

Dark Side of Personality and Extreme Sports. Case of Skydivers

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Abstract:

The aim of the study: The study aimed to identify the personality traits of skydivers from the Dark Side of Personality model.

Subject or material and method: To identify the Dark Side of Personality traits of 40 Polish skydivers (M age = 26.70, SD = 7.80) and 42 low-risk sport athletes (controls, M age = 25.50, SD = 6.60), several scales were used. These were the Triarchic Psychopathy Measure (TriPM), Impulsive Behavior Scale (UPPS-P), Narcissistic Admiration and Rivalry Questionnaire (NARQ), and Mach-IV Questionnaire.

Results: The skydivers group had a significantly higher mean of Admiration, Boldness, Positive impulsivity and Sensation seeking than the control group. In addition, an exploratory factor analysis was conducted for the scales of the Dark Side of Personality. It revealed four basic factors: Impulsivity, Social Insensitivity, Planning action, and Thrill Seeking. These factors differ between the group of skydivers and the controls, but the discrimination is rather small.

Conclusions: The results obtained suggest that skydivers do not reveal pathological tendencies. Their participation in extreme sports may be an expression of normal personality and temperamental traits that do not interfere with everyday functioning.

dark side of personality; extreme sports; skydivers

INTRODUCTION

Extreme sports are free-time types of activity that occur outdoors with inherent elements of risk of loss of health or life, typically taking place within natural environments [1]. The threat of losing one's life or suffering a serious injury is an inherent feature of extreme sports. These activities are characterised by extremely intense physical exertion, as well as the adventurous nature of the

activities undertaken. Practicing extreme disciplines is based on the desire to overcome difficulties, experience new, strong sensations and experience something extraordinary [2, 3].

Traditionally, the typology of extreme sports attributes them to the areas in which they are practiced: land, water, and air. Land sports traditionally include BMX, skateboarding, off-road rallies, enduro, downhill, parkour, and various forms of climbing, including alpinism and Himalayan mountaineering. The next group is water sports, including kitesurfing, free diving, water motor sports and rafting. Air extreme sports include parachute jumping, BASE jumping, bungee jumping, paragliding, ski jumping and fly-

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ing. The above list is only intended to illustrate the scope of the phenomenon; it is not complete, because new extreme disciplines are being created at a rapid pace, and the only limitation is human fantasy.

Skydiving, which combines the adrenaline rush of high altitude with stunning natural and urban landscapes, is one of the world's most popular extreme sports. Contrary to stereotypes about skydiving's fatality rate, statistics show that the number of skydiving accidents is relatively low, for example: only 11 skydiving deaths occurred in the USA in 2020 and 10 skydiving fatalities occurred in Australia in 2021. Between 1994 and 2017, a total of 181 civilian skydivers died in Canada (about 7 persons annually). In recent years, new technologies and training methods have reduced fatalities to less than 1 per 100,000 jumps and serious injuries requiring hospitalisation in less than 2 per 10,000 jumps [4].

The most well-known research on extreme sports is Zuckerman's work on the personality trait of sensation seeking, which is "a trait defined by the search for varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experiences" [5, p. 27]. Research on sensation seeking has shown scores to be associated with engagement in high-risk sports such as rock climbing, snowboarding, SCUBA diving, auto racing, white water rafting or motocross [6]. Studies of sensation seeking have also shown that scores correlate with involvement in parachuting [4, 7-9].

Research on the personalities of extreme athletes does not only focus on individual sensation seeking. An analysis of 41 skydivers diagnosed by MMPI items revealed that, as compared to the MMPI Adult Male Normative Group, skydivers were characterised by lower anxiety, depression, phobias, freedom from health worries and higher extraversion, impulsiveness, thrill seeking and hedonism [10]. Watson and Pulford investigated personality differences between amateurs, instructors involved in high-risk sports (including skydivers) and non-participants. Amateurs and instructors scored higher on extraversion and lower on neuroticism than those who did not take part. They were also more likely to have a Type A personality (e.g.

striving for goals without feeling and a tendency to be impatient with delays) [11]. In research by Próchniak, skydivers scored higher than the control group on the hedonism, stimulation and self-direction values and lower on the tradition, universalism and benevolence values than the control group. Moreover, skydivers were stronger concentrated on the present, preferred a quick death and believed in control over death in comparison to the controls [12]. In a study by Monasterio and coworkers, the temperament and character of 83 base jumpers (64 men and 19 women) were compared. The results indicate that, with the exception of the trait of cooperativeness, on which the women scored higher than the men, the men and women base jumpers shared similar personality traits, both in terms of temperament and character [13].

Surprisingly, while socially acceptable personality traits associated with dangerous sports have been studied, the darker personality traits of extreme athletes have received less attention.

DARK SIDE OF PERSONALITY

The Dark Triad is a psychological personality theory first published by Delroy L. Paulhus and Kevin M. Williams in 2002. The authors described three particularly offensive but non-pathological personality types: Machiavellianism, Subclinical Narcissism, and Subclinical Psychopathy [14].

Each of these personality types is called dark because each is believed to contain hostile traits [15-17]. Although empirical evidence suggests that the three traits of the Dark Triad overlap, they are all conceptually distinct. They are linked to an uncaring and manipulative interpersonal style [18].

Machiavellianism refers to manipulative personality types [19,20]. People with Machiavellian traits deceive and exploit others to achieve their goals [21]. They often act with premeditation, tend to build alliances, and do everything in their power to maintain a positive reputation and have low levels of empathy, are cold and calculating, and have a strategic focus on self-interest [22,23].

In turn, people with subclinical narcissism have features of narcissistic personality disorder

but do not meet the full criteria [24,25]. Grandiosity, entitlement, dominance, and superiority are characteristic of subclinical narcissism. Subclinical narcissism is also characterised by manipulation and callousness [26,27]. People with subclinical narcissism have a lot of faith in their bragging, even when there is evidence that they are exaggerating their competence.

M. Back with coworkers propose two dimensions of subclinical narcissism: admiration and rivalry. Admiration expresses the desire to gain recognition and admiration from others. Rivalry expresses avoiding failure and defending oneself against criticism, exaggerating one's successes and achievements, and avoiding tasks that may end in failure. These dimensions are relatively independent [28].

Psychopathy is the last dimension of the Dark Side of Personality. It can be defined as a set of personality traits and behaviours that are often associated with a lack of emotional sensitivity and empathy, impulsivity, superficial charm, and insensitivity to the consequences of punishment [29]. Characteristics of psychopathy include high levels of impulsivity and sensation seeking, as well as low levels of empathy and anxiety. Psychopathy, also known as antisocial personality disorder, describes a set of personality traits and behaviours that are often associated with a lack of emotional sensitivity and empathy, impulsivity, superficial charm, and insensitivity to the consequences of punishment [30].

Researchers point out that there are two types of psychopathy: criminal psychopathy and subclinical psychopathy. The main difference between these types is that the former involves the commission of crimes of a certain type and degree [31]. Subclinical psychopathy, on the other hand, is not associated with the commission of crimes [32,33]. This type of psychopathy is characterised by three key elements: boldness, meanness and disinhibition. Boldness is a personality dimension that characterises people who are convinced of their superiority over others, who are effective in persuading others of their opinions, and who take on difficult challenges and seek thrills. The meanness dimension describes people who show a lack of compassion and empathy towards others, as well as hostile behaviour aimed at exploiting others for their own benefit and satisfying their needs. The disinhi-

bition dimension, on the other hand, can be described as a tendency to different types of impulsivity [34]. Lynam and coworker propose the following aspects of impulsivity: negative impulsivity, positive impulsivity, lack of premeditation, lack of persistence, and sensation seeking. Negative impulsivity is the tendency to make hasty decisions or behaviours in response to emotionally difficult situations, while positive impulsivity is the tendency to act without sufficient reflection under the influence of intense, positive emotions. Lack of premeditation results in difficulties in planning one's actions and predicting the consequences of one's actions. Lack of persistence is the inability to focus and maintain interest in a task, especially when it becomes monotonous or requires greater mental effort. Sensation seeking, on the other hand, characterises people who are willing to engage in activities that they perceive as exciting, even though they may involve some risk or danger. In addition, such a person is willing to try new things and gain experience [35].

Individuals with high levels of Dark Triad traits engage in risky behaviour. For example, in the study of Patton and coworkers, police officers, military members, firefighters and emergency medical technicians scored higher on fearless dominance and boldness [36].

Rosca and colleagues demonstrated that risk-taking behaviour among firefighters was correlated with machiavellianism and psychopathy [37].

As mentioned earlier, there is a lack of research analysing the dark triad of personality in relation to the practice of extreme sports. However, there is research that examines the dark triad as it relates to traditional sports [38]. Psychological research suggests that people who practise traditional sports demonstrate higher scores in the dark triad of personality compared to people who do not practise sports [39,40].

People with extensive sports experience score higher on the dark triad of personality compared to those with less experience in conflict [40]. People who play sport at an international professional level are more likely to show higher levels of Machiavellianism compared to those who play sport at a lower regional level [39]. Individual aspects of the Dark Triad of Personality are also positively correlated with positive attitudes towards doping in sport [41].

The above studies investigated The Dark Side of Personality in traditional sports. In turn, the aim of this current research is to analyse The Dark Side of Personality among extreme athletes.

METHOD

Participants

The total sample included two groups. The first group of 40 skydivers who voluntarily participated were all men (M age = 26.70, SD = 7.80). The mean skydiving experience was 5 years. The second group was a control group of 42 men who practiced low-risk sports (M age = 25.50, SD = 6.60). In this group, no individuals had participated in any high-risk sports.

Procedure

We contacted skydivers through associations and clubs in northern Poland and private contacts. The skydivers filled in questionnaires and sent them back to the authors. Participation in the research was voluntary and anonymous.

Diagnostic tools

Triarchic Psychopathy Measure (TriPM)

The Triarchic Psychopathy Measure (TriPM) diagnoses the three distinct constructs of the Triarchic model of psychopathy in terms of separate Boldness, Meanness, and Disinhibition scales [42]. The authors of the Polish version are I. Pilch, E. Sanecka, M. Hyla and K. Atlas. This tool consists of 41 statements to which the respondent must respond by selecting one of four answers (false, rather false, rather true, true). The reliability of the instrument varies between 0.84 and 0.90, as measured by Cronbach's alpha coefficient [43].

Impulsive Behavior Scale (UPPS-P)

The authors of the Impulsive Behavior Scale are D. R. Lynam, G. T. Smith, S. P. Whiteside and M. A. Cyders [35]. In Poland, R. Poprawa designed and validated a shorter version of the Impulsive Behavior Scale. The 20-item scale includes 5 subscales: negative impulsivity, positive impulsivity, lack of premeditation, lack of perseverance, and sensation seeking. The respondent is asked to respond to the statements on a 4-point scale (where 1 – I strongly agree, 2 – I rather agree, 3 – I rather disagree, 4 – I strongly disagree). The Cronbach's alpha coefficient for each subscale is between 0.82 and 0.87 [44].

Narcissistic Admiration and Rivalry Questionnaire (NARQ)

The authors of the questionnaire are M. D. Back, A. C. P. Kufner, M. Dufner, T. M. Gerlach, J. F. Rauthmann and J. J. L. Denissen [28]. The authors of the Polish adaptation are R. Rogoza, M. Rogoza and P. Wyszynska. The questionnaire contains two main subscales: admiration and rivalry. This tool consists of 18 statements to which the respondent must respond on a 6-point scale (where 1 – I strongly disagree, 2 – I disagree, 3 – I rather disagree, 4 – I rather agree, 5 – I agree, 6 – I strongly agree) [45].

Machi-IV Questionnaire

The authors of the original version are R. Christie and F. Geis while the author of the Polish adaptation is I. Pilch. The scale consists of 20 questions. The general score informs about the intensity of Machiavellianism. The answers are given on a seven-point Likert scale from 1 – I strongly disagree to 7 – I strongly agree. The reliability of the scale is Cronbach's α = 0.79 [19,46].

RESULTS

The extreme athlete and the control athlete groups were compared on each measure using Student's t test (See Table 1).

Table 1. Comparisons of Dark Side of Personality in the extreme athletes group and the control athletes ($N = 82$)

	The Extreme Athletes N=40		The Controls N=42		t-value	df	p	Cohen's d
	M	SD	M	SD				
Machiavellianism	2.30	1.12	2.48	1.04	0.74	80	n.s.	-0.16
Admiration	3.60	1.52	3.53	0.71	-0.35	80	n.s.	0.06
Rivalry	2.70	0.99	2.80	0.82	0.46	80	n.s.	-0.11
Boldness	2.68	0.58	2.42	0.50	-2.14	80	0.05	0.48
Meanness	1.64	0.67	1.63	0.52	-0.06	80	n.s.	0.01
Disinhibition	2.17	0.57	1.88	0.48	-2.50	80	0.05	0.55
Negative impulsivity	2.86	0.79	2.74	0.77	-0.71	80	n.s.	0.15
Positive impulsivity	2.73	0.92	2.24	0.79	-2.59	80	0.05	0.57
Lack of premeditation	2.13	0.78	1.94	0.61	2.13	80	n.s.	0.27
Lack of perseverance	2.18	0.84	2.04	0.74	2.18	80	n.s.	0.17
Sensation seeking	3.37	0.64	2.86	0.62	-3.60	80	0.01	0.80

The extreme athletes group had a significantly higher mean on the Admiration, Boldness, Positive impulsivity and Sensation seeking scales than the control athletes group.

In the next statistical step, a discriminant function analysis (DFA) was applied to determine which variables best discriminate between the extreme and control athletes. All the variables presented in Table 1 for the group differences were included in the discriminant function analysis. One significant function was identified with an eigenvalue of 0.63 and canonical correlation of 0.62, $F(11,70) = 4.05$, $p < 0.01$. Table 2 indicates that 78.50% of the group cases were correctly classified, with this being 73.20% of the extreme group and 83.50% of the control group.

Table 2. Classification results of the extreme and the control athletes

Cases		Predicted group		Total
		Extreme $p=0.487$	Control $p=0.512$	
Original Count	Extreme	31	9	40
	Control	7	35	42
% Classified	Extreme	77.50	22.50	100
	Soft	83.33	16.67	100

Note. 80.48 % of original grouped cases correctly classified

The Discriminant Function Analysis revealed that variables of the Dark Side of Personality model (PP, PD, Disinhibition, Boldness) contributed significantly to the multivariate discrimination between the athletes. See Table 3.

Table 3. Summary of the discriminant function analysis

Factors	Wilks' – Lambda	Partial – Lambda	F-remove (1,196)	p-level	Toler.	1-Toler. (R-Sqr.)
Positive impulsivity	0.67	0.89	7.87	0.01	0.49	0.50
Sensation seeking	0.69	0.87	9.77	0.01	0.76	0.23
Disinhibition	0.64	0.94	3.82	0.05	0.54	0.45
Boldness	0.64	0.94	4.27	0.05	0.35	0.64

In the next step, an exploratory factor analysis was conducted to diagnose the structure of the Dark Side of Personality traits. The principal component analysis was chosen [47]. The KMO index was found to be 0.596. Additionally, BTS

reached statistical significance $\chi^2(45) = 250.155$, $p < 0.01$. The KMO and BTS results indicated that the data satisfied the psychometric criteria for factor analysis to be performed. Exploratory factor analysis using the principal component

analysis indicated a four-factor solution on observing the scree plot and a parallel analysis (actual $\lambda_1 = 3.31, \lambda_2 = 1.93, \lambda_3 = 1.40, \lambda_4 = 1.07$ vs.

$\lambda_1 = 1.63, \lambda_2 = 1.43, \lambda_3 = 1.29, \lambda_4 = 1.06$ from the parallel analysis). See Table 4.

Table 4. Exploratory factor analysis for the dark side of personality scales

Variables	Factor 1	Factor 2	Factor 3	Factor 4
Disinhibition	0.69			
Negative impulsivity	0.82			
Positive impulsivity	0.71			
Machiavellianism		0.74		
Rivalry		0.88		
Meanness		0.72		
Lack of premeditation			0.78	
Lack of perseverance			0.89	
Admiration				0.67
Boldness				0.84
Sensation seeking				0.62
Explaining variance (%)	30.13	17.56	12.74	9.80
Eigenvalue	3.31	1.93	1.40	1.07

The first factor, which accounted for 30.13% of the variance (eigenvalue = 3.31), represents the dimension of *Impulsivity* (subcomponents: Disinhibition, Negative impulsivity Positive impulsivity). The second factor, which accounted for 17.56% of the variance (eigenvalue = 1.93), is labelled *Social Insensibility* (Machiavellianism, Rivalry, Meanness). The third factor, which accounted for 12.74% of the variance (eigenvalue = 1.40), is labelled *Planning action* (subcompo-

nents: Lack of premeditation, Lack of perseverance). The last factor explains 9.80% of the variance of the scores (eigenvalue = 1.07) and is labelled *Thrill Seeking* (subcomponents: Admiration, Boldness, Sensation seeking).

Table 5, above, presents the scores of the four factors of the Dark Side of Personality model extracted in the factor analysis among the groups of extreme and control athletes.

Table 5. Comparisons of dark of side factors in extreme and control athletes

Factors	The extreme athletes N=40		The control athletes N=42		t-value	df	p	Cohen's d
	M	SD	M	SD				
Impulsivity	2.59	0.66	2.29	0.54	2.26	80	0.05	0.49
Social Insensibility	2.21	0.79	2.30	0.66	-0.53	80	n. s.	-0.12
Planning action	2.15	0.70	1.99	0.59	1.13	80	n. s.	0.24
Thrill Seeking	3.22	0.58	2.94	0.45	2.42	80	0.05	0.54

The extreme athletes had significantly higher means for *Impulsivity* and *Thrill Seeking* than the low risk athletes group.

In the last step, a discriminant function analysis (DFA) was used to assess the capacity of the factors of the Dark Side of Personality model ex-

tracted in the CFA for the discrimination of the extreme and control athletes. The factors for the group differences were included in the discriminant function analysis. The factors were: *Impulsivity, Social Insensibility, Planning action* and *Thrill Seeking*. One significant function was iden-

tified with an eigenvalue of 0.35 and canonical correlation of 0.51, $F(4,77) = 6.77$, $p < 0.01$. Table 6 indicates that 71.95% of the group cases were

correctly classified, this being 62.25% of the extreme group and 71.95% of the control group.

Table 6 Classification results of the extreme and the control athletes

Cases		Predicted group		Total
		Extreme $p=0.487$	Control $p=0.512$	
Original Count	Extreme	25	15	40
	Control	8	34	42
% Classified	Extreme	62.50	37.50	100
	Soft	71.95	28.05	100

Note. 71.95 % of original grouped cases correctly classified

Table 7. Summary of the discriminant function analysis

Factors	Wilks' – Lambda	Partial – Lambda	F-remove – (1,77)	p-level	Toler.	1-Toler. (R-Sqr.)
Impulsivity	0.87	0.84	14.45	0.01	0.69	0.30
Social Insensibility	0.77	0.94	4.09	0.01	0.81	0.18
Planning action	0.77	0.95	3.97	0.05	0.85	0.14
Thrill Seeking	0.90	0.81	17.20	0.01	0.72	0.27

DISCUSSION

The aim was to examine the dark personality traits among skydivers, with the analysis showing that only a few traits from the Dark Side model discriminated the skydivers from the control group. The extreme athletes had significantly higher means for Boldness, Disinhibition, Positive impulsivity, and Sensation seeking than the control group. The other Dark Side variables did not differ between groups.

In fact, the skydivers scored higher than the controls on the boldness scale as a component of subclinical psychopathy. Boldness encompasses emotional resilience, social assertiveness and venturesomeness. In other conceptualisations of psychopathy, boldness is associated with low levels of anxiety and depression. It is described as a semi-adaptive trait that is linked to well-being [48].

The role of boldness in the diagnosis of psychopathy is disputed. Some researchers conclude that boldness is not a sufficient dimension for the diagnosis of psychopathy, but could be considered a diagnostic criterion [49-51].

In this context, engaging in risky activities may not be a manifestation of pathological tendencies. The old thesis of Sigmund Freud about pathological tendencies in the group of people who seek high risks cannot be confirmed [52]. Rather, it may be a sign of high emotional resilience and stress management in skydivers.

In addition to boldness, only paratroopers scored higher than the control group on Positive impulsivity and Sensation seeking. Such results suggest that the skydivers are looking for strong, novel, unknown, and uncertain experiences. Extreme sports most likely satisfy the need for stimulation, which means that the results obtained in the current study are consistent with the hypotheses and work of Hymbaugh and Garrett, Jack and Ronan and Próchniak [8, 9, 12].

The factor analysis of the Dark Triad personality scales revealed four basic factors: Impulsivity, Social Insensitivity, Planning action, and Thrill Seeking. The resulting structure seems to make logical sense. Note that the factor that explains the most variance is Impulsivity. Interest-

ingly, Thrill Seeking, the factor that seems to be most related to the practice of extreme sports, explains the smallest percentage of variance in the ratings. This result is probably due to the fact that the factor analysis included people who do not practice extreme sports – hence the relatively low importance of this factor in the structure of dark personality traits.

When we look at which factors discriminate between the groups studied, we see that all four factors are significant. However, the result obtained should be treated with some caution. The classification of the groups according to the four factors shows that the classification of the most extreme athletes is not very satisfactory. Furthermore, the Wilkinson lambda coefficient is high for the Impulsivity and Thrill Seeking factors and lower for the other two factors. Impulsivity and Thrill Seeking are probably the most important factors in understanding extreme sports in the context of the Dark Triad of Personality. The search for new and powerful experiences, combined with a lack of control over one's own behaviour, as well as high emotional resilience and positive mood, are the main determinants of involvement in extreme sports. It seems that we cannot speak of pathological tendencies in the group of people who are passionate about risky activities in close contact with the natural environment.

STUDY LIMITATIONS AND FUTURE DIRECTIONS

The research was conducted on a relatively small group of people, so the results of this study should not be generalised to the whole population of people who practise extreme sports. Only men participated in the research, so it is difficult to extrapolate the results to women who participate in extreme sports. Analysing the results of people who practise one discipline does not allow the results to be generalised to groups of people who practise other extreme disciplines.

The above limitations suggest directions for future research: increasing the number of research participants, inviting women who practise high-risk sports to participate in research, and expanding the range of extreme sports might provide a more interesting but also deeper picture of people who practise ex-

treme sports in relation to the Dark Sides of Personality.

It also seems that the use of other diagnostic tools, such as the MMPI test, could provide interesting research results in the group of people who practise high-risk sports.

CONCLUSIONS

The practice of sports in close contact with the natural environment is becoming increasingly popular. More and more people, especially young people, are taking on dangerous challenges involving water or gravity. The results of our own research suggest that this is not an expression of certain pathological tendencies, but of personality and temperamental traits that do not interfere with everyday functioning.

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