



STRESS-COPING STYLES AND SATISFACTION WITH LIFE OF MILITARY AVIATION PERSONNEL DIFFERING IN BODY MASS INDEX

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Introduction: Soldiers, due to the specific nature of their service, are one of the occupational groups particularly exposed to stress. The aim of this study was to assess the stress-coping styles and satisfaction with life in a group of military aviation personnel, differentiated in terms of the BMI (Body Mass Index).

Methods: The research compared three groups of military aviation personnel, distinguished on the basis of BMI, i.e. people with normal body weight (25 people), overweight people (24 people) and people suffering from obesity (20 people). The CISS (Coping Inventory for Stressful Situations) Questionnaire by Endler and Parker was used to assess the stress-coping styles. Satisfaction with life was measured using the Satisfaction with Life Scale (SWLS) by Diener et al.

Results: The data analysis did not reveal any statistically significant differences in CISS and SWLS scores between groups differing in BMI ($p > 0.05$). It was found that the style of coping with difficult situations that is most often manifested by the surveyed military aviation personnel is the task-oriented style (TOS). A comparable, high SWLS score was also revealed in all studied groups.

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Conclusions: The BMI turned out not to be a factor differentiating either the type of stress-coping styles or the level of satisfaction with life experienced by the military aviation personnel studied. It is likely that, due to the specificity of soldiers' work, the TOS may be a beneficial and adaptive style of dealing with stressful situations. The high level of general satisfaction with life found in the surveyed members of the military aviation personnel provides a reason to conduct further research aimed at identifying the factors determining this variable.

Keywords: stress, stress-coping styles, satisfaction with life, body weight, BMI, military aviation personnel

INTRODUCTION

The work of uniformed services, including professional soldiers, is associated with exposure to severe stress and emotions in many task situations. As in other professions, in professional military service occupational stress may be caused by the conditions and atmosphere in the workplace, interpersonal relations with superiors and colleagues, development conditions or the professional role performed. Among the factors which are particularly stressful and resulting from the work tasks performed, one can mention e.g. the excess of duties, high work pace and performing tasks under time pressure [14]. It is important to remember that military personnel are involved both in activities related to the battlefield, e.g. foreign missions to countries where combat operations are carried out [7,16], and also perform a number of other activities related to the protection of health, life and safety of civilians, e.g. during natural disasters [12]. The responsibility for the health and life of both themselves and others, as well as the fear of losing them, are undoubtedly severely stressful factors and are inherent in military activities.

Among various views on how to understand and cope with stress, one of the most popular theories is the transactional theory of stress by R. Lazarus and S. Folkman [9,10]. According to this concept, stress is defined as the relationship between an individual and their environment, which is assessed by the individual as straining their resources and threatening their well-being. At the same time, the assessment of the danger of a given situation depends both on the situation itself and on the individual, i.e. on what they contribute to the situation, in what categories they think about it and how they perceive it. According to the authors, coping with stress is, in turn, a constantly changing cognitive and behavioral effort, which a person makes in order to control

the requirements assessed as burdensome or exceeding their resources [9].

An interesting concept of stress was also proposed by J. Strelau [18,19], who concluded that the state of stress is the result of an imbalance between the requirements and human capacity to cope with them. The researcher points out that both requirements and capacities exist objectively, i.e. independently of human perception of them, and subjectively. As a result, dealing with stress has a regulatory function, which consists in maintaining the correct balance or reducing the gap between the requirements and the individual's ability to cope with them.

In the case of professional soldiers, effective coping with stress is important due, among other things, to the nature of their service. Inability to cope with difficult and stressful situations may increase the risk of disadaptive behaviors that are harmful to their health and significantly reduce their effectiveness of functioning and quality of life. According to previous studies [1,3,5,11,21], stress is a factor that may cause, among other things, excessive eating, and thus constitutes a risk factor for body mass disorders. Moreover, studies indicate that excessive body weight, i.e. overweight and obesity, significantly reduce the quality of life of people affected by this health problem [6,13,24].

With this in mind, it must be concluded that the ability of military personnel to cope with difficult and stressful situations can not only lead to a reduction in the level of tension and stress felt, but also facilitate the maintenance of proper body mass and, consequently, contribute to the well-being, health and satisfaction with one's own life.

The aim of the study presented in this paper was to assess the stress-coping styles and satisfaction with life in members of military aviation personnel, differentiated in terms of the BMI (Body Mass Index). The attempt was made to answer the

question whether, depending on the BMI value, the examined soldiers differed in terms of coping styles in difficult situations and the experienced satisfaction with their lives.

METHODS

Characteristics of the test group

The study was conducted on 69 members of military aviation personnel between the ages of 25 and 59 ($M = 38.72$; $SD = 8.24$), of which about 74% were pilots, 10% were flight technicians and the remaining 16% were representatives of other aviation personnel (doctors, paramedics, engineering and aviation service). In the studied group, 94.2% were men and 5.8% were women. The mean body weight was 84.69 kg ($SD = 14.43$), mean height was 176.51 cm ($SD = 6.70$), mean BMI was 27.11 kg/m² ($SD = 3.95$). Moreover, the average of years spent in military service was 18.79 years ($SD = 8.84$).

In order to assess the stress-coping styles and satisfaction with life in people with different body weight, the study group was divided into three subgroups based on the BMI, according to the criteria of the World Health Organization (WHO) [23].

The soldiers were randomly selected from various military units in Poland and underwent tests in the Laboratory of Dietetics and Obesity Treatment at the Military Institute of Aviation Medicine. The research was voluntary, the participants were informed about its purpose and scientific nature and agreed to participate. The research was approved by the Ethics Committee which issues opinions on biomedical research at the Military Institute of Aviation Medicine (Decision No. 01/2018).

Measurement methods

To assess the stress-coping styles of military aviation personnel, the Coping Inventory for Stressful Situations (CISS) Questionnaire by N. S. Endler and J. D. A. Parker was used, in a Polish adaptation by J. Strelau, A. Jaworowska, K. Wrześniewski and P. Szczepaniak [19]. The authors of the tool refer to the transactional stress model by R. Lazarus and S. Folkman [9,10]. The questionnaire is designed to study the styles of coping with stress, i.e. disposition to specific behaviors in difficult situations that are relatively durable and characteristic for an individual. The tool consists of 48 statements referring to different behaviors that can be adopted in difficult situations. The task of the examined person is to assess on a 5-point scale (where 1 means 'never' and 5 means 'very often') how often they behave in a particular way in stressful situations.

The CISS allows to measure three stress-coping styles, i.e.:

1. The task-oriented style (TOS), which describes the tendency to make efforts to solve a problem through cognitive analysis of the situation or specific attempts to change it. Characteristic of this style is the focus on a task or on planning a solution to a problem.
2. The emotion-oriented style (EOS), typical for people who in difficult situations tend to concentrate on themselves and on their own emotional experiences, such as tension, anxiety, guilt and anger. People manifesting the EOS in stressful situations may at the same time have a tendency to wishful thinking and fantasizing, which, on the one hand, may reduce the emotional tension associated with a stressful situation, but, on the other hand, it may increase the feeling of stress, increase tension and depression.
3. The avoidance-oriented style (AOS), which is characteristic of people who tend to avoid thinking about, living out and experiencing a given situation in difficult situations. This style can take two forms, namely:
 - engaging in surrogate activities (ESA), such as cleaning up, watching TV, sleeping, overeating, thinking about pleasant things,
 - seeking social contacts (SSC) [19].

The study also assessed the satisfaction with life in people with different body weight using The Satisfaction with Life Scale (SWLS) in the Polish adaptation by Z. Juczyński [8]. The authors of the original version of the tool are Ed Diener, Robert A. Emmons, Randy J. Larson and Sharon Griffin [4]. The questionnaire contains 5 statements which the respondent assesses on a scale from 1 to 7 (where 1 means "I completely disagree" and 7 means "I completely agree") to what extent each statement relates to their own lives. The result of the survey is an overall satisfaction with life, which is expressed in a sense of satisfaction with one's own achievements and situation. The scores range from 5 to 35 points. A higher score indicates a feeling of greater satisfaction with life.

Statistical analysis

Statistical analyses of the obtained results were performed using PS IMAGO PRO 5 software (IBM SPSS Statistics 25). In order to assess the normality of variable distributions in the studied group, the Shapiro-Wilk Test was used. It was revealed that with the exception of one variable, i.e. the task-oriented style, the distributions of all ex-

amined variables differed significantly from the normal distribution curve ($p < 0.05$). Therefore, non-parametric methods were used to analyze the results. For the assessment of the differences in stress-coping styles and satisfaction with life between the studied groups, the ANOVA test by Kruskal-Wallis was used. In order to investigate the relationship between body mass and results of CISS and SWLS questionnaires, a rho Spearman correlation analysis was performed. Basic descriptive statistics for all analyzed variables were also calculated.

RESULTS

Table 1 presents basic anthropometric parameters and the average of years of military service, characterizing groups of soldiers distinguished on the basis of the BMI.

In the first group there were 25 soldiers with normal body weight and BMI between 18.50 and 24.99 kg/m^2 , aged between 25 and 59. The second group consisted of 24 overweight soldiers, i.e. with BMI between 25.00 and 29.99 kg/m^2 , aged between 28 and 52. The third group comprised 20 people with obesity (BMI equal or higher than 30.00 kg/m^2), aged between 30 and 57 years.

Table 2 presents basic descriptive statistics for the variables obtained in the CISS questionnaire

and the SWLS scale in three groups of military aviation personnel, distinguished by the value of the BMI, i.e. in people with normal body weight, overweight people and people with obesity.

The Kruskal-Wallis ANOVA did not demonstrate any statistically significant differences between the distinguished groups of military aviation personnel in the scores obtained in the CISS and SWLS questionnaires ($p > 0.05$). This means that the body weight of the examined people was not a factor differentiating their behavior in difficult situations, nor the feeling of satisfaction with life. Therefore, regardless of the BMI value, the participants demonstrated similar styles of coping with stressful situations, as well as a comparable level of satisfaction with their own living conditions.

Nevertheless, as far as the scores obtained in the CISS questionnaire are concerned, it can be concluded from the data presented in Table 2 that the most common style of coping with difficult situations among military aviation personnel was the task-oriented style. Bearing in mind that the range of raw scores in CISS scales is from 16 to 80 points [19], the results obtained in the TOS scale in the examined sample are significantly above average. High scores in the TOS scale, i.e. within the range from 7 to 10 sten, were obtained by 71% of people in the entire examined sample. The frequency of low, medium and high scores in the TOS scale in

Tab. 1. Basic anthropometric parameters and the average of years of military service, characterizing groups of soldiers distinguished on the basis of the BMI.

Variable	Group of people with normal body weight (N = 25)				Group of overweight people (N = 24)				Group of people with obesity (N = 20)			
	M	SD	Min.	Max.	M	SD	Min.	Max.	M	SD	Min.	Max.
Age [years]	35.52	8.82	25.00	59.00	38.88	7.37	28.00	52.00	42.55	7.06	30.00	57.00
Height [cm]	175.46	7.35	157.00	186.00	176.67	6.12	165.00	191.00	177.63	6.64	160.00	188.00
Body weight [kg]	71.12	8.13	54.00	81.00	84.80	6.12	72.00	96.00	101.51	8.71	77.00	118.00
BMI [kg/m^2]	23.04	1.47	19.79	24.74	27.16	1.32	25.18	29.75	32.13	1.59	30.08	35.01
Years of military service	15.88	8.70	6.00	34.00	18.09	9.09	6.00	37.00	23.25	7.20	11.00	38.00

M – mean value, SD – standard deviation, Min. – minimum value, Max. – maximum value

Tab. 2. Basic descriptive statistics of the results of the CISS questionnaire and the SWLS scale in the groups of military aviation personnel differentiated by BMI.

Variable	Group of people with normal body weight (N = 25)				Group of overweight people (N = 24)				Group of people with obesity (N = 20)				p
	M	SD	Min.	Max.	M	SD	Min.	Max.	M	SD	Min.	Max.	
TOS	63.92	5.52	52.00	78.00	66.92	8.84	49.00	80.00	66.40	6.58	54.00	76.00	0.402
EOS	25.48	6.48	16.00	38.00	27.17	7.67	16.00	46.00	24.00	7.20	16.00	37.00	0.338
AOS	40.88	10.10	21.00	56.00	37.04	10.63	21.00	53.00	42.75	9.09	24.00	58.00	0.250
ESA	16.12	5.04	8.00	24.00	14.00	5.32	8.00	24.00	16.10	5.22	8.00	25.00	0.233
SSC	16.84	3.78	8.00	22.00	16.21	3.90	9.00	22.00	18.40	3.87	10.00	25.00	0.210
SWLS	25.56	3.85	18.00	32.00	24.21	6.02	7.00	35.00	23.10	6.06	5.00	30.00	0.396

M – mean value, SD – standard deviation, Min. – minimum value, Max. – maximum value,

p – significance level for the ANOVA by Kruskal-Wallis, TOS - task-oriented style, EOS – emotion-oriented style, AOS – avoidance-oriented style, ESA – engaging in surrogate activities, SSC – seeking social contacts, SWLS – satisfaction with life.

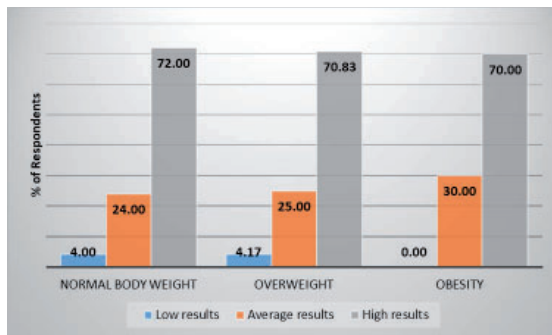


Fig. 1. The frequency of low, medium and high scores in the TOS scale in the CISS questionnaire in three groups of soldiers: with normal body weight, overweight and with obesity.

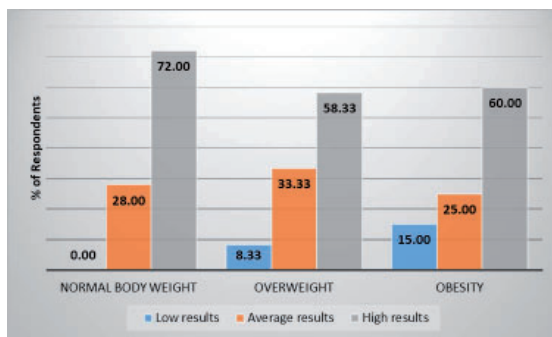


Fig. 2. The frequency of low, medium and high scores in the SWLS scale in three groups of soldiers: with normal body weight, overweight and with obesity.

three groups of soldiers differing in BMI is shown in figure 1.

The data presented in figure 1 indicate that the task-oriented style of coping with stress situations was characteristic for 72% of people with normal body weight (18 people), for about 71% of overweight people (17 people) and for 70% of people with obesity (14 people).

Interestingly, in the EOS scale, none of the surveyed persons achieved high scores, while 98.6% of soldiers achieved low scores in terms of tendency to focus on their own emotional states and experiences in stressful situations.

While it comes to the results obtained in the SWLS scale (tab. 2), it can be concluded that with the range of scores in the questionnaire from 5 to 35 points, the values obtained in the groups of soldiers differing in terms of body weight are above the mean. High scores on the SWLS scale were achieved by 63.8% of the whole surveyed sample (i.e. 44 people), while low scores were achieved by only 5 people (7.2% of the surveyed sample). In relation to groups differing in terms of BMI, high scores in the SWLS scale were obtained by 72% of people with normal body weight (18 people), 58% of overweight people (14 people) and 60% of

people with obesity (12 people). The frequency of low, medium and high scores in the SWLS scale in three groups of soldiers is shown in figure 2.

The results of the study using the Satisfaction with Life Scale (tab. 2, fig. 2) indicate that representatives of military aviation personnel have a high overall satisfaction with their achievements and living conditions, regardless of their body mass index.

In addition, as part of the study, the relationships between individual styles of coping with stressful situations, satisfaction with life and body weight of the soldiers under examination were assessed. The rho Spearman correlation analysis did not reveal any statistically significant relationships between the CISS, SWLS scores and BMI in the studied group of soldiers ($p > 0.05$).

DISCUSSION AND CONCLUSIONS

The main objective of the presented research was to assess the stress-coping styles and the level of satisfaction with life in the group of military aviation personnel, depending on their body weight. No differences were found in the results of the Coping Inventory for Stressful Situations Questionnaire (CISS) and the Satisfaction with Life Scale (SWLS) between three groups of soldiers, i.e. with normal body mass index, with BMI indicating overweight and with BMI indicating obesity.

Treating stress as a state caused by an imbalance between the requirements and an individual's ability to handle them [18,19], coping with stress has a regulatory function, which is either to maintain a proper balance or to reduce the gap between the requirements an individual faces and their ability to handle them. It is worth noting that experiencing and coping with stress are inextricably linked, which means that effective coping reduces stress in an individual, while ineffective coping increases the level of stress experienced [19,22]. Moreover, the literature on the phenomenon of occupational stress [20] shows that the consequences of high intensity of work related stress, and thus of ineffective coping with it, are psychological (e.g. decreased motivation, lack of job satisfaction, decreased self-esteem, occupational burnout), behavioral (e.g. decrease in work efficiency, increase in accidents and frequency of errors at work, addictions) and health-related (e.g. deterioration of health condition, somatic diseases) symptoms occurring in people.

On the basis of the scores obtained in the CISS questionnaire in the presented studies, it can be said that regardless of the body weight, the style of coping with stress situations most frequently

adopted by the examined soldiers proved to be the task-oriented style.

In standardization studies of the CISS questionnaire [19], adults aged 25-54 obtained an average of 56.95 (SD = 8.65), while adults aged 55-79 - an average of 55.45 (SD = 8.56) in the TOS scale. Moreover, soldiers in compulsory military service, serving in various types of corps, obtained the following mean scores in TOS [19]: in land forces 55.02 (SD = 8.32), in air and air defense 54.29 (SD = 8.36), in the navy 53.99 (SD = 9.30), and in the airborne forces 57.81 (SD = 8.49). Thus, in comparison with the scores obtained on the national samples of adults and soldiers of different types of forces, the members of the military aviation personnel obtained higher mean scores in the TOS scale in the CISS questionnaire (Table 2), which indicates more frequent use of the task-oriented style in dealing with the encountered difficulties. This result indicates that, in stressful situations, the military aviation personnel tend to take specific actions and efforts to address a particular problem or to cope with adversity. The results obtained are consistent with the results of research carried out on soldiers participating in the military mission in Afghanistan [2], which stated that the TOS is the dominant stress-coping style. Due to the specificity and nature of the soldiers' work, associated with the performance of official tasks in a more rigorous discipline than in civilian occupations, top-down objectives and orders for action, as well as the frequent exposure to intense stress, negative emotions and tension, it can be assumed that the task-oriented style may be a beneficial and adaptive way of dealing with tension and stress during the service or off-duty. The assessment of the effectiveness of the TOS in reducing stress in the military aviation personnel would be an interesting topic for further research.

However, the presented studies did not find any tendency of the military aviation personnel to concentrate on themselves and their own emotional experiences in difficult situations. It should be noted that according to the characteristics of this style of coping with stress [19], taking actions to reduce the emotional tension associated with a stressful situation may sometimes even lead to an increased sense of stress and tension, which in the case of soldiers would make it impossible to function effectively in combat situations. Moreover, the mean scores obtained in the EOS scale (tab. 2) were even lower than those obtained in standardization studies of the CISS questionnaire, carried out in all groups of soldiers of the compulsory military service of various types of troops [19]. For comparison, soldiers of the land forces

obtained the mean of 42.52 (SD = 10.84), soldiers of the air forces and air defense: 40.24 (SD = 10.23), soldiers of the navy: 37.77 (SD = 10.27) and soldiers of the airborne forces: 36.37 (SD = 9.46) [19] in standardization studies in the EOS scale.

The second of the variables analyzed in this paper is the satisfaction with life. In Polish standardization studies [8], the mean score on the SWLS scale for 260 men was 20.11 (SD = 5.43), while for 295 women it was 21.09 (SD = 5.26). Compared to these data, the scores obtained by military aviation personnel (tab. 2, fig. 2) are clearly higher in all three groups. On the basis of these data, it can be concluded that the surveyed soldiers, regardless of their body weight, demonstrate a high overall contentment and satisfaction with their lives. The present study did not analyze the factors affecting the sense of satisfaction with life of the respondents, such as the amount of stress currently experienced, dispositive optimism or self-esteem [8]. Nevertheless, interesting results are provided by studies conducted among female soldiers [15], which show that high overall satisfaction with life is associated with high job satisfaction.

In conclusion, it is worth noting some limitations of the presented research, which may result from the research method itself. In order to assess the stress-coping styles and satisfaction with life, questionnaire methods were used, which due to their self-describing character are susceptible to the influence of the variable of social approval [17]. This means that the desire of the respondents to present themselves in the best possible way may influence their answers. The variable of social approval was not controlled in the presented studies, therefore limitations resulting from the applied test method should be taken into account when interpreting the results. Moreover, due to the size of the study group, the conclusions of the studies should not be generalized and should not be applied to all military aviation personnel.

To sum up, the research has shown that the military aviation personnel surveyed, regardless of their body mass index, most often adopt the task-oriented style of dealing with stressful situations, i.e. make efforts and actions to solve a specific problem or difficulty, and demonstrate high overall satisfaction with life. Due to the high score obtained on the SWLS scale in the studied group, an interesting problem to be addressed in the next paper would be the analysis of which factors, activities or areas of everyday life are most strongly associated with a general sense of contentment and satisfaction with life in the group of military aviation personnel members.

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