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Stressors, social support and military performance in a modern war scenario

Key words

Modern War Stressors, Coping Strategies, Social Support, Military Performance, Military Aircrews.

Abstract

The present study examined differences in stressors, coping strategies, and military performance in two groups deployed in the same war scenario, but with operative and psychologically different challenges.
A total of 173 military personnel participated in the study. Questionnaires measuring stress, coping strategies and military performance were administered before and after deployment in Afghanistan. Hierarchical Regression Analyses measured the extent to which stressors or coping strategies explained variance in military performance.
Operational personnel judged their military performance better than Staff personnel. Social Support was the most important predictor variables of military performance. The results are discussed with regard to differences in the operative and psychological challenges during service and the general effect of stressors and social support on military performance.
Social support was important for coping with challenges regardless of the type of service you completed.

Introduction

For many years studies of stressors and their impact on stress reactions and impaired performance have been a major focus in military psychological research. Less has been done to find out what makes soldiers withstand challenges and even increase their performance as a result of experienced stressors (Britt, Castro and Adler 2006, Driskell, Salas and Johnston 2006). A limited number of studies have explored the connection between *stressors*, *coping strategies* and *military performance*. (Hall, 2009; Overdale and Gardner 2012; Limber 2012). However, Milgram, Orenstein and Zafrirs' (1989) study of Israeli soldiers in the Lebanon war was a significant exploration of stressors and coping strategies' impact on military performance. Common to these studies was the finding that social support, as a coping strategy, had a positive impact on military performance. The current Study continues the search for an understanding of the relationship between these important factors in a military psychological environment (Campell and Novel, 2009), asking questions about:

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What is the stressor burden in a modern war context and how do military personnel cope with it? What is the impact of stressors and coping strategies on military performance? Similar measurements have been carried out in previous studies on Norwegian military personnel in both Bosnia and Kosovo (Laberg et al. 2002; Moldjord et al. 2001, 2003; Solberg, 1997, 2007).

Stressors in modern war scenarios

”Modern war” operations alternate flexibly between high-intensity combat, peacekeeping and stability operations, and humanitarian or nation-building projects. The boundaries between these activities are often invisible with no clearly “front line” and soldiers need to cope flexibly with the shifting challenges of war and peace building (Mastroianni, Mabry, Benedek, & Ursano, 2008). For soldiers trained to oppose more traditional enemies this context could be uniquely stressful (Hoge et. al 2004). In modern war theatres combat-related risk and exposure to extreme stress are experienced as potential threats to all personnel involved in missions, regardless of their occupational training or operational duties (Mastroianni et.al 2008). Any service member in the wars of Iraq and Afghanistan has been vulnerable to insurgent attacks, such as riots among civilians, grenade attacks and unexpected shelling in camp, and roadside bombs and kidnapping when moving outside camp (Campell and Nobel, 2009; Giustozzi, 2007; Johansen 2011; Mastroianni et.al 2008). Has the burden of deployment to service “in camp” become as stressful as being exposed to combat?

Campell and Novel (2009) make a distinction between four different subsets of stressors in the modern military psychological environment and delineate deployment from garrison and civil occupation: (1) Life-threatening combat stressors like active fighting and coming under fire. (2) Stressors associated with risk of injury or to life through unexpected acts of violation and lack of countermeasures. (3) Observing others as targets, like seriously injured comrades or witnessing suffering or someone dying. (4) Restraint and strict rules of engagement. In this study these subsets of stressors are used as a basis for comparison in the discussion.

Military performance

Military training focuses on building confidence and high standards of military performance intended to cope with combat contexts (Driskell et al. 2006; Krueger, 2008) and completing their missions (Hancock and Szalma, 2006). In preparations directed towards specific deployments, military personnel are trained in skills needed to cope with that particular mission (Delahaij, Gaillard, & Soeters, 2006), but are not as drilled over time as in traditional military training. Prior to each contingent rotation of the military unit investigated in the current study, a one-week pre-deployment preparatory phase for all servicemen was conducted, as a specific joint training for completing the mission in Afghanistan. Such an event often creates high expectations of one’s own military performance, because it (1) increases knowledge of what to expect, (2) takes future risk and uncertainty into consideration and (3) creates confidence about completing the upcoming mission (Campell and Novel, 2009, Driskell et al. 2006). A person's expectations of his/her ability to perform adequate actions in specific situations are believed to be essential for performance (Bandura 1997). Driskell et al. (2006) noted that to make performance on military skills, personnel need a balanced stress intensity experience. Experiences which incorporate either no stress or too

high intensity are both likely to be counterproductive (Friedland and Keinan, 1992). However, stressful experiences can be an opportunity for positive individual growth. Personnel who have been exposed to extreme stress will often cope better emotionally if they believe their experience serves a higher purpose (Lukey & Tepe 2008). This is supported by Mandel, et al. (2010) who found that military officers, who intervened in a human-rights violation, assessed their performance weaker if they contributed at lower intensity level than those who contributed at higher intensity level. Those who tried to intervene but failed assessed their performance even worse. In this study we measure expectations of military performance before and after deployment and investigate what can influence changes in self-assessed military performance.

Coping strategies in the military context

Lazarus & Folkman's (1984) defined coping as the strategies and processes that individuals use to modify adverse aspects of their environment. In a study of a UN helicopter unit in Bosnia, five strategies used to cope with the military psychological environment were found: (1) Seeking safety, (2) Diversion through stimuli, (3) Seeking changes of scene, (4) Seeking diversion by thinking about other things, and (5) Seeking social support (Moldjord, Fossum, & Holen, 2001; 2003). Other studies have identified coping strategies in a military context as behavioural activities that can distract the mind from the war like physical exercise, reading and doing other activities that occupy thoughts (Laberg, Johnsen, Eid, & Brun, 2002; Solberg, 1997). Lazarus & Folkman's (1984) cognitive model does not, however, consider the importance of cohesion and how social support effect performance. Previous research has shown that social support in the form of, support from leaders, cohesiveness and close friendship may help individuals cope a stressful situation adequately and thus create growth conditions and not stress reactions in the aftermath of service (Bliese & Britt, 2001; Britt, 2004; Cohen 2004; Delahaij, Gaillard, & Soeters, 2006; Cobb, 1976; Grossman, 2004; Hall, 2009; Limbert, 2004; Milgram, et al. 1989; Overdale and Gardner 2012; Reevy, 2007). In the current study *Social Support* refers to cohesiveness in unit, mutual trust and close friendship among unit personnel (Cobb, 1976; Milgram, et al. 1989).

High levels of social support and unit cohesion tend to make groups function well during demands of high performance (Cohen 2004). Milgram et al. (1989) found group cohesiveness to have the highest correlation with military performance during time of combat and after combat in "holding position". Overdale and Gardner (2012) found perceived social support from leaders to have a positive impact on performance among trainees. Limbert (2004) found that perceptions of social support were associated with job satisfaction.

The subjects for this study, all officers, were a selection of military servicemen deployed in the same geographical and cultural environments of Afghanistan, with shared purpose and common situational awareness, but in two separate groups: one operational and one in a more withdrawn setting in camp, but still prone to war threats similar to Campel and Novel's (2009) subsets two, three and four.

Purpose of study

The aim of this study was to examine the amount of different stressors, the use of coping strategies and the assessment of military performance in a modern war scenario. We compared the scores of military aircrew members and military "in-camp" personnel on these measurements. Given the prior research to these issues we wanted to explore the following hypotheses: (1) Operational personnel experience higher stressor exposure than "in camp" personnel, (2) Seeking Social Support extract as a separate coping strategy component on Coping Strategies Scale, (3) Operational personnel have higher increase in self-assessment military performance than "in camp" personnel after deployment (4) War stressor experience has positive impact on self-assessed military performance (5) Social Support has positive impact on self-assessed military performance.

Method

Participants and context of study

Participants in this study consisted of personnel in The Norwegian Aeromedical Detachment (NAD) in Afghanistan. For NAD, the main task was to operate a medical evacuation helicopter unit, and rescue wounded soldiers for the international coalition in the area of Faryab in Afghanistan. Although the unit did not have an explicit combat role, an escort helicopter with door-gunners always accompanied the ambulance helicopter on missions. Because of Rules of Engagement (ROEs), the Staff personnel were bound to their functions in the camp and initially excluded from moving outside the camp area.

The NAD helicopter unit consisted of 43 personnel in continual service. The Operational Unit consisted of 13 persons (aircrew personnel) operating two Bell 412 helicopters. The ambulance helicopter crew consisted of pilot, system operator and two medics. The escort helicopter included pilot, system operator and two door-gunners. The ambulance and the escort helicopters always operated together as one helicopter unit here defined as *Aircrew*. Among the 30 servicemen "in-camp" we found the detachment commander and his staff, intelligence personnel, mission support personnel, maintenance personnel, fire department and air medic (AME). These are defined as *Staff*.

The NAD was established in Afghanistan in April 2008 and organized in contingents each serving for 6 months (Contingent I served 12 months). Until October 2010, four contingents were deployed. Staff personnel included contingents while operational categories (pilots, system operators, medics) rotated across contingents' periods and could have more than one deployment. The survey was conducted of the personnel serving in contingents II, III and IV. These represented the sample in this study.

Table 1: Demographic Variables Aircrew vs Staff Compared.

	Age			*Sex*		*Marital Status*		*Mil Education*[1]		*Int Deployments*[2]		
	<29	*29-39*	*>39*	*Male*	*Female*	*Single*	*Partner*	*Grad*	*Non-Gr*	*1*	*2*	*3*
Aircrew	30%	45%	24%	92%	8%	38%	62%	48%	51%	39%	26%	36%
Staff	30%	28%	40%	87%	13%	38%	62%	51%	48%	49%	18%	29%

Note. N = 69 Aircrew, 94 Staff. [1]Military Education: Graduate (Grad) = Officers Academy Level I & II, Non-Graduate (Non Gr) = Sergeant school/training. [2]International Deployments: 1=NAD is first deployment, 2= NAD is second deployment, 3=Third deployment or more.

Between October 2008 and October 2010, 175 NAD personnel, responded to Questionnaire 1 (Q1), and 109 responded to Questionnaire 2 (Q2). Table 1 shows demographic variables of Aircrew and Staff. The number of respondents will vary in the different analyzes and results because unequal numbers of respondents answered fully the different questionnaires. The different N's are shown in the Results section. Because different categories of personnel rotated at different times, it was not possible to get an exact overview of whom and how many individuals had multiple deployments. For that reason the exact response rate was difficult to calculate. Despite that, none has more than one assignment recorded in the data.

Procedure

Participation was voluntary and based on signed consent. Participants were given a letter of information about the general purpose of the study. A unique identification number written on each questionnaire connected Q1 to Q2 for each respondent. The id numbers were linked to a list of respondents' names and home addresses. The list was kept safe by the survey administrators. Q1 was collected, in Norway, right before or during the departure to Afghanistan. Q2 was collected in Afghanistan just before returning home to Norway or was sent to the home address, containing a stamped return envelope, right after homecoming. The survey was approved by the Regional Ethics Committee and the Head of the Norwegian Air Force.

Measuring instruments

Different deployed settings are not functionally identical. It is therefore a challenge to measure general stressors that apply to all deployment types (Campbell and Nobel, 2009). This study uses a survey that was created on the basis of interviews with UN military personnel serving in the wars of Bosnia (Moldjord et al., 2001, 2003; Solberg, 1997) and further developed in the Kosovo study (Kobbeltvedt et al 2004; Laberg et al. 2002; Solberg, Laberg, Johnsen, & Eid, 2005; Solberg, 2007). Changes were made in the current scales adapted to the context in Afghanistan and based on five interviews of personnel serving in NAD Contingent I, in 2008, in Afghanistan. From a larger survey of a post and pre deployment questionnaires, results from the following measuring instruments were reported in the current study. From Q1 we used demographic variables and Military Skills Expectancies Scale. From Q2 we used the Stressor Scale (Laberg et al. 2002; Moldjord et al., 2001, 2003; Solberg, et al., 2005; Solberg, 2007), Coping Strategies Scale (Moldjord et al., 2001, 2003) and Military Skills Scale (Military Skills)(Laberg et al. 2002; Moldjord et al., 2001, 2003; Solberg, 1997).

The Stressor Scale aimed at measuring the frequency of stressful and critical situations during the mission. Previous studies, using the Stressor Scale, have revealed high values of internal consistency, with alpha values >.70 (Fossum, & Moldjord, 1999; Kobbeltvedt, et al., 2004; Solberg et al., 2005; Solberg, 1997). The scale originally consisted of 28 items rated on an evaluation scale of Likert type ranging from 0 (never) to 7 (continuously) and consisted of items such as "*how often did you see seriously wounded or killed persons, how often were you being shot at*". In the current study the questionnaire were adjusted and adapted to the challenges in Afghanistan and reduced to 27 items. In the current study the reliability was found to be satisfactory, Cronbach alpha = .89.

The Coping Strategies Scale aimed at measuring the importance of various cognitive, behavioural and social strategies which were used to cope with stressful challenges. Coping Strategies Scale originally consisted of 24 items using an evaluation scale of Likert type ranging from unimportant (1) to very important (7). Items were like the following: "*For me, talking to colleagues in the unit about the incident was*..." and "*For me, to know that the camp area was guarded was*...". Former studies, using this scale, revealed satisfactory internal consistency with Cronbach's alpha values between .64 and .88 on five components extracted from the questionnaire (Fossum, & Moldjord, 1999; Laberg et al. 2002; Moldjord et al., 2001, 2003). In the current study the scale consisted of 22 items based on the scales used in former studies. Six of the original 24 items were taken out of the scale (e.g: "*to have access to alcohol"*, which was not allowed in NAD) and four items were added based on different conditions in Afghanistan compared to Bosnia and Kosovo. Examples of the new items are "*to do something useful for the civilian populatio*n *was*" and "*to think that it was statistically unlikely to get injured*".

The Military Skills Scale aimed to measure military performance through how the respondents evaluated their handling of military challenges such as, "*keeping a cool head in stressful situations", "willingness to act on command in emergency situations", "cope with periods of low activity"*. The 19-item Military Skills Scale was measured as expectancies before deployment and self-assessment after deployment and rated on an evaluation scale of Likert type ranging from 1 (very good) to 5 (very weak) and 6 (don't know). Former studies have revealed satisfactory internal consistency, with Cronbach alpha above .7 (Fossum, & Moldjord, 1999; Laberg et al., 2002; Solberg, 1997, 2007). Through the interpretation of responses we found that parts of the respondent group of Staff personnel had answered 'don't know' on items which they had limited chance to gain experience with (e.g.: *"my ability to act even if I am threatened was*"). The rating alternative 6 (don't know), was therefore interpreted to represent 'not experienced'. The response scale was reversed in the analyses, giving "not experienced" the value of 0. The Cronbach alpha coefficient was .88 (scale measured pre deployment, N=135) and .92 (scale measured post deployment, N=107).

Statistical Analyses

Principal Component analyses were used to examine the component structure of the Stressors and Coping Strategies Scales. Reliability Analyses (Chronbach Alpha) were used to measure internal consistency of the indices. In addition item-total correlation analyses were performed to examine the ability of the indices. Frequency distribution was used to determine the percentage ranking and the most common stressors and coping strategies. A multivariate analysis of variance (MANOVA) was conducted to compare the, Stressors, Coping Strategies and Military Skills scores for different

groups of NAD personnel. Hierarchical Multiple Regression Analyses were used to predict Military Skills. In this analysis, demographics Stressors and Coping Strategies were entered as predictor variables.

Results

Stressor

Measuring the mean score on each stressor item on the *Stressors Scale* and the frequency of the number of respondents who experienced each stressor at least once, we found; *"to be called out at night without warning*" to be the stressor that most of the NAD personnel experienced (M=2.10, 75.2%)". The second most frequent stressor in NAD was "*to experience the service as boring*" (M=2.49, 73,4%) followed by "*to be outside the camp area*" (M=2.82, 69.6%),"*to see seriously wounded or killed persons*" (M=2.40, 68,8%), "*to have technical problems during operations*" (M=1.49, 60.6%). The two least frequented stressors items were "*to be seriously threatened with weapons*" (M=0.07, 4,6%) and " *to be threatened by the civilian population*" (M=0.02, 0,9%)
A Principal Component Analysis, with oblique rotation, was conducted on 23 items of the Stressors Scale. 4 items failed to load (e.g: "*to experience the service as boring*"). Prior to performing PCA, the assumption of data was assessed. An inspection of the scree plot showed inflexions that would justify retaining 4 components (Costello and Osborne 2005) and with eigenvalues exceeding Kaiser's criterion of 1, explaining 61.8% of the total variance and 36.6%, 10.7%, 8.2% and 6.3% of the variance, respectively. The reliability and internal consistency of the four factor component structure was satisfactory with $\alpha > .79$ on each component and average corrected item total correlation above .72 (Costello and Osborne, 2005). Table 2 shows the items clustered in four different components. The first component was entitled *Risk of Equipment Failure* which indicated that the military equipment was not always to be trusted. This component measured the extent of technical problems, the breaking of normal rules and equipment such as radio or GPS etc. that did not work at all times. The second component measured was *War-related Threat*, i.e. the extent of threat that was challenging but not necessarily life threatening. Stressors were impressions like missions at night, shelling and flying into combat zones. It was expected that this stressor constituted a heavy load for Aircrew personnel. The third component was entitled *Harmful Exposure.* This component measured the extent of close contact with the wounded and dead people who were brought in by the ambulance helicopter and surprisingly call-outs at night. The fourth stressor component was *Direct Threat to Life* which indicated more heavily threatening stressors, such as being shot at, seeking shelter because of grenade attacks and threat of the use of weapons.

Table 2: Component loadings of "Stressors Scale".

Item	Pattern coefficients			
How often did you….	C 1	C 2	C 3	C 4
Component 1: Risk of Equipment Failure				
See people starving or in need	.54	-.04	.25	.32
Have to break ROEs, normally used at home, to fulfill your tasks	.66	-.03	.13	.21
Experience that your equipment did not meet operational demands	.64	.10	.16	.17
Stumble close to combat	.42	.34	.31	-.03
Have technical problems during operations	.69	-.01	-.23	.19
Experience being without radio contact during operations	.50	.46	.17	.03
Find yourself in situation unable to contact your family	.47	.02	.39	-.06
Were you worried	.51	.37	.20	-.10
Component 2: War-related Threat				
Patrolling during night or in bad weather conditions	.02	.90	-.13	-.14

Enter or fly into conflict areas with ongoing actions of war	.15	.75	.13	.12
Experience your vehicle/fly being exposed to fire or shrapnel	-.43	.73	.12	.23
Experience your vehicle/fly having to maneuver away from threats	.20	.50	.34	.-11
See damaged buildings and infrastructure	.35	.46	.17	.03
Were you outside the camp area	.06	.80	-.17	.10
Component 3: Harmful Exposure				
Were you called out at night without warning	.04	-.23	.81	-.09
See dead bodies	-.02	.07	.76	.21
See seriously wounded or killed persons	-.02	.11	.73	.10
Component 4: Direct Threat to Life				
Were you forced to take cover because of war actions	.13	-.09	.11	.78
Were you being shot at	-.29	.47	.16	.63
Were you seriously threatened with weapons	-.04	.01	.17	.78
Were you threatened by mines	.23	-.03	-.14	.47
Were you in life threatening danger	.05	.02	.07	.70
See colleagues being shot at	.31	.19	.32	.38
Eigenvalues	8.43	2.46	1.88	1.44
% of variance*	36.63	10.70	8.18	6.27
Alpha	.85	.81	.81	.74

Note. *Total variance explained = 62%. C= Stressor Component in the Pattern coefficients matrix.

Table 3 shows Aircrew personnel had higher mean value rating on all stressor dimensions compared to Staff personnel, which means that Aircrew personnel were subjected to more stressors than Staff personnel. As seen in Table 3, a multivariate analysis of variance (MANOVA) showed there was a statistically significant overall higher score among Aircrew personnel than Staff personnel in Stressors, Wilks' Lambda =.37, F (4, 100) = 42.78, p< .001, Eta² = .63.

Table 3: Differences in Stressor Experience Aircrew and Staff personnel compared

	Air crew personnel			*Staff personnel*			
Stressors 4 Dimensions	N	M	SD	N	M	SD	F value
S1. Risk of Equipment Failure	48	1.45	1.17	57	0.67	0.81	16.46***
S2. War-related Threat	48	2.53	1.01	57	0.52	0.69	146.70***
S3. Harmful Exposure	48	1.94	1.64	57	1.76	1.35	.62
S4. Direct Threat to Life	48	0.30	0.51	57	0.08	0.39	6.07*

Note. *=p< .05, **=p < .01, ***=p< .001, Wilks' Lambda = .37, F (4 ,100) = 42.78, p< .001, Eta²= .63
Total N both groups = 105, where 0 = never and 7 = continuously.

Aircrew personnel were significantly more exposed to the stressor dimension entitled *Risk of Equipment Failure* (M=1.45, SD=1.17) compared to Staff personnel (M=0.67, SD=0.81); F(1, 103) = 16.50, p < .001, Eta² = .14. On *War-related Threat* there was a statistically significant difference in scores for Aircrew personnel (M=2.53, SD=1.01) and Staff personnel (M=0.52, SD=0.69); F(1, 103) = 146.70, p < .001, Eta² = .59, which means that Aircrew personnel experienced more exposure to war scenes and threat from the use of weapons than Staff personnel.

On Harmful Exposure there was no significant difference in scores between Aircrew personnel (M=1.94, SD=1.64) and Staff personnel (M=1.76, SD=1.35); F(1, 103) = 0.40, p = .53, Eta² = .004. Staff scored highest on *Harmful Exposure* among the stressor components, indicating they were moderately exposed to seeing severely injured and died people. However, Aircrew personnel had a slightly higher mean score.

On *Direct Threat to Life* there was a statistically significant difference between Aircrew (M=0.30, SD= 0.51) and Staff personnel (M= 0.08, SD=0.39); $F(1, 103) = 6.07$, $p < .05$, $Eta^2 = .56$, i.e. both groups scored low on this dimension.

Coping Strategies

We measured the mean scores on each item on the Coping Strategies Scale and the frequencies of the number of respondents who answered the value 5, 6 or 7 on each coping strategy. *"To be socially with others in the unit"*(M=5.26, 74.2%) was the most frequently utilized coping strategy, followed by "*talk to others about the incident*" (M=5.15, 69.3%) and "*have a colleague to talk to, confidentially*" (M 5.13, 69,2%). The results showed that social contact and social support were judged to be very important after stressful incidents. This result was reinforced by responses to the question:"*What was the most important strategy for you after stressful events*?" Respondents were asked to pick, from the scale in order of priority, the most important items after stressful events."*Talk to others about the incident*" was judged to be most important by 42% of the respondents, and 14% reported "*to have a colleague to talk to, confidentially*" to be most important. These two items were picked by more than the half of the respondents followed by "*call home to family*" (7.0%), "*engage in physical exercise*" (5.8%), "*be socially with the others in the unit*" (4.7%), "*know the enemy's weapons*" (4.7%) (N=86).

A final Principal Component Analysis, with oblique rotation, was conducted on 17 items of "Coping Strategies Scale". To improve the reliability, five items from the original questionnaire (22 items) were excluded, prior to PCA, because they failed to load. Inspection of the correlation matrix revealed the presence of coefficients of .3 and above and inspection of the scree plot showed inflexions that would justify retaining 4 components (Costello and Osborne 2005). The Keyser.Meyer.Olkin (KMO) value (Tabachnick & Fidell, 2007) was .874, exceeding the recommended value of .6 and Bartlett's Test of Sphericity (Tabachnick & Fidell, 2007) reached statistical significance, supporting the factorability of the correlation matrix. The PCA revealed the presence of four components with eigenvalues exceeding Kaiser's criterion of 1, explaining 68,7% of the total variance, and 45,3%, 10,2%, 6,8% and 6,3% of the variance respectively. The reliability and internal consistency was satisfactory with α above .78 and average corrected item total correlation above .73 on each component (Costello and Osborne, 2005).

Table 4: Component loadings of Coping Strategies After Stressful Events Scale.

Items	Information search	Social Support	Seek Divertion	Seek Safety	Commu-nalities
56.think of what I could have done differently	**-.75**	-.08	.15	.15	.55
54. aware of the conflict development	**.75**	.10	.19	-.01	.76
53.know the enemy's weapons	**.73**	.12	-.11	-.20	.70
55.know how close combat action took place	**.70**	.10	.17	-.13	.76
52. have access to their own medic	**.57**	.29	-.19	-.38	.76
39.talk to others about the incident	.02	**.92**	-.07	.10	.77
48.have a colleague to talk to confidentially	.05	**.79**	.01	-.14	.76
40.be socially with others in the unit	.07	**.78**	.11	-.02	.74
43.engage in physical exercise	.05	.32	**.68**	26	.66
57.think about the positive aspects of mission	-.18	-.06	**.68**	-.23	.73
58. know that it was unlikely to get injured	.21	-.16	**.59**	-.28	.62
47.call home to family	.09	.34	**.48**	-.09	.59
60.do something for the civilian population	.23	.04	**.47**	-.15	.46

50.know that there was shelters in camp	-.25	.07	-.09	**-.77**	.80
46.to have continuous work	-.13	.03	.30	**-.72**	.68
51.know that the camp area was guarded	.34	.01	.01	**-.72**	.83
49.confidential chat with the commander	-.19	.33	.29	**-.41**	.49
Eigenvalues	7.69	1.74	1.16	1.07	
% of variance	45.29	10.23	6.81	6.30	
alpha	.87	.85	.81	.82	

Table 4 shows the items clustered in four different coping strategy components. The first component was *Seek Information*, which measured the extent of knowing about the conflict development and enemy's weapons and thinking of one's own alternative courses of action. The second component, *Seeking Social Support*, measured the extent of having someone to talk to after incidents and to be socially with others in the unit. The third component, *Seeks Diversion,* measured the extent of doing exercise, calling one's family or thinking positively. The fourth coping strategy component was *Seek Safety,* which measured the extent of focusing on shelters and protection in camp and doing continuous work.

As seen in Table 5, a multivariate analysis of variance (MANOVA) showed there was a statistically significant overall higher score among Aircrew personnel than Staff personnel in Coping Strategies, Wilks' Lambda =.81, F (4, 93) = 5.38, p< .001, Eta² = .19.

Table 5: Coping Strategies Comparing Aircrew vs Staff

	Air crew personnel			*Service/Staff personnel*			
Coping 4 Dimensions	N	M	SD	N	M	SD	F value
C1. Seek Information	48	23.27	6.88	50	19.88	8.30	4.83**
C2. Social Support	48	15.92	4.27	50	15.04	4.89	0.89
C3. Seek Divertion	48	22.31	6.51	50	21.80	8.02	0.12
C4. Seek Safety	48	14.17	5.88	50	15.74	6.35	1.62

Note. *=p< .05, **=p < .01, ***=p< .001, Wilks' Lambda = .81, F (4 ,93) = 5.38, p< .001, Eta²= .19
Total N both groups = 98

The only single component to reach significant difference was *Seek Information*, F(1, 96) = 4.83**, p = .03, Eta² = .05. The estimated marginal mean scores indicated that Aircrew personnel reported higher levels of "*Seek Information*" (M=23.27, SD 6.88) than Staff personnel (M=19.88, SD=8.30), which means that Aircrew personnel more often resorted to proactive search for information as a coping strategy than Staff personnel. There were no significant differences between Aircrew and Staff on component *Social Support*, *Seek Divertion* and *Seek Safety*.

Military Performance

Table 6 shows 18 items of expectations (before deployment) and self-assessment (after deployment) of Military Skills, categorized in high and low scores. Rankings are based on the scores after deployment. There was a significant decline in total mean from 4.02 (Tot M 72.27, SD 7.14) before deployment down to 3.44 (Tot M 64.91, SD 15.89) after deployment. Military Skills on "high" level had the character of dealing with general stress and acting on known challenges, while on the "low"

level were more connected to the handling of life-threatening challenges and coping with real danger.

Table 6: Assessment of Military Skills Before and After Service in NAD. Mean values

I expect (before)/experienced (after) my …:	*Before*	*After*	
High	*Mean (SD)*	*Mean (SD)*	*Diff*
ability to cope with stress	4.27 (.57)	4.14 (.65)	-.13
ability to keep a cool head in stressful situations	4.09 (.76)	4.07 (1.03)	-.02
physical capacity and endurance to be…	3.96 (.79)	3.94 (.81)	-.02
ability to co-operate in stressful situations	4.14 (.59)	3.81 (1.24)	-.33
ability to cope with periods of low activity	3.84 (.94)	3.73 (1.02)	-.11
willingness to act on command in emergency situations	4.34 (.55)	3.68 (1.45)	-.66
ability to make decisions in stressful situations	4.02 (.67)	3.60 (1.41)	-.42
willing to participate in future international operations	4.01(1.02)	3.56 (1.28)	-.45
ability to provide support to others in stressful situations	4.10 (.73)	3.53 (1.33)	-.57
Law			
ability to give clear orders under pressure	3.93 (.83)	3.37 (1.50)	-.46
ablility to perform the mission even if the conditions are chaotic	4.12 (.53)	3.32 (1.71)	-.80
ability to motivate others in difficult circumstances	3.89 (.81)	3.25 (1.45)	-.64
combat skills and handling of weapons at individual level	3.73 (.79)	3.43 (.97)	-.40
ability to talk about feelings after stressful events	3.94 (.95)	3.33 (1.36)	-.61
ability to quickly recognize danger	3.82 (.76)	3.24 (1.55)	-.58
ability to judge others' performance in stressful situations	3.66 (.77)	3.17 (1.47)	-.49
ability to take leadership role in stressful situations	3.92 (.75)	3.13 (1.70)	-.79
ability to act even if I am threatened	4.08 (.70)	2.85 (1.96)	- 1.23
Total Score**	***72.27(7.14)***	***64.91(15.89)***	

Note. *=p< .05, **=p < .01, ***=p< .001, Wilks' Lambda = .87, F (2 ,66) = 4.80*, p< .05, Eta²= .13
Total N both groups = 69. NB: Rankings are based on the "After service scores".

Table 7: Military Skills Before and After Service Comparing Aircrew vs Staff in NAD

	Aircrew personell			Staff personell			
Military Skills	*N*	*M*	*SD*	*N*	*M*	*SD*	*F*
Before service	35	73.71	7.23	34	70.79	6.83	2.97
After service	35	70.40	8.43	34	59.26	19.56	9.53**

Note. Total N = 69, Wilks Lambda = .87, F (2, 66) = 4.80, p = .01, Eta² = .13.

Table 7 shows that there was a significant overall difference in Military Skills due to personnel group belongingness and time span (before and after deployment) (Wilks' Lambda =.87, F (2, 66) = 4.80**, p =.01, Eta² = .13.). Before service there were no differences in Military Skills between groups. Comparison after service showed that Aircrew personnel judged their Military Skills to be better compared to Staff personnel (F(1, 66) = 9.53**, p= .003, Eta² = .13.). The estimated marginal mean scores indicated that Aircrew personnel reported higher levels of Military Skills after mission (M=70.40, SD 8.43) than Staff personnel (M=59.26; SD=19.56).

Table 8 shows that the predictor variables (step 1: Demographic, step 2: Stressor components, step 3: Coping Strategy components explained 37% (respectively: .10, .06, .21) of the variance in Military Skills, $R^2 = .37$, $F(11, 78) = 4.19$, $p<.001$.

Table 8: Predictions of Demographic variables, Stressors and Coping Strategies on Military Skills for all NAD personnel.

	ß		
Predictor	*Step 1*	*Step 2*	*Step 3*
Step 1: Demograpic variables|			
Personnel Category[1]	-.31**	-.21	-.13
Age	.04	.07	.04
Civil Education	.09	.07	.19
Military Education	.00	.00	-.02
Step 2: Stressor Dimensions			
S1 Risk of Equipment Failure		.13	-.01
S2 War-Related Threat		.07	.18
S3 Harmful Exposure		.15	.09
S4 Direct Threat to life		-.00	-.00
Step 3:Coping Strategy Dimensions			
C1 Seek Information			.09
C2 Seek Social Support			.29*
C3 Seek Diversion			.14
C4 Seek Safety			.07
R^2	.10	.16	.37
R^2 ch	.10	.06	.21
F ch	3.08*	1.48	6.63***

Note. N = 89, p<.05=*, p<.01=**, p<.001=***. [1]Personnel Category = Aircrew & Staff

Different demographic variables such as military experience, education, sex and marital status were tried out as control variable without any significant association. To control for Personnel category we added variable Aircrew and Staff in the first step, which showed as the only significant single variable associated to Military Skills in step 1 (ß = .31 p<.01) though it was not significant in the second and third step. Social Support was the only single component who contributed significantly in the third step (ß =.29, p<.05).

Discussion

Practical Implications from the standpoint of hypotheses

This study shows that there are differences in stress exposure between operational personnel and "in-camp" personnel during deployment of a modern war scenario. Aircrew scored significantly higher than Staff personnel on *War-related Threats*, *Risk of Equipment Failure* and *Direct Threat to Life.* In previous studies of Norwegian military personnel in Kosovo, it had also been found that Risk of Equipment Failure was a key stressor (Kobbeltvedt, et al., 2004). Comparing with Campell and Nobel (2009) categories this indicates a moderate exposure of stressors in the category of subset 2, 3 and 4 and low stressor load in the category of subset 1 for Aircrew personnel. In general, Staff personnel scored low on war-related stressor burden, but were equally exposed as operational personnel on Harmful Exposure experiencing seriously injured and dead others (subset 3). This

shows that in camp personnel also are prone to stress load in a modern war scenario, but at fewer venues than operational personnel. The result confirms the Hypothesis (H1) that operational personnel experience higher stressor exposure than "in camp" personnel during deployment in a modern war scenario.

The study revealed four key components of coping strategies that are helpful after stressful service: *Seek Information, Seek Safety, Seek Diversity* and *Seek Social Support.* The results supported the second hypothesis (H2) that *Social Support* appeared as a separate component on the Coping Strategies Scale (Moldjord et al. 2001; 2003). Results showed no differences in the score on component *Social Support* between the measuring groups. This was supported in the findings of social contact and trusting conversations as the most important coping strategy after stressful events among both groups. This suggests that social support, as a coping strategy, is important regardless of the role or stress exposure in a war context.

Seek Information was the only coping strategy dimension where Aircrew personnel reported to score significantly higher than Staff personnel. Seeking relevant information about the conflict development and the enemy's weapons can give a higher perception of control. Those who remained in camp seem not in need of the same information probably because it was not crucial for their duty. This may be an indication of a more passive approach towards the whole situation for Staff personnel.

Aircrew and Staff personnel scored generally high on Military Skills prior to service in NAD, suggesting a high pre-deployment expectation of their own military performance (Driskell et al. 2006; Krueger, 2008). It is believed that the high expectations of self-assessed military performance before deployment is a cause of general decline in self-assessment of military performance after deployment. All personnel scored lower on their experience of Military Skills after service with the greatest decrease among Staff personnel identifying a significant difference between Aircrew and Staff. This finding rejected the third hypothesis (H3) that Operational personnel have higher increase in military performance than Staff personnel. This was a surprising result, since previous studies have shown increase in the rating of Military Skills by experience (Laberg et al,. 2002; Widing, Davøen, Laberg, Johnsen, Brun, & Eid, 2002). It was still interesting to see what other factors that influenced the variation in self-assessed military performance from before to after service.

The stressor dimension "*War-Related Threat*" was expected to have impact on military performance because this was the component that gave NAD personnel a manageable military challenge and thus provided a base for self-evaluation against the actual requirements. The fourth hypothesis (H4) was rejected because of the decline in Military Skills from before to after deployment, although the decrease was marginal for Aircrew. Aircrew personnel were very active in service execution and much more directly involved in the conflict's realities than were Staff. Aircrew personnel experienced active coping in the face of moderate level of W*ar Related Threats* and handling of the *Risk of Equipment Failure*. This contributes to understand how overcoming difficult challenges helps to increase positive outcome expectancy among Aircrew personnel (Ursin & Erichsen 2004). On the other hand, the Staff personnel inside the camp area were more affected by maintenance and routines, times of waiting and not being challenged in the same way. They had a low stressor load and experienced their military skills as not being really tested during service. At the same time, they

watched Aircrew personnel and other combat patrols coming in to camp from tough missions and coping with a service that was much more challenging. This may create a passive existence where participants are becoming increasingly hesitant to act, resulting in considering the realities of war at a distance or through others (Lukey, & Pepe, 2008). By passive presence you may feel a greater gap between expectations about your own military performance and what you actually experience (Lukey, & Pepe, 2008). This limited opportunities to make use of skills can even cause frustrations and stress (Bandura, 1997). This may be part of an explanation as to why self-assessed military performance declined significantly from before to after service for Staff personnel.

Social Support explained a significant part of the variance in self-assessed military performance. Similar findings were made in the Kosovo study (Widing, et al., 2002). The fifth hypothesis (H5) was nevertheless rejected because of the overall decline in self-assessed military performance from before to after deployment. Personnel who were active in the aircrew flying on missions and evacuating wounded out of conflict areas seem to have other benefits from social support than Staff personnel. For aircrew personnel it seems that there was a need to share experience about the incident after they had completed stressful missions. For Staff personnel it may be that the social life in camp was more conducive to a "reality orientation" concerning their own military performance compared with Aircrew personnel and other operative task forces based in camp. One explanation of this may be that *Social Support* helped to create the social arena in NAD and so contributed to an openness and awareness about which military skills that were relevant and desirable in such a setting. This may contribute to understand why *Social Support* explained variance in self-assessed military performance.

Theoretical implications, limitatons and future research

What have we learned from this study? In this study we ask if war stressor experience has positive impact on military performance. The results show an insignificant negligible decline in military performance for operational personnel experiencing moderate war stressors. There was a significant decline for "in camp" personnel with low stressor load. Although the result showed that stressors did not predict military performance, significantly, the result suggests that moderate to high stressor exposure has better impact on military performance than a moderate to low stressor exposure. An explanation could be that expected military performance was high in both groups because of pre-deployment training (Bandura 1997; Driskel et al. 2006) and that low stressor exposure limited testing of military skills for Staff personnel. This is supported by previous research showing that the degree of effort in a mission, and regarding the outcome is positive or negative, has influence on self-assessed military performance (Lukey & Pepe, 2008; Mandel et al., 2010). As earlier noted, "*stressful experiences can be an opportunity for positive individual growth as a way to make meaning out of challenging and painful experiences"*(Lukey & Pepe, 2008).This is something we can recognize from military personnel serving in Search and Rescue and medical units. Rescuing wounded soldiers from the battlefield in a helicopter operation and saving lives in acute medical operations are meaningful experiences, despite heavy risk and extreme scenes being part of it (Folland, 2009). This was to a greater extent the situation of operational Aircrew members than Staff in this study.

Results on *Social Support* show that this factor is of great importance in a military context, as in Afghanistan, regardless of whether personnel are operational or "in camp". Military personnel

experiencing modern war scenarios, even if they are non-combat, have a need to talk to someone trusted after stressful experiences. To facilitate this type of social contact after stressful events as a “buddy” like approach therefore appears to be appropriate. This finding supports relevant theories (Milgram, et al., 1989) and is also in line with the reports from recent military research (Delahaij, Gaillard, & Soeters, 2006; Limbert, 2004; Overdale and Gardner 2012; Hall, 2009; Reevy, 2007) and experienced operators (Campbell, 2006; Folland, 2009; Johansen, 2011). This requires a facilitation of suitable venues where personnel can feel confident about meeting and share experience. A leadership showing willingness and ability to organize such venues is also required.

What are the logical studies that follow from this study? Theories on military psychology deal with military personnel coping strategies arising from the experience of stressful incidents only to a small degree. How you cope after such incidents may determine whether to increase or decrease your subjective military performance. This is an important step to enable every soldier to recover from stressful assignments and get ready for the next challenge. The impact of different war stressor and following coping strategies impact on military performance thus requires further exploration. Research on military performance shows different definitions and spans from job satisfaction (Limbert 2004) to high performance skills (Hancock and Szalma 2008). A revised theory of military performance seems necessary. In addition the impact of social support on military performance needs further exploration. The importance of unit morale, motivation and health is known in prior research but the impact social support has on military performance lacks comparative studies.

There are some limitations of this study we need to point out. The sample size varied widely between the pre- and post- measurement (N= 175 for Q1 and N=109 for Q2), In addition there were a number of incomplete responses to Q2 ending up in low sample sizes (N below 100) for the different analyses. This introduces a degree of uncertainty into the results and limits generalizability. Low sample size on both PCA threatens generalization, but data appears to be strong through high communalities and several variables loading strongly on each factor (Costello and Osborne 2005).

Items on the Stressor Scale aimed at measuring the frequency of stressful and critical situations during the mission were probably easier to identify with for "combat exposed" Aircrew personnel than for "non-combat" “In-camp” personnel. “In-camp” personnel were probably more vulnerable to “normal” stressors such as isolation, threat of living in an unstable situation, and language problems and different leadership due to different nationalities. This was not explicitly measured in this study. Therefore the total stressor burden for “In-camp” personnel were somewhat incomplete measured here. Nevertheless, the Stressor Scale measured war-related stressors for both groups.

The Military Skills Scale aimed to measure military performance through how the respondents evaluated their handling of military challenges, in general. Items on Military Skills Scale could have been more specific to the operational skills required for Aircrew personnel and to the skills required to the special conditions of working as Military Staff in a camp in Afghanistan. Some items were therefore experienced as less relevant among some respondents. This was probably the reason for several incomplete responses to Military Skills Scale which resulted in small sample size in the analyzes.

Adding Personnel Category, as a dichotomous variable, to the Regression analysis first step may have underestimated the real effect. These shortcomings in the Military Skills Scale may include bias in the study that we have not taken into account.

Despite the above limitations and although the design of this study is complex, we believe that the result revealed in this study is a contribution to informing future training and pre-deployment programs to be aware, that even if the stressor burden differs among different categories of personnel, the use and need of social support may be equal, social support may serve different positive purposes in the military environment and social support may contribute to reflection about your own military performance. It is therefore worth considering how social support is facilitated and organized in the military environment. This is also an aspect worth examining in further research.

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