

## **SENSATION SEEKING AND MOTIVATION FOR THE PARTICIPATION IN AN ANTARCTIC EXPEDITION**

*(Original scientific paper)*

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### **Abstract**

*The aim of the present study is to reveal the Sensation Seeking, motivation and well-being in highly risky, prolonged activity in extreme climatic and social environment. During the XXIII Bulgarian Antarctic expedition on the Livingston isles, 17 participants completed the Bulgarian versions of: Zuckerman's Sensation Seeking Scale (Zuckerman, 1979); Motivation sources inventory (J. Barbuto & Scholl, 1998); and WHO-5, Well-being Index. Our results show the leading subscale of the Sensation Seeking Scale are those of functional impulsiveness, followed by sensation seeking, and dysfunctional impulsiveness is characterized with the lowest values. The Internal self-concept-based motivation is the leading motivational source. Instrumental motivation is the most weakly pronounced. The well-being in the end of the expedition is a statistically significant higher than at the beginning of the expedition. The results from the regression analysis show that the high levels of Intrinsic Process motivation influence positively on the well-being in the end of expedition.*

**Keywords:** *well-being, criterion Mann-Whitney – U, variation analysis, regression analysis, polar expeditions participation motivation*

### **INTRODUCTION**

Most human actions can be conceptualized as containing an element of risk, e.g. the expeditions in regions with extreme conditions (high mountains, the Arctic, Antarctic, deserts). There is a significant interest in the psychological changes and the functioning of the members of polar expeditions (Gunderson, 1974; Gunderson & Pálinkás, 1991; Pálinkás, Suedfeld & Steel., 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 & Johnson, 1990; Pálinkás, 2003; Rosnet, LeScanff & Sagal, 2000).

At the end of 2014. and the beginning of 2015. XXIII 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 project "The peaks of Mount Tangra" includes climbing and measuring the height of the peaks of the main ridge of the Tangra mountain, located near the Bulgarian research base in Antarctica "St. Kliment Ohridski".

The participants' activities are highly dependent on the extreme conditions they are in. The climate there is characterized with frequent weather changes, strong winds, snowfalls, with one or two sunny and windless days a month. According to some researchers this is

"the worst weather on earth". These conditions made us study some psychological characteristics of the participants in the expedition.

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, Woodman, Hardy, 2013). According to Zuckerman (1994) 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, McNally, & Ben-Porath, 1989), Alpine (Lester, 1983, 2004) show an experience which is in the 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 (Loewenstein, 2007, Ewert, 1994). 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 sensation seeking turns out to be insufficient for revealing the motives for participation in such activities. A different alternative theoretical frame is con-

nected with constructs such as well-being and motivation sources.

The use of the term well-being began in the 1950s as one of the indicators to measure the quality of life. Most common mental well-being is considered within the framework of two approaches as: eudemonistic well-being associated with the development of human potential and talents; and as a hedonistic well-being, which includes the sense of satisfaction and happiness (Ryan & Deci, 2001; Headey & Wearing, 1989). In a report dedicated to the study of subjective well-being in isolation and extreme conditions a three-dimensional framework is applied (*hedonistic* well-being, *eudemonistic* well-being and a *psychological capital* – a condition characterized by high levels of self-efficiency, optimism, hope and persistence) (Adam et al., 2014). The results show that the psychological capital has the strongest and most positive relationships with execution of the tasks, hedonistic well-being has negative correlations with perceived stress, and eudemonistic well-being - negative relations with psychosocial symptoms. Analysis of temporal trends and indicators of health behavior found that more significant changes in health outcomes were observed at the beginning and at the end of missions, whether they are short or longer-lasting. The heterogeneity of composition in terms of nationality and gender does not impair the health status of the team.

According to other authors the mental well-being also includes components relating to cognitive and affective aspects: satisfaction with life and the presence of positive and negative emotions in a person's life and a subjective sense of happiness (Lucas, Diener & Suh, 1996).

One of the motivation theories, which successfully explains the motivation trends in different areas, is the metatheory of the motivation sources (Barbuto, & Scholl, 1998; Leonard, Beauvais & Scholl, 1999). According to it, the motivation sources from the sphere of Self-assessment and Self-concept are among the major factors determining the human behavior. The authors outline five main spheres which include factors determining the behavior (Barbuto & Scholl, 1998; Leonard, Beauvais & Scholl, 1999).

1. *Intrinsic process motivation* – the process of motivation is characterized with enjoyment in the task and work, which should be interesting and funny. The person is relatively indifferent to the social feedback and tends to leave the boring tasks, even if the goal has not been achieved.

2. *Instrumental motivation* – it is characterized with interest in external material stimuli: money, rewards, and prizes. Compensation is expected for each additional kind of work.

3. *External Self-concept-based motivation* – it is connected with the aspiration for persevering and increasing one's reputation, with anxiety for the other's opinion. Feedback is sought, as well as praise and acknowledgment for the work done and membership in a successful team.

4. *Internal Self-concept-based motivation* – it includes the aspiration for self-recognition and manifestation of one's abilities, qualities and standards towards the development of one's abilities and skills, towards the mastership. It is also associated with an inclination for self-control; lack of interest in receiving feedback; aiming at the hardest tasks; lack of necessity of constant directions and control.

5. *Goal internalization* – it is determined by the necessity of clarification and belief in the work done. It is characterized with devotion to the group; the goals of the group are predominant; aspiration for clarification of the aim of the task; stable principles and values; perseverance and dedication when the meaning of the activity is clear; orientation to the social significance of the activity (Barbuto & Scholl, 1998).

*The aim* of the present study is to reveal the motivation sources, sensation seeking, and well-being in highly risky continuous activities in extreme climatic and social environment.

*Tasks* of the research:

- to reveal the manifestation of the motivation sources, sensation seeking and well-being;
- to establish the impact of sensation seeking and the motivation sources on the level of well-being.

*Sample:* The research was done among 17 participants in 23<sup>rd</sup> Antarctic expedition – 13 men and 4 women, aged between 25 and 69, average age - 49,9.

*Organization of the research:*

During the expedition the participants fill out a number of psychological tests, part of which is presented in the present report. The difficulties in obtaining data are related to the different arrival and departure time of the members of the Antarctic expedition.

## METHODS

1. *Scale for assessment of Psychic Instability and Sensation Seeking Scale* (Radoslavova & 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* – orientation towards seeking new, various and unusual experiences;
- *functional impulsiveness* – connected with enthusiasm, bravery and activity;
- *dysfunctional impulsiveness* – connected with lack of organization, tendency to ignoring facts and lack of perseverance.

2. *Motivation Sources Inventory* (Barbuto & Scholl, 1998). The Bulgarian adaptation of the test was made by Georgiev & Tosheva (Георгиев & Тошева. (2003). The test consists of 40 items and 7-point of Likert type scale, and 5 subscales corresponding to the five major motivation trends:

- *intrinsic process motivation*;
- *instrumental motivation*;
- *external Self-concept-based motivation*;

- internal *Self-concept-based* motivation;
- goal internalization.

3. *The well-being index (WHO-5, Well-being Index)* – evaluation of subjective mental well-being, version 1999. WHO-5 was first presented in 1998 in Stockholm as part of a project to measure the subjective well-being in primary health care. WHO-5 is validated in numerous studies (Bech, 2012). The index includes 5 affirmations concerning the feeling in the last two weeks to experience the positive mood, relaxation, calmness, vitality, energy, life, filled with interesting things. Six-speed scale is used, which ranges from “all the time” (5) to “in no time” (0). The maximum value is 100. A higher score is an indicator of better quality of life. The tool is a reliable indicator of emotional functioning (<https://www.psykiatri-regionh.dk/who-5/who-5-questionnaires/Pages/default.aspx>).

**RESULTS AND DISCUSSION**

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). 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.

The results from the variation analysis regarding the first scale show that functional impulsiveness is leading with the researched individuals (M=0,542; SD=0,18), followed by sensation seeking (M=0,517; SD=0,16). The lowest is the level of dysfunctional impulsiveness (M=0,229; SD=0,16) (Table 1.).

The descriptive statistics applied for the motivation sources establishes *internal Self-concept-based motivation* as the leading one with the researched individuals (M=42,7). It is connected with the aspiration for self-recognition and manifestation of one’s own abilities, qualities and standards, with orientation towards increasing one’s mastership and coping with the most difficult tasks, inbred in every Antarctic expedition. The *Intrinsic process motivation* is on the second place (M=39,2). With this source, the motivation process and single-minded behavior are sustained by the contents of the work done. It is interesting rewarding and done in extreme environment. This is followed by *goal internalization* (M=38,2), where the dedication to the goals of the group is important, and *external Self-concept-based*

Table 1. Average values of sensation seeking level

Parameters	Min	Max	M	SD
Sensation seeking	0,08	0,75	0,517	0,16
Functional impulsiveness	0,1	0,7	0,542	0,18
Dysfunctional impulsiveness	0,06	0,61	0,229	0,16

Table 2. Average values of motivation sources

Intrinsic motivation	External motivation	External Self-concept-based motivation	Internal Self-concept-based motivation	Goal internalization
39,2	25,7	30,8	42,7	38,2

Table 3. Average values of subjective well-being at the beginning and end of the expedition

Index	Subjective well-being			
	Min	Max	M	SD
Study at the beginning of the expedition	44	96	72,24	15,33
Study at the end of the expedition	64	100	82,12	9,39

Table 4. Results from the regression analysis

Index	Intrinsic process motivation			$\Delta R^2$
	$\beta$	t	Sig.	
Well-being in the end of expedition	0,573	2,588	0,011	0,375

motivation, connected with the acknowledgement for working in a successful team ( $M=30,8$ ). The least manifested is *instrumental motivation* ( $M=25,7$ ), where the interest in the activity is influenced by the presence of external, material stimuli and prizes, which apparently are not an incentive for the participation in the expedition (Table 2.).

To check the level and dynamics of the manifestations of the subjective well-being research has been conducted twice – at the beginning and at the end of the expedition (Table 3.). In the first study 11, 8% of the surveyed people have a low level of well-being and 17, 7% - a high level. In the second study with low and high subjective well-being are 17.7%. The results from the comparative analysis show there is statistically significant difference between the average values of subjective well-being at the beginning and end of the expedition ( $T = 2,368$ ,  $p = 0,18$  - criterion Wilcoxon).

The resulting data can be explained by the fact that the last month before the expedition is very loaded and connected with preparation, with many difficulties, uncertainties, details about the upcoming trip, doubts concerning the possibility for the realization of the goals that are set and which often depend on personal circumstances beyond control. The second result is obtained when the expedition is almost over, the uncertainties are much less and are associated “only” with the trip. The growing feeling of well-being at the end of the expedition is probably due to the satisfaction of the achieved goals that have undertaken efforts and energy in such a long period of time, related to the planning preparation and achievement of objectives.

In conformity with the aim of the research a step regression analysis was used. The independent variables were the level of sensation seeking, functional, dysfunctional impulsiveness, and the motivation sources. The dependent variable is well-being. The single thing established was that the high intrinsic process motivation leads to an increase in well-being in the end of the expedition ( $\beta=0,573$ ) (Table 4.).

## CONCLUSION

The research done is the first of the kind among participants in Bulgarian Antarctic expedition. On the base of the obtained results it could be summed up that the participants in the expedition are characterized with predominance of functional impulsiveness, characterized with enthusiasm, bravery and activity, followed by sensation seeking, looking for new, unusual experiences. The most weakly manifested is 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 leading motivation source is internal Self-concept-based motivation. It gets close to the construct high achievement need, introduced by McClelland (Barbuto & Scholl, 1998) and is associated with desire for

self-recognition, self-perfection, realization of one's potential and his abilities. This realization is possible through acceptance and coping with the hard ordeals in the Antarctic expedition. The intrinsic, peculiar to activity, motivation is on the second place, followed by goal internalization and external Self-concept-based motivation, aimed at aspiration towards working in a successful team. The most weakly manifested is the instrumental motivation, which is connected with prizes and external stimulation, as a whole, which are not a significant factor for getting involved in the expedition.

Data from the twofold study of well-being showed that its level at the end of the expedition is statistically significant higher in comparison with the result of the beginning of the expedition. An explanation of this result can be sought in overcoming the many challenges and achieving the objectives for which they have invested effort and energy.

The results from the regression analysis show that the high intrinsic process motivation leads to an increase in well-being in the end of the expedition.

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 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.

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