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VITA MIKULIČIŪTĖ

FACTORS OF MILITARY TEAMS PERFORMANCE EFFICACY

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Social Sciences, Psychology (06S)

Vilnius, 2013

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## INTRODUCTION

Contemporary military is getting based on small and extremely well organized units, which can operate quickly, adaptively and unexpectedly, - these are the main demands for today's military operations. Therefore the greater role is played by the military teams. Team in military is usually considered as a section (squad). It is a group of 8 – 12 persons, in which every member has his (her) role, but all as a whole complete the task (Ministry of National Defense Republic of Lithuania, 2011).

Performance efficacy in military – it is not only the level in which performance results correspond to performance standards, but also the maintaining of life and health of the team members (or other people). High performance efficacy is useful not only for the organization, in which team members are imbedded, but also for the team members themselves, and even for the surrounding people, e.g. living near the operation is taking place. Therefore it is very important to investigate the factors of military team performance efficacy. It has been proved that some factors, concerning team and individual functioning, are crucial for team performance efficacy. They are: cohesion, team trust, perceived collective efficacy, perceived self-efficacy and stress.

Even though a number of previous researches concerning these factors have been carried out, several problems in them could be encountered:

1. Often the difference between a team and a group is not clear enough. Some researches do not objectify what exactly they are evaluating. Every team is a group, but not every group is a team. That means that not all research results, obtained by estimating groups could be applied to explain team properties.
2. Usually artificially, only for one task completion composed teams are included into research, therefore drawn conclusions not always

reflect the properties of a long - term teams, working in a real - life surroundings (DeJong, Elfring, 2010).

3. A small amount of factors, concerning the performance efficacy, is usually estimated, and a very important emotional component is too often ignored (Jordan, Troth, 2004).
4. Because of the specific characteristics of military teams (long term functioning, relatively high isolation, high levels of control and hierarchy, a huge amount of time spent together, constant threat to life and health) the question exists, if it is possible all findings about the teams in other organizations to adapt to military settings (Siebold, 2006).

Even though it is widely acknowledged, that teams in various organizations perform very important functions (Hirschfeld, Jordan, 2005; Gorman et al., 2006) and belonging to a team is associated with a lot of positive findings (e.g. higher commitment to organization, job satisfaction, performance efficacy) (Rasmussen, Jeppesen, 2006), there is still a lack of researches studying long - term actual teams. Besides it is not clear, what factors are the most important in predicting performance efficacy of the military teams, what the relations between these factors are, and what the role of emotional component is in an efficient team functioning. According to this, the **aim of the study** was raised: to analyze the relationship between cohesion, team trust, perceived self and collective efficacy, stress and performance efficacy.

### **Objectives:**

1. Develop the questionnaires of military stress, perceived Self collective efficacy, to adapt to Lithuanian military population the scales of cohesion and team trust, and to compare different instruments of cohesion evaluation.

2. Analyze the correlation between cohesion, team trust, perceived self and collective efficacy, stress and performance efficacy.
3. Theoretically ground and empirically prove the path model of cohesion, team trust, perceived self and collective efficacy, stress and performance efficacy.
4. Discover factors predicting performance efficacy of teams with high and low levels of cohesion.
5. Compare the perception of the team in soldiers having different military rank, position and experience in international operations.

**Scientific novelty.** Taking into consideration the fact, that Lithuania has its own military forces only for 20 years, quite a few empirical studies concerning military psychological problems have been already made. But the spectrum of them is rather narrow. Usually the problem of military stress or posttraumatic stress disorder is analyzed (Autukaitė, Valickas, 2004; Domanskaitė – Gota et al., 2006, 2009). Other studies are associated with the development of questionnaires (Antanaitytė et al., 2007) and satisfaction with the military service (Žakaitis, Rugevičius, 2004; Žakaitis, 2006). It is important to notice, that almost all studies, mentioned above, were concerned with the problems of compulsory military service (Autukaitė, Valickas, 2004; Žakaitis, Rugevičius, 2004; Žakaitis, 2006; Antanaitytė et al., 2007; Domanskaitė – Gota et al., 2006, 2009), therefore the results of these studies could be hardly applied to contemporary Lithuanian military. In 2008 compulsory military service was abolished and today's Lithuanian military forces are based on professional military service. In professional military service the conditions, relationships between soldiers and the stressors differ from compulsory military ones. The first scientific novelty of our study is the analysis professional (instead of compulsory service) soldiers.

Besides, studies conducted in Lithuania have analyzed only individual phenomena of soldiers. There have been no studies about the team as a whole. On the other hand, such a situation predominates in other countries also. Only

in last two decades researchers of the military psychology (and from the other areas) began to speak about the need to analyze the team and especially emotional it's aspect. Our study concerns these problems and therefore should be considered as having an important scientific novelty.

Even though it is possible to find foreign researches about the factors associated with the performance efficacy of teams, but this information is rather scattered. Usually the relationship between performance efficacy and one or a few phenomenon is analyzed. Therefore it is not clear how relate a bigger amount of team phenomenon and which of them are more important in predicting team performance. In scientific literature is a lack of information about the relations between individual factors, contributing to team performance, and the team factors. Our study not only theoretically grounds the model, in which main factors of performance efficacy is associated but also empirically tests it.

**Practical implications:**

1. The study reveals factors, predicting military team performance efficacy, and the interaction between these factors. The results could help military leaders or military psychologists to understand properties of functioning teams easier and to find ways to improve their performance efficacy. Efficient teams distinguish themselves with high levels of cohesion, team trust, perceived self and collective efficacy. One can infer, that these factors should be monitored and developed in order to improve teams' performance efficacy.
2. Another contribution of this dissertation is that inventories, measuring military stress, perceived military Self and collective efficacy, were developed. Used in practice these inventories could identify problematic teams and soldiers or, in the contrary, indicate teams or soldiers, for whom more responsible tasks should be given.



### **Defended statements:**

1. Perceived collective efficacy is the most important variable predicting military team's performance efficacy and stress. Team's performance efficacy can also be predicted by cohesion, team trust and perceived Self - efficacy, but these factors predict performance efficacy not directly, but through perceived collective efficacy.
2. Team and individual variables of military performance efficacy interact. Team cohesion and team trust predict the level of perceived Self-efficacy, and perceived collective efficacy – the level of military stress.
3. Performance efficacy of the team with a high level of cohesion could be predicted by team trust, perceived Self and collective efficacy. Besides, in such teams collective efficacy mediates the relationship between team trust and team's performance efficacy.

### **METHODS**

**Respondents and procedures.** 160 military person of professional military service took part in the study. They represented 28 military sections (squads). Respondents were selected according to three main criteria. 1) Respondents had not only to be the part of the section, but also to work/train with it every day. 2) Only persons, having the position “commander of the section” and lower, could take part in the study. 3) 80 percent or more members of the same military team had to fill in the questionnaires to include ones' answers to the study.

Most of the respondents were men (94,4%). Only 6 (3,8%) women took part in the study. 1,9% (3 respondents) did not reveal their sex. The age of respondents ranged from 19 to 37 years, average 24, 76 years. 28,4 (21) of respondents were privates, 17,6% (13) – junior privates, 16,2% (12) – senior privates, 6,8% (5) – junior sergeants, 2,7 % (2) – sergeants. 28,4% (21) did not reveal their military rank. Majority of the respondents were infantrymen

(58,1%). Other functions of the sections were: reconnaissance, security, intercommunication, supplies.

**Measures.** For the purpose of the study three questionnaires were created: Military Stress Questionnaire, Perceived Military Self-efficacy Questionnaire and Perceived Military Collective Efficacy Questionnaire. After the analysis of the official military duties descriptions and several interviews with professional soldiers a pool of items for every questionnaire was generated. These primary versions of the questionnaires were presented to 89 soldiers and 3 military psychologists. Their comments about other important areas in military, associated with stress, perceived Self and collective efficacy were noted and more items were included. Expanded questionnaires when were presented to 62 soldiers, and exploratory factor analysis was carried out. Final step was to carry out confirmatory factor analysis with the main sample data. In our study two scales developed by other authors were used also: Team Trust Scale (DeJong, Elfring, 2010) and Perceived Cohesion Scale (Bollen, Hoyle, 1990). Since these scales were translated to Lithuanian and were modified to the military sample, psychometric characteristics of these scales were also tested. Psychometric characteristics of questionnaires and scale prove that they fit for scientific (and practical) researches.

**Military Stress Questionnaire.** The purpose of the Military Stress Questionnaire is to evaluate specific only with the military service associated stressors. Questionnaire consists of 18 statements about the properties of the field training, everyday duties, interpersonal communication, leadership and ect. Respondents using 5 - point Likert - type scale have to specify how often they have faced described situation (1 – never have faced, 5 – have faced 10 or more times) and how much strain it has aroused (1 – has aroused no strain at all, 5 – has aroused very high strain). M. Autukaitė and G. Valickas (2004) indicate, that evaluating the stress level experienced in particular situation, both answers should be multiplied and the final result calculated. Higher evaluation demonstrates higher level of stress.

Exploratory (KMO = 0,90; Bartlett's test  $\chi^2=1877,40$ ;  $p<0,01$ ) and confirmatory ( $\chi^2=122,36$ ;  $df=120$ ;  $p=0,06$ ; GFI=0,90; RMSEA=0,047; NFI=0,90) factor analysis revealed, that Military Stress Questionnaire consists of two subscales: *Interpersonal communication* (10 statement, Cronbach  $\alpha = 0,89$ ) and *Field training* (8 statement, Cronbach  $\alpha = 0,87$ ). Internal reliability of the whole questionnaire is high (Cronbach  $\alpha = 0,92$ ).

**Military Perceived Self-efficacy Questionnaire.** The purpose of Military Perceived Self-efficacy Questionnaire is to evaluate soldier's beliefs about his (her) capabilities to perform tasks, associated with military service. Questionnaire consists of 15 statements. Respondents have to estimate their belief that they can overcome such tasks as "to give a first aid to other soldier", "to use his (her) ruffle as safety rules indicate" and ect. Belief is estimated by percent: 0 – "cannot do at all", 50 – "moderately can do it", 100 – "highly certain can do".

Exploratory (KMO=0,83; Bartlett's test  $\chi^2=1760,29$ ;  $p<0,001$ ) and confirmatory ( $\chi^2 = 97,13$ ;  $df = 97$ ;  $p > 0,05$ ; GFI = 0,97; RMSEA = 0,038; CFI = 0,98) factor analysis revealed that questionnaire has one factor structure. Internal reliability of the Military Perceived Self-efficacy Questionnaire was very high (Cronbach  $\alpha = 0,94$ ).

**Military Perceived Collective Efficacy Questionnaire.** The purpose of this questionnaire is to evaluate soldier's beliefs about the team's capability to perform tasks associated with the military service. Questionnaire consists of 12 statements about how well the team (section) as a whole can "shoot at indicated target", "keep order in the living space" and ect. Belief is estimated by percent: 0 – "cannot do at all", 50 – "moderately can do it", 100 – "highly certain can do".

Exploratory (KMO = 0,86; Bartlett's test  $\chi^2=1212,14$ ;  $p<0,01$ ) and confirmatory ( $\chi^2 = 58,62$ ;  $df = 46$ ;  $p > 0,05$ ; GFI = 0,98; RMSEA = 0,04; CFI = 0,99) factor analysis revealed, that questionnaire has one factor structure.

Internal reliability of the Military Perceived Self Efficacy Questionnaire is very high (Cronbach  $\alpha = 0,93$ ).

**Team Trust Scale.** Scale was developed by A. De Jong and T. Elfring (2010). The purpose of this 5 item scale is to evaluate respondent's positive expectations about the team's members' behavior. Since originally scale was developed not for military population, some words were changed in order to make the scale more comprehensible for the soldiers (the word "team" was changed to "section", "job" to "service" and ect.).

Exploratory (KMO = 0,86; Bartlett's test  $\chi^2=155,83$ ;  $p<0,01$ ) and confirmatory ( $\chi^2 = 4,69$ ;  $df=5$ ;  $p>0,01$ ; GFI=0,97; RMSEA=0,000; CFI=1) factor analysis prove A. De Jong's and T. Elfring's (2010) statement, that the scale consists of one factor. Team Trust Scale's internal reliability in our sample was a little lower than in the original one (in our study Cronbach  $\alpha = 0,88$ , original sample's Cronbach  $\alpha = 0,92$ ).

**Perceived Cohesion Scale.** Perceived Cohesion Scale was developed by K. A. Bollen and R. H. Hoyle (1990). Authors describe the scale as brief 6 - item instrument, applicable to a broad range of groups, which measures two aspects of perceived cohesion: respondent's beliefs about his (her) belonging to the group (team) and feelings associated with it. K. A. Bollen and R. H. Hoyle (1990) indicates that depending on the group (team) some wording should be changed. In our study the word "group" was changed to "section", "organization" to "company" and ect.

Confirmatory factor analysis supported two factor structure of the scale ( $\chi^2 = 13,61$ ;  $df=7$ ;  $p > 0,01$ ; GFI=0,97; NFI=0,97; TLI=0,96; RMSEA=0,07). Internal reliability of the whole scale and separate subscales was a little lower though. "Sense of belonging" subscale's Cronbach  $\alpha$  was 0,79 (in original sample Cronbach  $\alpha = 0,97$ ), „Feelings of morale“ subscale's Cronbach  $\alpha$  was 0,80 (in original sample  $\alpha = 0,87$ ), whole scale's Cronbach  $\alpha$  was 0,85 (in original sample Cronbach  $\alpha = 0,93$ ).

**Performance efficacy.** Performance efficacy evaluation was based on the scores of field training results. Professional military usually has evaluative field training once or twice a year, in which the performance of the section, platoon or company is evaluated by neutral military observers. Observers fill in the protocols how many tasks the evaluated unit has performed correctly. The final score is the ratio between all performed tasks and the tasks, performed correctly.

**Statistical analysis.** Hierarchical data were collected in this study. It means, that we had information about the section and the platoon every respondent belonged. These data could be analyzed using several main strategies. Hierarchical data could be aggregated or deaggregated. Aggregation is a procedure in which the data of the group are combined and only the mean is used for further analysis. Deaggregation means that individual data are analyzed. Both of these strategies have their shortcomings and benefits. One way to decide, which kind of analysis is more suitable is to estimate the data independence (F value), the coefficients of intraclass correlation (ICC) and within-group correlation ( $r_{wg}$ ). If it is estimated that the answers of respondents, belonging to some group are associated, data should be aggregated (Shamir et al., 2000; Mach et al., 2010). The results of data independence and the coefficients of intraclass correlation and within-group correlation are presented in the Table 1.

Table 1. Results of data independence and the coefficients of intraclass correlation and within-group correlation

Questionnaire	ICC	F value	Critical F value	Min. $r_{wg}$ value	Max. $r_{wg}$ value	Mean $r_{wg}$
Military Stress Questionnaire	0,19	1,78	1,94	-	-	-
Team Trust Scale	0,09	1,54	1,94	0,85	0,99	0,96
Perceived Cohesion Scale	0,11	1,07	1,94	0,93	0,99	0,97
Perceived Military Self-efficacy Questionnaire	0,08	0,60	1,94	-	-	-
Perceived Military Collective Efficacy Questionnaire	0,14	1,59	1,94	-	-	-

Notice:  $p < 0,10$ .

Even though the results indicate, that ICC coefficients are rather low, but F value and  $r_{wg}$  coefficient prove that data should be aggregated. Therefore the main premises were verified using aggregated data. Only comparing soldiers of different military rank, position and military experience deaggregated data were used.

## RESULTS

### 1) Correlation between cohesion, team trust, perceived self and collective efficacy, stress and performance efficacy.

The objective of the study was to estimate the correlation between the variables. Pearson's correlation coefficients are presented in the Table 2.

Table 2. Correlation between cohesion, team trust, perceived self and collective efficacy, stress and performance efficacy.

	M	SD	1.	2.	3.	4.	5.	6.
<b>1. Stress</b>	4,64	1,76	-	-0,38*	-0,41*	-0,37*	-0,33	-0,22
<i>Interpersonal relation subscale</i>	4,25	1,99	0,83***	-0,35	-0,50**	-0,53**	-0,50**	-0,32
<i>Field training scale</i>	5,03	1,89	0,89***	-0,19	-0,18	-0,16	-0,12	-0,07
<b>2. Perceived Self efficacy</b>	84,63	6,31	-0,38*	-	0,79***	0,57***	0,47**	0,43*
<b>3. Perceived collective efficacy</b>	85,17	8,29	-0,41*	0,79***	-	0,59***	0,61***	0,51**
<b>4. Cohesion</b>	3,83	0,40	-0,37*	0,57***	0,59***	-	0,84***	0,40*
<i>Sence of belonging subskalè</i>	3,78	0,38	-0,29	0,52**	0,46*	0,89***	0,75***	0,28
<i>Feelings of morale subscale</i>	3,86	0,46	-0,30	0,57***	0,64***	0,93***	0,79***	0,38*
<b>5. Team trust</b>	3,86	0,43	-0,33	0,47**	0,61***	0,84***	-	0,37*
<b>6. Performance efficacy</b>	92,29	4,26	-0,22	0,43*	0,51**	0,40*	0,37*	-

Notice. \*\*\* -  $p < 0,001$ ; \*\* -  $p < 0,01$ , \* -  $p < 0,05$ .

Results indicate, that performance efficacy has significant interrelations to perceived Self and collective efficacy, cohesion and team trust. There was found no significant correlation between performance efficacy and stress. Table 2 reveals, that high correlation between two variables, cohesion and team trust, exists ( $r = 0,84$ ,  $p < 0,001$ ). Such high correlation indicates multicollinearity problem between the variables. Usually it is recommended to merge such variables or remove one of them from further analysis (Lei, Wu, 2007). Since scientific literature considers cohesion and team trust as similar phenomenon (both has emotional and cognitive aspects), besides these two variables in our study had been measured using similar scales, it was decided to merge them for further analysis.

**2) Path model of stress, cohesion, team trust, perceived self and collective efficacy and performance efficacy.**

Based on the theoretical analysis of scientific literature the hypothetical model, encompassing cohesion, team trust, perceived self and collective efficacy, stress and performance efficacy was created, and later modified according to correlation results. Path analysis was used to test properties of modified model. The model is presented in Figure 1.

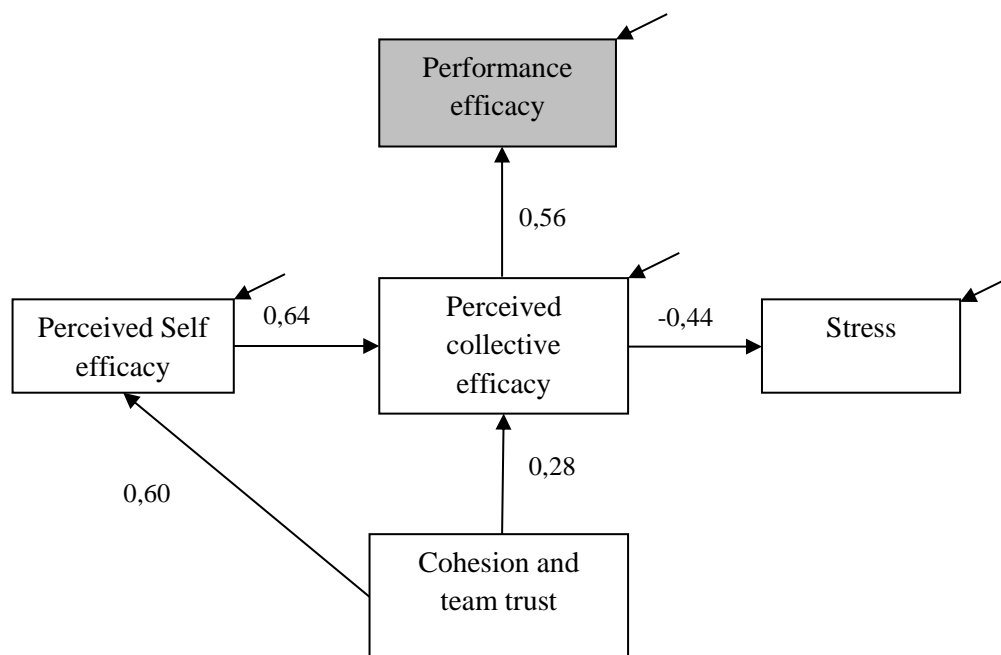


Figure 1. Modified model: interaction between cohesion, team trust, perceived Self and collective efficacy, stress and performance efficacy ( $p < 0,05$ ).

Model indexes prove, that model fits data very well:  $\chi^2 = 5,28$ ;  $p > 0,01$ ;  $df = 5$ ;  $TLI = 0,99$ ;  $RMSEA = 0,04$ ;  $CFI = 0,99$ . Modified model reveals that cohesion and team trust predict performance results not directly, - perceived collective efficacy acts as a mediating variable. Besides, Self-efficacy predicts perceived collective efficacy and collective efficacy is the only variable, which predicts military stress level.



Several important inferences from the obtained results could be made. First, high collective efficacy can diminish military stress, therefore act as protective factor against the formation of PTSD and other psychopathologies. Secondly, perceived collective efficacy is the only variable, which influences performance results directly. In order to improve the results of the team, it is important to monitor and raise the levels of collective efficacy. Thirdly, cohesion and team trust has important implications not only on perceived team capabilities, but on perceived ones' capabilities as well.

### **3) Performance efficacy of teams with high and low levels of cohesion**

All teams were divided into two groups (high cohesion, low cohesion) for several purposes. Firstly, it was assumed that perceived Self-efficacy is more important in predicting performance efficacy of teams with low levels of cohesion and perceived collective efficacy better predicts performance efficacy of the teams with high levels of cohesion. Secondly, because of multicollinearity of cohesion and team trust it was impossible to determine, what is the exact relation between team trust, perceived collective efficacy and performance efficacy. Results of multilinear regression are presented in Table 2.

Table 2. Predicting efficacy performance of the teams with high and low levels of cohesion.

	Low cohesion		High cohesion	
	$\beta$	R <sup>2</sup>	$\beta$	R <sup>2</sup>
Perceived Self efficacy	0,23	0,05	<b>0,62*</b>	0,39
Perceived collective efficacy	0,33	0,11	<b>0,70**</b>	0,50
Perceived Self efficacy	-0,08	0,11	0,12	0,50
Perceived collective efficacy	0,40		<b>0,60*</b>	
Team trust	0,03	0,00	<b>0,66**</b>	0,44
Team trust	-0,14	0,12	0,36	0,58
Perceived collective efficacy	0,39		<b>0,49*</b>	
Team trust	0,32	0,10	0,29	0,51
Perceived Self efficacy	0,02		<b>0,56*</b>	
Perceived Self efficacy	-0,08	0,16	0,02	0,58
Perceived collective efficacy	0,36		0,44	
Team trust	-0,09		0,42	

Notice. \*\*\* -  $p < 0,001$ ; \*\* -  $p < 0,01$ , \* -  $p < 0,05$ .

Results indicate, that in teams with low levels of cohesion perceived Self-efficacy explains only 5% of data distribution, such influence is not statistically significant ( $\beta = 0,23$ ,  $p < 0,05$ ). When team cohesion is high, regression equations indicate, that perceived collective efficacy predicts performance efficacy the best. It explains even 50% of data distribution. Relatively good prediction results also have perceived Self-efficacy and team trust (accordingly 39% and 44%).

R.M. Baron ir D.A. Kenny (1986) states three conditions according to which references about mediating variables in regression equations could be made (see in Baron, Kenny, 1986, p. 1176). These conditions indicate, that perceived collective efficacy acts as mediating variable in the relation between team trust and performance efficacy. It is important to notice, that such mediation emerges only in teams with high levels of cohesion.

#### 4) The comparison between different groups of soldiers

In order to reveal the groups of soldiers, for whom the practical implications of the study should be mostly applied, it was decided to compare the perceptions about the team according to military rank, position and experience in military operations. Data were analyzed using nonparametric Mann – Whitney statistical criteria for two independent samples. The results of comparison between military rank are presented in Table 3.

Table 3. The results of comparison between military rank

	Military rank		Mean rank	Z	p
<b>Stress</b>	Jr. private	Private	37,99	-3,62	<b>0,000*</b>
			59,87		
		Sr. private	26,87	-1,69	0,089
			34,89		
		Jr. sergeant	24,05	-0,05	0,955
			23,75		
	Private	Sr. private	43,18	-1,16	0,244
			35,95		
		Jr. sergeant	37,84	-2,11	0,035
			21,50		
	Sr. private	Jr. sergeant	15,08	-1,08	0,276
			11,44		
<b>Perceived Self efficacy</b>	Jr. private	Private	52,99	-0,40	0,689
			50,58		
		Sr. private	28,05	-0,93	0,349
			32,47		
		Jr. sergeant	22,36	-1,81	0,070
			32,00		
	Private	Sr. private	39,59	-1,32	0,185
			47,84		
		Jr. sergeant	34,28	-1,97	0,048
			49,56		
	Sr. private	Jr. sergeant	13,08	-0,93	0,352
			16,19		
<b>Perceived collective efficacy</b>	Jr. private	Private	58,51	-1,88	0,060
			47,16		
		Sr. private	29,72	-0,14	0,888
			29,05		
		Jr. sergeant	23,36	-0,70	0,479
			27,12		
	Private	Sr. private	39,60	-1,31	0,187
			47,82		
		Jr. sergeant	34,63	-1,57	0,116
			46,81		
	Sr. private	Jr. sergeant	13,37	-0,63	0,524

			15,50		
<b>Cohesion</b>	Jr. private	Private	56,63	-1,38	0,166
			48,33		
		Sr. private	29,18	-0,20	0,835
			30,16		
		Jr. sergeant	23,27	-0,81	0,417
	27,56				
	Private	Sr. private	39,91	-1,10	0,269
			46,76		
		Jr. sergeant	34,46	-1,77	0,076
			48,12		
Sr. private	Jr. sergeant	13,42	-0,59	0,555	
		15,38			
<b>Pasitikėjimas komanda</b>	Jr. private	Private	60,87	-2,53	<b>0,001*</b>
			45,70		
		Sr. private	29,22	-0,18	0,854
			30,08		
		Jr. sergeant	23,56	-0,48	0,627
	26,12				
	Private	Sr. private	39,04	-1,71	0,087
			49,66		
		Jr. sergeant	34,44	-1,80	0,071
			48,31		
Sr. private	Jr. sergeant	13,58	-0,42	0,668	
		15,00			

Notice. \* Bonferroni correction,  $p < 0,008$ .

The results presented in the Table 3 show, that soldiers having a military rank of the private tend to experience higher levels of stress and trust their teams less than junior privates. Such results could be related to the dynamics of the trust and the crisis of the first year in the military service. Usually privates have been serving in military for at least one year long and during that period have get acquainted with the military settings. Initial enthusiasm usually quiets down and military routine usually takes place. Therefore privates began to feel elevated levels of stress and are tended to trust their teams less. It could be inferred, after such a crisis the stress tends to get lower and team trust is starting to grow.

Since no differences were estimated in perceived Self and collective efficacy depending on the military ranks, premise was raised, that experience in international operation may be important in judging about the capabilities of oneself or one's team to perform military tasks. Mann-Whitney statistical

criteria for several independent samples was used to verify if the difference between military person with international operation experience and without it exists. Results are presented in Table 4.

Table 4. The results of comparison between experience in international operations

	<b>International operation experience</b>	<b>N</b>	<b>Mean rank</b>	<b>Z</b>	<b>p</b>
Stress	No	136	78,00	-0,00	0,99
	Yes	19	78,03		
Perceived Self Efficacy	No	136	74,57	-2,54	<b>0,01</b>
	Yes	19	102,58		
Perceived Collective Efficacy	No	136	74,61	-2,51	<b>0,01</b>
	Yes	19	102,24		
Cohesion	No	136	77,85	-0,11	0,90
	Yes	19	79,11		
Team trust	No	136	77,64	-0,26	0,79
	Yes	19	80,55		

Results show that international operations (e.g. in Afghanistan) has not only negative consequences as it is usually underlined (Shigemura, Nomura, 2002; Elhai, 2007; Jones et al., 2012), but also positive ones. Lithuanian soldiers, who have experience in international operations, demonstrate higher levels of Self and collective efficacy. Such results could be explained by additional training and more responsible tasks, which persons, preparing for the operation, get. Besides, these soldiers receive more attention from the military leaders and mass media; have greater financial rewards to compare to others. All these sources are associated with the growth of perceived Self and collective efficacy.

One more premise was verified. It stated that the perception of the team's properties can differ depending on the position soldier has in the section. Some previous studies demonstrated, that commanders tend to overestimate their teams cohesion, team trust and perceived collective efficacy to compare to their subjects (Shamir et al., 2000; Campbell et al., 2010).

Results of a comparison between commander of the section and their subjects are presented in Table 5.

Table 5. The results of comparison between position in the section

	<b>Position</b>	<b>N</b>	<b>Mean rank</b>	<b>Z</b>	<b>p</b>
<b>Stress</b>	Subjects	130	54,50	-0,44	0,65
	Commander of the section	17	58,69		
<b>Perceived Self Efficacy</b>	Subjects	130	53,30	-1,52	0,12
	Commander of the section	17	67,54		
<b>Perceived Collective Efficacy</b>	Subjects	130	55,97	-0,87	0,38
	Commander of the section	17	47,85		
<b>Cohesion</b>	Subjects	130	54,27	-0,66	0,50
	Commander of the section	17	60,42		
<b>Team trust</b>	Subjects	130	55,15	-0,13	0,89
	Commander of the section	17	53,88		

Table 5 shows, that commanders of the section and their subjects tend to perceive their team's properties similar. This is quite obvious, because in previous studies higher commanders (commanders of the platoon or the company) were analyzed. Commanders of the sections spend much more time with their soldiers, not only teach or lead their subjects, but also help them and try to keep rather close relationships. Therefore these two groups do not differ in their perception of the team at significant level.

## **CONCLUSIONS**

1. Performance efficacy is positively related to cohesion, team trust, perceived self and collective efficacy.
2. Model, which indicates, that team and individual factors predict performance efficacy both directly and indirectly, has been proved:

- 1) Team trust and cohesion predicts perceived Self and collective efficacy;
- 2) Perceived collective efficacy mediates the relation between perceived Self efficacy and performance efficacy. Perceived collective efficacy predicts performance efficacy directly;
- 3) Perceived collective efficacy predicts military stress.
3. Performance efficacy of the teams with high levels of cohesion could be predicted by perceived Self and collective efficacy and team trust. None of the mentioned variables predict performance efficacy of the teams with low levels of cohesion.
4. In the teams with high levels of cohesion perceived collective efficacy mediates the relation between team trust and performance efficacy.
5. Soldiers' comparison based on military rank, position and experience in international operation experience reveal, that higher levels of perceived Self and collective efficacy characterize person with international operation experience. Privates tend to experience higher levels of stress and to trust their teams less to compare to junior privates. Commanders of the section and their subjects evaluate their teams similar.
6. The developed questionnaires for the evaluation of military stress, perceived Self and collective efficacy fit psychometric requirements and could be used not only for research, but also for practical purposes.

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## RESUME

**Darbo aktualumas.** Šiuolaikinė karyba remiasi vis mažesnių itin gerai organizuotų vienetų veikla, nes tik tokie vienetai gali veikti greitai, lanksčiai ir netikėtai, o tai yra pagrindinės karinei operacijai keliamos sąlygos. Taigi vis svarbesnį vaidmenį kariuomenėje atlieka komandos. Komanda kariuomenėje paprastai prilyginama skyriui, t.y. 8 - 12 žmonių grupei, kurioje kiekvienas narys turi savo pareigas, tačiau visi kartu atlieka tam tikrą kovinę užduotį.

Komandos veiklos efektyvumas kariuomenėje – tai ne tik laipsnis, kuriuo veiklos rezultatai atitinka standartus. Prastas veiklos efektyvumas – tai ir neišsaugota komandos narių (bei aplinkinių žmonių) sveikata bei gyvybė. Štai kodėl itin svarbu tyrinėti karinių komandų veiklos efektyvumo veiksnius. Ir nors tyrimų, susijusių su šiais veiksniais iki šiol atlikta nemažai, tačiau juos nagrinėjant susiduriama su keliais sunkumais:

1) Dažnai lieka neaišku, kas buvo tirta: grupė ar komanda. Kiekviena komanda kartu yra ir grupė, tačiau ne kiekviena grupė yra komanda. Todėl ne visais atvejais rezultatai, gauti tiriant paprastas grupes, gali atitikti komandos funkcionavimo ypatumus.

2) Dažniausiai tiriamos dirbtinai, vienai užduočiai atlikti sudarytos komandos, todėl išvados neatspindi realiomis sąlygomis dirbančių ilgalaikių komandų ypatumų.

3) Paprastai vertinamas ribotas komandos veiklos efektyvumo veiksnių skaičius, ignoruojant labai svarbius emocinius veiksnius.

4) Dėl specifinio karinių komandų pobūdžio (ilga gyvavimo trukmė, sąlyginė izoliacija, aukštas kontrolės ir hierarchijos lygis, ilga kartu praleidžiamo laiko trukmė, grėsmė grupės narių sveikatai ir gyvybei) kyla klausimas, ar visus mokslinėje literatūroje pateikiamus duomenis galima pritaikyti ir karinėms komandoms.

Taigi nepaisant to, kad vis plačiau pripažįstama, jog komandos įvairiose organizacijose atlieka labai svarbias funkcijas, o priklausymas komandai yra susijęs su įvairiais teigiamais padariniais, iki šiol trūksta tyrimų, kurie

nagrinėtų ilgalaikes realiomis sąlygomis veikiančias komandas. Be to, nėra aišku, kokie veiksniai tiksliausiai prognozuoja komandos veiklos efektyvumą, stokojama duomenų apie atskirų veiklos efektyvumo veiksnių tarpusavio sąveiką, nepakankamai dėmesio skiriama emociniams komandos aspektams, taip pat karinių komandų funkcionavimo ypatumams. Atsižvelgiant į tai, buvo keliamas šio **tyrimo tikslas**: nustatyti karinių komandų sutelktumo, pasitikėjimo komanda, suvokto Aš bei kolektyvinio efektyvumo, patiriamo streso ir veiklos efektyvumo sąveiką.

#### **Tyrimo uždaviniai:**

1. Parengti karių patiriamo streso, suvokto Aš bei kolektyvinio efektyvumo klausimynus, lietuvių karių populiacijai adaptuoti sutelktumo ir pasitikėjimo skales, palyginti skirtingus sutelktumo matavimo metodus tarpusavyje.
2. Nustatyti karių komandų sutelktumo, pasitikėjimo komanda, suvokto Aš bei kolektyvinio efektyvumo ir patiriamo streso koreliacinius ryšius su veiklos efektyvumu.
3. Teoriškai pagrįsti ir empiriškai patvirtinti sutelktumo, pasitikėjimo komanda, suvokto Aš bei kolektyvinio efektyvumo, patiriamo streso ir veiklos efektyvumo tarpusavio sąveikos modelį.
4. Nustatyti veiksnius, prognozuojančius aukštu ir žemu sutelktumu pasižyminčių karių komandų veiklos efektyvumą.
5. Palyginti skirtingą karinį laipsnį, pareigas bei tarptautinių operacijų patirtį turinčių ir neturinčių karių suvoktus komandos ypatumus.

**Mokslinis naujumas.** Nors atkurta nepriklausoma Lietuvos Respublika savo kariuomenę turi tik per 20 metų, empirinių tyrimų, nagrinėjančių karių psichologines problemas, atlikta sąlyginai nemažai, tačiau jų spektras gana ribotas. Daugiausia tyrinėjama karių patiriamo streso ir potrauminio streso sutrikimo problema. Kita darbų dalis susijusi su klausimynų kūrimu, pasitenkinimu privalomąja karo tarnyba. Reikia atkreipti dėmesį, kad daugumoje minėtų tyrimų buvo apklausti privalomosios karo tarnybos kariai,

todėl dabar jų rezultatai jau nelabai aktualūs ir pritaikomi. Lietuvoje 2008 m. panaikinus privalomąją karo tarnybą, pereita prie kariuomenės su profesionaliais kariais, savanoriškai pasirinkusiais kario profesiją. Profesinės karo tarnybos kariai susiduria su kitomis tarnybos sąlygomis, negu kad susidurdavo privalomosios karo tarnybos kariai, todėl ir juos veikiantys stresoriai bei karių tarpusavio santykių ypatumai greičiausiai yra kitokie. Taigi *pirmuoju* disertacijos mokslinio naujumo aspektu galima laikyti tai, jog buvo analizuojami Lietuvos profesinės (ne privalomosios) karo tarnybos ypatumai.

Be to, tiek Lietuvoje, tiek ir kitose šalyse kol kas atlikta labai mažai realiomis sąlygomis veikiančių komandų veiklos efektyvumo tyrimų. Dažniausiai vertinamos dirbtinai sudarytos komandos, nes tokių komandų veiklos efektyvumą yra lengviau išmatuoti. Todėl *antrasis* šio darbo naujumo aspektas yra susijęs su tuo, jog buvo vertinami realiai funkcionuojančių karių komandų ypatumai, be to, buvo panaudoti kariuomenėje reguliariai atliekamos karių komandų veiklos efektyvumo vertinimai (kuriuos atliko patys kariuomenės atstovai).

Ankstesniuose Lietuvoje atliktuose tyrimuose domėtasi individualiais karius apibūdinančiais reiškiniais ir beveik netyrinėti komandos, kuriai jie priklauso (skyriaus ar būrio), ypatumai. Tokia situacija neturėtų stebinti, nes tik pastaraisiais dešimtmečiais JAV ir D. Britanijos, t. y. šalių, kurios turi žymiai gilesnes karo psichologijos tradicijas, tyrėjai ir praktikai ėmė kalbėti, jog per mažai dėmesio skiriama karių komandai kaip visumai, taip pat komandos veiklos efektyvumo veiksniams. Ypač pabrėžiama, kad stokojama tyrimų, kurie atskleistų emocijų poveikį karių komandos veiklos efektyvumui. Tai, jog šiame darbe tiriami ne tik kognityviniai, bet ir emociniai komandos aspektai, galima laikyti *trečiuoju* mūsų darbo mokslinio naujumo aspektu.

Kadangi šiuolaikinės karinės komandos susiduria su daug naujų iššūkių – naujos technologijos, nauji ginklai ir naujos kariuomenės funkcijos (pavyzdžiui, taikos palaikymas) – tai reikalauja iš karių komandų naujų būdų prisitaikyti. Dėl to auga ir poreikis rasti aiškiai apibrėžtus veiksnius (tiek kognityvinius, tiek emocinius), kurie padėtų įvertinti šiuolaikinės karinės

komandas ir leistų prognozuoti jų veiklos efektyvumą. Be abejo, jau yra atlikta nemažai karinių komandų veiklos efektyvumo veiksnių tyrimų (ypač užsienio autorių), tačiau kol kas gauti rezultatai yra gana prieštaringi ir fragmentiški. Paprastai tyrinėjamas veiklos efektyvumo ir vieno (ar kelių) kintamųjų ryšys, tačiau trūksta informacijos apie tai, kaip jie gali būti susiję tarpusavyje (pvz., koks ryšys sieja individualius (patiriamas stresas, suvoktas Aš efektyvumas) ir bendrus komandos (sutelktumas, suvoktas kolektyvinis efektyvumas) veiksnius). Be to, vis dar lieka neaišku, kurie iš išskiriamų veiksnių yra svarbiausi numatant komandos veiklos efektyvumą. Su tuo yra susijęs *ketvirtasis* mūsų darbo naujumo aspektas: remiantis atliktų darbų apie komandas analize, pateikiamas naujas hipotetinis modelis, kuris apjungia daugelį komandos veiklos efektyvumo veiksnių (karių patiriamą stresą, sutelktumą, pasitikėjimą komanda, suvoktą Aš ir kolektyvinį efektyvumą) bei apibūdina jų sąveiką su atliekamos veiklos efektyvumu. Galiausiai, *penktuoju* mūsų darbo mokslinio naujumo aspektu galima laikyti empirinį šio modelio patikrinimą ir patikslinimą.

**Praktinė reikšmė.** Darbe atskleidžiami veiksniai, numatantys karinės komandos veiklos efektyvumą, šių veiksnių tarpusavio sąveika. Taigi rezultatai gali padėti tiek kariuomenės vadams, tiek karo psichologams geriau suprasti kariuomenėje egzistuojančių komandų ypatumus ir leistų rasti būdus, kaip didinti komandų veiklos efektyvumą. Tyrimo tikslais parengti net trys klausimynai bei dvi skalės, vertinantys tiek komandos, tiek ir atskirų karių ypatumus. Šie instrumentai praktikoje padėtų identifikuoti problemines komandas ir karius arba, priešingai, išskirti komandas ir karius, kuriems galima būtų skirti atsakingesnes, sudėtingesnes užduotis.

### **Ginami teiginiai:**

1. Suvoktas kolektyvinis efektyvumas yra svarbiausias kintamasis, leidžiantis numatyti komandos veiklos efektyvumą ir karių patiriamą stresą. Karių komandos veiklos efektyvumą galima numatyti ir

remiantis komandos sutelktumu, pasitikėjimu komanda ir suvoktu Aš efektyvumu, tačiau jie komandos veiklos efektyvumą numato ne tiesiogiai, o per suvoktą kolektyvinį efektyvumą.

2. Komandiniai ir individualūs karių veiklos efektyvumo kintamieji sąveikauja tarpusavyje. Komandos sutelktumas ir pasitikėjimas komanda padeda numatyti suvokto Aš efektyvumo lygį, o suvoktas kolektyvinis efektyvumas – karių patiriamą stresą.
3. Aukštu sutelktumu pasižyminčių karių komandų veiklos efektyvumą galima prognozuoti remiantis suvoktu Aš ir kolektyviniu efektyvumu bei pasitikėjimu komanda. Be to, aukštu sutelktumu pasižyminčiose komandose suvoktas kolektyvinis efektyvumas veikia kaip tarpinis kintamasis tarp pasitikėjimo komanda ir komandos veiklos efektyvumo. Žemu sutelktumu pasižyminčiose karių komandose šios sąveikos nebelieka.

## **TYRIMO METODIKA**

**Tiriamieji.** Tyrime dalyvavo 160 Lietuvos profesinės karos tarnybos karių, priklausiusių 28 skyriams. Tiriamieji buvo atrenkami remiantis trimis kriterijais. Pirma, karys turėjo ne tik formaliai priklausyti kokiam nors skyriui, bet kartu su juo dirbti ir/ar treniruotis kiekvieną dieną. Antra, tyrime galėjo dalyvauti tik skyriaus vado arba žemesnes pareigas užimantys kariai. Trečia, tyrime turėjo dalyvauti bent 80 procentų skyriui priklausančių karių.

Didžiąją tiriamųjų dalį sudarė vyrai (94,4%). Tarp apklaustųjų moterų buvo tik 6 (3,8%). 1,9% (3 tiriamieji) savo lyties nenurodė. Tiriamųjų amžius svyravo nuo 19 iki 37 metų. Vidutinis tirtųjų karių amžius siekė 24,76 metus.

**Tyrimo instrumentai.** Specialiai tyrimui buvo sukurti trys klausimynai: Karių patiriamo streso klausimynas, Karių suvokto Aš efektyvumo klausimynas, Karių suvokto kolektyvinio efektyvumo klausimynas. Taip pat tyrime buvo naudotos kitų autorių sukurtos skalės: Pasitikėjimo komanda skalė (De Jong, Elfring, 2010) ir Suvokto sutelktumo skalė (Bollen, Hoyle, 1990). Įvertinant komandos (skyriaus) veiklos efektyvumą buvo remiamasi vertimųjų

pratybų rezultatais. Visų tyrime dalyvavusių karių taip pat buvo prašoma nurodyti savo karinį laipsnį, pareigas, lytį, amžių ir dalyvavimo tarptautinėse operacijose patirtį.

## **REZULTATAI IR IŠVADOS**

1. Nustatyta, kad karių komandos veiklos efektyvumas yra teigiamai susijęs su komandos sutelktumu, pasitikėjimu komanda, suvoktu Aš bei kolektyviniu efektyvumu. Tačiau nerasta reikšmingo karių patiriamo streso ir veiklos efektyvumo ryšio.
2. Pasiūlytą hipotetinį modelį, kuriame karių komandos kintamieji su veiklos efektyvumu yra susiję tiek tiesiogiai, tiek netiesiogiai, kelių analizė patvirtino tik iš dalies. Buvo nustatyta, kad:
  - 2.1. Komandos sutelktumas ir pasitikėjimas komanda numato suvoktą Aš ir kolektyvinį efektyvumą.
  - 2.2. Suvoktas Aš efektyvumas komandos veiklos efektyvumą numato tarpininkaujant suvoktam kolektyviniam efektyvumui. Suvoktas kolektyvinis efektyvumas komandos veiklos efektyvumą numato tiesiogiai.
  - 2.3. Suvoktas kolektyvinis efektyvumas numato karių patiriamo streso lygį.
3. Aukštu sutelktumu pasižyminčių karių komandų veiklos efektyvumą galima prognozuoti remiantis suvoktu Aš bei kolektyviniu efektyvumu, taip pat pasitikėjimo komanda lygiu. Žemu sutelktumu pasižyminčių karių komandų veiklos efektyvumo prognozuoti nepadedą nė vienas mūsų vertintas kintamasis.
4. Aukštu sutelktumu pasižyminčiose karių komandose suvoktas kolektyvinis efektyvumas veikia kaip tarpinis kintamasis tarp pasitikėjimo komanda ir komandos veiklos efektyvumo.
5. Karių palyginimas pagal laipsnį, užimamas pareigas ir dalyvavimą tarptautinėse operacijose atskleidė, kad aukštesniu Aš bei kolektyviniu efektyvumu pasižymi tarptautinėse operacijose anksčiau dalyvavę

kariai. Eilinio laipsnį turintys kariai, palyginti su kitus laipsnius turinčiais kariais, linkę patirti daugiau streso ir mažiau pasitikėti savo komandomis. Nustatyta, kad skyriaus vadai ir likusieji kariai savo komandos ypatumus vertina panašiai.

6. Sukurti karių patiriamo streso, suvokto Aš bei kolektyvinio efektyvumo klausimynai pasižymi geru vidiniu suderintumu ir konstrukto validumu, todėl gali būti naudojami ne tik moksliniams, bet ir praktiniams tikslams.



## INFORMATION ABOUT THE DOCTORANT STUDENT

Vita Mikuličiūtė has been studying psychology at Vilnius University since 2001. She got Bachelor's degree in Psychology in 2005 and Master's degree in Clinical Psychology in 2007. From 2008 to 2012 she was a doctoral student in the Department of General Psychology at Vilnius University.

Since 2007 she has been working as a lecturer at Lithuanian University of Educational Sciences and as a medical psychologist at Karoliniškės mental health centre. 2007 – 2012 she was serving in Lithuanian National Defence Volunteer forces, took part in the organization and realisation of military camps for children and teenagers. In 2007 – 2008 worked in Crises centre situated in „Youth Psychological Aid Centre”, 2010 -2011 took part in the project of Department of General Psychology, called “Procedural justice in Lithuanian criminal, civil and administrative justice system”.

During his doctoral studies Vita Mikuličiūtė has prepared several scientific publications, has presented the findings of her doctoral research at both international and local scientific conferences, has contributed to the organization of Conference of Junior Researches in Psychology.

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## TRUMPA INFORMACIJA APIE DOKTORANTĘ

Vita Mikuličiūtė Vilniaus universitete baigė psichologijos bakalauro (2001 – 2005m.) ir klinikinės psichologijos magistro (2005 – 2007 m.) studijas. 2008 – 2012 m. Vilniaus universiteto Bendrosios psichologijos katedros doktorantė.

Nuo 2007 m. dėsto Lietuvos edukologijos universitete, dirba medicinos psichologe Karoliniškių poliklinikos psichikos sveikatos centre. 2007 – 2012

m. tarnavo Krašto apsaugos savanorių pajėgose, prisidėjo prie sukarintų stovyklų vaikams ir paaugliams organizavimo bei vykdymo. 2007 – 2008 m. dirbo VŠĮ „Jaunimo psichologinės paramos centro“ Krizių centre, 2010 – 2011 m. dalyvavo Bendrosios psichologijos katedros „Procedūrinis teisingumas Lietuvos kriminalinėje, civilinėje ir administracinėje justicijoje“ projekte.

Doktorantūros studijų metu Vita Mikuličiūtė parengė keletą mokslinių publikacijų, pristatė disertacijos tyrimo rezultatus tarptautinėse bei Lietuvos mokslinėse konferencijose, prisidėjo prie Jaunųjų mokslininkų psichologų konferencijos organizavimo.

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