SCANDINAVIAN JOURNAL OF MILITARY STUDIES

Wisén, N., et al. (2021). Are Peacekeeping Missions Inevitably Stressful? *Scandinavian Journal of Military Studies,* 4(1), pp. 210–219, DOI: https://doi.org/10.31374/sjms.107

RESEARCH ARTICLE

Are Peacekeeping Missions Inevitably Stressful?

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The degree to which peacekeeping missions impact perceived stress, cognitive performance and cortisol levels: a longitudinal study.

Military deployment is often associated with stress. Learning more about deployment stress is relevant for developing both preventive and reactive strategies for managing stress. This study addresses stress before, during and after a peacekeeping mission. Data were collected on perceived stress and the stress biomarker cortisol. A total of 41 soldiers were assessed at three points (prior to deployment, during deployment and at homecoming). Soldiers' perceived stress, cognitive performance and biomarkers were measured. Contrary to our hypothesis that stress accumulates during deployment, leading to increased perceived stress and levels of cortisol (as measured in the morning by the cortisol awakening response, or CAR), and to decreased results on cognitive tests, the results show that the levels of perceived stress were lower during deployment than before and after deployment, as measured by the soldiers' pre- and post-deployment scores. The soldiers also had a reduced CAR response at homecoming compared to their pre-deployment levels. The results indicate that peacekeeping missions may contain stress-mitigating factors that have previously been underestimated. Further research addressing stress-mitigating factors might allow a deeper understanding of the deployment environment and, subsequently, new methods of promoting soldiers' well-being and maintaining high combat fitness.

Keywords: peacekeeping; stress; biomarkers; cognition; military deployment

Background

The military has a long history of addressing the psychological impact of combat on its personnel. Historically, the psychological effects of war or combat exposure have been given many names and explanations. These have shifted from having to do with personality traits to more of a physiological or medically-oriented reaction. During the Trojan wars, psychological reactions were considered a vice (weakness) that was related to faith and religion. After the Civil War in America, the lingering effects of combat were explained by the idea of *soldier's heart*. Surviving soldiers showed signs of cardiovascular symptoms such as high blood pressure and elevated pulse, indicating a stress response that stayed with the soldier even after the war. In World War I, trauma could result in *shell shock*, the notion that soldiers suffered psychological trauma because they had been exposed to pounding artillery blasts disrupting the connections between the neurons. In World War II, there was the concept of *fatigue* – soldiers being worn out over time. In the Vietnam War, it went back to a more personality-driven view stressing weakness and personality disorders for the psychological suffering. It was actually after the Vietnam War in the 1970s that the term *post-traumatic stress disorder* was coined as a way to describe lingering psychological effects. As a diagnosis it was taken into the DSM-III (a diagnostic manual of mental disorders) in the 1980s by the American Psychiatric Association. In modern military psychology, psychological reactions are no longer attributed to personality disorders or weakness.

Modern military psychology focus on the variety of stressors affecting the soldier, not just combat stressors but also daily hassles and wear and tear from cumulative stress. There is no single possible psychological outcome of being deployed but, rather, a range of issues from less severe subclinical problems to disorders limiting life quality. Each has to be addressed with the appropriate methods and support.

One thing that the historical views have in common is that the main focus is on traumatic (combat-related) or other negative effects of military deployment. Research has however shown that focusing on positive and protective aspects is just as important (G. Larsson, Berglund, & Ohlsson, 2016; G. Larsson, Berglund, A. K., Ohlsson, & Nilsson. S 2017). Experience from working with deployment-related mental health clearly shows that one cannot draw on the scientific literature alone. We must also refer to empirical observations made in the period of the deployment. Every deployment differs and we cannot always predict the direction it will take. It can be a deployment with both casualties and injuries but with great leadership and camaraderie and with homecoming soldiers well-prepared for their return. Conversely, we have seen how a low-intensity mission might afford room for task-unrelated frictions to occur within the contingent, spilling over to affect individual wellbeing, both during and after deployment. A substantial number of soldiers continue to volunteer for multiple deployments, however. Most veterans value their service and feel it to have been rewarding in many ways. However, missions need to be acknowledged regardless of intensity and exposure, since you never know beforehand what you will experience. In this study, we explore the impact that deployment has on the soldier and how it is experienced with regards to sleep, stress perception and cognitive performance. We also measure stress hormones to address the physiological aspects of stress.

Introduction

Military deployment-oriented psychology often concerns aversive effects such as traumatic stressors, combat, fear, exposure to atrocities, etc. (Committee on Gulf War and Health: Physiologic, Psychologic, & Stress, 2008; Ferrier-Auerbach, Erbes, Polusny, Rath, & Sponheim, 2010; Franz et al., 2013). Aside from possible traumatic stressors there is also an impact from everyday stressors such as being away from home, having a high workload and experiencing the daily difficulties associated with deployment, together shown to account for a substantial psychological load during deployment (Heron, Bryan, Dougherty, & Chapman, 2013; Kaikkonen & Laukkala, 2016). However, the findings are inconclusive and vary with deployments. In their review of 2002, Shigemura and Nomura maintain a psychiatric focus on peacekeeping operations. They point out the important fact that each mission is unique in nature and stressors.

Peacekeeping operations (PKO) involve stressors and demands that vary both between operations and within an operation. Roughly, one can categorize the stressors as daily difficulties or as high-magnitude stressors (Bartone, Adler, & Vaitkus, 1998; Kaikkonen & Laukkala, 2016; Lande, 2014). Looking closer at peacekeeping, (Sareen et al., 2010) found 68 studies showing that, unsurprisingly, negative aspects such as combat exposure, multiple deployment and previous disorders correlated with post deployment distress while, perceived meaningfulness of the mission, post-deployment social supports, and positive perception of homecoming were associated with lower likelihood of distress. Highly relevant here, also, is Kaikkonen and Laukkala's review of 2016 including 53 studies selected (amongst other criteria) by relevance to Scandinavian experience from peacekeeping and stressing the importance of cultural impact on military psychology. They concluded that most of the Scandinavian personnel repatriated with no problems. The review also showed that repeated exposure to combat or other stressors were associated with mental health issues.

The demographics of Scandinavian soldiers likely differ from North American or British soldiers – a difference that can be attributed to factors such as recruitment and selection criteria in the context of the prevailing labour market. We have mostly well-educated and motivated soldiers of a high international standard. It is important to factor in cultural difference when exploring the literature of military psychology, largely founded, as it is, on the study of soldiers from other, significantly different, backgrounds. Yet another review of longitudinal studies on behavioural health was conducted by Pietrzak et al. (2013). They found basically the same: combat exposure correlates with negative outcome; a lack of traumatic stressors does not (Pietrzak, Pullman, Cotea, & Nasveld, 2013). In what could be categorised as a narrative review, (Brounéus, 2014) addresses some of the well-established papers in the area to conclude that the larger part of the studies "exclusively deals with psychological ill-health resulting from combat related trauma" (p. 26). We also need to put more focus on non-combat missions.

Military deployment is often studied as *deployment*, regardless of whether the deployment is a combat mission, peace-enforcing mission or a peacekeeping mission. Dag Hammarskjöld, the former UN Secretary-General, stated in one of his speeches that "peacekeeping is not a job for soldiers, but only soldiers can do it, " implying that there is a difference between a PKO and combat operations (what soldiers are trained for).

Pietrzak and colleagues (Pietrzak et al., 2013) showed in their review that it is "combat exposure, not deployment in general" (p. 14) that provokes negative effects on mental health. Indeed, soldiers who were deployed without being exposed to combat had better mental health than non-deployed personnel – a fact sometimes attributed to the so-called *healthy soldier effect,* according to which soldiers on deployment are selected and prepared for the stressors they encounter and that certain of these stressors, being specifically sought for, are perhaps rewarding for those seeking them. However, different nations have different experiences with participating in PKOs, depending on the mandate (peacekeeping or enforcement) and the level of conflict in the area where the soldiers are deployed. During engagement in the International Security Assistance Force (ISAF) in Afghanistan, Denmark saw around 40 soldiers killed in combat and slightly over 200 wounded in action compared to Sweden, with five soldiers killed in combat and 13 wounded in action in roughly the same period and with a similar number of soldiers deployed. This is an example of how PKOs under the same mandate and in the same country can lead to soldiers having substantially different experiences with exposure to combat-related stress.

Given the relatively low intensity of Swedish PKOs, there is still a need to look deeper into deployment-related stress in order to educate, train and prepare Swedish soldiers. The question asked in the title of this article, "are peacekeeping missions inevitably stressful?", could be provocative: it questions the pervasive view that military deployment, in this case the PKO, is stressful and taxing on the mental health of the participating soldiers. We know, however, that the Swedish veteran population is healthier than the population in general in regards to mental health (Aux-Analysis., 2017). Positive findings aside, we need a better understanding of how Swedish soldiers are affected by deployment. Addressing stress and its impact is important, and due to the heterogeneous nature of the stressors and the subjective perception of stress, we need to tailor the ways and methods we use in order to capture individual and contextual variations.

Regardless of the objective views on stress, it is the individual's subjective interpretation that determines his or her response to the stressor. The military demand-resource model offered by Bates et al. (2013) indicates that it is both the stressor itself and the individual's perceived resources to handle the stressor that determine whether the circumstances can be categorised as stressors. It is just as important to try to assess the subjective reactions to potential stressors and the perceived resources as it is to identify objective stressors. That is, we not only need to register and identify the objective stressors but to assess how the personnel perceived them.

Physiological reactions to stress occur as an organism strives to adapt its internal processes to meet the perceived challenge, a process known as allostasis. Even though this process is adaptive while the stress is happening, it might cause a negative internal imbalance if the stress is sustained (Peters & McEwen, 2012). A continuous elevated allostatic load from cumulative stress is known to affect both health and cognitive performance (Juster, McEwen, & Lupien, 2010; Lupien, Maheu, Tu, Fiocco, & Schramek, 2007). Cognitive performance is often assessed in terms of several domains; among these are memory, reaction time, stimuli discrimination and attention.

There are conflicting results from studies measuring the impact of stress from military deployment on cognitive performance. In one study of Canadian peacekeepers, researchers showed increased cognitive performance during deployment, possibly attributable to several factors, and suggested that factors such as motivation and the commitment to the fighting spirit might function to protect against operational stress-induced cognitive decline (Makhani, Akbaryan, & Cernak, 2015). Other studies have shown a decrease in cognitive performance, mainly after periods of intense military stress (Lieberman et al., 2005; Lieberman et al., 2016; Vrijkotte, Valk, Veenstra, & Visser, 2009). One known process related to stress and cognition involves cortisol passing the blood-brain barrier and binding to receptors in areas such as the hippocampus, where it affects both memory modalities and attention (Lupien et al., 2007). Regardless of the change in cognitive performance, there is an evident connection between the amount of stress and performance, following the classical inverted U-principle (Sapolsky, 2015).

The inverted U-principle basically states that while we tend to increase our performance according to the stress we experience, there is a peak serving to limit our performance; when stress is increased beyond it, our performance deteriorates. Once the optimal stress level is surpassed, in other words, we become less efficient and susceptible to cognitive mistakes such as faulty assessments and suboptimal decision making. Based on this relationship, cognitive tests could be of interest when assessing the impact of stress in addition to the use of self-evaluations and established stress-related biomarkers. Given the known effects of stress on memory and attention, we chose to test these cognitive modalities as possible stress-related outcomes.

Psychological stress is often assessed using self-evaluation forms and questionnaires. Studies on deployed military personnel often use questionnaires at homecoming or in later follow-up phases, but this approach can be subject to recall bias – the propensity to remember selected, suitable, parts, or to respond according to general expectations and self-perception. As the memory of perceived stress is subject to change over time, these types of assessments are held to be inexact to some degree. Regardless of memory, if one were to self-assess the perceived level of stress repeatedly over a period of six months, the perception would naturally vary over that period. Some studies solve this issue by multiple measurements over the course of deployment; repeated measurements provide an opportunity to identify temporary increases and drops in perceived stress and to get an average over time. Nevertheless, questionnaires are still limited to assessing the *perceived* levels of psychological stress rather than the actual response to stress. The use of biomarkers affected by stress can be valuable in conjunction with self-assessment to cross-validate the results from self-evaluations.

Prolonged exposure to cumulative stress can influence the levels of stress hormones such as cortisol (Clow et al., 2006; Makras et al., 2005), probably the most known and researched hormone in stress research; the effects on the body and brain of the stress response are set out in some depth by researchers such as McEwen and Lupien (Lupien et al., 2007; McEwen, 2013; McEwen et al., 2015; McEwen & Karatsoreos, 2015). Cortisol follows a diurnal cycle with the highest levels present after waking up, a phenomenon termed the cortisol awakening response (CAR). During the day, cortisol levels fluctuate, making individual values measured in the following hours less valid as stress markers. As the levels related to waking are considered a relatively stable measure over time (Matsuda et al., 2012), we chose CAR as our biomarker for stress.

In an attempt to address both the perceived stress and the stress-related biomarkers in the deployment cycle (prior to, during and after deployment), we designed a study in which we followed a group of guard and escort soldiers deployed in Afghanistan with regard to the measures mentioned above.

Hypotheses

Our hypotheses, based on pre-existing literature covering both peacekeeping and combat deployment, were that deployments will lead to: (a) higher levels of perceived stress, (b) negative effects on cognitive performance, and (c) elevated CAR.

Method

Subjects

All participants were military personnel employed by the Swedish Armed Forces (SAF). The sample consisted of a total of 41 male soldiers deployed for six months from December 2014 to May 2015, serving in the guard and escort platoon in Afghanistan under the ISAF command in Masar E Sharif. None of the participants had been deployed before. The mean age of the participants was 24.9 ($SD = 2.2$), with an average time of employment at SAF of 4.5 years. The sample represents an entire group of (novice) deployed soldiers. Participation was voluntary, and written consent was obtained from all participants. 95% of the soldiers chose to participate. The two soldiers who chose not to participate were a female soldier and an older soldier with previous deployments. Only 3 participants did not complete the study (for organisational reasons).

Deployment

Swedish deployments have involved a variety of exposures and intensities. This was Sweden's last full troop deployment to Afghanistan. There was no exposure to combat during the mission. There were other concerns for deployed service members, however, such as the impact of troop reductions and the possibility of green on blue attacks, that is attacks on troops (blue) from local employees (green) as a way of local employees to redeem themself with the insurgents.

Design

We used a longitudinal repeated measures design. The participants were measured at three timepoints (T1–T3): at pre-deployment, two to three weeks before deployment (T1), during deployment after two thirds of the deployment time of six months (T2), and at homecoming, during the homecoming programme within the first two days at home base (T3). As access to the participants was limited during deployment, only questionnaires were collected; no cognitive test data or biomarkers were collected on site in Afghanistan.

Analyses were performed using SPSS (IBM Corp.; released in 2017; IBM SPSS Statistics for Mac; Version 25.0; Armonk, NY: IBM Corp).

Measures

We used a battery of self-rating forms, neuropsychological tests and stress-related biomarkers.

Cognitive tests and self-evaluation scales were administered in group settings of 4–6 individuals at a time. The test leader was present at all times (administration of the test and the answering of questions during self-evaluations). The self-rating scales completed during deployment were not administered in groups but handed out and collected later due to operational demands. Group or individual administration can affect the results due to factors in the setting such as allotted time, ability to ask questions and peer pressure.

Self-rated stress

The perceived stress scale PSS14 (Cohen, Kamarck, & Mermelstein, 1983) is a 14-item self-report inventory that assesses perceived stress during the last month. The scale covers two factors, labelled as positive and negative stressors. Positive stressors, factors that can be actively controlled or coped with, are scored by responses to questions such as: "In the last month, how often have you felt that things were going your way?" Negative stressors, related to perceived limited control or coping resources, are scored by responses to questions such as: "In the last month, how often have you felt that you were unable to control important things in your life?" The sum of the scores can range from 0 to 56. In this study, each question was scored using a 5-point scale, where 0 = never and 4 = very often. The total score was computed by first reversing the scores of positive items and then by computing the sum of all 14 items. The psychometric properties of the PSS14 show a high internal consistency (Cronbach's α) ranging from $\alpha = .87$ to $\alpha = .92$ over all events and groups.

Cognitive performance measures

Three tests were used to evaluate cognitive performance. Due to limitations in accessing digital platforms, paper-and-pen alternatives were chosen. The *d2-R* (Brickenkamp, Schmidt-Atzert, & Liepmann, 2010) is a visual attention test. The task is to distinguish correct stimuli from mock stimuli within a limited time frame. The final score is based on the number of correctly-identified stimuli, taking faulty identified stimuli and omissions (missed correct stimuli) into account. The test is designed to stress both accuracy (*E%*) and speed (*tempo*) and is sensitive to both impulse control and concentration. The short time frame does not permit a full score (i.e., all correct stimuli being identified). We used *tempo* and *error E%* to compare performance over time.

Delta-R (Börjesson, 1970) is a test battery addressing IQ. We used only one of the test components, "non-verbal," a visual leverage test that ranges from simple to complex figures that involve logical reasoning and problem-solving. Correct items are scored as 1, and the maximum total score is 24 (all correct).

Memory was tested in two areas: working memory and episodic memory. Working memory was tested using the NAB (Neuropsychological Assessment Battery) *Digits Forward/Digits Backward* test (Stern & White, 2004). Episodic memory was assessed with a wordlist repetition task with delayed recall (the wordlist was generated by the author, using 15 randomly selected and unrelated words). The numbers and words were changed for subsequent measures.

Biological Stress Markers

The collection of cortisol was performed first thing in the morning at three time points (at awakening, and then after 15 and 30 minutes) to obtain the cortisol awakening response (CAR). Liquids, food, nicotine and the brushing of teeth were disallowed before saliva collection. The saliva was sampled using Salivette collectors. Samples were taken on two occasions, at baseline (T1) and at homecoming (T3). The samples were delivered the same day to the Karolinska University Laboratory for analysis.

Results

Self-Rated Stress

Comparison of the PSS14 over time showed a lower mean score during deployment than at baseline and at homecoming (23.93, 20.26 and 21.82, respectively). A one-way repeated measures ANOVA was used to compare the PSS14 scores from the test events prior to, during and after deployment. There was a significant effect between the test events $F(2, 35) = 5.22$, $p = .01$. Paired t-tests were used post hoc, with a repeated measures design showing a significant difference between both pre-deployment and during deployment, and between during deployment and at homecoming (see **Table 1**). To evaluate the magnitude of the difference, an effect size was calculated (Cohen's $d = 0.46$), which is considered a medium-effect size. PSS14 factors (positive and negative) were also compared separately using the same pair-wise comparison as for the total mean. **Table 1** shows that the difference lies in the negative factor for the pre- and during deployment scores (averages of 13.73 and 10.39, respectively), with a medium to large effect size (Cohen's $d = .61$). There

Table 1: Deployed soldiers.

Measure	Pre Deployment (n = 41)		During Deployment (n = 38)		Homecoming (n = 38)		ANOVA One-way repeated measure (n = 37)		Paired t-test		
	M	*SD*	*M*	*SD*	*M*	*SD*	*f*	*p*[b]	1–2	2–3	1–3
Perceived stress											
PSS14 sum[a]	23.93	7.87	20.26	7.31	21.82	8.16	5.22	.01	.005	.049	.136
Positive	10.20	3.49	9.87	3.83	10.45	4.38	.91	.41	.624	.181	.577
Negative	13.73	5.02	10.39	4.41	11.37	4.84	9.71	.00	.000	.063	.010
Biological markers											
Cortisol (unit nmol/l)	31.15	8.22	–	–	26.59	7.04					.025
Cognitive performance											
d2 Tempo	98.05	2.55	–	–	103.76	2.8					.000
d2E%	105.42	2.64	–	–	103.95	3.18					.197
Delta-R	13.56	1.8	–	–	15	1.7					.092
NAB	6.6	0.51	–	–	6.92	0.50					.269
Word list	7.61	0.87	–	–	8.16	0.72					.253

Notes: [a] Scalce scores range from 0 (never) to 4 (all the time) for each item, with a max score of 56 (over 14 items, 7 positive and 7 negative items). [b] Significance of/(bold numbers indicate statistical significance).

is also a significant decrease from pre-deployment to homecoming (from 13.73 to 11.37, respectively), with a small-medium effect size (Cohen's $d = .48$).

Cognitive Performance Measures

The *d*2 results, over time, show a slight increase in *tempo* (statistically significant, see **Table 1**). However, there was no change in accuracy (E%).

The *Delta-R* within-group results showed no change between pre-deployment ($M = 13.56$ ($SD = 1.8$)) and follow up ($M = 15$ ($SD = 1.7$), $p = .092$).

The memory *NAB* and *Wordlist* results showed no change in memory performance.

Biological Stress Markers

Regarding the cortisol awakening response, cortisol showed a significant decrease from T1 ($M = 31.15$ ($SD = 8.22$) nmol/L) to T3 ($M = 26.59$ ($SD = 7.04$) nmol/L) using a paired *t*-test ($p = .025$).

Associations

No significant associations between any of the tests were found. Correlations analysis showed no significant correlation between results. A cluster analysis were performed on the relation between PSS14 scores and cortisol levels on all test occasions, no relevant clusters were identified.

Discussion

Our hypothesis that deployment leads to higher perceived levels of stress over time was not supported by the results. Instead, the results showed a decrease in perceived stress during deployment and a return to the baseline level at homecoming. Even though we only see a medium effect when comparing the PSS14 scores prior to and during deployment, the effect is clearly in the opposite direction to our hypothesis, i.e., the soldiers perceive less stress during deployment. One possible explanation is that the initial stress score was elevated due to anticipatory stress. Unfortunately, we lack normative data on PSS14 for our soldier population. However, compared to the PSS14 scores of Swedish soldiers collected in another setting,[1] there is no clear indication of higher scores for the group preparing for deployment, when measured before deployment,

[1] The PSS14 was used in the same regiment as the deployed sample, and the test followed a group of guard soldiers during their regular service. The soldiers scored ($M = 22.16$ ($SD = 3.9$)) and ($M = 21.65$ ($SD = 4.8$)) on two occasions three months apart, indicating a "normative level."

compared to the group that was not going to be deployed. The scores measured during deployment can therefore be seen as lower than the normal "at home" levels of stress. The decrease in perceived stress can be found in the negative factor of the PSS14, showing that the soldiers experience less negative stress during deployment. This is an indication of a greater feeling of control over their situation and stressors – i.e., positive stress. Previous use has shown PSS14 to be a good tool with sufficient sensitivity to keep track of how stress is perceived by deployed soldiers and for evaluating the effectiveness of stress-mitigating strategies.

The hypothesis was as argued, based on what we consider to be the main view in the deployment-related literature. However, the empirical experience from mental health and deployment with the Swedish Armed Forces is congruent with the results, in that soldiers report a high level of wellbeing and work satisfaction when on deployment. As we have shown the veteran population is in general healthier than the general population (Aux-Analysis., 2017, 2018). The empirical interpretation is that pre-deployment training is well adapted and that expectations agree with reality. There is much focus on knowledge transmission between missions, and instructors often have on-site experience from foregoing missions. Military positions during deployment are often well defined, the expectations are often clear, and the individual is well trained to meet the demands within his or her area of responsibilities. These factors might contribute to a higher level of perceived control, which in turn might be stress-mitigating. In peacekeeping missions where both the level of external threat and combat stress are relatively low (Kaikkonen & Laukkala, 2016), the cognitive demands and resources are in balance, and consequently fewer effects of prolonged wear and tear. This finding indicates the need for a greater understanding of support and reward factors and stress mitigation strategies and negative stressors, and for resources such as welfare officers aimed at providing a stimulating environment and meaningful spare time.

Excluding combat-related stressors, there are still numerous stressors in the domain of daily difficulties (Heron et al., 2013; Raju, 2014). Daily difficulties can take many forms – being deployed in a remote area where there are difficulties returning should something happen to family or significant others at home, for one. This concern was often voiced by soldiers deployed to sites like Timbuktu in Mali, where the journey home might take several days; in some areas, it is initially hard to get online or to find a phone to keep contact with home (a relatively minor problem when in the camp, where technology permitting long-distance communication often is available). On operations possibly lasting for days to weeks, soldiers can be beyond the reach of welfare resources. Other daily difficulties might include the consumption of nothing other than rations, sleeping next to an air conditioner (noise), working in extreme temperatures and a lack of privacy. And in marine deployments, there is always the risk of sea sickness. One aspect that resurfaces here is the importance of expectations. Possessed of realistic expectations, one can adjust one's mindset to endure times of boredom or other inconveniences. As we have seen is that when expectations are distant from the reality there is a mismatch that sets ground for disappointment and a lowered threshold to handle other stressors.

Recent studies have shown that daily difficulties can be compensated for or outweighed by daily *uplifts* (G. Larsson et al., 2016; G. Larsson, Berglund, A. K., Ohlsson, & Nilsson. S 2017). These are factors, perceived as positive in comparison to difficulties, that contribute to empowering the individual. There might also be stress-mitigating properties of the "camp life" that might exceed the stress from the workload and other deployment-related stressors sufficient to attain a positive net result. The deployment cycle for Swedish peacekeepers is an established process with parts targeting mental health before, during and following deployment. There is a substantial focus on psychological risk and resources available for those who need support after the deployment. As pointed out by (Sareen et al., 2010), post-deployment social support and a positive perception of homecoming were associated with a lower likelihood of distress. It is possible that the focus on mental health during deployment and the homecoming programme might have a mitigating effect on stressors normally associated with homecoming.

With regards to biomarkers, cortisol measures were lower at T3 than at T1, and given the stable nature of CAR over time, we can infer that the levels were not consistently elevated during deployment. It is also unlikely that the decreased levels could be explained by hypocortisolism (that is, a substantial lowering of cortisol levels after prolonged stress), which is a possible effect of severe burnout (Lennartsson, Theorell, Kushnir, Bergquist, & Jonsdottir, 2013), since no burnout or clinical reactions to stress were identified from the questionnaires, either on a group or an individual level. No negative impact on cognitive performance due to stress (Bartone et al., 1998; Committee on Gulf War and Health: Physiologic et al., 2008; Waller et al., 2012) was identified, since there were no identified increases in stress during deployment.

There are several limitations to this study. The small sample size may be the most obvious limitation. Further, it lacks a comparable control group, and there may also be confounders regarding the healthy soldier effect (that is, motivation could work as a mitigator of stress). It should also be noted that all the soldiers participating were deployment-naïve. This means that no inference can be made regarding the cumulative impact of several deployments, something which has been observed in previous studies (Reger, Gahm, Swanson, & Duma, 2009). Nevertheless, the study presents an approach that addresses a topic that has been overlooked – the positive and augmentative aspects of military deployment. As we have said, there are different stressors at play during the different phases. When comparing longitudinal data, what are we really measuring? The continuous impact of ongoing stressors, or the direct effect of specific stressors at the time of measurement? This question calls for further in-depth studies on the nature of specific stressors. We believe that this study might set the stage for subsequent larger studies, possibly in cooperation with other nations, that could enable us to identify and better understand the positive, rewarding, factors of deployment.

Conclusion

The general view of military deployment as an inevitable source of negative stress can and must be challenged. Our results show that perceived stress was lower during deployment than before and after deployment. This finding calls for a change in focus from negative stress towards possible positive aspects of deployment.

Stating that military missions are not necessarily stressful in a harmful way is not to deny the challenging nature of the task. There is still a substantial risk associated with deployment. Even when the risk is realised – that is, when troops are exposed to and participate in combat – the outcome is not inescapably negative. Risk and hardship foster camaraderie and a sense of meaningfulness. Stating that deployment offers effects rewarding to the individual should not negate the well-deserved pride and honour that veterans should enjoy after deployment.

Competing Interests

The authors have no competing interests to declare.

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How to cite this article: Wisén, N., Larsson, G., Arborelius, U., & Risling, M. (2021). Are Peacekeeping Missions Inevitably Stressful? *Scandinavian Journal of Military Studies,* 4(1), pp. 210–219, DOI: https://doi.org/10.31374/sjms.107

Submitted: 21 April 2021 **Accepted:** 08 September 2021 **Published:** 19 October 2021

SCANDINAVIAN MILITARY STUDIES

Scandinavian Journal of Military Studies is a peer-reviewed open access journal published by Scandinavian Military Studies.

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