

Dana Sidorová**PSYCHOLOGICAL PHENOMENA AND SURFING: PERSONAL CHARACTERISTICS, LIFE SATISFACTION AND FLOW EXPERIENCE IN CZECH AND SLOVAK SURFERS****PSIHOLOŠKI POJAVI IN DESKANJE: OSEBNOSTNE LASTNOSTI, ZADOVOLJSTVO Z ŽIVLJENJEM IN IZKUŠANJE ZANOSA ČEŠKIH IN SLOVAŠKIH DESKARJEV****ABSTRACT**

The aim of the study was to explore the relationship between surfing and flow experience, life satisfaction and personality characteristics of Czech and Slovak surfers. We worked with two samples: Surf group (N = 69; F: 34, M: 35; age: 20 - 47) and Non-surf group (N = 70; F: 39, M: 31; age: 18 - 50). The data was collected online by the Flow State Scale-2 (Řezáč, 2007), the Life Satisfaction Questionnaire (Fahrenberg et al., 2001) and the NEO 5-factor Personality Inventory (Hřebíčková & Urbánek, 2001). The Flow Questionnaire (Han, 1988) was administrated for the Non-surf group to identify a flow activity. In relation to the flow experience, surfers described dimensions of an autotelic experience and experienced a time transformation more often than non-surfers and non-surfers described the flow dimensions of unambiguous feedback and a sense of control more often than surfers. The group of surfers had higher rates in all the dimensions of life satisfaction as well as in the overall life satisfaction. However, statistical significance was not reached. The results also suggest that surfers are more emotionally stable, more extraverted, more open to new experiences and more conscientious. This study can serve as a launching pad for further research in inland surfing.

Key words: neuroticism, extraversion, openness, unambiguous feedback, sense of control

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IZVLEČEK

Cilj raziskave je bil raziskati odnos med deskanjem in izkušanjem zanosa (ang. *flow*), zadovoljstvom z življenjem in osebnostnimi lastnostmi čeških in slovaških deskarjev. Preučevali smo dva vzorca: skupino deskarjev (N = 69; Ž: 34, M: 35; starost: 20–47 let) in skupino, ki se ni ukvarjala z deskanjem („nedeskarji“) (N = 70; Ž: 39, M: 31; starost: 18–50 let). Podatke smo zbirali na spletu s pomočjo lestvice za ocenjevanje stanja zanosa (*Flow State Scale-2*, Řezáč, 2007), vprašalnika o zadovoljstvu z življenjem (*Life Satisfaction Questionnaire*, Fahrenberg in sod., 2001) ter psihološkega vprašalnika za merjenje velikih petih faktorjev osebnosti (*NEO 5-factor Personality Inventory*, Hřebíčková & Urbánek, 2001). Vprašalnik o zanosu (*Flow Questionnaire*, Han, 1988) smo dali v izpolnjevanje skupini nedeskarjev, da bi opredelili svoje izkušanje zanosa. V zvezi z izkušanjem zanosa so deskarji pogosteje od nedeskarjev opisovali dimenzije avtotelične izkušnje ter doživljali transformacijo časa, medtem ko so nedeskarji pogosteje od deskarjev opisovali dimenzije zanosa kot dimenzije nedvoumnih povratnih informacij in občutka nadzora. Skupina deskarjev je imela višje vrednosti tako v vseh posamičnih dimenzijah zadovoljstva z življenjem kot tudi v splošnem zadovoljstvu z življenjem. Vendar pa statistična značilnost ni bila dosežena. Rezultati prav tako nakazujejo, da so deskarji čustveno stabilnejši, bolj ekstravertirani, bolj odprti za nove izkušnje in se vsega bolj zavedajo. Raziskava je lahko odskočna deska za nadaljnje raziskave deskanja na umetnih valovih.

Ključne besede: nevroticizem, ekstravertiranost, odprtost, nedvoumne povratne informacije, občutek nadzora

INTRODUCTION

Surfing is a popular sport all over the World. Naturally, with raising popularity of this sport, academic interest in surfing raised too and field of psychology is not an exception.

There is a good amount of studies focusing on professional surfers and surfers from coastal countries. On the other hand, there is not much research exploring the psychology of surfers from landlocked countries despite the growing number of inland surfers. Mainly caused by the fact, that surfing is fairly new in these countries, dating its history just 25 years ago.

Although being a surfer from an inland country costs a lot of money and time, many people have completely changed their lifestyle and life course to stay engaged in this activity. How can we explain that? What is their main motivation?

As shown in the past research, flow experience (Bennett & Kremer, 2000; Partington, Partington, & Olivier, 2009; Peterson, 2012), higher life satisfaction (Lorbergs, 2012) and specific personal characteristics of surfers (Diehm & Armatas, 2004) might be a good answer for the listed questions.

Thus, our main aim was simply to explore these phenomena in inland surfers, particularly from Czech Republic and Slovakia.

Flow

Csikszentmihalyi (2013) understands flow as an optimal experience when one is completely absorbed in an activity and nothing else seems to matter. He calls it order in consciousness, when one's goals are congruent with the information coming to person's attention from the outside. Nine conditions need to be met for flow to occur. When they are all present at once, they lead to optimal experience. These nine dimensions are following: *challenge-skill balance, clear goals, unambiguous feedback, concentration on task, loss of self-consciousness, action-awareness merging, sense of control, time transformation and autotelic experience*.

From all experience, sport is one of the activities which can most likely bring us the state of flow (Csikszentmihalyi, 2008). Fave, Bassi, and Massimini (2003) confirmed that the flow experience is very usual in extreme sports. Elkington and Stebbins (2014) described flow as one of the five main characteristics of so-called nature challenge activities, outdoor sports where the close contact with the natural elements and environment provides a powerful challenge to its participants. In surfing, this challenging element lies in the always unpredictable ocean, wave force, currents, rocks and the large numbers of other surfers fighting for the same wave (Everline, 2007).

Few studies were conducted proving the relationship between the state of flow and surfing. Flow was positively connected to the peak performance and winning in elite surfers. The dimension of autotelic experience was the highest rated dimension, the challenge-skills balance dimension was the lowest rated one (Bennett & Kremer, 2000). Partingtons and Olivier (2009) confirmed an occurrence of all 9 dimensions of flow in lived experience of big wave surfers. Peterson (2012) examined the relation between surfing and the dimension of flow called time transformation. These findings confirmed the strong relationship between the flow experience and surfing. On the other hand, further study and quantitative testing of this relationship is needed.

Life Satisfaction

Seligman's (2004) PERMA model and the self-determination theory by Deci and Ryan (2002) described the flow experience as a component of well-being. Based on their extensive research, a positive relation between the two appears to be very probable. The positive effect of flow on life satisfaction and well-being was also proved by many studies (Asakawa, 2010; Carpentier, Mageau, & Vallerand, 2012). Csikszentmihalyi (2008) explained that people do not feel happy during the flow activity. The feeling of happiness would distract their attention and the flow experience would disappear. The feeling of enjoyment comes once the activity is finished. He also supposed that flow increases one's overall life satisfaction.

Many studies have confirmed the positive effect of physical activity and sports on the level of one's well-being and life satisfaction (Croom, 2014; Liu & Yu, 2015). However, the evidence of the relationship between life satisfaction and surfing is not very extensive. Lorbergs (2012) focused on relationship between physical activity and the so-called subjective well-being homeostasis (the stability of the level of well-being over time) of 366 surfers, 43 swimmers and 298 yoga practitioners. The results confirmed that the participants who practiced a physical activity more time per week had higher level of life satisfaction. However, the difference of subjective well-being in particular sports was not described. Despite the fact that the subjective well-being of yoga practitioners, swimmers and surfers was not significantly higher than that of the general population, higher levels of subjective well-being can be expected with high frequency of sport practising.

Personal Characteristics

The personal characteristics of surfers, especially of surf tourists were mainly investigated in the fields of marketing and business (Moutinho, Dionísio, & Leal, 2007; Schreier, Oberhauser, & Prügl, 2007). Very few studies have been conducted on the topic of personality characteristics of surfers from psychological point of view. In a study by Diehm and Armatas (2004), sensation-seeking was identified as a significant trait of surfers. This personal characteristic was also confirmed to be typical for participants of various extreme sports (Willig, 2008).

The relationship between the 5-factor personality model and surfing was explored in the same study (Diehm & Armatas, 2004). The surfers had significantly higher rates in the trait of openness to experience than, for example, golfers. The characteristics of the 5-factor model were also discussed in connection to leisure satisfaction, leisure motivation and leisure participation. The personal trait of extraversion was strongly connected to leisure motivation, participation and satisfaction. In contrast, low leisure participation resulted in high rates in the dimension of neuroticism.

Problem statement

METHOD

Participants

We were working with 2 groups. The first group named *Surf group* consisted of 69 respondents, 34 females and 35 males, all of whom were between 20 and 47 years of age ($M = 28.75$; $SD 5.50$).

22 participants were from Slovakia and 47 came from the Czech Republic. The participants were recruited by the snowball technique in three steps (surf friends, surf organization, social media). The second group called *Non-surf group* consisted of 70 respondents, 39 females and 31 males, all of whom were between 18 and 50 years of age ($M = 28.33$; $SD 6.39$). 32 were from Slovakia and 38 from the Czech Republic.

Procedure

The participants were recruited by the snowball technique and by self-selection. Our purpose was to match the Non-surf group with the Surf group in demographic characteristics. An absolute match was not achieved.

Data were collected online using online questionnaire on google docs, which consisted of informed consent, questions about demographic characteristics as gender, age, nationality, residence (number of inhabitants) and marital status (including being in the relationship with a surfer or not), 7 questions about surf experience and all the instruments described below.

The study met ethics approval of Research Ethics Committee of the Masaryk University as part of the project MUNI/A/1042/2015.

INSTRUMENTS

NEO 5-factor Personality Inventory

The 60-item NEO 5-factor personality inventory (NEO-FFI) by Costa and McCrae (2004) is a shorten version of their original 180-item NEO personality inventory (NEO-PI). The five measured independent dimensions of personality are: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A) and Conscientiousness (C). Every dimension is represented by 12 items and item responses are rated on the 5-point Likert scale, ranging from “strongly disagree” to “strongly agree”. The main advantage of the inventory is that the administration takes only from 10 to 15 minutes (Hřebíčková & Urbánek, 2001). The Czech version was adapted by Hřebíčková and Urbánek (2001) and its validity and reliability were tested on the sample of 1000 individuals (Cronbach $\alpha = 0.79$). This version was used in several studies (Blatný, Jelínek, & Osecká, 2007; McCrae et al., 2008; Allik et al., 2010).

Life Satisfaction Questionnaire

The Life Satisfaction Questionnaire (LSQ), originally called “Fragebogen zur Lebenszufriedenheit” (FLZ) by Fahrenberg and his colleagues (2001) was developed to measure life satisfaction. The questionnaire measures satisfaction in 10 areas of life including health, occupation, financial circumstances, leisure time, spouse/partnership, children, satisfaction with oneself, sexuality, social relation and housing (Myrtek, 1998; Zahlten-Hinguranage et al., 2004). Every area is represented by 7 items and responses are rated on the 7-point Likert scale, ranging from “very dissatisfied” to “very satisfied”.

The scale was designed to objectively assess the overall life satisfaction and satisfaction in particular domains of life. It was mainly designated for counselling practice; however, it is also used in research (Štěrbová et al., 2010; Serrano, Hernández, & Murcia, 2013). The LSQ is administered by the “pencil and paper” method and it can be used individually or in a group. The administration

of the scale lasts from 5 to 10 minutes. The Czech version of the questionnaire was translated and adapted from the original by Rodná and Rodný, Cronbach $\alpha = 0.81$ (2001).

Flow Questionnaire (FQ)

The Flow Questionnaire was developed by Csikszentmihalyi (Csikszentmihalyi & Nakamura, 2002) to explore whether the participants have ever experienced flow, how often they experience it and during which activities. In the questionnaire, three quotes are presented (see Table 8). The validity of FQ was proved by many studies (Asakawa, 2010; Moneta, 2012) and Csikszentmihalyi and Nakamura (2002) recommended to use it to identify a flow activity of participants before applying the Flow State Scale. In our study, FQ was used to delineate the leisure activity, which is closest to the state of flow in the Non-surf group. The chosen activity was assessed in the FSS-2 afterwards as recommended. Furthermore, the Czech version of the questionnaire adapted by Vídenská (2013) was used.

Flow State Scale (FSS-2)

The Flow State Scale is a self-report measure and it assesses nine dimensions of flow described by Csikszentmihalyi (2008): challenge-skill balance, clear goals, unambiguous feedback, concentration on the task at hand, loss of self-consciousness, action-awareness merging, sense of control, time transformation and autotelic experience. Every dimension is represented by 4 items and responses are rated on the 5-point Likert scale, ranging from “strongly disagree” to “strongly agree”. The scale was developed by Jackson and Marsh (1996). Although the validity of the scale was predominantly tested on sportsmen (Jackson, & Eklund, 2002; Jackson, Martin, & Eklund, 2008) it has been also widely used to assess different leisure activities (Wrigley & Emmerson, 2013) and work (Bakker, 2005).

The Czech version was translated and adapted by Řezáč (2007). Although the scale was not standardized for the Czech population, it showed strong overall reliability (Cronbach $\alpha = 0.65 - 0.95$) in several studies (Vašíčková, 2010; Riegel, 2013; Sichová, 2014). On the other hand, particular dimensions did not score that well. Dimensions with a value of Cronbach α lower than 0.50 were not interpreted (clear goals, action-awareness merging and challenge-skills balance).

DATA ANALYSIS

To analyse the collected data, the program IBM SPSS Statistics 22 was used. To examine normal distribution of observed variables, we used Shapiro-Wilk test. To compare the means between the two groups the Mann-Whitney and the T-test for independent samples were used. The Leven's test was applied for examining an equality of variance in two groups. To compare the means between more than two groups (education, residence, marital status), Kruskal-Wallis test and One-way ANOVA. Bonferroni test was used to describe the specific pairs of groups with a significant difference in their means. Bivariate's correlation and Spearman's correlation coefficient were used to explore the relation between the flow experience and life satisfaction of a group. Spearman's correlation coefficient was used to examine the correlation between the flow experience and age, surfing experience in years, the level of surfing skills and the number of weeks spent on surfing per year. Stepwise linear regression was used to explore to which level the variability of the flow experience and life satisfaction is accounted by various predictors.

RESULTS

A significant difference in the overall flow experience between surfing and other leisure activities was not found. For descriptive statistics of flow experience in the Non-surf group see Table 7, in the Surf group see Table 8.

Table 7. The Descriptive Statistics of Personal Characteristics in the Surf Group

Personality trait	N	Minimum	Maximum	Mean	Mode	Median	Std. Deviation
Neuroticism	65	7	33	18.63	19	18	5.35
Extraversion	68	20	46	35.69	36	36	5.22
Openness	68	18	45	32.46	34	33	5.49
Agreeableness	68	14	43	32.46	34	33	4.99
Conscientiousness	68	4	46	31.26	29	32	7.28

Table 8. The Descriptive Statistics of Personal Characteristics in the Non-surf Group

Personality trait	N	Minimum	Maximum	Mean	Mode	Median	Std. Deviation
Neuroticism	69	12	32	21.74	20	22	3.99
Extraversion	70	21	37	26.97	24	27	3.39
Openness	70	16	33	24.04	24	24	3.40
Agreeableness	70	15	37	26.17	25	26	4.27
Conscientiousness	70	21	39	28.00	28	28	3.30

On the other hand, a significant difference between the Surf group and the Non-surf group was confirmed in the following 4 dimensions of flow: autotelic experience, sense of control, unambiguous feedback and time transformation. The Surf group scored significantly ($p = 0.01$) higher than the Non-surf group in the dimensions of autotelic experience (sg: $M = 18.71$, $SD = 1.51$; nsg: $M = 16.84$, $SD = 1.51$) and time transformation (sg: $M = 16.87$, $SD = 2.93$; nsg: $M = 15.20$, $SD = 2.93$). The Non-surf group scored higher than the Surf group in the dimensions of sense of control (sg: $M = 12.13$, $SD = 2.34$; nsg: $M = 14.81$, $SD = 2.34$) and unambiguous feedback (sg: $M = 13.24$, $SD = 1.96$; nsg: $M = 14.64$, $SD = 2.34$) on the level of significance $p = 0.01$. The results also showed a significant difference in the dimension of action-awareness merging, where the Non-surf group scored significantly higher than the Surf group. However, we did not interpret the results of these dimensions due to their low level of reliability. For results see Table 1.

Table 1. Difference between Surf and Non-surf Group in FSS-2: Man-Whitney Test

	AE	CG	SoC	UF	AAM	CoT	TT	LSC	CBS	F
U	998.50	1784.50	672.50	1240.00	1583.00	1920.50	1213.50	1830.00	1898.00	1938.50
Z	-4.97	-1.08	-6.52	-3.75	-2.07	-0.42	-3.88	-0.86	-0.53	-0.33
Sig.	0.00	0.28	0.00	.000	0.04	0.68	0.00	0.39	0.60	0.74

Note. AE - Autotelic experience, CG - Clilar goals, SoC - Sence of control, UF - Unambiguous feedback, AAM - Action-awareness merging, Cot - concentrations on the task, TT - Time Transformation, LSC - Loss of self-consciousness, CSB - challenge skills balance, F - Flow

A significant difference between surf and non-surf group was confirmed in personality characteristics, in following dimensions: neuroticism (sg: $M = 18.21$, $SD = 5.59$; nsg: $M = 21.56$, $SD = 4.24$), extraversion (sg: $M = 35.7$, $SD = 5.22$; nsg: $M = 26.97$, $SD = 3.39$), openness (sg: $M = 32.46$, SD

5.49; *nsg*: $M = 24.04$, $SD\ 3.40$) and conscientiousness (*sg*: $M = 31.26$, $SD\ 3.30$; *nsg*: $M = 28.00$, $SD\ 3.30$). For all results in personal characteristics, see Tables 9 and 10. Surfers were more open to new experience, more extraverted, more *conscientious* and more stable than non-surfers. For the results of the comparison see Table 2.

Table 9. The Descriptive Statistics of Flow Experience in the Surf Group

Dimension	N	Minimum	Maximum	Mean	Median	Std. Deviation
Autotelic experience	68	13	20	18.71	19	1.51
Clear goals	68	8	20	15.37	16	2.69
Sense of control	68	5	19	12.13	12	2.34
Unambiguous feedback	68	7	17	13.24	13	1.96
Action-awareness merging	68	9	19	14.44	14	1.83
Concentration on the task at hand	68	9	20	15.65	16	2.20
Time transformation	68	7	20	16.87	17	2.93
Loss of self-consciousness	68	10	20	14.37	14	2.29
Challenge-skills balance	68	8	15	11.57	12	1.67
FLOW	68	97	153	132.25	133	10.67

Table 10. The Descriptive Statistics of Flow Experience in Non-surf Group

Dimension	N	Minimum	Maximum	Mean	Mode	Median	Std. Deviation
Autotelic experience	59	9	20	16.84	17	17	1.51
Clear goals	59	8	20	15.00	14	15	2.48
Sense of control	59	8	20	14.81	16	15	2.34
Unambiguous feedback	59	9	19	14.64	14	15	2.34
Action-awareness merging	59	11	20	15.17	16	16	1.72
Concentration on the task at hand	59	11	20	15.80	17	16	2.06
Time transformation	59	8	20	15.20	16	16	2.93
Loss of self-consciousness	59	7	19	13.88	13	14	2.91
Challenge-skills balance	59	4	18	11.75	12	12	1.63
FLOW	59	115	159	132.98	140	135	10.67

Table 2. Differences between the Surf Group and the Non-surf Group in Personal Characteristics: T-test for Independent Samples and Mann-Whitney Test

Personality trait	Equality of variance	t	df	Sig.
Neuroticism	Equal variances assumed	3.97	136.00	0.00
Openness	Equal variances assumed	-10.86	136.00	0.00
Agreeableness	Equal variances assumed	-7.96	136.00	0.00
Personality trait	Equality of variance	U	Z	Sig
Extraversion	Equal variances not assumed	411.00	-8.40	0.00
Conscientiousness	Equal variances not assumed	1347.50	-4.41	0.00

A significant difference in the level of life satisfaction between the Surf group and the Non-surf group was not confirmed. The only significant difference was shown in the dimension of children. Nevertheless, only 23 out of 139 participants had children. For results See Table 3, 11 and 12.

Table 11. The Descriptive Statistics of Life Satisfaction Dimensions in SurfGroup

Dimension	N	Minimum	Maximum	Mean	Median	Std. Deviation
Health	68	18	49	35.90	37	6.42
Work	67	13	49	36.85	37	7.32
Finance	67	18	49	36.24	38	7.45
Leisure	68	14	49	36.01	37	7.28
Relationship	43	27	49	42.17	43	5.39
Children	7	28	49	43.29	47	7.89
Friends	66	26	49	38.03	39	5.21
Living	67	22	49	39.34	40	6.52
Life Satisfaction	63	159	271	223.62	227	25.01

Table 12. The Descriptive Statistics of Life Satisfaction Dimensions in Non-surf Group

	N	Minimum	Maximum	Mean	Mode	Median	Std. Deviation
Health	69	20	49	35.71	29	36	6.30
Work	69	24	49	35.65	40	36	6.08
Finance	69	16	48	34.49	33	34	6.84
Leisure	68	8	49	34.28	42	36	8.70
Relationship	56	21	49	39.82	40	40	6.55
Children	16	28	46	37.31	28	39	7.03
Personality	69	19	49	37.38	38	38	5.34
Friends	69	24	47	36.33	39	37	5.43
Living	65	28	49	39.52	42	40	5.36
Life Satisfaction	64	142	280	219.33	208	223	26.81

Table 3. Difference between Surf and Non-surf Group in Dimensions of Life Satisfaction: Man-Whitney Test

	H	W	Fi	Le	R	C	P	Fr	Li	LS
U	2290.50	1994.00	1985.00	2095.00	958.50	24.00	2080.50	1893.50	2109.00	1794.50
Z	-0.24	-1.38	-1.42	-0.95	-1.74	-2.16	-0.72	-1.69	-0.31	-1.07
Sig.	0.81	0.17	0.16	0.34	0.08	0.03	0.47	0.91	0.76	0.29

Note. H – Health, W – Work, Fi- Finance, Le – Leisure, R – Relationship, C – Children, P – Personality, Fr – Friends, Li- Living, LS – Life Satisfaction

There was not significant relation between number of weeks surfing per year, surfers' level of skills, experience in surfing counted in years and overall flow experience. The significant correlation was confirmed just between some particular dimensions. All the correlations were on the level of a medium effect (Field, 2013). For all correlations, see Table 4.

Table 4. Spearman's Correlation among Flow Experience and Surfers' Level of Skills, Experience in Surfing Counted in Years and Number of Weeks of Surfing per Year

Dimension	Level Of Skills	Time Surfing	Surfing Per Year
Autotelic experience	0.12	0.11	0.06
Clear goals	0.00	-0.08	-0.05
Sense of control	0.35**	0.38**	0.20
Unambiguous feedback	-0.11	0.03	0.01
Action-awareness merging	0.36**	0.20	0.37**
Concentration on the task at hand	-0.09	-0.12	-0.14
Time transformation	0.15	-0.02	0.18
Loss of self-consciousness	-0.11	-0.18	-0.01
Challenge-skills balance	0.16	0.03	-0.01
FLOW	0.18	0.10	0.12

Note. * $p < 0.05$, ** $p < 0.01$

There was not significant relation between life satisfaction and overall flow experience For all the correlations coefficients between individual dimensions, see Table 5.

Table 5. Spearman's Correlation between Life Satisfaction and Flow Experience

	H	W	F	L	R	C	P	F	L	LS
AE	0.11	0.22*	0.12	0.02	0.17	0.17	0.17	0.12	0.11	0.18
CG	0.04	0.21*	0.09	0.23**	-0.06	-0.27	0.22*	0.01	0.09	0.15
SoC	0.15	0.16	0.09	0.19*	-0.05	-0.08	0.24**	-0.05	0.17	0.20*
UF	0.18*	0.02	0.08	0.18*	-0.15	-0.57*	0.15	-0.05	0.05	0.04
AAM	0.03	0.24**	0.14	0.14	0.13	-0.05	0.20*	0.03	0.22*	0.20*
CoT	-0.04	0.01	-0.14	0.12	-0.09	-0.27	0.06	-0.04	-0.09	0.12
TT	-0.01	0.04	0.05	-0.06	0.09	0.35	0.03	0.08	0.01	0.96
LSC	0.11	-0.08	-0.10	-0.22*	-0.06	0.23	0.09	0.09	0.02	0.80
CHSB	-0.17	-0.08	-0.06	0.01	-0.03	-0.24	0.02	-0.11	-0.07	-0.16
FLOW	0.11	0.06	0.01	0.06	0.07	0.14	0.14	-0.06	0.01	0.06

Four predictors were tested to account for life satisfaction in the Surf group: NEO-FFI dimensions, flow experience, years of surfing experience and weeks per year spent surfing. The personal characteristics of NEO-FFI significantly ($p = 0.01$) account for the life satisfaction. The value of R^2 hardly changed after adding the other predictors. See Table 6. No other significant predictors for the flow experience or life satisfaction were identified in none of two groups.

Table 6. The Stepwise Linear Regression the Surf Group: Life Satisfaction (Personality Traits, Flow)

		R Square Change	F Change	df1	df2	Sig.
1	0,39	0,39	6.92	5	55	0.00
2	0,39	0,001	0.12	1	54	0.73

Note. a. Predictors: (Constant), Conscientiousness, Agreeableness, Openness, Extraversion, Neuroticism

b. Predictors: (Constant), Conscientiousness, Agreeableness, Openness, Extraversion, Neuroticism, Flow

DISCUSSION

Discussing flow experience, surfers scored significantly higher than the general population in two dimensions of flow: autotelic experience and time transformation. The high rates in autotelic experience were also described among elite surfers by Bennett and Kremer (2000). The strong relation between the changed perception of time and surfing was presented in the work of Peterson (2012). Moreover, surfers scored lower than non-surfers in two dimensions of flow, sense of control and unambiguous feedback. The low score could be explained by the uncontrollable nature of the ocean. The uncontrollability of the ocean was mentioned by big wave surfers in the study of Partington, Partington and Olivier (2009). The Czech and Slovak surfers in our study scored low in the dimensions of sense of control possibly because of their lack of experience with the element, which may stand in contrast with the experience of people living on the coastline.

Three possible reasons for similar results in overall flow in-between two groups were identified. Firstly, the sport activities had been chosen for the Flow State Scale-2 by 26 out of 59 participants from Non-surf group. A strong positive relation between sports and the state of flow was confirmed in many studies (Bernier et al., 2009; Ahern, Moran, & Lonsdale, 2011). Ten sport activities out of the 26 could be considered extreme sports (6 climbers, 4 free ride snowboarders). A significant positive correlation between various extreme sports including climbers and the state of flow was also discovered (Fave, Bassi, & Massimini, 2003; Csikszentmihalyi, 2013). Future research should consider more homogenous compositions of non-surfers. Secondly, since the FSS-2 was originally developed for a post-event assessment (Jackson & Eklund, 2004), the time between the activity and assessment of the activity could have influenced the results. Therefore, further research of flow experience in surfers should consider an additional variable: time passed between the last practice of the activity and completing of the questionnaire. Finally, the last possible reason could be an inaccurate translation of the Flow State Scale-2 (Jackson & Eklund, 2004) into Czech (Řezáč, 2007).

According to life satisfaction, surfers had fairly higher scores in all dimensions of the Life Satisfaction Questionnaire (Fahrenberg et al., 2001) than the general population. However, the results were not significant. Lobergs (2012) described the subjective well-being has positive relation with the frequency of physical activity per week. Thus, the non-significant results in our study could have been caused by the low frequency of the surfing practice, which was lower than two months per year ($m = 9.24$ weeks). The explanation of the higher scores in life satisfaction in surfers can be also explained by personality characteristics. We found out that personality traits account for 39 % of life satisfaction variance.

In connection with personal characteristics, surfers were significantly more extroverted, and more emotionally stable in comparison to non-surfers. A significant difference was also found in the personal traits of openness to experience and conscientiousness, in which surfers scored higher than non-surfers. The openness to new experience and extraversion were also described in surfers by Diehm and Armatas (2004) in their comparison of surfers and golfers. In the same study, surfers showed to be less neurotic than golfers. People who do extreme sports were also shown to be more emotionally stable (Kajtna et al., 2004; Tok, 2011) and extravert (Castanier, Scanff, & Woodman, 2010; Tok, 2011). In contrast, the results of studies on the personal traits of openness to experience and conscientiousness in extreme sports participants varied (Castanier, Scanff, & Woodman, 2010; Tok, 2011). The high scores of the personal trait openness in surfers can also be explained by the fact that inland surfers have to travel to different countries to do the sport. Thus, they are often exposed to different cultures to which they need to be open. Czech and Slovak surfers also do not have their home surf spot. Therefore, they are frequently confronted with localism of local surfers. To survive in this environment, one has to be open and accept the rules of the local surfers (Nazer, 2004).

A positive correlation between the flow experience and level of life satisfaction was not confirmed. This could have been caused by the already mentioned inaccurate translation of the Flow State Scale-2 (Fahrenberg et al., 2001) into Czech (Řezáč, 2007) and by the non-normal distribution of the overall sample. Han (1988) claimed that the strength of the relation between life satisfaction and flow depends on the frequency of the flow experience. Oishi and his colleagues (1999) argued that the relation between flow and life satisfaction is different for every activity.

Limitations

The first limitation of the study lay in the length of the administrated questionnaire. More than 10 participants provided us with a feedback that the questionnaire was too long and they were losing their concentration at the end. The solution for this shortcoming in future studies could be the use of the short 9-item form of the Flow State Scale-2 (Jackson, Martin, & Eklund, 2008), 12-item NEO-FFI (McCrae, & Costa, 2004) and shorter scales measuring life satisfaction or subjective well-being. Low returnability of the questionnaire also caused that the heterogeneity of the Non-surf group was not guaranteed and groups were not equally matched in basic demographic characteristics. Therefore, the sample of the non-surfers could not have been considered representative. Another limitation in the methods was the Czech version of the Flow State Scale (Řezáč, 2007), which showed very low reliability in dimensions challenge-skills balance, action-awareness merging and clear goals. The factor analysis of the items and their reorganization is advised. If the results of the factor analysis do not confirm the 9-dimensionality of the scale as in the original version (Jackson & Eklund, 2004), new translation of the scale is recommended. Finally, only 59 out of 70 participants of the Non-surf group filled in the Flow State Scale. While answering the questions in the Flow Questionnaire (Videnská, 2013 from 96 Csikszentmihalyi & Csikszentmihalyi 1982, as cited in Han, 1988), 11 participants could not find any activity close to the flow experience. To overcome this limitation in future research, a face-to-face administration of the questionnaire for the Non-surf group could be applied. An administrator could motivate the participants to finish the questionnaire.

CONCLUSION

Firstly, the realization of qualitative interviews with more Czech and Slovak surfers are recommended. Despite the fact that the popularity of surfing as a sport is growing in inland countries, no study had been conducted in the area of psychology until the date of the writing of the thesis. A qualitative approach could help to explore the subject more deeply and clarify the differences between inland and coastal surfers. Secondly, further research on motivation, personal characteristics and flow experience in inland surfers across different landlocked countries is recommended. A comparison with the results of our study could bring some more benefits to the study of the subject of inland surfers. Another idea for future research is to compare the group of surfers with participants who do different extreme sports or do other types of sports. Finally, a comparison with participants who do not do any sport is also possible.

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