

## Coping strategies for the participants in the Antarctic expedition

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### *COPING STRATEGIES FOR THE PARTICIPANTS IN THE ANTARCTIC EXPEDITION*

KEYWORDS: Sensation seeking, security need, highly risky activities.

ABSTRACT: The XXV Bulgarian Antarctic expedition on the Livingston isles, which included scientists and alpinists, began in November 2016. The aim of the present research is to study security need and sensation seeking and to find a relation with the participants' preferred coping strategies in highly risky activities in an extreme climatic and social environment. Subject of the study were 21 participants in the Antarctic expedition, mean age 27 and 70. We have used: Security need scale; Scale for assessment of Psychic Instability and Sensation Seeking Scale and the Bulgarian adaptation of Coping Orientations to Problems Experienced scale – COPE 1. Low levels of Security need are established. The leading subscales of the Sensation Seeking Scale are those of sensation seeking, followed by dysfunctional impulsiveness. Functional impulsiveness is characterized with the lowest values. The cognitive engagement coping strategies are the main ones, whereas cognitive and emotional disengagement strategies are the least used. The results from the regression analysis show that the high levels of sensation seeking influence negatively the use of the strategic behavioral disengagement. The present study adds to the understanding the role of security need and sensation seeking being a motivational power of human behavior, which is in the base of the desire to participate in difficult and challenging missions in extreme conditions in highly risky activities.

At the end of 2016 and the beginning of 2017 XXV Bulgarian Antarctic expedition was held on Livingston Island with the participation of scientists working in different fields. During the expedition a number of projects in various scientific fields were realized. The participants' activities are highly dependent on the extreme conditions they are in. There is a significant interest in the psychological changes and the functioning of the members of polar expeditions (Gunderson, 1974; Gunderson and Pálinkás, 1991; Leach, 2016; Pálinkás, et al., 1995; Suedfeld, 2001). In some research the influence of the internal self-concept, interpersonal relationships and personal characteristics on the activities in polar expeditions are sought (Pálinkás and Johnson, 1990; Pálinkás, 2003; Rosnet, et al., 2000).

In part of the surveys the sensation seeking is often viewed as the key to motivation for participation in challenging and highly risky activities (Zuckerman, 1979, 2007; Barlow, et al.,

2013). The sensation seeking is a manifestation of the desire to risk and the pleasure in dangerous activities and risky sports. The psychologists often apply the model of sensation seeking in all highly risky sports (Zuckerman, 1979, 1994, 2007). A number of expeditions in different areas – polar (Leon, et al., 1989), Alpine (Lester, 1983, 2004) show experience contrary to sensation seeking. The people involved in such activities are required to spend a long time in preparation and organization of the expedition. They are subjected to ordeals, and everyday monotonous, hard and to some extend tedious activities during the expedition itself (Ewert, 1994; Loewenstein, 2007). In such undertakings “the strong sensations” are avoided, because they are usually related to loss of control and increased risk of serious injury or death (Kirkpatrick, 2011).

The need for security refers to the basic personality motivation. It is essential for the process of personality development and functioning, emotional reactivity, and the building of a system of cognitive-motivational structures to

regulate the behavior and human actions, especially in situations of threat, tension and potential risk. Depending on the level of expression, there are differences in behavior and strategies for coping in extreme situations and in emotional responses to threatening signals, as well as in cognitive assessments of the danger they contain.

Various behavioral strategies have been identified in situations of potential risk (Velichkov, et al., 1998). People with a high need for security tend to use more diverse coping strategies, most often - support by others. Those with a low need for security are mostly focused on ignoring the threat and searching for their own means to deal with the situation.

According to some authors, the outcome of cognitive and emotional processing usually leads to two general behavioral strategies avoiding or actively dealing with the situation. Coping with stress is related to cognitive and behavioral efforts to cope with external and internal challenges and (or) the conflict between them, which could be defined as an ordeal, or simply surpassing personal resources (Lazarus and Folkman, 1984). The copings used are the result of the dynamic interaction of personal and contextual influences. Strategies for coping with stress are divided into two major groups: problem focused coping, defined as active coping, and emotion focused coping – passive coping (Folkman, 1992; Folkman and Lazarus, 1980; Leventhal et al., 1993; Madden et al., 1990).

The aim of the present research is to study security need and sensation seeking and to find a relation with the participants' preferred coping strategies in highly risky activities in an extreme climatic and social environment.

## Methods

### Participants

The research was done among 21 participants in 25<sup>th</sup> Antarctic expedition – 17 men and 4 women, aged between 27 and 70, average age - 47,4.

### Measures

1. Scale for assessment of Psychic Instability and Sensation Seeking Scale (Radoslavova and Velichkov, 2005) – based on Zuckerman's scale (1994) for sensation seeking and Dickman's impulsiveness scale (1990). It consists of 79 statements with dichotomous answers, determining three subscales: sensation seeking; functional impulsiveness; dysfunctional impulsiveness.

2. Measurement of Individual Differences in Security Need Scale (Velichkov et al., 1998).

3. Bulgarian version of Coping Orientations to Problems Experienced scale – COPE – 1 (Carver, et al., 1989). The test includes 52 items, organized in 14 subscales. These fourteen strategies have been joined together through factor analysis into three generalized secondary factors: cognitive engagement, emotional engagement, cognitive and emotional disengagement (Georgiev et al., 2003).

### Procedure

During the expedition the participants fill out a number of psychological tests. The difficulties in obtaining data are related to the different arrival and departure time of the members of the Antarctic expedition.

## Results

The results from the comparative analysis show there is no statistically significant difference between the average values of the researched variables with the participants in the expedition, differentiated by gender (criterion Mann-Whitney - U). The data from the conducted survey show that the mean value of the security need for the sample we tested is  $M=8.33$  (table 1). When comparing with the average ( $M=11.54$ ) for the Bulgarian sample (Velichkov et al., 1998) it was found that 40% of the surveyed people have a low level of security need and the results of the remaining 60% are in the norm. No people with a high level of security need are identified.

The results from the variation analysis regarding the first scale show that sensation seeking is leading with the researched individuals ( $M=0.611$ ;  $SD=0.25$ ), followed by dysfunctional impulsiveness ( $M=0.573$ ;  $SD=0.21$ ). The lowest is the level of functional impulsiveness ( $M=0.293$ ;  $SD=0.23$ ) (table 1).

The strategy of active coping is the most preferred by the objects of the research in stress situations. Planning, positive reinterpretation and growth take the second and third place. The most avoided strategy is the use of alcohol and drugs. The participants of the research have the highest values in cognitively engaged coping strategies representing purposeful actions to overcome stress, reconsidering and planning the ways and means of coping with it, and also rejecting and disregarding any tasks preventing or complicating coping. Emotionally engaged strategies have the average values, while cognitive and emotional disengagement coping are the ones most avoided (table 2).

In conformity with the aim of the research a step regression analysis was used. The independent variables were the security need, sensation seeking, functional and dysfunctional impulsiveness, which are viewed as basic personal characteristics. The dependent variables were coping strategies and generalized factors of cognitive engagement, emotional engagement and cognitive and emotional disengagement. High levels of security need lead to more frequent use of the strategies - seeking social support for instrumental reasons ( $\beta=0,538^*$ ), turning to religion ( $\beta=0,629^*$ ) and emotionally committed strategies to deal with stress F2 ( $\beta=0,601^*$ ). The sensation seeking adversely affects the strategy behavioral disengagement ( $\beta=-0,601^*$ ).

## Discussion

The results of this study show that is no statistically significant difference between the average values of the researched variables with the participants in the expedition. A possible explanation could be found both in the small number of researched individuals, with the women being only four, and in the fact that the requirements for the psychic characteristics needed for participation in such an expedition are common and gender independent. On the base of the obtained results it could be summed up that the participants in the XXV Bulgarian Antarctic expedition are characterized with low levels of security need than the norms of Bulgarian sample (Velichkov et al., 1998). People with a low level of security need are emotionally more resilient in terms of threat or stress and rely heavily on themselves. In situations of risk they are more relaxed and act more independently. The result obtained corresponds to

our expectations because the participants in the expedition operate in an undefined, unstable, poorly predictable environment at a significant risk and threat. The obtained data support the results of other studies by climbers that are also characterized by a low level of security need and a high level of sensation seeking (Iancheva, Panayotov, 2001). By the surveyed people are found predominance of sensation seeking, looking for new, unusual experiences, followed by dysfunctional impulsiveness, connected with tendency towards disorganization, ignoring of facts and lack of perseverance, which could have fatal consequences in participation in an extreme expedition. The most weakly manifested is functional impulsiveness, characterized with enthusiasm, bravery and activity. The most preferred strategies for coping with stress and anxiety in sport activities with all groups of participants in the research are problem focused strategies. The least used coping strategies with all groups of participants in the research are strategies connected with a passive approach to the stressor.

The limitations of the present study are connected with the relatively small number of researched individuals, but this is the number of the people who took part in the expedition.

The data obtained from our study suggest that the people surveyed are significantly more resilient in extreme situations, threatening incentives in situations of danger and risk, their anxiety is controlled, relying heavily on their internal resources, on their own capabilities in situations of threat.

The research adds to the understanding of the factors propelling human behavior, which are the base for participation in hard and challenging missions in extreme environment in different parts of the world.

	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Security need	4	13	8.333	2.74
Sensation seeking	0.17	1.17	0.611	0.25
Functional impulsiveness	0	0.67	0.293	0.23
Dysfunctional impulsiveness	0.2	0.8	0.573	0.21

Table 1. Average values of security need and sensation seeking level

Variables	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
1	2.75	3.75	3.32	.37
2	2.50	4.00	3.22	.46
3	2.25	3.75	2.77	.37
4	2.25	3.50	2.63	.35
5	2.25	4.00	2.80	.48
6	1.25	4.00	2.80	.48
7	2.50	3.75	2.97	.38
8	1.00	4.00	2.57	.71

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9	1.00	3.25	1.68	.73
10	1.00	3.25	2.42	.62
11	1.25	2.50	1.80	.44
12	1.00	2.25	1.73	.43
13	1.25	3.00	1.93	.49
14	1.00	3.00	2.67	.59
F1	2.70	3.70	2.98	.29
F2	1.50	3.75	2.54	.50
F3	1.29	2.67	1.83	.35

*Note:* 1 – Active coping, 2 – Planning, 3 - Suppression of competing activities, 4 – Restraint coping, 5 – Seeking social support for instrumental reasons, 6 – Seeking social support for emotional reasons, 7 – Positive reinterpretation and growth, 8 – Denial, 9 – Acceptance, 10 – Turning to religion, 11 – Focusing on and venting of emotions, 12 – Behavioral disengagement, 13 – Mental disengagement, 14 – Alcohol - drug disengagement, F1 - cognitive engagement, F2 - emotional engagement, F3 - cognitive and emotional disengagement.

*Table 2. Average values of coping strategies*

### LAS ESTRATEGIAS PARA COMBATIR EL ESTRÉS DE LOS PARTICIPANTES EN LA EXPEDICIÓN ANTÁRTICA

**PALABRAS CLAVE:** Sensaciones, la necesidad de seguridad, actividades de alto riesgo.

**RESUMEN:** El inicio de la 25ª Expedición Antártica Búlgara en las islas de Livingston en la que han participado científicos y escaladores, ha sido el noviembre 2016. El propósito de este estudio es investigar la necesidad de seguridad, la búsqueda de sensaciones y revelar las interrelaciones con las estrategias de coping preferidas en actividades de alto riesgo en las condiciones climáticas extremas y sociales. El sujeto del estudio han sido 21 participantes en la Expedición Antártica de edad media entre 27 y 70. Están utilizados: escala de la necesidad de seguridad, escala para la evaluación de la inestabilidad psíquica y de la búsqueda de sensaciones y la adaptación búlgara del cuestionario de las estrategias preferidas para combatir el estrés – COPE 1. Se establecen niveles bajos de necesidad de seguridad. Las subescalas principales de la escala de buscar sensaciones son la búsqueda de sensaciones, seguida de la impulsividad disfuncional. La impulsividad funcional se caracteriza por los valores más bajos. Las estrategias de afrontamiento cognitivo son las principales, mientras que las estrategias cognitivas y de desmovilización emocional son las menos utilizadas. Los resultados del análisis de regresión muestran que los altos niveles de búsqueda de sensaciones influyen negativamente en el uso de la desviación estratégica del comportamiento. El estudio facilita la comprensión del papel de la necesidad de seguridad y la búsqueda de sensaciones como un poder motivacional del comportamiento humano, que está en la base del deseo de participar en misiones difíciles en condiciones extremas en actividades de alto riesgo.

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