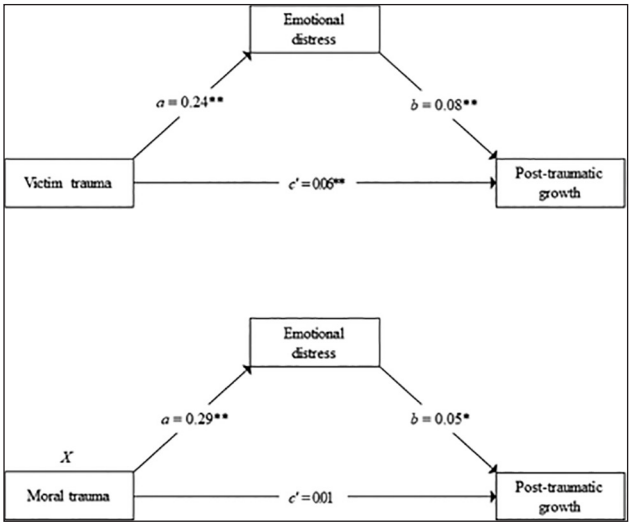


Fig. 2: Research from tests of the indirect effects of moral and victim trauma on post-traumatic growth via emotional distress. The analyses are based on different samples sizes, with n = 4 985 for the analysis involving victim trauma and n = 1 821 for the analysis involving moral trauma. All regression weights are unstandardized. *$p < 0.05$, **$p < 0.001$.

(b-path = 0.05, 95% CI: 0.01; 0.09). The indirect effect of moral trauma on PTG was ab = 0.01, with a 95% bootstrap CI of 0.002–0.03.

The mediation models described above was next repeated with interaction terms between emotional distress and LF and authentic leadership added. Results from the first second stage moderation model involving victim trauma did not provide evidence that the indirect effect of victim trauma on PTG through emotional distress was a function of leadership. The index of moderated mediation for authentic leadership was 0.002, with a 95% bootstrap CI including zero (–0.003; 0.008), and for LF leadership was –0.002, with a 95% bootstrap CI also including zero (–0.009; 0.003). Likewise, the results from the model involving moral trauma did not provide any evidence for conditional indirect effects: The index of moderated mediation was 0.01 (95% bootstrap CI: –0.003; 0.022) for authentic leadership and –0.003 (95% bootstrap CI: –0.015; 0.009) for LF leadership.

4 Discussion

This study measured PTG cross-sectionally, asking Norwegian military peacekeepers to indicate growth experiences related to specific traumatic experiences from their service in Lebanon between 1978 and 1998. The analyses were limited to service members who had experienced at least one victim or one moral trauma. The study found, in line with H1, that positive changes in how they perceived their life today were positively related to the number of victim traumas, like situations where they thought they were going to die, during service and how they recalled these experiences. This were in line with several previous studies reporting a positive relationship between fear-based victim traumas and PTG (Tedeschi

and McNally 2011; Morgan and Desmarais 2017; Mark et al. 2018) and in contrast to others who found no relationship or a negative relationship between trauma and growth. So far, this underscores the initial claim from Tedeschi and Calhoun (2004) that genuine growth may be a result from trauma and lend hope for recovery and personal growth after such experiences. More surprising, moral traumas did not contribute in explaining PTG above the victim traumas. Hence, the relevance of distinguishing between these types of traumas in the context of PTG was not supported. From a clinical perspective, this suggests that different strategies, contingent of trauma type (e.g., Litz et al. 2009), may have limited value in terms of increased PTG. It is important to note that this does not disqualify the importance of attention to trauma type in the treatment of stress response syndromes (e.g. PTSD), which may still be very important. Thus, the claim that moral transgressions may represent a particularly burdensome experience and a more challenging process to work through in terms of shame and guilt reactions and reconfiguration of the self, compared with victim experiences, may be misplaced. It is also worth noting that the variance in PTG found in this study can be traced back to traumatic experiences dating 17–38 years back in time. This suggests that these experiences have a long-lasting impact and that PTG represents a stable reconfiguration of the self and enhanced quality of life. Hence, not merely a temporary change in mindset, seen as a state-like coping strategy, but a deeply rooted transformation of existential attitudes ('developed to last').

4.1 The role of emotional distress in a PTG cycle

In line with H2, we found the direct effect between trauma and PTG is partially mediated by emotional distress. This is in keeping with previous studies pointing at dysregulated emotions as a prerequisite for a PTG cycle (Maitlis 2020) – initiating a process of sense-making and challenging of fundamental assumptions about the world and oneself as a human being. This suggests that traumatic events by themselves are not accurate indicators of a PTG cycle. The emotional reaction to the experience is also an important factor in this process. An upside to this, seen from an applied perspective, may be *hope* in a difficult situation of trauma and emotional imbalance. Caregivers, leaders and family members, as well as those struggling, might find some comfort in the fact that a situation like this may represent an opportunity for growth, if managed properly, and not only a pathway to mental disorders and a ruined life. From a clinical perspective, this suggests that emotional imbalance should be appreciated as a significant resource in recovery processes, working through sense-making processes.

4.2 The impact of leadership

An important part of this study was the inclusion of leadership as a potential resource in the PTG cycle (H3) – due to an expected impact of leaders as caregivers and sources of social support. The lack of evidence of this relationship in the present study (no moderation of the mediation) may have several explanations. First, as a source of social support, it might have been more relevant to measure the contributions from peers and colleagues, given previous studies showing that soldiers talk and seek support mostly from these sources during challenging experiences and less from professional health workers and possibly leaders (Greenberg et al. 2003). We could further speculate that fear of repatriation from the mission, due to mental problems, may have obstructed an open and frequent interaction between traumatised soldiers and their leaders – reducing a potential effect of leadership as a source of support. Second, it is possible that other forms of leadership, distinct from those embedded in the present study, might have been better strategies aiding a PTG process. In the present study, only the moral dimension of authentic leadership and LF was included (Walumbwa et al. 2008). In future studies, a better model should include all four dimensions of authentic leadership. For example, transparency, seen as the leaders' ability to share genuine emotions and thoughts with followers, might reduce fear based on not knowing what the leader thinks and, thus, stimulate a more open interaction between the follower and leader. Transformational leadership may also be highly relevant in these situations, given its' demonstrated ability to create hope among followers in the face of hardship, combined with its demonstrated ability to stimulate intrinsic motivation for change (Bass and Bass 2009). This leadership may also provide a more secure basis for exploring the difficulties and provide energy and motivation to approach and work through the difficulties. Finally, leader-follower exchange theory (LMX) may also be a relevant perspective here (Graen and Uhl-Bien 1995). This theory views high-quality leader-follower relationships as the key objective in leadership and emphasises the importance of leaders' constantly working on increasing the relationships with all members of one's working group. This effort may again antecede an open

and secure interaction between leader and a struggling follower, increasing the support dimensions in a growth process.

It should be noted that from a clinical perspective, strategies and mechanisms derived from the leadership literature like this may show fruitful, providing new perspectives on how to stimulate growth and a positive transformation of the self in times of crisis (Bass and Bass 2009). Thus, an inclusion of leadership theory and measures in future studies of PTG is recommended.

4.3 PTG or illusion of growth?

According to Jacobson et al. (2021), a major flaw of the PTG-SF measure utilised in the present study, asking respondents to indicate the degree of positive change as a result of their experiences in Lebanon, is high risk of retrospective biases and attribution biases – like consistency biases, desirability biases and faulty memories (Podsakoff et al. 2003).

Thus, the independent and dependent variables are conflated in each of the 10 questions, and the respondents are challenged to remember back on traumatic experiences, which may not effectively capture actual changes in positive coping (Park and Sinnot 2018) but differences in memory or other influences. Conversely, Jacobson et al. (2021) promote longitudinal designs, measuring PTG as a current standing situation at T1 and T2 and growth as a change index between these measuring points, in order to capture genuine growth, conversely to measures of what they see as possibly self-protective mechanisms or 'self-illusionary coping' (Zoellner and Maercker 2006).

We recognise this as an important critique to our study. However, in line with Johnson and Boals (2015), it could be argued that due to 'event centrality' of the traumas experienced in Lebanon by the soldiers (i.e., the extent to which an individual interprets a stressful event as part of their core identity), found to reduce the difference between PTGI scores and 'actual growth', our study might still have captured genuine growth and thus a contribution to validation of the PTG model by Maitlis (2020). It could also be argued, due to the positive correlation we found between so called 'illusions of growth' and trauma, that these cognitions may have a protective role to play, representing a source of cognitive resilience against detrimental effects of trauma. Thus, more research is needed to disentangle the distinctions between so called 'self-illusionary coping' (Zoellner and Maercker (2006) and 'genuine growth' measures.

4.4 Some practical implications

This study offers some practical applications. First, it replicated previous studies showing a positive relationship between severe trauma and a positive change in life. Thus, is provides basis for hope. Second, it suggests that differentiated clinical interventions aiming at stimulating PTG, contingent on trauma, may be of limited use, given that moral trauma did not explain variance in PTG beyond the effect of victim trauma. Finally, it identifies cognitions in terms of growth attributions that may increase resilience after trauma and possibly serve as a focus in posttrauma interventions.

4.5 Strengths, limitations and future research

As already noted, the research designs risk retrospective and attribution biases (Jacobson et al. 2021), and more relevant leadership variables should be considered. More so, a thorough translation procedure of the measures from English to Norwegian, in line with the recommendations of the World Health Organization (2022), could have been applied. An inclusion of a reference category with soldiers without trauma experiences could have provided a better control for other influences post-deployment that might have influenced PTG. Also, the reduction in items from the authentic leadership and LF leadership measures could impair the psychometric properties of the scales. This limitation may also have an impact on the results finding no moderation effect of leadership on the mediation of emotional distress on the trauma vs. PTG relationship. Further studies should thus address this relationship.

Despite these limitations, also some unique strengths should be noted. First, the distinction between victim and moral trauma is a theoretical and empirical contribution that should be investigated further in future studies. Particularly, a search for unique trajectories (and different clinical interventions) related to these different trauma experiences is interesting. Second, it is the first study, to our knowledge, that included leadership in the model. This is a theoretical contribution that should be built on in future studies. Third, the research model is advanced, including mechanisms in terms of mediation and moderation. A model that should be continued in future studies – preferably in prospective designs. Fourth, the sample of UN peacekeepers is an important focus, due to the somewhat underappreciated status of these missions in military contexts. Finally, it is also worth noting that the time span from service in Lebanon and data collection may

provide unique insights into the duration of traumatic experiences in military personnel.

5 Conclusion

The study showed that very challenging traumatic experiences during military peacekeeping, as recalled many years later, may result in a reconfiguration of the self, experienced as positive growth and a strong appreciation of life – years after the traumas. We found this relationship unrelated to the type of trauma and that the growth process was nurtured by emotional distress after the trauma. Unexpectedly, the leadership displayed by closest supervisor during the mission was found unrelated to this growth process. However, given the retrospective nature of this study, it is possible that these differences in growth and quality of life are more a result of differences in memory and illusions of growth, or common methods biases, more than actual growth. Thus, more studies on the distinctions between 'self-illusionary coping' and 'genuine growth' in military personnel are warranted – before more certain conclusions on this relationship can be drawn.

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