Hovedoppgave

NTNU
Norges teknisk-naturvitenskapelige universitet
Fakultet for samfunns- og utdanningsvitenskap
Institutt for psykologi

Synne Horten Heldal

Helplessness & Trauma

The Relative Influence of Peritraumatic Helplessness and Danger on Long-Term Mental Health Among Norwegian Peacekeeping Veterans

Hovedoppgave i Psykologi
Veileder: Andreas Espetvedt Nordstrand
September 2021

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Kunnskap for en bedre verden

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Abstract

Objective: Peritraumatic helplessness has been proposed as a particularly salient factor in terms of generating psychological distress after exposure to major stressors. The current study aimed to investigate the impact of traumatic stressors likely involving peritraumatic helplessness on long-term psychological distress. We hypothesized that such high stress situations would be associated with more reports of post-traumatic distress relative to traumatic stressors not explicitly involving helplessness, i.e., primarily danger to life and health. **Method:** We used data from a cross-sectional, post-deployment survey of Norwegian peacekeepers deployed to Lebanon from 1978-1998 (N=10.605). Participants were assessed on PCL-17, HADS, General Health Questionnaire-28, AUDIT, and on measures capturing exposure to various war-zone stressors. Multiple regressional analyses were conducted in order to explore the impact of stressor variables on measures of psychological distress. **Results:** Exposure to Danger-Based Trauma and Helplessness Trauma explained a significant amount of the variance in all the outcomes. Exposure to Danger-Based Trauma was the most significant predictor of post-traumatic symptoms in the model. Danger-Based Trauma had a significant influence on reports of psychological distress and accounted for most of the variance on the symptom measures. However, Helplessness Trauma was also a significant predictor for post-traumatic development with regards to depression, PTS, general mental health, and alcohol use. **Conclusions:** Helplessness, in the current sample, did not prove to be a more salient predictor for post-traumatic sequelae than traditional danger- and fear-based stressors. It did, however, account for some unique variance in the deprecation of post-deployment mental health. We were not able to control for perceptions of helplessness associated with danger- and fear-based stressors in the current study. Given the previously established salience of peritraumatic helplessness with regards to subsequent negative mental health outcomes, the results may thus be partially explained by danger-based stressors also eliciting a high degree of peritraumatic helplessness**.**

Sammendrag

Hjelpeløshet og traumer: Rollen til peritraumatisk hjelpeløshet i utviklingen av posttraumatiske symptomer hos veteraner fra norske fredsbevarende styrker

Mål: Peritraumatisk hjelpeløshet har blitt foreslått som en særlig potent faktor når det kommer til å utløse psykiske plager etter eksponering for alvorlige hendelser. Denne studien ønsket å undersøke sammenhengen mellom eksponering for slike opplevelser og psykisk helse flere år etter hendelsene. Hypotesen var at alvorlige hendelser med en sannsynlig komponent av peritraumatisk hjelpeløshet i større grad ville være assosiert med psykiske plager, sammenliknet med traumatiske stressorer som ikke eksplisitt innebar hjelpeløshet, men primært fare for liv og helse. **Metode:** Vi benyttet datamateriale fra en tverrsnittsundersøkelse utført i 2016 av norske veteraner som tjenestegjorde i fredsbevarende styrker i Libanon i perioden 1978-1998 (N = 10.605). Deltakere fylte ut PCL-17, HADS, General Health Questionnaire-28 og AUDIT samt et instrument ment å fange opp eksponering for krigssone-opplevelser. Multiple regresjonsanalyser ble gjennomført for å undersøke krigssone-opplevelsenes påvirkning på utfallsmål for psykiske plager. **Resultater:** Både eksponering for farebaserte traumer og traumer med antatt peritraumatisk hjelpeløshet viste signifikant sammenheng med alle utfallsmålene. Å bli eksponert for farebaserte traumer var den tydeligste prediktoren for posttraumatiske symptomer i denne modellen ($p<.001$), og forklarte hovedparten av variansen på symptommålene. Traumer med peritraumatisk hjelpeløshet var også en signifikant prediktor for negativ posttraumatisk utvikling når det det gjaldt depresjon, PTS, generell psykisk helse og alkoholbruk, men forklarte mindre varians i modellen. **Konklusjon:** Vi fant at krigssone-opplevelser med peritraumatisk hjelpeløshet ikke var en mer potent faktor for negativ posttraumatisk utvikling, sammenliknet med tradisjonelle fare- og fryktbaserte opplevelser. Eksponering for slike hendelser hadde likevel en signifikant sammenheng med psykiske plager, mange år etter tjeneste i Libanon. Vi kunne ikke kontrollere for opplevd hjelpeløshet i det vi definerte som primært fare- og fryktbaserte stressorer i denne studien. Gitt tidligere funn, kan resultatene delvis la seg forklare av at det man identifiserte som primært farebaserte stressorer, også innebar en grad av peritraumatisk hjelpeløshet. Studien understreker likevel den negative påvirkningen fare- og fryktbaserte traumer kan ha for psykisk helse.

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Table of contents

Helplessness & Trauma: The Relative Influence of Peritraumatic Helplessness and Danger on Long-Term Mental Health Among Norwegian Peacekeeping Veterans

An experience has traditionally been regarded as traumatic if involving objective threats to life and health, but more recently the subjective experience of a traumatic incident has been given increased emphasis (Morris, 2016). In the context of clinical diagnosis, trauma is broadly defined as experiencing or witnessing one or more events involving actual risk of or threats to life, or serious harm to the physical integrity of oneself or others (American Psychiatric Association, 2013). The severity of trauma alone cannot explain why some people develop symptoms in the wake of potentially traumatizing experiences (PTE) while others do not. The number of people who experience PTE's vary, with studies obtaining prevalence ranging from 50% all the way up to 90% of the investigated populations (Breslau et al., 1998; DeFraia, 2015; Heir et al., 2019; Tehrani, 2004). These numbers are clearly higher than the prevalence for post-traumatic stress disorder diagnosis (PTSD), which is estimated to be about 8.5% to 20.4% for women and from 3.8% and 8.2% for men (Breslau et al., 1991; Heir et al., 2019; Kessler et al., 1995). Prevalence rates vary both by country (Karam et al., 2014) and ethnic groups (Schlenger et al., 1992), and are also influenced by mediating and moderating factors such as gender (Heir et al., 2019), post-trauma mental health (Koenen et al., 2008; Sandweiss, 2011), previous trauma exposure (DiGangi et al., 2013; Littleton et al., 2012; Ozer et al., 2003) and type of trauma (Breslau et al., 1998; Liu et al., 2017; Nordstrand et al., 2019; Shakespeare-Finch & Armstrong, 2010). Moreover, individual factors such as cognitive abilities (Kremen et al., 2007; Macklin et al., 1998), personality factors (Bramsen et al., 2000; Heinrichs et al., 2005), and peritraumatic emotional responses (reactions during and immediately after a PTE; Bovin & Marx, 2011) may also influence the psychological impact of trauma. Of relevance to the current study, peritraumatic perceptions of helplessness has also been recognized as an important factor in terms of contributing to negative outcomes after major trauma (Kushner et al., 1993)

The History and Classification of PTSD

Traditionally, trauma has been understood in the context of objective danger-based stressors rather than peritraumatic perceptions of the event. The trauma related collection of symptoms have been named everything from Nostalgia, Shell Shock, Combat Neurosis and Traumatic War Neurosis to Post-Vietnam Syndrome (Nordstrand, 2020). As the names suggest, such symptoms have been understood mostly in the context of war, and a lot of the early literature within the field was based on returned soldiers from WW1, WW2, and especially the Vietnam War (Morris, 2016). This has been

changing rapidly in recent decades and the conceptualization of trauma and its impact continues to evolve.

PTSD is characterized by symptoms of hyperarousal, avoidance of internal or external cues connected to the traumatic experience and re-experiencing the traumatic event in the present through nightmares, flashbacks, or intrusive memories (World Health Organization, 2018). The precise criteria for the disorder vary between diagnostic manuals and their editions. The Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Statistical Classification of Diseases and Related Health Problems (ICD) are the main diagnostic systems in use today. PTSD is in many ways a unique condition within the mental health field and has sparked discussion since its inclusion in DSM-III. The PTSD diagnosis differs from other mental health disorders in its requirement of a specified etymology. The qualifying criteria consists of a defined event preceding the onset symptoms, which is uncommon among other psychiatric disorders where primarily symptoms and the degree of function are evaluated. In addition to direct threats to life and health as a qualifying criterion, i.e., the Criteria A for PTSD, more recent studies have emphasized that peritraumatic fear or a direct threat to life is not always present in experiences eliciting psychological distress, nor is the threat itself always the most traumatizing part of such experiences (Stein et al., 2012). More recent iterations of both the DSM and the ICD have revised their definitions of the Criteria A accordingly.

According to the DSM and ICD the onset of symptoms must be within six months of the traumatic experience. Nevertheless, how separated in time a traumatic event can be from eventual symptom onset and still be considered the primary root cause is still debated (Andersen et al., 2014; Andrews et al., 2007; van der Wal et al., 2020). There is concern that as time passes, confounding factors, such as other painful life experiences, can muddle the link between a criterion A triggering event and the trauma related stress symptoms. This could potentially undermine PTSD as an independent diagnosis (Goodwin et al., 2012; Milliken et al., 2007; Potter et al., 2013; Solomon & Mikulincer, 2006). However, recent studies indicate that the six-month limit may be an arbitrary line in the sand (van der Wal et al., 2020). So called delayed-onset PTSD has been proposed in order to explain PTSD-symptoms developing more than six months after exposure to trauma, with some cases reportedly debuting decades after the triggering experience (Ruzich et al., 2005). Delayed onset PTSD may represent anywhere between 5.7- 25% of the total cases of PTSD (Andersen et al., 2014; Andrews et al., 2007; van der Wal et al., 2020). Some studies find that cases of delayed onset PTSD commonly are coupled with subclinical PTSD in the acute phase and worsens incrementally over time before reaching a clinical threshold (Bryant & Harvey, 2002; Carty et al., 2006). Even though most cases of delayed onset seem to display a certain level of symptoms before developing PTSD,

systematic reviews have identified that even people who have few to none symptoms following a traumatic incident, may later develop PTSD. This seems to be more common among military samples than in civilian cohorts (Ruzich et al., 2005). The theories around delayed onset PTSD are plentiful, positing preoccupation with life, an initial numbing of feelings, or the initial feeling of safety after escaping a dangerous situation, as possible explanations (Bryant, 2019). However, there is modest research to support these theories.

There are some important qualifiers to remember in the discussion of negative outcomes after traumatic experiences. It is not uncommon for people to experience post-traumatic symptoms (PTSS) in the immediate aftermath of a traumatic experience, but for most people this will be a transient state (Bonanno, 2005). Moreover, PTSD is not the only outcome of traumatic experiences, as major depressive disorder (Kilpatrick, 2003; Shalev et al., 1998), alcohol and substance abuse (Kilpatrick, 2003; Kilpatrick et al., 2000), and anxiety disorders (Brown et al., 2000) also are common sequela of traumatic experiences. Neither are the outcomes of trauma always mental illness. Reports of a positive psychological development, usually referred to as post-traumatic growth (Tedeschi & Calhoun, 1995), have been found to be far more common than reports of PTSD in trauma exposed populations (Nordstrand et al., 2017). Post-traumatic growth may include an increase in self-confidence, enrichment and improvement of relationships and valuing life more. Even though soldiers in peacekeeping missions have been found to have a higher risk of developing PTSD, anxiety, depression, insomnia, and abuse of alcohol and drugs, most peacekeepers fare well post-deployment (Brounéus, 2014; Kaikkonen & Laukkala, 2016; Klaassens et al., 2008; Sareen et al., 2010; Souza et al., 2011).

There are both pre- and post-deployment variable stressors that may affect the mental health of veterans. Previous exposure to PTEs, existing mental health problems, as well as personality traits have been shown to influence the risk of developing mental health problems after military deployment (McAndrew et al., 2013). Post-deployment variables are of particular relevance for this study as there is much life lived between the time of deployment and the time of the survey. Such variables may include difficulty adjusting to civilian life, later stressful events, somatic illness, as well as aging itself (Brounéus, 2014; Macdonald et al., 1999; Mirfin, 2004.; Sareen et al., 2010). Other relevant influences on the mental health of veterans' post-deployment, may be the strain extended separation put on their family life.

Danger-Based Stressors

The term danger-based stressors refers to traumatic experiences primarily characterized by an acute threat to a person's life and health (Nordstrand et al., 2019). Such experiences are concurrent with traditional perceptions of trauma and typical events precipitating PTSD. The early conceptions of PTSD were developed to describe common patterns of psychological reactions after being exposed to actual or perceived life threat, usually in the context of a catastrophic event beyond the range of normal human experience, such as war, violent assault, or a natural disaster.

There is extensive literature connecting a wide array of military stressors to mental health problems such as direct combat exposure, experiencing life threatening situations yourself or witnessing other people's lives or bodily integrity being threatened or harmed, as well as handling the seriously wounded or dead. These types of stressors fit into a traditional understanding of trauma and match up with the trauma criteria for PTSD. But there are also other situations, like moral and ethical challenges, that have also been shown to affect the mental health of veterans (Litz et al., 1997; Sareen et al., 2010), as well as a connection between the frequency of deployment stressors and the degree of mental health problems post-deployment (Klaassens et al., 2008).

There are several theories attempting to explain the underlying mechanisms of PTSD, however, it is commonly connected to a process of fear conditioning. This is not surprising given the historical emphasis, and that the diagnostic criteria of traumatic experiences including a threat to life and health as the origin of subsequent symptoms. The model of fear conditioning proposes that the release of stress hormones during the traumatic incident creates a strong association between the present cues and the fear response (Bryant, 2019). These cues are then assumed to predict potential future threat which leads to the sensation of re-experiencing fear with exposure to external or internal triggers of the traumatic situation. There are studies showing neural changes in the amygdala, prefrontal cortex, and the hippocampus, all areas that are thought to be involved in fear conditioning (Bryant, 2019). Moreover, cognitive behavioural models propose that traumatic memories are encoded differently than ordinary memories, due to the elevated levels of arousal during the encoding process. The memories are thought to be more fragmented and more connected to sensory modalities, which separated them from autobiographical memory. The cognitive models also emphases the negative appraisals people develop of the traumatic event. Both their response to the event as well as their appraisals of future threat, and it proposes that these negative

appraisals exacerbate a sense of threat which in turn is a part of the pattern that sustains the symptoms of PTSD. This attentional bias towards potential threats is reflected in the hypervigilance criteria in both DSM-IV and ICD10/11, and possibly can explain neuropsychological symptoms such as concentration, attention and working memory deficits, which are commonplace in those affected by PTSD (Aupperle et al., 2012).

Peritraumatic Helplessness and Controllability

There has been considerable research on what characterizes a traumatic event, and how such experiences influence a subsequent development of psychological distress. In particular there has been an interest in how peritraumatic responses like helplessness can be a predictor of post-traumatic stress symptoms (Ozer & Weiss, 2004). Helplessness has previously been a part of the diagnostic criteria in previous DSM-versions and as well as other peritraumatic emotional responses like fear and horror. These reactions, including others such as disgust, sadness and anger can possibly influence the development of PTSD (Bovin & Marx, 2011). In a study by Brewin with colleagues (2000), it was indicated that peritraumatic fear, helplessness and horror predicted increased risk of developing PTSD. It has been contested and widely debated whether these subjective peritraumatic reactions should be a part of the criteria for PTSD (Bovin & Marx, 2011) and they were removed from the DSM-V in an effort to create a more objectively verifiable definition of the PTSD diagnosis. Nevertheless, studies on learned helplessness have suggested that the experience of control over aversive stimuli is crucial for peritraumatic behaviour and the post-traumatic sequela (Maier & Seligman, 2016), and seems to affect the likelihood of developing PTSD (Foa et al., 1992). Moreover, the experience of control, both peritraumatic and in the aftermath of trauma, are important predictors of adjustment and mental health (Frazier et al., 2001). Perceptions of helplessness in and of themselves have even been proposed as a possible psychological mechanism in the development of PTSD after trauma (Kushner et al., 1993).

Frazier et al. (2001) presented a temporal model of control, and distinguished between past, future, and present control. Past control is conceptualized with the question: Could this have been avoided? Even though traumatic experiences are, for the most part, considered uncontrollable, or at least not intended, there is still a need to feel that the world is controllable in some way and not completely outside of our control (Janoff-Bulman, 1992). If events are within our control, then something could have been done differently and produced a different outcome. Whether this belief affects health negatively might depend on the distance between the objective and subjective appraisal

of controllability (Folkman, 1984). For instance, the loss of a loved one is outside of our control, more so than with regards to a car crash, and thus it may be less adaptive to hold the belief that you could have changed the outcome. There are studies supporting the notion that a sense of control over future events is associated with better adjustment than past control (Frazier et al., 2001), which is probably due to the future being more controllable than the past.

Perceptions of helplessness are highly relevant also in relation to war-zone traumas. Already during WWI, the role of peritraumatic helplessness was considered as an important influence on the development of post-trauma psychological distress (Morris, 2016). The Norwegian effort in Lebanon (primarily in the period 1978-1998) is of particular interest as it was a part of a peacekeeping mission and had different rules of engagement than a more traditional war effort. The United Nations Interim Force in Lebanon (UNIFIL) was established as a reaction to the Israeli invasion of Lebanon in 1978. The purpose of a UN peacekeeping mission is to work preventatively in areas with a high risk of conflict and includes overseeing all the parties of the conflict, ensuring the access to humanitarian and medical aid, and assisting non-combatants protection (Sareen et al., 2010; Smid et al., 2009). The complexity of these tasks can lead to peacekeepers being exposed to a wide array of potential stressors and PTEs, but perceptions of helplessness have been singled out as a particularly aversive experience by the veterans themselves (Moldfjord & Holen, 2005).

Accordingly, the current study aimed to investigate the relative impact of war-zone stressors likely to involve high degrees of peritraumatic helplessness, in comparison to war-zone stressors primarily involving a threat to life and health. We hypothesized that helplessness-stressors would, relative to the danger-based stressors, have more of an impact in terms of post-traumatic stress.

Method

Participants

The study used data from a cross-sectional, post-deployment survey of Norwegian peacekeepers deployed to UNIFIL. The survey was conducted by the Norwegian Armed Forces Joint Medical Services, between September 2014 and April 2015. All Norwegian military personnel deployed to Lebanon between 1978 and 1998 were invited to participate, in total 20,678 men and women. Average time since deployment was 27 years (range: 18-38 years). Of the invited personnel, 11,633 responded. However, 1,028 of these were either

active refusals (913) or incomplete (115), resulting in 10,605 valid responses and a final positive response rate of 51.3 per cent. The response rate was comparable to those obtained in other studies on military populations (Forbes et al., 2016; McAndrew et al., 2013).

Demographic characteristics of the respondents are reported in Table 1. As with most studies on military populations, there was a significant overweight of male respondents in the study population.

Table 1.
Demographic characteristics of participants and non-responders

Characteristics	Participants *N* = (%)	Non-responders *N* = (%)
Biological sex (female)	307 (2.9)	255 (2.5)
Biological sex (male)	10 298 (97.1)	9 814 (97.5)
Age group, years		
30-39	75 (0.7)	82 (0.8)
40-49	3 504 (28.8)	3 496 (34.7)
50-59	5 027 (47.4)	4 832 (48.9)
60-69	1 175 (16.7)	1 283 (12.7)
70+	674 (6.4)	376 (3.7)
Highest civilian education		
9 (Prim. school)	737 (7.0)	
12 (Sec. school)	5 673 (53.8)	
15 (Lover level uni. degree)	3 037 (28.8)	
17 (Higher level uni. degree)	1 106 (10.5)	

Ethics

Participation in the study was voluntary. All participants provided written informed consent after complete description of the study. Study procedures, collection, storing, and distribution of data were done in accordance with the existing legislation regulating the Norwegian Armed Forces Health Registry. A non-responder analysis was approved by the Regional Committee for Medicine and Health Research Ethics of South-East Norway. Register data on sick leave and benefits for the period 1985-2015 was extracted from the Norwegian Labour and Welfare Administration (NAV).

Procedure

The data was collected between September 16th, 2014, to April 1st, 2015. The participants received a printed copy of the survey questionnaire and a letter with a link to the digital version, so they could choose to answer either version. A mail-reminder was sent on November 6th, 2014, and on December 17th, 2014, a new reminder was sent by both mail and SMS.

Measures

Hospital Anxiety and Depression Scale (HADS) consists of 14 items and is divided into two subscales, one for anxiety (7 items; HADS-A) and depression (7 items; HADS-D). Each item is rated on a scale from 0 to 3, giving a maximum score of 21 for anxiety and depression alike. For screening purposes, a sum score of 11 or higher on either subscale is generally considered to represent a 'case' of psychopathology, while scores of 8-10 are considered as 'borderline' and 0-7 is viewed as 'normal' levels of distress.

General Health Questionnaire-28 (GHQ-28) Consists of 28 items and is meant as a measure of emotional distress in a medical setting and detecting people who are more likely to have or to develop psychiatric disorders. It's a self-rating instrument, consisting of 28 items, divided into four subscales: somatic symptoms (items 1-7), anxiety/insomnia (items 8-14), social dysfunction (15-21), and severe depression (22-28). It can be scored in two separate ways, either with a total sum score from 0 to 84 where each item is scored from 0 to 3, or with a binary method where the alternatives "Not at all" and "No more than usual" score 0 and "Rather more than usual" and "Much more usual" score 1. The threshold values are set at 0-3 as an indication for few or no health difficulties, 4-5 as an indication of borderline levels of health difficulties, and 6 or higher as the indication of an increased level of difficulties.

Posttraumatic Stress Disorder Checklist-17 (PCL-17) is a self-rating instrument consisting of 17 items that corresponds to the diagnostic criteria for PTSD in the Diagnostic and Statistical Manual of Mental Disorders, 4th ed., text rev (American Psychiatric Association, 2000). Each item is rated on a scale from 1 (not at all) to 5 (extremely), which gives a maximum score of 85. A score of 44 or above was regarded as a likely case of PTSD (Blanchard et al., 1996). The edition that was utilized was the military version PCL-M.

Alcohol Use Disorder Identification Test (AUDIT) is a self-report questionnaire consisting of 10-items. It was developed by the World Health Organization (WHO) to

identify problematic patterns of alcohol use. Eight of the items are rated on a scale from 0 to 4, and two items are rated either 0, 2 or 4, with a maximum total score of 40. The cut-off scores that were used are 0-7 (low risk), 8-15 (medium risk), 16-19 (high risk), and 20-40 (addiction likely).

Traumatic exposure in Lebanon. Deployment-related stressors were measured by means of a scale capturing exposure to a wide range of PTEs. The traumatic exposure scale was developed by the Lebanon-2016 research group based on a literature review of the experiences typically eliciting PTSD during a war-zone deployment. This 39-item self-report scale assessed whether participants had experienced incidents including various types of combat exposure, the threat of death or personal harm, witnessing suffering, death, and injury in others, being unable to help/protect oneself or others, as well as moral stressors at any point during deployment. See the Supplementary Materials for a complete list of items. Each item was rated on a 5-point Likert scale ranging from 1 (no) to 4 (yes, more than 5 times), giving a total score range of 39 to 156, with higher scores indicating exposure to more stressors. In the present sample, the mean participant score was 47.76 (SD = 8.43, SE = 0.08), and the Cronbach's alpha value was .84.

Helplessness and Danger-Based Stress. In order to investigate the research question of the current study we constructed a stressor variable expected to capture war-zone stressors with a high degree of peritraumatic helplessness, as well as stressor variable expected to capture traditional danger-based stressors. Selection of items for these stressor variables were based on the semantic content of the items. The Helplessness stressor variable included the items "I was taken captive or hijacked", "I was attacked, threatened or provoked without the possibility of retaliating due to UN mandate restriction" and "I witnessed others being attacked, threatened or provoked without the possibility of retaliating due to UN mandate restrictions". The danger-based stressor consisted of the items "I experienced an ambush", "I was caught in crossfire", and "I thought I was going to die".

Demographics

In total 10 605 people participated in the study. The sample consisted mainly of men (97,1%, 10 298) in the age range 50 to 59 (47,4%, 5027). They were primarily married or in a committed relationship (56,4%, 5939) and had paying jobs (74,4%, 7627). A substantial part of the group had some form of civilian higher education (39,3%, 4143) and had primary duty as their highest form of military training (65,4%, 6732).

Data Analysis

Exposure to the six relevant trauma-exposure items were analysed in terms of frequencies and percentages. Two group variables labelled Danger-Based Trauma and Helplessness Trauma were then constructed by means of scrutinizing the semantic content of individual items (table 2). Pearsons correlations of the variables in the study were obtained (table 3). In order to examine the relative contribution of Danger-Based Trauma and Helplessness Trauma to the outcome measures, we then conducted several multiple linear regressions with PCL-17, HADS, General Health Questionnaire-28, AUDIT as dependent variables. Time since deployment and highest level of education were included as covariates in the analysis, in order to control for the effects of cognitive abilities and time since likely exposure to war-zone traumas on the results.

Results

Non-Responder Analysis

The non-responder analysis showed a significant difference ($p<.001$) in age distribution between the responder and non-responder groups (Gjerstad et al., 2019), where non-responders were somewhat younger than their responder counterparts. Moreover, non-respondents had significantly ($p<.001$) more short-term sick leave, long-term sick leave, long-term benefits, and sick leave due to mental illness. Accordingly, respondents were healthier than non-respondents.

Helplessness and Danger-Based Stressors

The relationships between Helplessness Trauma and the symptom measures are presented in Table 4. Exposure to Danger-Based Trauma and Helplessness Trauma explained a significant amount of the variance in all the outcomes. Exposure to Danger-Based Trauma was the most salient significant predictor of post-traumatic symptoms in the model, as expressed by the PCL-17 score. Danger-Based Trauma also significantly predict post-traumatic development in terms of depression, PTS, general mental health, and alcohol use. The Danger-Based Trauma variable accounted for most of the variance on the symptom measures in the current model. Helplessness Trauma was a significant predictor for post-traumatic development with regards to depression, PTS, general mental health, and alcohol use as expressed by HADS-D, PCL-17, GHQ-28, and AUDIT consecutively (table 4).

Table 2.
Frequencies and percentage of those who reported experiencing "Helplessness Trauma", "Danger-Based Trauma" (N = 10605).

War Zone Stressor Items	Exposed *n(* %)
Danger-Based Trauma	
I was caught in a crossfire between two conflicting parties using handguns or heavier weapons (artillery, missiles, etc.)	3699 (34.9)
I was surrounded /taken in an ambush	1110 (10.4)
I experienced a situation/ a moment in which I thought I was going to die	2520 (23.8)
Helplessness Trauma	
I was taken captive or hijacked	930 (9%)
I was attacked, threatened or provoked without the possibility of retaliating due to UN mandate restriction	3770 (36,3%)
I witnessed others being attacked, threatened, or provoked without the possibility of retaliating due to UN mandate restrictions	2718 (26,2%)

Note: Due to missing responses there are minor variations in total n on individual items. Individual respondents may have been exposed to several of the listed stressor items.

Table 3.
Means, Standard Deviations and the Intercorrelation Matrix (Pearson) of Predictor Variables, symptom measures and Covariates in Veterans Deployed to Lebanon (N = 10,605)

Variables	M	SD	1	2	3	4	5	6	7	8	9
1. Age	30.25	9.14	-	-	-	-	-	-	-	-	-
2. Education	3.24	1.16	-.72*	-	-	-	-	-	-	-	-
3. Time	.70	.46	.59*	.13*	-	-	-	-	-	-	-
4. Helplessness	5.15	2.46	-.03*	.00	.03*	-	-	-	-	-	-
5. Danger based	.13	.34	.08*	-.04*	.17*	.49*	-	-	-	-	-
6. PCL-17	1.31	1.87	.00	-.11*	.06*	.30*	.38*	-	-	-	-
7. HADS-D	2.60	2.38	-.02	-.08*	.02	.18*	.23*	.74*	-	-	-
8. AUDIT	20.92	6.05	-.06*	-.11*	.03*	.12*	.12*	.28*	.24*	-	-
9. GHQ-28	19.66	3.71	.02	-.09*	.04*	.18*	.24*	-.75*	.74*	-.29*	-

Note. Pearson correlations significant (two-tailed) at * $p < .001$. Inverse correlation score indicates negative associations.

Table 4.
Multivariate multiple linear regression of exposure scores of Helplessness Trauma and Danger-Based Trauma, as well as the persons' education, time since deployment and age as the independent variables in relation to the psychological distress scales: HADS-D, PCL-17, AUDIT and GHQ-28 as the dependent variables.

Variables	*B*	*SE*	β	R^2

HADS-D				.066***
Age	-.151	.047	-.038	
Education	-.129	.015	-.081	
Time since Deployment	.000	.007	.000	
Helplessness Trauma	.268	.032	.093	
Danger-Based Trauma	.331	.020	.183	
PCL-17				.171***
Age	-.412	.142	-.033	
Education	-.494	.046	-.097	
Time since Deployment	.022	.021	.012	
Helplessness Trauma	1.392	.097	.150	
Danger-Based Trauma	1.768	.061	.304	
AUDIT				.028***
Age	-.548	.061	-.109	
Education	-.075	.020	-.037	
Time since Deployment	.053	.009	.074	
Helplessness Trauma	.280	.042	.075	
Danger-Based Trauma	.177	.026	.076	
GHQ-28				.074***
Age	-.672	.156	-.051	
Education	-.465	.051	-.088	
Time since Deployment	.047	.023	.025	
Helplessness Trauma	.791	.106	.082	
Danger-Based Trauma	1.212	.067	.201	

Note: b = regression coefficient, SE = standard deviation, β *= standardized regression coefficient, R^2 = correlation coefficient squared, Hospital Anxiety and Depression Rating Scale (HADS-D), Posttraumatic Stress Disorder Checklist-17 (PCL-17); Alcohol Use Disorder Identification Test (AUDIT), Sig. *** p <.001*

Discussion

The result of the current study demonstrates that both traumatic stress characterized by peritraumatic helplessness, and danger and fear have an impact on long-term post-trauma suffering. The results did not support the hypothesis that peritraumatic helplessness would most strongly influence post-traumatic suffering, as danger-based stressors, in addition to having a significant influence on reports of psychological distress, seem to account for most of the variance on the symptom measures. In the current sample of Lebanon veterans, it would thus seem that negative mental health outcomes are mostly explained by exposure to traditional danger- and fear-based stressors, more in line with what is typically described as eliciting PTSD (Ozer et al., 2003; Pietrzak et al., 2011; Porter et al., 2018). Peritraumatic helplessness did, however, significantly predict post-traumatic development in terms of depression, PTSD-symptoms, general mental health, and alcohol use. This finding highlights that perceptions of helplessness is a salient peritraumatic factor in terms of influencing long-term psychological distress after traumatic exposure. Moreover, as we were not able to control for perceptions of helplessness in situations assumed to primarily involve a danger to

life and health, the results may thus be influenced by a degree of peritraumatic helplessness possibly associated with such events.

The Vocational Burden of a Soldier

A substantial amount of the literature on trauma is based on soldiers and veterans, and there is likely a difference in how civilians and military personnel experience PTEs. This potential difference should be taken into consideration when making generalizations about post-traumatic sequala. If we take into consideration the cognitive behavioural model described earlier, then perhaps the training soldiers do before missions, where they are exposed to a lot of the cues present during the operations, like the sound of gunshots, might be a source of protection from forming these fragmented and sensorial memories. Soldiers and peacekeepers, when on duty, experience PTEs in an environment where PTEs are more expected, and they are surrounded by people in a similar situation, which may be an alleviating factor (Gjerstad et al., 2019). Even though soldiers and peacekeepers are trained to handle high-stress situations, one should note that they are also exposed to high-stress and PTEs over a longer period and more frequently than most civilians.

The threshold for experiencing peritraumatic helplessness is perhaps different between the average soldier and a civilian. Our measure of helplessness did not measure the subjective experience of helplessness, rather we assumed a likely quality of helplessness associated with certain experiences. Perhaps the soldiers who faced helpless situations did not experience the peritraumatic helplessness, or perhaps the experience of helplessness did not carry as much weight as we presumed. Accordingly, the current study may indicate some limitations in utilizing descriptive measures of trauma exposure in order to capture subjective peritraumatic perceptions such as a feeling of helplessness. However, despite typically having the means and training to influence their situation during combat events the soldiers who were faced with situations involving a danger may have experienced a high degree of peritraumatic helplessness not captured by our descriptive trauma index items.

In partial contrast to our findings, studies have repeatedly demonstrated that peritraumatic helplessness is a particularly potent predictor of post-traumatic sequelae (Brewin et al., 2000). However, the relatively modest influence of helplessness in our results may be due to characteristics particular to military samples such as the Lebanon veterans in the study. As an example, there are studies suggesting that it may be more common for military personnel and first responders to not have immediate emotional responses after PTE

(Friedman et al., 2011), potentially due to the professional nature of their engagement with traumatic stressors. Accordingly, different types of trauma may produce distinct effects in civilian and military populations.

The traditional view of trauma as relating to life threatening experiences seems to be supported by the results of this study. This does not undermine the harmful potential in peritraumatic helplessness, but rather highlights the potency in danger-based stressors as PTEs. Much of trauma research tries to isolate single elements to identify the most contributing element to the trauma sequelae, however many PTEs involve several components contributing to the outcome. This study found danger-based stressors to be the most potent contributor in terms of psychological distress which supports a more traditional view of stressors. However, broadening the spotlight of research to also include the potential impact of peritraumatic helplessness, as well as newer concepts such as moral injury and witnessing PTEs, can enrich our understanding of the underlying mechanisms of trauma related suffering.

Two Rapports, Two Populations

It is relevant to compare the UNIFIL survey with the Afghanistan survey released in 2012 which also looked at the health of Norwegians veterans and utilized many of the same measures of mental health and trauma exposure. There are many similarities between the studies but also some differences between the sample groups. Overall, the veterans surveyed from Afghanistan reported less mental health difficulties, which may be due to several different factors. Among those were differences in the level of training as well as a difference in the mission statement.

The veterans from Afghanistan had a higher level of both civilian and military education, which is also linked with a lower rate of mental health difficulties and illness (Nordstrand, 2020). There was also a difference in the level of preparation before deployment and even though the Lebanon veterans felt mostly prepared for duty overall, the veterans from Afghanistan were more prepared for the mission, at least on paper. This may have influenced the degree of experienced peritraumatic helplessness in PTEs.

The systems meant to support soldiers, both before, during and after deployment, were much more developed for the veterans from Afghanistan than what was the case for the peacekeepers. The Afghanistan group were offered courses in managing stress, consultation

with a psychologist/psychiatrist in the field and post-deployment support. This may have had an alleviating effect and contributed to the lower rate of reported symptoms.

Moreover, the missions were quite different. The deployment to Afghanistan was an offensive NATO military operation, while Lebanon was a UN peacekeeping mission. Thus the latter may have entailed more diffuse situations where the rules of engagement were more unclear. There is a difference between the role of a combat soldier and that of a peacekeeper. A principal difference being that there is no stated enemy to defeat, rather you risk being attacked by those you are there to protect, which demands a high level of restraint. The researcher Orsillo with colleagues (1998) reported that half of the soldiers in their sample found these elements of peacekeeping missions to be “quite a bit” or “extremely” frustrating.

It is possible that due to the same set of circumstances described above, the experience of helplessness in danger-based situations were different between Afghanistan and Lebanon veterans. The difference in training, mission, rules of engagement, as well as the culture within the troops, may have affected the number of PTEs they were exposed to which provoked perceptions of peritraumatic helplessness. A peacekeeping mission involving more situations that arguably can be considered more unclear and difficult for the soldiers to navigate, may thus increase a potential for peritraumatic helplessness, even in situations primarily characterized by danger to life and health. Moreover, there is also a likely connection between a lower degree of training and the likelihood of experiencing peritraumatic helplessness. Taken together, our findings may therefore be due to Lebanon veterans feeling helpless, not only during incidents traditionally thought to provoke such feelings, but also during more regular combat situations. Even though operations in Afghanistan did involve more traditional danger-based situations, the higher level of preparation might have had a mitigating effect.

The Toll of a Lifetime

Considering the time passed between the exposure to PTEs and the survey, from 23 to 43 years, there are several potential confounders affecting the results. Memories are notoriously changeable, and how PTEs are remembered may have evolved over time (McNally, 2005). There is also an accumulation of stressors and PTEs during the time passed between deployment and study participation that may have affected the mental health of our sample and subsequently the results of this study. Later PTEs may explain current symptoms, or perhaps the experiences in Lebanon created a vulnerability for developing mental illness

later in life as former experienced trauma is linked to an increased risk of developing mental illness in general (DiGangi et al., 2013; Littleton et al., 2012; Ozer et al., 2003). There is, however, a case to be made for delayed onset PTSD as a possible explanation in the case of veterans who experienced the brunt of symptoms years later, especially taking into consideration recent findings showing late-onset PTSD to be more common in military populations (Ruzich et al., 2005).

Future Directions

Peritraumatic helplessness may have different outcomes in distinct traumatic situations, and different personal vulnerabilities may induce more sensitivity to helplessness in PTEs. As suggested above, the population in the current study may have been less prepared to manage danger-based stressors compared to more recent cohorts of soldiers, thus peritraumatic perceptions of helplessness could prove more potent in such populations. It seems clear that both the current and previous studies underscore the need for further investigations of this peritraumatic factor. In particular, qualitative studies of veterans suffering from PTSD years later may provide valuable insights of their subjective perceptions during trauma exposure.

Limitations

With a pool of 20 000 possible participants, 51% responded. However, considering that the survey was conducted between 18 and 38 years, on average 27 years after deployment, the response rate is not unsatisfactory, and in line with other veteran studies (Forbes et al., 2016; McAndrew et al., 2013) The non-responder analysis demonstrated that non-respondents had significantly higher levels of mental illness sick leave than respondents. If the cohort of non-responders were added to the study sample, we would expect a higher prevalence of mental health problems. This could have shifted the results in the current study. Of note, the inclusion criteria for mental illness in the NAV sick leave registry are less stringent than the measures used in the study. Therefore, it is not certain that the response bias would drastically affect the findings. However, the results from the non-responder analysis may have implications for the generalizability of the current study.

There are some methodological issues which warrant closer examination. The study was a cross-sectional study, which is not compatible with causal interpretations of the data. This means that we cannot say anything certain about the directional effect between mental health problems and the exposure to PTEs during deployment.

The study is likely sensitive to recollection bias, but we primarily separated people within the sample on whether they experienced something rather than the frequency of the specific experiences. Which is in line with research that has suggested that people are more accurate in reporting if something happened rather than reporting how many times they have experienced something (Henry et al., 1994).

The measure of exposure to potential stressors was developed by the research group in collaboration with Norway's largest veteran interest organization, instead of utilizing standardized, validated measures of war-zone stressors. The measure is based on previously validated instruments, with minor adjustments to better fit the sample group. It does have lower internal consistency in some of the measures, but overall, they capture aspects of deployment and the peacekeeping experience.

Conclusion

Helplessness, in the current sample, did not prove to be a more salient predictor for post-traumatic sequelae than traditional danger- and fear-based stressors. Danger-based stressors had a significant influence on reports of psychological distress. Helplessness did significantly predict post-traumatic development in terms of depression, PTSs-symptoms, general mental health, and alcohol use. These findings show that perceptions of helplessness is a salient peritraumatic factor in terms of influencing long-term psychological distress after traumatic exposure but that traditional danger-based stressors seems to be a more potent predictor for negative mental health outcomes. We were not able to control for perceptions of helplessness associated with danger- and fear-based stressors in the current study. Given the previously established salience of peritraumatic helplessness with regards to subsequent negative mental health outcomes, the results may thus be partially explained by danger-based stressors also eliciting a high degree of peritraumatic helplessness**.** Taken together, the current results show that despite the recent and necessary broadening of traditional concepts of trauma, fearing for one's life should not be underemphasised as a disruptive experience with the potential for long-term mental health consequences.

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Supplementary materials

Deployment Stressors (Traumatic Exposure) (Gjerstad et al., 2019)

Please indicate if you experienced any of the following during deployment to UNIFIL.

Item	**No**	**Yes, 1-2 times**	**Yes, 3-5 times**	**Yes, 5+ times**
I walked or drove on patrol, or participated in other operative assignments				
I was wounded during service				
I or a member of my team was hit by an IED (Improvised Explosive Device) or a roadside bomb				
I was attacked by, or in other ways exposed to, chemical and/or biological weapons				
I was caught in crossfire between two conflicting parties using handguns or heavier weapons (artillery, missiles, etc.)				
I provided first aid to seriously injured individuals				
I witnessed a fellow soldier become seriously wounded or killed				
I was involved in, or witnessed, a serious accident not related to combat				
I threatened others with a weapon				

I fired a warning shot				
I fired shots at individuals or groups of people during execution of service				
I witnessed brutality towards civilians, prisoners or others				
I was shot at by a handgun, artillery, missile or other weapon				
I was surrounded/taken in ambush				
I was taken captive or hijacked				
I experienced a situation/a moment in which I thought I was going to die				
I took part in land mine clearing/clearing of explosives (EOD)				
I walked or drove through a landmine area/IED area not cleared of mines				
I was attacked by persons or groups unarmed or armed with primitive weapons such as stones, sticks, etc.				
I took part in stopping, dissolving or striking down on demonstrations or large crowds (riot control)				

I was attacked, threatened or provoked without the possibility of retaliating due to UN mandate restrictions (military humiliation)				
I witnessed others being attacked, threatened or provoked without the possibility of retaliating due to UN mandate restrictions				
I experience friendly fire by mistake (“blue on blue”)				
I was bitten/stung by a snake, scorpion or other poisonous animal				
I was exposed to harmful smoke, strongly polluted air/drinking water or other environmental toxins				
I was exposed to a suicide bomber				
I was infected with malaria, yellow fever or other serious ailments				
I had such bad diarrhea, it affected my ability to carry out the assignment/complete the mission				
I was sexually harassed				
I was sexually assaulted/raped				
I was bullied				

Did you ever unintentionally discharge a weapon?				
Did you ever come to harm fellow soldiers or other team members by accident?				
Did you ever misjudge a situation that led to injury or the death of fellow soldiers or other team members?				
Did you ever misjudge a situation that lead to injury or death of civilians or enemies?				
Did you ever wound or kill someone during deployment that you in hindsight think of as unnecessary, and thus regret?				
Did you engage in morally questionable actions?				
Did you avoid taking action in situations where, with the benefit of hindsight, in which you should have?				
I took lives during my service in UNIFIL				

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Kunnskap for en bedre verden