

STRESS FACTORS AND PREFERRED COPING STRATEGIES OF PARTICIPANTS IN XXXI BULGARIAN ANTARCTIC EXPEDITION

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ABSTRACT

The interest in behavior, psychological changes, stress coping strategies, and polar expedition members' functioning has been growing in recent years. The third group of the XXXI Bulgarian Antarctic expedition in Livingston Island at the beginning of 2023 included participants from three fields – scientists, logisticians, and builders. Participants' activities are greatly dependent on extreme environmental conditions.

The aim of this study was to examine the sensation-seeking need, major stress factors, and preferred stress coping strategies of the participants in XXXI Bulgarian Antarctic expedition in Livingston Island.

The research was done among 28 participants from XXXI Bulgarian Antarctic expedition, aged between 30 and 71 years. To fulfill the aim of the research, we used: 1) Methodology for researching psychic instability and sensation seeking, adapted by Velichkov & Radoslavova, 2005; 2) Coping Orientations to Problems Experienced scale – COPE – 1, Carver et al., 1989, adapted for Bulgarian conditions (Georgiev et al., 2003); 3) Methods for researching stress sources among participants in Antarctic expeditions.

The results showed that the subscale functional impulsivity had the highest values. It was followed by the subscales of sensation seeking and dysfunctional impulsivity. The factor Interpersonal relationships and an abrupt change in the familiar environment had the highest values as a stress source. The emotional coping strategies were domineering, followed by the active coping strategy. The strategy of Cognitive and Emotional disengagement had the lowest values. There were significant differences from the results obtained from previous Bulgarian expeditions.

The results can help adaptation and adequate prevention to decrease participants' psychological stress.

Keywords: stress, coping strategies, extreme activities, sensation seeking, functional and dysfunctional impulsivity.

INTRODUCTION

There is a significant interest in behavior, psychological changes, stress coping strategies, and functioning of the members of polar expeditions in specialized literature (Gunderson, 1974; Gunderson & Pálinkás, 1991; Mihra, 2006; Pálinkás et al., 1995; Suedfeld, 2001; Khandelwal et al., 2015, 2017; Zimmer et al., 2013; Domuschieva-Rogleva, Iancheva, 2017). In some research, the authors seek

the influence of Self-concept, anxiety, interpersonal relationships, and personal characteristics on the activities in polar expeditions (Pálinkás & Johnson, 1990; Pálinkás, 2003; Rosnet, Le Scanff & Sagal, 2000; Domuschieva-Rogleva, Iancheva, Shopov, 2017). Other authors researched adaptation and human activity in Antarctica and their specifics related to the extreme Antarctic climatic and geographical conditions, including low tem-

peratures combined with strong winds and high humidity, abrupt changes in barometric pressure, polar day and night, etc. (Gjelten et al., 2016; Padrtová, Trávníčková, 2017; Korneeva, 2022; Descamps et al., 2016; Simonova et al., 2023).

The surveys in the field of polar medicine (Hasnulin, 2013; Atkov et al., 2019) point out the significance of the psycho-physiological state of people living and working in the extreme conditions of Antarctica and the psycho-emotional tension related to the influence of environmental factors.

The prolonged stay and work in extreme environments, characteristic of polar expeditions, can lead to significant psychological consequences and changes in participants' health. The analysis of the available literature on the topic allowed us to outline two major subject areas: negative effects of the psycho-physiological changes caused by exposure to polar stress factors – seasonal symptoms changing cognitive activities, mood, and interpersonal relationships; and positive impact of the successful adaptation to the unfavorable environmental conditions.

Some authors focus on researching defense factors and encourage seeking preventive approaches such as psychological studies and support in reducing the symptoms and helping adapt to Antarctica (Zimmer et al., 2013).

The third group of XXXI Bulgarian Antarctic expedition in Livingston Island, the subject of this research, included participants from three fields – scientists, logisticians, ensuring the normal work on the scientific projects in the base, a doctor, and builders who prepared the site for the construction of new, modern laboratory facilities. All participants had attended a preliminary preparatory camp, medical check-up, and a contest for getting approval from Bulgarian Antarctic Institute for participation in the expedition. The

participants had a personal motivation related to their scientific goals, and many of them had visited Antarctica several times before.

Livingston Island is situated in the archipelago South Shetlands in the Southern Ocean 62°34'S 62°30'W (Encyclopaedical Dictionary in Oceanography, 1992), between the Antarctic Peninsula and South America. It is separated from South America by the Drake Passage and from the Antarctic Peninsula by Bransfield Strait. The archipelago consists of 11 islands (Ivanov & Ivanova, 2014).

The climatic peculiarities of Livingston Island are connected with the prevailing cloudy weather, predominantly stratified clouds, and a constant influence of the clash of the warm ocean air and the dry cold air coming from Antarctica. According to L. Ivanov and N. Ivanova (Ivanov & Ivanova, 2014), there are four sunny days on average in the summer season. D. Gildea claims the island has the worst weather on Earth (Gildea, 2003).

During the Antarctic astral summer, there are only 7-8 days with no winds at all. The biggest hazard is the snow drifted by the wind, which upon encountering an obstacle, accumulates in snow drifts around it (Pimpirev, 2017). Usually, the wind is strong. From 1-3 m per sec, suddenly, the wind speed rises to 18-20 m per sec (Vassilev, 2021).

The access to the icy continent, the adjacent islands, and the Southern Ocean constitute an area governed by the Antarctic Pact of 1959. To date, it has been ratified by 50 countries-members, including Bulgaria (Ivanov & Ivanova, 2014). Antarctica has the statute of the biggest preserved territory on the planet, open only to science and, on rare occasions – to tourism. The access to Livingston Island is only by water, and getting off at its shore can happen only after the approval granted by the research base in the region. Depending on the Drake Channel conditions, it takes 3 to 5

days to sail across it. Debarking on the natural shoreline of dry cliffs or a stony beach with no port facilities constructed is possible only with inflated motor boats.

The Bulgarian Antarctic base “St. Kliment Ochridski” lies in the south bay of Livingston Island. Until 1997 it consisted of two shacks powered with electricity with a small diesel aggregate for an hour daily. Fresh water was taken from a nearby stream or through melting snow and ice. When needed, the scientists camped in tents near the two major shelters (Ivanov & Ivanova, 2014).

Today, on Livingston Island, there is a small settlement of 11 buildings, powered with electricity all the time by two powerful diesel aggregates, a solar electricity system, and a windmill park. There are normal living conditions in the base. A satellite connection provides the Internet and telephone connection (Bulgarian Antarctic Institute, 2022). Since 2022/23, the polar program of the Institute for polar research has had the first Bulgarian military-research ship, “St. Cyril and Methodius”, which helps the construction of new modern laboratory facilities in the Bulgarian base.

The peculiarities of site work are complicated. More than 95% of the surrounding land shaft consists of snow and ice. There are cliffs and several nunataks along almost the whole shoreline. The site work is performed both on land and in the adjoining marine areas and glacial freshwater lakes. The organization of the site work is subjected to a strict safety protocol due to the aggressive environment. Each site work team comprises a scientist in a certain field, a site safety assistant, and a logistician. There is a strict schedule of locomotion and a fixed route. The duration of site work lasts from 3- 4 hours to 20 hours a day. The temperature near the shore is usually from -2°C to about $+5^{\circ}\text{C}$ and $-15^{\circ}/-20^{\circ}\text{C}$ in the mountain and inland. The temperature of the seawater is close to 0°C .

The wind often exceeds 100 km per hour and lasts all day long (Pimpirev, 2013).

The severe living conditions and work in extreme environments lead to serious ordeals and stressful situations for the participants in the Antarctic expeditions.

Stress is defined as a “non-specific response of the body to any requirements for change” (Selye, 1936), a psychophysiological response to internal and external stressors, which appears when people believe that their personal resources are inappropriate for the successful fulfillment of a particular task (Lazarus & Folkman, 1984). Stress includes changes affecting almost all human body systems and influencing people’s feelings and behavior (Stress – APA Dictionary of Psychology, n.d.). The response may be of a different character, and in some cases, the requirements for change lead to positive adaptive changes in the organism, increasing its stability to outer influences. In other cases, when the requirements for change turn out to be higher than the personal and social resources an individual can endure, they provoke a defensive response in the organism that could lead to a permanent disruption of the normal living processes in the organism (Lazarus & Folkman, 1984).

This requires high and adaptive levels of coping strategies to maintain psychological well-being and efficiency (Gram et al., 2013; Meneghel, 2014). The positive reformulation generates positive emotions helping to restore psychological resources and motivation needed for persistence in reaching goals (Folkman, 2008, 2009, 2010; Lazarus, 2006). The impact of stress on human organisms has to be viewed regarding the stress factors and an individual proneness to stress. The perception of stress depends on the interpretation of the meaning of a certain event and on the personal assessment of the adequacy of the resources for coping in a particular situation (Cohen et al., 1997).

Very often, stress is directly related to human activity and its specificity, such as work engagements or the specificity of the work environment, including relationships with colleagues.

Stress sources which are directly related to doing a particular job can be the physical environmental factors and various emotional and psychological states, manifested regardless of the job (Von-Onciul, 1996).

Participation in an Antarctic expedition is a specific activity supposing, on the one hand, proneness to taking a risk and a degree of adventure, and on the other hand, strict discipline, endurance, and abiding by rules.

Sensation seeking and proneness to challenges is a basic personal characteristic of a neural-biological nature, a “characteristic feature determining the trend to seek diverse, new, complex and strong feelings and experiences, the readiness to take a physical, social, legitimate or financial risk because of such experiences” (Zuckerman, 1994).

M. Zuckerman developed a sensation-seeking concept based on the theory of the optimal stimulation level related to the intensity of the maximal effective performance (Jones, 1995; Shoham & Rose, 1998). These differences influence the choice of activity (Zuckerman, 1979).

People characterized with a high level of sensation-seeking tend to have risky behavior and be adventurous, like acting impulsively and losing control easily, which may provoke participation in risky activities. People with low levels of sensation seeking are characterized with heed and a need for stability and to avoid the unknown and unexpected (Vassileva, 2001).

Various studies show that people prone to sensation-seeking usually choose risky professions and sports (Zuckerman, 1979, 1994; Campbell et al., 1993; Wagner, Houlihan, 1994; Iancheva, 2004; Iancheva & Kuleva, 2018).

Proneness to risky behavior and its consequences make researchers examine their relation to different coping strategies.

Coping strategies are defined by lots of scientists as a complex, dynamic, and multidimensional process (Anshel et al., 2001; Crocker & Graham, 1995; Crocker & Isaak, 1997; Eklund et al., 1993; Gould et al., 1997). Coping aims at regulating emotions and changing behavior so that we can cope better in a particular situation. Coping with a situation requires a change in behavior and/or cognitions to manage the situation better. Lazarus and Folkman (1984) determine it as “a process of continually changing cognitive and behavioral efforts for management of specific external and/or internal requirements and conflicts perceived as exceeding one’s personal resources” (Lazarus & Folkman, 1984, p.141). Coping is the response to perceptions of threats emerging in people’s environment. Coping consists of cognitive psychological, and psychic efforts to improve our resourcefulness when coping with stressful events or reduce inner pressure (Anshel et al., 2001). Applying particular coping strategies supposes that one perceives the issue or situation as problematic.

The aim of this research was to examine the sensation-seeking need, major stress factors, and preferred stress coping strategies of the participants in XXXI Bulgarian Antarctic expedition on Livingston Island.

METHODOLOGY

The research was done among 28 participants in XXXI Bulgarian Antarctic expedition on Livingston Island, aged between 30 and 71 years – 10 scientists, seven logisticians, ensuring the normal scientific work on the projects in the base, one doctor, and ten builders who prepared the site for the construction of new, modern laboratory facilities. The sample is exhaustive. The

mean age of the subjects is 45.1 years. All participants had attended a preliminary preparatory camp, a medical check-up, and a contest for approval by the Bulgarian Antarctic Institute for participation in the expedition. The participants had a personal motivation based on their scientific goals, and most of them had been to Antarctica several times before – an average of 2.7 participations in expeditions.

The research was carried out immediately after the start of the expedition on Livingston Island. All participants were informed about the purposes of the research and gave their informed consent.

Research method

To fulfill the *aims* of the research, we used:

1. Methodology for researching psychic instability and sensation seeking, adapted by Velichkov & Radoslavova, 2005. It is based on the methods of M. Zuckerman (1979, 1994) and includes three scales:

- Sensation seeking;
- Functional impulsivity;
- Dysfunctional impulsivity

The scale includes 79 items.

2. Coping Orientations to Problems Experienced scale–COPE–1 (Carver et al., 1989), adapted for Bulgarian conditions (Georgiev et al., 2003). The scale includes 52 items organized

in 14 subscales. After additional factor analysis, they have been reduced to three generalized secondary factors: cognitive engagement, emotional engagement, and cognitive and emotional disengagement.

3. Methods for researching stress sources among participants in Antarctic expeditions.

We used a specially designed methodology for examining stress sources among participants in expeditions. The methodology includes 24 items related to potential professional stress sources for participants in expeditions. The subjects evaluate each item with a 5-point Likert-type scale, as follows: 1 – it does not affect me at all; 2 – it does not usually affect me; 3 – I cannot say; 4 – it usually affects me; 5 – it greatly affects me. The stress sources are united into three factors – The specificity of the activities, Climatic conditions and work regime, Interpersonal relationships, and an abrupt change in the normal environment.

Statistical Analysis

The data processing from the conducted research was done with the statistical package SPSS 21. We applied descriptive, correlation, and regression analyses.

RESULTS AND ANALYSIS

The results obtained from the descriptive analysis are shown in Table 1.

Table 1. Results from the descriptive analysis of the data

	N	Min	Max	Mean	SD
Age	28	30.00	71.00	45.05	9.62
Expedition	28	1.00	11.00	2.71	2.28
Sensation seeking	28	.25	.79	.53	.15
Functional impulsivity	28	.30	.80	.60	.14
Dysfunctional impulsivity	28	.00	.72	.20	.16
Cognitive engagement	28	9.20	.76	.61	1.35
Emotional engagement	28	4.33	1.03	.79	2.02
Cognitive and emotional disengagement	28	3.83	.41	.31	.94
F1	28	1.40	3.30	2.16	.49
F2	28	1.00	4.40	1.87	.65
F3	28	1.60	4.60	2.82	.82

The results from the variation analysis of the data revealed that the subscale “Functional impulsivity” had the highest values ($M = 0.60$; $SD = 0.14$). It was followed by the subscale “Sensation seeking” ($M = 0.53$; $SD = 0.15$). “Dysfunctional impulsivity” had the lowest values ($M = 0.20$; $SD = 0.16$). The combination of sensation seeking and functional impulsivity “can form a personal taxon describing people prone to risk-taking and able to react in extreme situations quickly” (Radoslavova & Velichkov, 2005). We can assume that they would cope successfully in the extreme environment of Antarctic expeditions.

The data from this research showed that the scale “Functional impulsivity” had significantly higher values than “Dysfunctional impulsivity” (Table 1). These results are favorable given that functional impulsivity is related to a tendency of risk-taking, quick and

adequate reaction in extreme situations, and a feeling of enthusiasm, bravery, and activity. Dysfunctional impulsivity supposes greater impulsivity and lack of restraints, a tendency to ignore facts, hastiness, and frequent disobedience of the rules.

The obtained data differed from our preliminary expectations and from those obtained in previous research (Domuschieva-Rogleva, Iancheva, 2017).

Different surveys (Zuckerman, 1979, 1994) showed that people prone to sensation-seeking usually choose more risky professions. The results from this study among the participants in the Antarctic expedition revealed that there were higher values along the scale “Sensation seeking” than the mean values (Figure 1) for the Bulgarian population (Velichkov & Radoslavova, 2005), but lower along the scales “Functional impulsivity” and “Dysfunctional impulsivity”.

Table 2. Results from the comparative analysis of the data

	Averages for Bulgarian sample	Expedition 2017	Expedition 2023
Sensation seeking	0.46	0.61	0.53
Functional impulsivity	0.76	0.29	0.60
Dysfunctional impulsivity	0.23	0.57	0.20

Table 2 presents the mean values received from surveys among the participants in Bulgarian Antarctic expeditions in 2017 and 2023 and the mean values for the Bulgarian sample. The reasons for the differences in the results from the two Bulgarian expeditions

could be explained, on the one hand, with the change in the living and work conditions, and on the other hand, with the gained experience of most of the participants in XXXI Bulgarian Antarctic expedition.

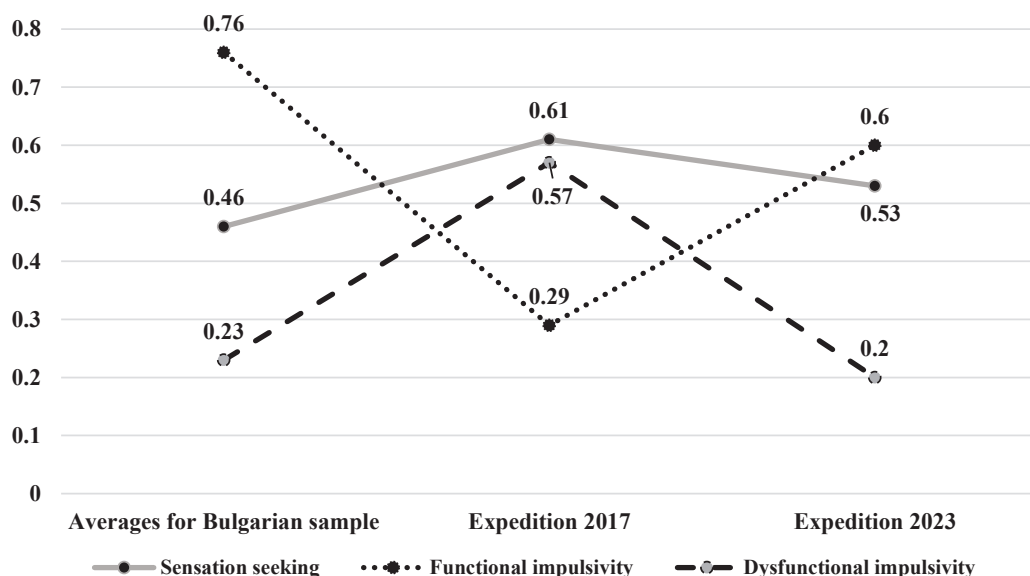


Figure 1. Comparative analysis by expeditions and reported results

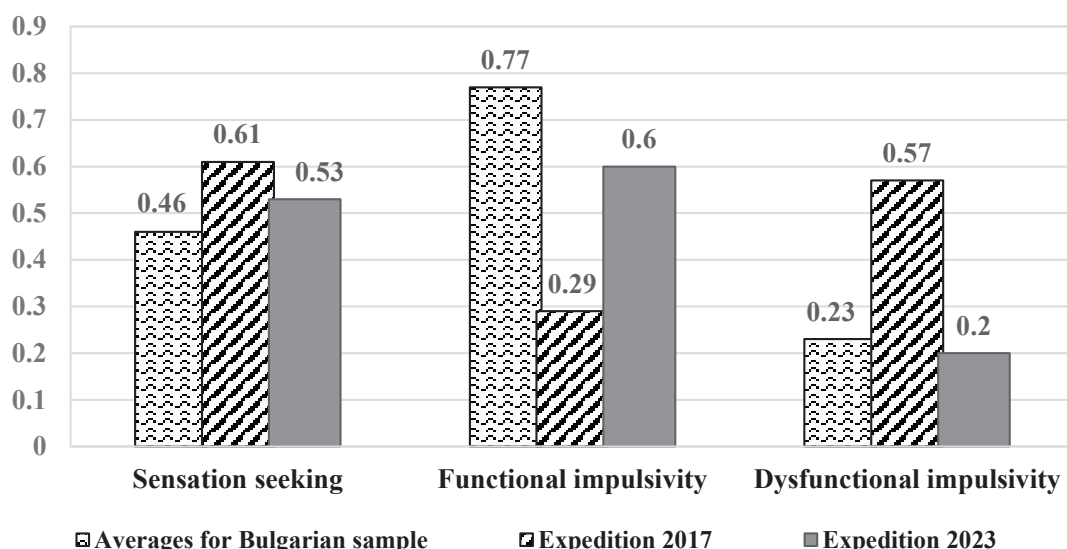


Figure 2. Results from the comparative analysis of the data

As we have already mentioned, we used a specially designed methodology to examine the stress sources. It includes 24 items based on theoretical analysis, observation, and practice. Preliminary research among 168 participants in expeditions enabled us to outline three factors – Specificity of the activity ($\alpha = .754$), Climatic conditions and work regime ($\alpha = .841$), Interpersonal relationships, and an abrupt change in the normal environment ($\alpha = .779$).

The results from the descriptive analysis

revealed that the factor “Interpersonal relationships and an abrupt change in the normal environment” had the highest values ($M = 2.82$; $SD = .82$). The interpersonal relationships, the abrupt change in the normal living and work environment, lack of sleep and rest time are the most significant stress factors for the participants in XXXI Bulgarian Antarctic expedition.

The second factor was “Specificity of the activity” ($M = 2.16$; $SD = .49$), related to the requirements for quick reactions in force ma-

jour situations, continuous (12-16-hour) site work, peculiarities related to the relief, limited access to means for communication, news, and information, and lack of family, friends, and beloved people.

The factor “Climatic conditions and work regime” had the lowest values ($M = 1.87$; $SD = .65$). It includes stress factors such as a specific work regime, traveling to the site and abiding by the schedule, climatic conditions, changing the time zone and lack of personal time, as well as difficulties during the journey. The significant experience of most of the participants in the expedition in working in the extreme conditions in Antarctica most probably reduced the influence of these stressful factors.

The obtained results from this study regarding the preferred stress coping strategies (Table 1) differ from those obtained in our previous research (Domuschieva-Rogleva, Iancheva, 2017). The data showed that the emotional, engaging coping strategies are domineering ($M = 0.79$; $SD = 2.02$) – seeking emotional and instrumental support, the need for an emotional response, and focusing on

emotions and their expression. It was followed by the strategy for active coping related to planning, positive reconsideration and development, and taking purposeful actions to overcome stress ($M = 0.61$; $SD = 1.36$). The lowest values were obtained for the strategy of cognitive and emotional disengagement ($M = 0.31$; $SD = 0.94$), which supposes psychic and behavioral disengagement, denial, turning to religion, and the use of alcohol and drugs.

The results from the correlation analysis of the data revealed a significant negative correlation among the emotional engaging stress coping strategies, the number of participations in expeditions ($r = -.663$; $p = .01$), and age ($r = -.541$; $p = .01$). There was a moderate correlation between the factor “Interpersonal relationships and abrupt change in the normal environment” and emotional engaging stress coping strategies ($r = -.420$; $p = .05$).

We used a step-regression analysis to check our hypothesis about the role of stress factors and the gained experience from participation in expeditions and work in the extreme conditions of Antarctica (Table 3).

Table 3. Results from Regression analysis

	Number of participations in expeditions			
	β	t	Sig.	ΔR^2
Emotional engagement	-.663	-4.057	.001	.439
	Interpersonal relationships and abrupt changes in the normal environment			
	β	t	Sig.	ΔR^2
Emotional engagement	.420	2.120	.035	.176

The results from the regression analysis confirmed the ones obtained from the correlation analysis. The data showed that interpersonal relationships and abrupt changes in the normal environment as potential stress factor are a predictor of emotional coping strategies. Stressors such as unfavorable interpersonal relationships, abrupt changes in living and work conditions, and lack of sleep

and rest time stimulate emotional engaging coping strategies. The lack of experience in previous expeditions also leads to emotional engagement, seeking help, an emotional response, and focusing on emotions.

DISCUSSION AND CONCLUSION

Harsh living conditions and work in extreme environment place serious ordeal and

cause a lot of stress to the participants in Antarctic expeditions. The extreme conditions in Antarctica can lead to significant psychological consequences to cognitive and behavioral changes in the participants in polar expeditions. The prolonged isolation at the scientific base camp, limitations, and exposure to the extreme environment often lead to a set of psycho-physiological symptoms in response to these stressful factors. Clarifying the factors causing negative changes and the effects on participants' behavior and actions are crucial for supporting psychic and social adaptation, for the prevention and coping with stress provoked by unusual and extreme environmental conditions.

The challenges the environment poses can lead to the stress experienced by the participants in polar expeditions due to the necessity to overcome various difficulties related to extreme living and work conditions (Norris et al., 2010; Weiss et al., 2000). Some authors have presented serious evidence supporting the thesis that coping strategies can provoke long-term salutogenesis reactions in the life of the participants in expeditions (Norris et al., 2010; Peri et al., 2000; Palinkas & Suedfeld, 2008).

Palinkas and Suedfeld (2008) pointed out that depression was one of the most prevalent symptoms in Arctic expeditions, followed by anxiety and irritability. Negligence of these factors can bring serious consequences. Some authors report a decrease in satisfaction with life and work during a long period spent in Antarctica as a stage in the adaptation to the stressful factors of the environment (Palinkas & Houseal, 2000).

On the basis of the obtained results from this research, we can summarize that the most significant stress factors for the participants in XXXI Bulgarian Antarctic expedition were interpersonal relationships, the abrupt change in everyday habits and usual living and work

environment, and lack of sleep and rest time. These were followed by factors related to the specificity of the activities, the requirements for a quick reaction in force major situations, continuous stay on site, the peculiarities of the relief, the limited access to means of communication, and lack of family and friends. The lowest values were obtained for the stress factors related to work regime, traveling to the sites and abiding by a schedule, the climatic conditions, change in the time zone and lack of personal time, hardships related to traveling, etc., i.e., the factors related to the participants' actual work. Most of the participants' proven professionalism and significant experience in working in the extreme conditions of Antarctica most probably reduced the stressful influence of these factors.

The most preferred stress coping strategies in this research turned out to be the emotionally engaging ones – seeking emotional support, the need for an emotional response, and focusing on emotions. They are followed by the strategy of active coping, which supposes planning and restructuring, positive reconsideration and development, taking purposeful actions for coping with the situation, and overcoming stress. The lowest values were received for the strategy of cognitive and emotional disengagement related to a passive approach to the stressful factor, psychic and behavioral disengagement, denial, turning to religion, and use of alcohol and drugs.

The obtained results from this research regarding the preferred stress coping strategies differ very much from those obtained in our previous surveys (Domuschieva-Rogleva, Iancheva, 2017; Domuschieva-Rogleva et al., 2017).

According to various studies (Zuckerman, 1979, 1994), people who tend to seek sensations usually opt for risky and extreme professions. The results from this study among

participants in XXXI Bulgarian Antarctic expedition revealed that there were higher values along the scale “Sensation seeking” than the average values for the Bulgarian population (Velichkov & Radoslavova, 2005) but lower along the scales of functional and dysfunctional impulsivity. The data showed that the subscale “Functional impulsivity” had the highest values, followed by the subscale “Sensation seeking”. The subscale “Dysfunctional impulsivity” had the lowest values. These results allow us to assume that the participants would cope successfully in the extreme conditions of Arctic expeditions. The combination of sensation-seeking and functional impulsivity supposes proneness to risk-taking but also an ability for quick and adequate actions in extreme situations, a feeling of enthusiasm, bravery, and activity (Radoslavova & Velichkov, 2005). Dysfunctional impulsivity supposes greater impulsivity, lack of restraint, and frequent disobedience of the rules.

The comparative analysis of the data obtained from the research of the participants in Bulgarian expeditions in 2017 and 2023 showed significant differences in the results from the two expeditions. The change in everyday living conditions and the journey by a Bulgarian ship are a possible explanation for these changes. On the other hand, we should consider the significant experience and professionalism of most participants in the XXXI Bulgarian Antarctic expedition. Some of the subjects had taken part in 6-7 previous expeditions.

This research had some limitations. On the one hand, this is a relatively small number of researched individuals, but the sample is exhaustive. The logistic difficulties and the small number of participants are characteristic of Antarctic expeditions, and the accumulation of data in this area is slow and scarce.

At the same time, the collected information from similar research and the clarification of

the factors influencing human behavior in the extreme Antarctic environment can help the satisfactory adaptation and adequate prevention for reducing participants’ psychological stress.

Regarding the obtained results about the role of interpersonal relationships as a major stress factor, further research in this area is advisable. It is logical to assume that they resulted from the restrictions posed by the environment and the relative isolation of the participants in expeditions of this kind. However, we could also assume these relationships resulted from the participants’ previous encounters. There is the question of whether they could affect the participants’ future relationships or whether they simply occur and develop on a local level in this isolated environment. Such results would be a valuable reference point for expedition leaders seeking the most efficient approaches to managing and maintaining effective work relationships.

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