

## Research of predisposition to risk of participants of extreme sports

### Estudio del apetito de riesgo de los participantes de deportes extremos

Doctor of Psychological Sciences Svitlana Kuzikova

Sumy State Pedagogical University named after A. S. Makarenko, Ukraine

ORCID iD: <http://orcid.org/0000-0003-2574-9985> ;

ResearcherID: AAS-8918-2020

Candidate of Psychological Sciences Tetiana Shcherbak

Sumy State Pedagogical University named after A. S. Makarenko, Ukraine

ORCID iD: <http://orcid.org/0000-0002-7701-9450> ;

ResearcherID: AAC-5284-2020

Candidate of Technical Sciences Borys Kuzikov

Sumy State University, Ukraine

ORCID iD: <https://orcid.org/0000-0002-9511-5665> ;

ResearcherID: AAS-7954-2020

Doctor of Psychological Sciences Olena Blynova

Kherson State University, Ukraine

ORCID iD: <http://orcid.org/0000-0003-3011-6082> ;

Scopus Author ID: 57208207970; ResearcherID: A-5188-2019

Lecturer Olena Vavryniv

Lviv State University of Life Safety, Ukraine

ORCID iD: <https://orcid.org/0000-0002-5166-6887> ;

ResearcherID: AAQ-6442-2020

Doctor of Psychological Sciences Oleh Khmiliar

Ivan Chernyakhovsky National Defense University of Ukraine, Ukraine

ORCID iD: <http://orcid.org/0000-0003-2693-1906> ;

ResearcherID: AAS-6290-2020

Doctor of Psychological Sciences Ihor Popovych

Kherson State University, Ukraine

ORCID iD: <https://orcid.org/0000-0002-1663-111X> ;

Scopus Author ID: 57208214862; ResearcherID: [F-3030-2019](https://orcid.org/0000-0002-1663-111X)

### Abstract

The purpose of the research is a theoretical analysis and experimental study of predisposition to risk of participants of *extreme* sports and establishment of recommendations for the development of personal qualities for successful and safe activities. The study involved representatives of *extreme* sports (n = 180): skydivers (n = 60), base jumping representatives (n = 60) and motorcyclists (n = 60). The behavioral patterns of respondents engaged in *extreme* sports have been revealed and substantiated. Levels of predisposition to risk, self-confidence, nervous mental stability and search for thrills of representatives of motorcycle sports, parachuting and base jumping have been determined. The dynamics of the

level of predisposition to risk, nervous mental stability and the scale of search for thrills depending on the experience of *extreme* activity of the respondents have been observed. The relationship between the level of predisposition to risk and such indicators as nervous mental stability, self-confidence, the search for thrills has been established ( $p \leq .05$ ). Recommendations for the development of the necessary personal qualities for successful *extreme* activities have been developed.

### **Resumen**

El objetivo del estudio es efectuar el análisis teórico y el estudio experimental del apetito de riesgo de los participantes de deportes extremos y elaborar las recomendaciones del desarrollo de cualidades personales para actividades exitosas y seguras. En el estudio han participado los representantes de deportes extremos ( $n = 180$ ): paracaidistas ( $n = 60$ ), representantes del bungee jumping ( $n = 60$ ) y motociclistas ( $n = 60$ ). Se ha revelado y argumentado las reglas de comportamiento de los que practican deportes extremos. Se ha determinado los niveles de apetito de riesgo, de autoconfianza, de estabilidad neuropsicológica y de búsqueda de emociones fuertes de los representantes del motociclismo, paracaidismo y bungee jumping. Se ha monotoreado la dinámica del nivel de apetito de riesgo, de estabilidad neuropsicológica y de escala de búsqueda de emociones fuertes según la experiencia de actividad extrema de los deportistas investigados. Se ha establecido la relación entre el nivel del apetito de riesgo y tales indicadores como estabilidad neuropsicológica, autoconfianza, búsqueda de emociones fuertes ( $p \leq .05$ ). Se ha elaborado las recomendaciones del desarrollo de las cualidades personales necesarias para *actividades extremas* exitosas.

### **Key words**

*Safety – Extreme – Nervous mental stability*

### **Palabras clave**

*Descuido – Actividades extremas – Estabilidad neuropsiquiátrica*

### **Introduction**

The life of a modern person is associated with various kinds of risks that occur in all spheres of life. A person is constantly encounters situations that do not have an unambiguous decision, while making choices is associated with the risk of not getting the result that the entity expects. The research of the topic from a psychological point of view is quite promising, because in dangerous situations the psychological factors have a significant influence on human behavior. In psychology, the need to study this topic is also related to the study of its subjective side, in particular, with the study of the concept of predisposition to risk as a person property. Some people try to avoid possible risks, while others, on the contrary,

tend to try their luck as often as possible, often creating risks in their lives artificially. This can be manifested in various life situations, financial and economic issues, gambling, and often in order to feel the risk in all its manifestations an *extreme sports* are used.

New sports appear in modern society; they offer to get thrill, feel oneself to the brink of death. A significant number of enthusiastic people are engaged in *extreme* activities. The psychological aspect of the phenomenon of risk in *extreme* sports is a very topical subject for research. Since at present, the psychology of *extreme* is ambiguous, and in modern society appear new methods and strategies for studying such a diverse concept. Consequently, the raised issue requires a thorough study.

In the context of our subject empirical results of the research of person's mental resources in various kinds of activity are of scientific value<sup>1</sup>, including sports and competitive activities<sup>2</sup>. Despite the existence of research in the outlined issues the problem of predisposition to risk in *extreme* sports required further work; in particular, there is a need for the development of the necessary personal properties for successful *extreme* activities.

There is no general definition of concept of "risk" at present despite the continued use of the phenomenon of "risk" in theory and in practice, and increasing number of studies on the topic. This is due to the ambiguity and multivariate nature of this concept, which has often divergent and even contradictory interpretations.

The concept of risk is associated in science with the characteristics of human actions, and with the objective circumstances of its life and activities in society. According to O. Renn, risk is the possibility that human actions or results of action will have consequences that will affect human values. In this definition, the notion of risk contains: implications that may affect human values; uncertainty; a formula that unites both of these elements<sup>3</sup>.

A. Algin one of the first in domestic psychology began to study this issue. He identifies risk as an activity that involves overcoming uncertainty in a compulsory choice with the ability to assess the probability of achieving the expected result.

---

<sup>1</sup> P. Nosov; I. Palamarchuk; S. Zinchenko; I. Popovych; Y. Nahrybelnyi y H. Nosova, "Development of means for experimental identification of navigator attention in ergatic systems of maritime transport". Bulletin of University of Karaganda. Technical Physics", Vol: 1 num 97 (2020): 58-69. y S. Zinchenko; P. Nosov; V. Mateichuk; P. Mamenko; I. Popovych y O. Grosheva, "Automatic collision avoidance system with many targets, including maneuvering ones". Bulletin of university of Karaganda, Vol: 96 num 4 (2019): 69-79.

<sup>2</sup> L. Pshenychna; S. Kuzikova; T. Shcherbak; S. Kondratyuk; S. Petrenko; O. Skyba, "Phenomenon of nervous mental stability in extreme sports". Journal of Physical Education and Sport, Vol: 19 num 4 (2019): 1349-1354.

<sup>3</sup> O. Renn, O. y E. Swaton, "Psychological and Sociological Approaches to Study Risk Perception," Environment International, num 10 (1984): 557-575.

Scientist highlights a number of features of risk: contradictory, alternative risk, conditionality of risk is the social and economic situation of society<sup>4</sup>.

Analysis of the causes of personal risk behavior and the factors that determine it is an important issue in the context of this problem. T. Kornilova raises the question of the correlation of situational factors and personal preconditions of regulation of the choice, adoption and implementation of risk activities. She considers the risk factor both as a property of the situation, and as an individual's personal qualities<sup>5</sup>.

It is known that different people have a different risk profile. In the 1960s, the first views of the predisposition to risk were formed as a personal quality. The first so-called "personal" theory of acceptance of risk was created by Kogan and Wallach. The authors state that there is a certain class of people who behave identically in risk situations. They are characterized by a general predisposition to risk, which causes a permanent shift of behavior in decision-making in the direction of risk. The authors of the theory consider uniformity of behavior as the argument that they are characterized by predisposition to risk as a formed quality of personality<sup>6</sup>.

A well-known Russian psychologist V. Petrovsky has fundamentally studied the problem of risk. In his opinion, the term "risk" is expressed by means of three interrelated meanings: 1) risk as a measure of expected disadvantage in the failure of the activity, which is determined by the combination of the probability of failure and the degree of adverse effects; 2) risk as an action that can lead to one or another loss for the subject (loss, injury, damage); 3) risk as a situation of choice between two possible options: less appealing, but more reliable, and more attractive, but less reliable, associated with possible disadvantages<sup>7</sup>.

V. Petrovsky has pointed out that one of the possible forms of activity of the subject in the situation of a potential threat is activity aimed at meeting the danger.

In some works, predisposition to risk is considered within the theory of the desire for success, which is focused on the description and explanation of the direction, strength and sustainability of human behavior. Most allegations concern tasks that involve risk and depend on the capabilities of the subject<sup>8</sup>.

American professor M. Zuckerman in 1975 suggested that a personality trait associated with predisposition to risk is what he called a thirst for thrill, which is a

---

<sup>4</sup> A. P. Algin, "Risk and its role in public life". (Moscow: Myisl. 1989).

<sup>5</sup> T. V. Kornilova, "Psychology of risk and decision making". (Moscow: Aspect Press. 2003).

<sup>6</sup> N. Kogan y M. Wallach, "Risky shift phenomenon in small decision groups: a test of the information exchange hypothesis". *Journal of Experimental Social Psychology*, num 3 (1967): 75-84.

<sup>7</sup> V. A. Petrovskiy, "Person over the situation". (Moscow: Smysl. 2010).

<sup>8</sup> E. P. Ilyin, "Psychology of risk". (St. Petersburg: Peter. 2012).

need for various new experiences and a tendency to find previously unknown, diverse and intense feelings, a desire for physical and social risk for sensory-emotional experience. Different kinds of thrill in certain circumstances cause a pronounced sense of pleasure, but at the same time there is a discharge of artificially induced emotional stress. This is greatly due to the capture of *extreme* sports, gambling, etc<sup>9</sup>.

Let's look at the concept of predisposition to risk, on the example of capturing *extreme* sports which are characterized by a rather high degree of danger to life and health, high levels of adrenaline and tension.

The word "*extreme*" has firmly entered the lexicon of a modern person. In the present situation of our time, *extreme* sports help a person either to relieve tension or to get it on the contrary. In order to explain the reasons for pursuing *extreme* sports, we need to determine what the *extreme* is. *Extreme* is an outstanding, extraordinary actions, as a rule, which are associated with danger to life and health<sup>10</sup>.

The peculiarity of *extreme* sports is the possibility of committing high-risk actions in a socially acceptable way. In turn, passionate about *extreme* gives an opportunity to give way to negative emotions and discharged; solve their own problems; get quick success; change the guideline and realize the desire to unite with other people. On the other hand, it is an opportunity to obtain thrill<sup>11</sup>.

For a modern society, there are many cultural and social taboos that are manifested in everyday life. Often *extreme* sports are overtaken by those who unconsciously want to go beyond the ordinary and violate a narrow circle of rules and prohibitions, in which it is necessary to live day by day, as well as experience new and unusual feelings. Scientists in the psychoanalytic direction also indicate that the desire for risk can be a means of hyper compensation of childhood experiences of dependence and helplessness.

From the point of view of behaviorism, the *extreme* restores the positive relationship between action and the evaluation of the result, which at the level of body biology triggers the natural mechanism of self-esteem growth. Researchers of behavior complement the causes of the desire for *extreme* feelings by the innate

---

<sup>9</sup> M. Zuckerman, "Good and bad humours: biochemical bases of personality and its disorders". Psychological Science, Vol: 6 num 6 (1995): 325-334. y M. Zuckerman; E. A. Kolin; L. Price y I. Zoob, "Development of a sensation seeking scale". Journal of Consulting and Clinical Psychology, num 28 (1964): 477-482.

<sup>10</sup> M. A. Kotik, "Psychology and Security". (Tallinn: Valgus. 1981).

<sup>11</sup> G. N. Solntseva, "When and why do people take risks". Person, num 2 (2001): 102-113.

mechanisms of achievement, which increase the rank of the individual in the social group<sup>12</sup>.

The risk for many athletes acts as a pleasure, an emotional stimulus, and a special form of physical recovery, which creates life on the brink of danger. The individuality, temperament, psychological composition, motives, relatively stable personality properties affects on making the decision. For example, such volitional quality as the determination that manifests itself in the ability of a person to make decisions independently, in the ability to assume responsibility, necessary in difficult situations, when risk-related actions are required, and choice of several alternatives.

*Extreme* sports are often chosen by people of a certain psychological composition. These are people who seek to enjoy life<sup>13</sup>, to reject self-restraint, seek to find adventure and thrill, and are less focused on setting long-term goals. Risk is regarded as a perceived by a person danger<sup>14</sup>.

According to the Russian psychologist V. Petrovsky<sup>15</sup>, in *extreme* circumstances, such aspects of individual personality characteristics that cannot be manifested in normal situations can occur. Woodman et al.<sup>16</sup> has found that the personality traits associated with stress management strategies are activated only under *extreme* conditions.

In the studies of T. Shmigalova and Yu. Baikovsky<sup>17</sup>, it has been found that people engaged in *extreme* sports have a low level of anxiety, a high level of nervous mental stability, high speed, and flexibility of the emotional sphere, have high motivation to achieve, have significant adaptive capabilities. Also, it has been found that most representatives of *extreme* activity have a sanguine type of temperament, which is characterized by mobile, balanced nerve processes. The results authors explain by the fact that these qualities are necessary for the *extreme* to quickly make decisions, precisely to perform the necessary actions that

---

<sup>12</sup> T. M. Krasnyanskaya, "Psychology of extremality: personality, subject, security". (Pyatigorsk: PGLU. 2011) y A. Tversky, "Elimination by aspects: a theory of choice". Psychological Review, num 79 (1972): 281-299.

<sup>13</sup> P. E. Boverie, "Gender, motivational forces, level of decision-making and risk-taking: A phenomenological study of risk-taking in college students". Dissertation Abstracts International, num 50 (1989): 782-790.

<sup>14</sup> D. Kahneman y A. Tversky, "The framing and the psychology of choice". Science, num 211 (1981): 453-458. y T. V. Kornilova, "Risk and thinking". Psychological journal, num 2 (1994): 20-32.

<sup>15</sup> V. A. Petrovskiy, "Person over ..."

<sup>16</sup> T. Woodman; L. Hardy; M. Barlow y C. Le. Scann, "Motives for participation in prolonged engagement high-risk sports: An agentic emotion regulation perspective". Psychology of Sport and Exercise, Vol: 11 num 5 (2010): 345-352.

<sup>17</sup> T. S. Shmigaleva y Yu. V. Baykovskiy, "Individual psychological characteristics of athletes choosing extreme activities". Theory and practice of applied and extreme sports, Vol: 1 num 23 (2012): 25-31.

contribute to successful *extreme* activities, which imposes *extremely* high requirements for the individual, not only in the physical, but also psychologically.

O. Karpova considers *extreme* sports as a model of adaptation in conditions of psycho-emotional stress. General symptoms of adaptation are shown when specific *extreme* factors are acting on the personality. Stress reactions and stress that are actively manifested in *extreme* situations is a powerful factor in causing humans' adaptive behavior<sup>18</sup>.

The purpose of the research is a theoretical analysis and experimental study of predisposition to risk in *extreme* sports; establishment of recommendations for the development of personal qualities for successful and safe activities in *extreme* sports.

## Research of Methodology

The methodological starting points of our research in the context of studying the research of predisposition to risk of participants of *extreme* sports are an approved methodological complex using psycho-diagnostic tools. This methodology has been tested by researchers in the study of adaptation<sup>19</sup>, anxiety<sup>20</sup>, innovation<sup>21</sup>, sensory regulation in a situation of uncertainty, as well as in the study of mental expected states in various activities. All these experimental and empirical studies contained elements of the research of predisposition to risk of the personality.

The following methodological toolkit has been chosen: "The questionnaire for predisposition to risk research"<sup>22</sup>, "The self-confidence test-questionnaire"<sup>23</sup>,

---

<sup>18</sup> O. P. Karpova, "Extreme sports as a model of adaptation in conditions of psycho-emotional stress". News of Ukrainian Psychiatry, num 21 (2001): 161-170.

<sup>19</sup> O. Blynova; I. Chervinska; V. Kazibekova; H. Bokshan; S. Yakovleva; O. Zaverukha y I. Popovych, "Social and Psychological Manifestations of Professional Identity Crisis of Labor Migrants". Revista Inclusiones, Vol: 7 num 3 (2020): 93-105. y A. Halian; I. Halian; I. Burlakova; R. Shevchenko; V. Lappo; I. Zhigarenko y I. Popovych, "Emotional Intelligence in the Structure of Adaptation Process of Future Healthcare Professionals". Revista Inclusiones, Vol: 7 num 3, 2020: 447-460

<sup>20</sup> O. Kononenko; A. Kononenko; V. Stynska; O. Kachmar; L. Prokopiv; H. Katolyk y I. Popovych, "Research of the factor structure of the model of world view settings at a young age". Revista Inclusiones, Vol: 7 num 3, (2020): 98-116.

<sup>21</sup> I. M. Halian; O. I. Halian; L. Ye. Gusak; H. I. Bokshan y I. S. Popovych, "Communicative Competence in Training Future Language and Literature Teachers". Revista Amazonia Investiga, Vol: 9 num 29 (2020): 530-541. y O. Tsiuniak; A. Pyslar; G. Lialiuk; V. Bondarenko; O. Kovtun; O. Los y I. Popovych, "Research of interdependence of variables and factor structure of masters' readiness for innovative pedagogical activity". Revista Inclusiones, Vol: 7 num 3, (2020): 427-452.

<sup>22</sup> A. G. Shmelev, "Fundamentals of psychodiagnostics". (Moscow: Rostov-on-Don: Feniks. 1996).

<sup>23</sup> M. Litvintseva, "Psychological aspects of the selection and verification of the staff". (Moscow: ZAO Business School "Intel-Synthesis". 1997).

“Forecast” (“Assessment of the level of nervous mental stability”)<sup>24</sup>, “Self-assessment of predisposition to *extreme-risk* behavior”<sup>25</sup>.

Mathematical and statistical processing of the obtained data was performed using the application program “STATISTICA 8.0”.

## Results and Discussion

For this study, it has been selected three samples that together consisted of 180 respondents. They were representatives of *extreme* sports, among them: 60 representatives of parachuting, 60 representatives of motor sport and 60 representatives of base jumping. The age of the respondents was from 21 to 46 years. Informed consent to participate in the study has been received from all participants.

The study was conducted in several stages. Analysis of the literature and information sources on the issue of predisposition to risk in *extreme* sports. Experimental study of peculiarities of predisposition to risk in *extreme* sports for the help of methodical tools. Summarizing the results of experimental work, summing up.

To achieve the purpose of the study, a complex of complementary research methods has been applied: methods of system analysis, methods of causal analysis, methods of comparative analysis, and methods of direct structural analysis. From the group of empirical methods: psychodiagnostic method (tests); from the group of methods of analysis (processing) of data: qualitative and quantitative analysis of the obtained results, methods of computer processing of experimental data.

Based on the chosen methodological tools, we have examined psychological peculiarities of predisposition to risk of the representatives of three *extreme* sports: motorcycle sport, parachuting and base jumping.

The results of the empirical study of the level of predisposition to risk indicate that more than half of the representatives of motor sport are characterized by a high level of predisposition to risk (60.00% of people). The average level of this indicator is demonstrated by 40.00% of motorcyclists. There was no low level at all.

We also have traced gender differences in results. 64.30% of men were diagnosed with high level of predisposition to risk and 35.70% average, while high and medium levels of motorcyclists were divided in half. Consequently, we can

---

<sup>24</sup> A. O. Prokhorov, “Tutorial on the psychology of states”. (St. Petersburg: Rech. 2004).

<sup>25</sup> G. V. Chernova y A. A. Kudryavtsev, “Risk management”. (Moscow: Prospect. 2005) y Smakotina, N. L. “Basics of the sociology of instability and risk”. (Moscow: Science. 1999).



point out that male sex motorcyclists tend to be at risk is somewhat higher than that of women.

Obtained gender differences of this result are due to the fact that the predisposition to risk and *extreme* is also affected by sexual symbolism associated with the differentiation of sex roles, that is, such personality traits as masculinity and femininity. Many scientists, who deal with the problem of psychology of *extreme* sports, note that women are less excited about *extreme* than men, because women's predisposition to risk is realized under more specific conditions.

Parachute sports representatives have been received the following results in diagnosing the level of predisposition to risk: 65.00% of respondents have showed a high level of predisposition to risk, and, accordingly, 35.00% – the average. Low level has not been diagnosed.

We can state that both motorcyclists and skydivers have a predominantly high level of predisposition to risk, and a smaller number have an average. Any *extreme* activity generates a risk and a certain danger to the individual, that's why *extreme* sports are chosen by people who are predisposed to risk.

We consider that an important condition for successful *extreme* activity is the presence of a high or average level of nervous mental stability (NMS). Nervous mental stability is understood as an integral set of innate and acquired personality traits, mobilization resources and reserve psycho physiological capabilities of an organism that provide the optimal functioning of the individual in adverse and stressful conditions of an *extreme* environment. Terms of activity in *extreme* sports have a lot of stress factors that can adversely affect a person with a low level of nervous mental stability, provoke nervous breakdowns and in some cases even cost life if the person in an *extreme* situation is confused and does not do the necessary measures to save the life. Therefore, a favorable level of NMS for *extreme* sports is a necessary component for successful functioning in *extreme* conditions.

As a result of the study of this indicator we found that 50.00% of motorcyclists had an average NMS, 45.00% of the subjects have showed a high level and only 5.00% had a low NMS. As for skydivers, 65.00% of respondents of this category have showed a high level of nervous mental stability and 45.00% of skydivers had an average level. Low level of NMS has not been diagnosed.

We assume that level of NMS may change due to the experience of *extreme* sports. We have tracked its dynamics, depending on the experience of staying in *extreme* activity. Among motorcyclists, significant dynamics of the level of NMS is not noticeable, with experience this indicator remains at approximately the same level; it is mostly average and high.

Let's consider the same dynamics among representatives of parachuting. In this category of respondents there are significant changes in the level of the NMS, depending on the experience, namely the number of parachute jumps performed. Skydivers, who performed from 1 to 5 jumps, have 40.00% of high NMS level and 60% average, 50.00% of skydivers who performed 6-50 jumps demonstrate the average level of NMS and 50.00% have a high level of NMS. Among skydivers with experience of 50-620 jumps high level of NMS is a characteristic of 78.00% of respondents.

Consequently, the level of nervous mental stability of skydivers with a great experience of *extreme* activity increases significantly. Obtained result can be explained by the fact that when acting on the personality of specific *extreme* factors, general symptoms of adaptation are manifested, the study of which directed stress studies. Stress reactions and stress states, which are actively manifested in *extreme* situations, are a powerful factor in causing humans adaptive behavior.

Anti-stress resistance in this case is the result of the development of adaptation, in which the body acquires a new quality in the form of resistance and resistance to stress factors. Increasing the level of resistance to one risk factor, increases resistance to other risk factors, thus the so-called emotional training is carried out, which increases resistance to stress in general and prevents the violation of the neuro-psychic sphere of healthy people.

During the empirical study, we also have traced the dependence of NMS on the level of predisposition to risk. Motorcycles with a high predisposition to risk of 25.00% showed a high NMS level, while 66.70% of respondents had an average level of this indicator and 8.30% had low. The motorsports with average level of predisposition to risk received the following result: 62.30% of the subjects had a high level of NMS and 37.50% had an average.

Representatives of high-risk parachuting sports showed a high level of NMS at 54% and an average – 46.00%. Skydivers with an average predisposition to risk, the following result was obtained: 71.40% showed a high level of NMS and 28.60% had an average level of this indicator.

We have carried out a general correlation analysis of the results between predisposition to risk and the indicator of nervous mental stability using the Pearson correlation coefficient and found a significant correlation between these indices, which is at  $r (.01) = .53$ .

In the process of theoretical analysis of the problem of predisposition to risk, we found that a person at risk has a high level of self-confidence, especially for *extreme* sports, for which self-confidence is a necessary component of effective *extreme* activity. Labunskaya considers self-confidence as a property of the person

whose core is the positive assessment of the individual's own skills and abilities as sufficient to achieve meaningful goals for him and fulfilling of needs. As a result of the empirical self-confidence study of motorcyclists, we have obtained the following results: 55.00% of respondents had a high level of self-confidence, 15.00% had an average and 45.00% of subjects had too high levels of self-confidence, which in the method we used is called "aggressiveness".

As for the skydivers, in this category we have received the following results: 50% of respondents showed a high level of self-confidence, 15.00% – an average, and 35% of skydivers had a level of "aggressiveness". Thus, representatives of both kinds of sports have a high and too high (aggressiveness) level of self-confidence. Low level has not been diagnosed.

As a result of the study, we found that 58.30% of motorcyclists with a high predisposition to risk have a high level of self-confidence and 41.70% of them have a specific level of aggressiveness. Low and average level of self-confidence among people with high predisposition to risk have not been found. For motorsports with a pronounced average predisposition to risk, the following result has been obtained: 12.50% of the subjects showed an average level of self-confidence, 62.50% of respondents had a high level of it, and 25.00% of them are aggressive. So, we see that the higher the level of predisposition to risk, the higher the level of self-confidence.

As for skydivers, among this category of respondents with high predisposition to risk, 8.00% had an average self-confidence level, 69.00% had high level and 23.00% of the subjects showed aggressiveness. Representatives of skydivers with an average level of predisposition to risk (29.00%) had an average level of self-confidence, 42.00% were characterized by high level and 29% of them are aggressive. Persons with a high predisposition to risk had a higher level of self-confidence than those with an average level.

We have carried out a general correlation analysis of the results between indicator of predisposition to risk and self-confidence indicator using the Pearson correlation coefficient and found a significant correlation between these indices at  $r(.05) = .44$ .

According to many researchers, an important component of the predisposition to risk and a thrill to *extreme* activity is the presence of such personality traits as the searching for acute sensations.

During the empirical study of the scale "search for thrill", it has been found that 60% of motorcyclists were characterized by its high level, while 35.00% of respondents in this category showed the average severity of this scale, and, accordingly, only 5.00% of *extreme* sportsman showed a low level of search for thrill.

Exploring the search for thrill of representatives of parachuting sports we have received the following result: 75.00% of respondents had a high level of severity of this scale and 25.00% had average.

We have the assumption that people with high level of predisposition to risk should have a high severity of the “search for thrill” scale. During the study, we have traced empirically this correlation.

A high level of search for thrill has been traced among 75.00% of motorcyclists with a high level of predisposition to risk, and 25.00% of motorcyclists had an average level of this scale. 92.30% of the sample of skydivers with a high predisposition to risk showed a high level of search for thrill and 7.70% had an average.

Correlation analysis has showed a significant positive correlation between the predisposition to risk index and the indicator of the search for thrill; the correlation value is  $r(.01) = .58$ . The result is explained by the fact that the property of the search for thrill is one of the main characteristics of the person that provokes risk behavior and determines the high level of predisposition to risk.

Separately, we have analyzed the results of empirical research of representatives of the most dangerous *extreme* sports in the world – base jumping. This sample has attracted special attention due to the specificity of this sport. Because of the high level of danger, in most cases, only individuals who already have at least 200 jumps from a plane may be involved to base jumping, although the situation in the base jumping differs from ordinary parachute jumps. Only experienced sportsmen who have 200 to 600 jumps from fixed points took part in the study.

By investigating the predisposition to risk for base jumpers, we found that 40.00% of skydivers of this category had a high predisposition to a risk of, and 60.00% had the average the level of predisposition to risk. Low level has not been diagnosed.

Consequently, more than half of the representatives of base jumping had the average level of predisposition to risk. This result differs from the data obtained from the representatives of motorcycle and parachuting. The level of predisposition to risk of jumpers is due to the peculiarities of this sport. Undoubtedly, the presence of predisposition to risk is a necessary component of a person engaged in base jumping, but in this type of sport, the risk should always be well thought out, weighed and calculated. Due to the specifics of base jumping for a successful *extreme* activity there should be a lot of caution.

During the empirical study, we have found that the representatives of base jumping had a high nervous mental stability as much as 100.00%. The highest

level of nervous mental stability is required due to the high danger to life of an athlete. The base jumpers have very little time to take the necessary measures to save lives compared to skydivers. Loss of time per a second can cost *extreme* life, because if an athlete misses any part or does not do it perfectly, the parachute will not have time to open and *extreme* will have a fatal outcome.

By examining self-confidence, we have diagnosed that 80.00% of respondents had high level and 20.00% of them had an average. Low level of self-confidence and aggression has not been diagnosed.

Stability and equilibrium are needed in everything in such kind of sport as base jumping. This also applies to self-confidence. We have identified such a level of self-confidence as aggressiveness in a fairly high percentage of respondents of motorcyclists and skydivers. There is no such tendency among the representatives of base jumping. Insufficient self-confidence as well as its excessive level can provoke too dangerous situations. Lack of self-confidence leads to the appearance of doubt, hesitant and slow actions. They are completely contraindicated because of the specifics of base jumping.

Excessive self-confidence (aggressiveness) will lead to thoughtless, too dangerous and incompatible with life action. Therefore, in this case, the presence of a stable high level of self-confidence is an important and necessary component in *extreme* activity.

We have found in the empirical study that 100.00% of base jumpers showed a high level of search for thrill. This result is explained by the fact that such a sport as base jumping is engaged mainly for realization of the specified property. In parachuting a high level of search for thrill is observed only at the initial stages of *extreme* activity, but this sample of respondents is characterized by high severity of the search for thrill. Due to the specifics of this kind of sport, the danger is always present, no matter how perfect the skills of *extreme*. A significant percentage of the success of this type of *extreme* activity is given to chance.

We have carried out a general correlation analysis of the results of all respondents using the Pearson correlation coefficient. Correlation analysis has showed a significant positive correlation between the incidence of predisposition to risk and the indicators of nervous mental stability, self-confidence and the search for thrill. The correlation values between the integral index of predisposition to risk and the general indicators of the methods are: NMS –  $r(.01) = .53$ , ST –  $r(.01) = .57$ , SC –  $r(.05) = .44$  (see Table 1).

Scale		PR	SC	ST	IM	SNI	NAD	NMS
Predisposition to risk (PR)	Pearson Correlation	1.000	.005*	.567**	.221	.231	.099	.525**
	(2-sided) statistical		.444	.001	.145	.127	.517	.001

	significance							
	N	180	180	180	180	180	180	180
Self-confidence (SC)	Pearson Correlation	.005*	1.000	.144	.304*	.219	.275	.105
	(2-sided) statistical significance	.444		.344	.042	.148	.067	.493
	N	180	180	180	180	180	180	180
Search for thrill (ST)	Pearson Correlation	.567**	.144	1.000	.054	.386**	.169	.303*
	(2-sided) statistical significance	.001	.344		.725	.001	.266	.005
	N	180	180	180	180	180	180	180
Intolerance to monotony (IM)	Pearson Correlation	.221	.304*	.054	1.00	.167	.218	.286
	(2-sided) statistical significance	.145	.042	.725		.272	.151	.057
	N	180	180	180	180	180	180	180
Search for new impressions (SNI)	Pearson Correlation	.231	.219	.386**	.167	1.000	.153	.260
	(2-sided) statistical significance	.127	.148	.001	.272		.316	.084
	N	180	180	180	180	180	180	180
Nonadaptive attraction to difficulties (NAD)	Pearson Correlation	.099	.275	.169	.218	.153	1.000	.122
	(2-sided) statistical significance	.517	.067	.266	.151	.316		.424
	N	180	180	180	180	180	180	180
Nervous mental stability (NMS)	Pearson Correlation	.525**	.105	.303*	.286	.260	.122	1.000
	(2-sided) statistical significance	.001	.493	.005	.057	.084	.424	
	N	180	180	180	180	180	180	180

Note: \* – statistical significance of  $p \leq .05$ ; \*\* – statistical significance of  $p \leq .01$ .

**Table 1**

Correlation analysis of the obtained results (Pearson correlation coefficient)

Having investigated the psychological characteristics of predisposition to risk, we have developed recommendations for the development of internal indicators that are necessary for successful *extreme* activities. For successful *extreme* activity it is necessary to have some properties, among them a high level

of nervous mental stability is. We have investigated that *extreme* sports, namely parachuting, develop NMS, but its favorable level should be available to start an *extreme* career. Special methods have been developed to increase the NMS and increase the psychological reserves of man.

There are various methods of psychic self-regulation among them. With the help of them a person can independently influence emotional, mental and physical condition. In recent years the following methods of psychic self-regulation are widely used for this purpose: relaxation-respiratory gymnastics, progressive muscle relaxation, yoga, autogenous training, and meditation.

In addition to the methods of self-regulation, there is another group of methods for improving mental stability – these are methods of psychological correction. Methods of psychological correction are aimed at changing those features and ways of human behavior that contribute to the emergence and maintenance of emotional stress and unfavorable level of nervous mental stability. Such methods include the method of systematic desensitization, emotional and rational therapy, psychological games, socio-psychological training, business games, psychodrama, etc.

A high level of self-confidence is the next important indicator for *extreme* activity. An uncertain person often has doubts and hesitations, which is unacceptable for *extreme* conditions, in which it is always necessary to act quickly, clearly, definitively and confidently. Therefore, the development of self-confidence is an important moment both in preparing for the start of an *extreme* career and for being in it.

In our opinion, in order to increase the level of self-confidence, it is necessary to develop such indicators as self-acceptance and self-respect, increasing of self assessment and self-esteem, formation of positive self-relation and development of communication skills.

We consider that the type of locus of control plays a significant role in *extreme* activities. Successful *extreme* activities can be achieved by persons with a developed internal locus of control. While increasing the internal locus of control, one must pay attention to the development of will, which is one of the main components of this concept. The basis for the upbringing of the will is the systematic overcoming of difficulties in everyday life.

In our opinion, indicators such as predisposition to risk and the search for thrill should also be present in the personality of the *athlete-extreme*, but within the acceptable level. The excessive expression of these properties can lead to adverse effects in those cases where the person loses self-control due to the significant expressiveness of these properties, but goes on unreasonable, too dangerous actions that can be harmful to human life and health.

Therefore, in our opinion, it is important to master the excessive manifestations of these indicators through the development of self-control. Self-control is a very important feature of character that helps a person to manage himself, his own behavior, to maintain the ability to perform activities in the most adverse conditions. Self-control is a condition of an adequate, purposeful, integrated psyche that allows you to control your emotions, thoughts and behavior. Therefore, the training of these properties is necessary for people with excessive predisposition to risk and search for thrill.

## Conclusions

Thus, by theoretical analysis of the concept of risk it has been found that this phenomenon is multidimensional and ambiguous in different approaches to its interpretation. The phenomenon of risk is considered as: a possible danger and action at random in a situation of uncertainty; actions of the person which lead to the consequences in the form of changes in values; activity that is associated with overcoming uncertainty in the context of compulsory choice. It has been expressed the opinion that people have a different tendency to risk, which depends on personal, situational and social factors. The predisposition to risk has been considered in several interpretations: as a formed quality of a person; in the context of the theory of desire to succeed; within the Petrovsky's theory of non-adaptability. It has been established that personality predisposition to risk plays an important role, in particular, such personality trait as the search for thrill. The concept of predisposition to risk has been considered on an example of preoccupation with *extreme* sports. It has been revealed that risky persons have such personality traits in *extreme* activity as impulsiveness, excitability, high level of nervous mental stability, high speed of the emotional sphere, significant adaptive possibilities, balanced nervous processes, independence, self-confidence, desire for success etc. *Extreme* sports have been considered as a model of adaptation in conditions of psycho-emotional stress and as a means of developing resistance to stress factors.

We have received some common results on the example of the three *extreme* sports during the study of the features of predisposition to risk. Among them high NMS level, self-confidence and the search for thrill, high and average level of predisposition to risk, which are provided by features of any *extreme* activity. Many differences in the results of the three samples have been received; they are determined by the specifics of a particular sport. We have developed recommendations for the development of internal indicators that are necessary for successful *extreme* activities. In order to start *extreme* activities and to succeed in it, it is necessary to increase the level of nervous mental stability, develop self-confidence, including such components as self-acceptance and self-esteem. Success in *extreme* sports can be achieved by individuals with an internal locus of control, so for *extreme* sportsman its development is important, first of all through the exercise of the will. At the same time, it is necessary for people with high level



of predisposition to risk and the search for thrill to develop self-control and composure for successful and maximum safe *extreme* activities.

## **Acknowledgments**

The research was conducted within the framework of fundamental scientific practical themes of the Department Psychology of Sumy State Pedagogical University named after A. S. Makarenko and Department of General and Social Psychology of Kherson State University, the state registration number is 0119U101096.

## **References**

Algin, A. P. "Risk and its role in public life". Moscow: Myisl. 1989.

Blynova, O.; Chervinska, I.; Kazibekova, V.; Bokshan, H.; Yakovleva, S.; Zaverukha, O. y Popovych I. "Social and Psychological Manifestations of Professional Identity Crisis of Labor Migrants". Revista Inclusiones, Vol: 7 num 3 (2020): 93-105.

Boverie, P. E. "Gender, motivational forces, level of decision-making and risk-taking: A phenomenological study of risk-taking in college students". Dissertation Abstracts International, num 50 (1989): 782-790.

Chernova, G. V. y Kudryavtsev, A. A. "Risk management". Moscow: Prospect. 2005.

Halian, A.; Halian, I.; Burlakova, I.; Shevchenko, R.; Lappo, V.; Zhigarenko, I. y Popovych, I. "Emotional Intelligence in the Structure of Adaptation Process of Future Healthcare Professionals". Revista Inclusiones, Vol: 7 num 3, 2020: 447-460.

Halian, I. M.; Halian, O. I.; Gusak, L. Ye.; Bokshan, H. I. y Popovych, I. S. "Communicative Competence in Training Future Language and Literature Teachers". Revista Amazonia Investiga, Vol: 9 num 29 (2020): 530-541. DOI: <http://dx.doi.org/10.34069/AI/2020.29.05.58>

Ilyin, E. P. "Psychology of risk". St. Petersburg: Peter. 2012.

Kahneman, D. y Tversky, A. "The framing and the psychology of choice". Science, num 211 (1981): 453-458.

Karpova, O. P. "Extreme sports as a model of adaptation in conditions of psycho-emotional stress". News of Ukrainian Psychiatry, num 21 (2001): 161-170. Retrieved from <http://www.psychiatry.ua/brief/paper021.html>

Kogan, N. y Wallach, M. "Risky shift phenomenon in small decision groups: a test of the information exchange hypothesis". Journal of Experimental Social Psychology, num 3 (1967): 75-84.

Kononenko, O.; Kononenko, A.; Stynska, V.; Kachmar, O.; Prokopiv, L.; Katolyk, H. y Popovych, I. "Research of the factor structure of the model of world view settings at a young age". *Revista Inclusiones*, Vol: 7 num 3, (2020): 98-116.

Kornilova, T. V. "Risk and thinking". *Psychological journal*, num 2 (1994): 20-32.

Kornilova, T. V. "Psychology of risk and decision making". Moscow: Aspect Press. 2003.

Kotik, M. A. "Psychology and Security". Tallinn: Valgus. 1981.

Krasnyanskaya, T. M. "Psychology of extremality: personality, subject, security". Pyatigorsk: PGLU. 2011.

Litvintseva, M. "Psychological aspects of the selection and verification of the staff". Moscow: ZAO Business School "Intel-Synthesis". 1997.

Nosov, P.; Palamarchuk, I.; Zinchenko, S.; Popovych, I.; Nahrybelnyi, Y. y Nosova, H. "Development of means for experimental identification of navigator attention in ergatic systems of maritime transport". *Bulletin of University of Karaganda. Technical Physics*", Vol: 1 num 97 (2020): 58-69. DOI: 10.31489/2020Ph1/58-69

Petrovskiy, V. A. "Person over the situation". Moscow: Smysl. 2010.

Prokhorov, A. O. "Tutorial on the psychology of states". St. Petersburg: Rech. 2004.

Pshenychna, L.; Kuzikova, S.; Shcherbak, T.; Kondratyuk, S.; Petrenko, S.; Skyba, O. "Phenomenon of nervous mental stability in extreme sports". *Journal of Physical Education and Sport*, Vol: 19 num 4 (2019): 1349-1354.

Renn, O. y Swaton, E. "Psychological and Sociological Approaches to Study Risk Perception," *Environment International*, num 10 (1984): 557-575.

Shmelev, A. G. "Fundamentals of psychodiagnostics". Moscow: Rostov-on-Don: Feniks. 1996.

Shmigaleva, T. S. y Baykovskiy, Yu. V. "Individual psychological characteristics of athletes choosing extreme activities". *Theory and practice of applied and extreme sports*, Vol: 1 num 23 (2012): 25-31.

Smakotina, N. L. "Basics of the sociology of instability and risk". Moscow: Science. 1999.

Solntseva, G. N. "When and why do people take risks". *Person*, num 2 (2001): 102-113.

Tsiuniak, O.; Pyslar, A.; Lialiuk, G.; Bondarenko, V.; Kovtun, O.; Los, O. y Popovych, I. "Research of interdependence of variables and factor structure of masters' readiness for innovative pedagogical activity". *Revista Inclusiones*, Vol: 7 num 3 (2020): 427-452.

Tversky, A. "Elimination by aspects: a theory of choice". *Psychological Review*, num 79 (1972): 281-299.

Woodman, T.; Hardy, L.; Barlow, M. y Scamff, C. Le. "Motives for participation in prolonged engagement high-risk sports: An agentic emotion regulation perspective". *Psychology of Sport and Exercise*, Vol: 11 num 5 (2010): 345-352.

Zinchenko, S.; Nosov, P.; Mateichuk, V.; Mamenko, P.; Popovych, I. y Grosheva, O. "Automatic collision avoidance system with many targets, including maneuvering ones". *Bulletin of university of Karaganda*, Vol: 96 num 4 (2019): 69-79. DOI: 10.31489/2019Ph4/69-79

Zuckerman, M. "Good and bad humours: biochemical bases of personality and its disorders". *Psychological Science*, Vol: 6 num 6 (1995): 325-334.

Zuckerman, M.; Kolin, E. A.; Price, L. y Zoob, I. "Development of a sensation seeking scale". *Journal of Consulting and Clinical Psychology*, num 28 (1964): 477-482.