Subjective sense of positive health and survival abilities profiles: top powerlifters

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C Statistical Analysis
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Abstract

Background and Study Aim:	Lifestyle seems to be the most crucial factor influencing health. The quality of health is primarily assessed by objective medical criteria, which can, however, be additionally verified by comparing individual indicators with a subjective feeling. It seems reasonable to assume that the sense of positive health and survival ability profiles of highly qualified athletes should, in the future, be an essential reference system for analysing these phenomena in physically inactive people. The aim of the research is knowledge of the subjective sense of positive health and survival ability top powerlifters concerning their sex, age, declared physical activity, BMI.
Material and Methods:	The study involved 103 athletes participating in the European Championships in powerlifting, which was held in Poland in 2017. The group consisted of 75 men (72.8%) and 28 women (27.2%), aged 17-72 years ($\overline{x}$ 34.9 ±13.9). The profiles were based on various health dimensions measured before the contest with the Sense of Positive Health and Survival Abilities questionnaire (SPHSA), a self-assessment tool in which the sense of the intensity of particular indices is evaluated in 1 to 5 scale, with 5 being the highest value. To compare factors determining health profiles, we applied a non-parametric Mann-Whitney U test to examine the indices for two independent samples, as well as Kruskal-Wallis test when three independent variables were involved.
Results:	General SPHSA index of all the tested powerlifters amounted to 3.81 ±0.50 points. The sportsmen evaluated their sense of social health the highest ($\overline{x}$ = 4.32 ±0.71), whereas mental health the lowest ($\overline{x}$ = 3.30 ±0.77). Among the variables determining individual mental health profiles, significant differences (p<0.05) were found in relation to BMI in obese persons with a high value ($\overline{x}$ = 3.56 ±0.67) compared to the correct BMI indicator ($\overline{x}$ = 2.99 ±0.78). A significant difference was also evidenced in the somatic health profile concerning declared physical activity, with higher values visible in athletes with high reported activity ($\overline{x}$ = 4.07 ±0.61) compared to those with the average one ($\overline{x}$ = 3.74 ±0.55). No significant differences were observed in relation to gender and age.
Conclusions:	Knowledge of the subjective profiles of their health in powerlifters might lead to similar evaluations in athletes of other disciplines. The overall index of subjective health assessment of the leading European lifters corresponds to the one in the researched students. However, another configuration of individual profiles is visible concerning the dimension of social health.
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Powerlifting – *noun* a weightlifting sport that consists of the three events of the squat, the bench press and the deadlift [31].

Bench press – *noun* an exercise in which a person lies on his or her back on a bench and lifts weights straight upwards from the chest [31].

Bench-press – *verb* to be able to lift a particular weight in a bench press exercise [31].

Deadlift – *noun* **1.** A weightlifting event in which a weight is raised from the floor to the level of the hips and lowered again in a controlled manner **2.** An exercise in which a barbell is lifted from the floor, emphasising proper posture [31].

Squat – *noun* an exercise in weightlifting in which the lifter raises a barbell while rising from a crouching position [31].

Health promotion is the process of enabling people to increase control over and to improve their health (...) Health promotion represents a comprehensive social and political process, it not only embraces actions directed at strengthening the skills and capabilities of individuals, but also action directed towards changing social, environmental and economic conditions so as to+ alleviate their impact on public and individual health. Health promotion is the process of enabling people to increase control over the ***determinants of health*** and thereby improve their ***health.*** Participation is essential to sustain health promotion action [32, p.1-2]. With regard to the promotion of health in the elderly, the WHO has, inter alia, the following aims: prolonging the period of one's activity and independence, preventing and relieving psychophysical disorders, providing care that enables individual autonomy, giving up various forms of institutional care for the family, reducing stress in terminal diseases; delaying the necessity of turning to various types of medical and care services [34, p.266].

Body balance disturbation tolerance skills – the ability to maintain the vertical posture in circumstances of the fall hazard [33].

INTRODUCTION

People's health is influenced by their lifestyles, which was highlighted in the Treaty of Lisbon, the fundamental agreement of the European Union [1-4]. This concept was close to the researchers of this phenomenon in the previous century and is being developed by contemporary scientists. For example, Bień [5] argues that good health consists of many factors, including the biological factor, which might be decreased by reduced physical activity or improper nutrition. Whereas, Kulik and Pacian [6] indicate that lifestyle understood as a set of behaviours and attitudes is, in fact, the most critical determinant of health. Presently, the quality of life associated with health is defined as the degree of satisfaction with the functioning of the organism in its biological, psychic, social and spiritual dimensions [7-10]. Thus, in addition to objective medical criteria, the assessment of its quality is based on subjective evaluation [11, 12].

A widely used questionnaire that helps to evaluate the quality of life is the SF-36v2®Health Survey [13, 14]. This tool consists of 8 subscales: PF physical functioning, RP role physical, BP bodily pain, GH general health, RE role emotional, SF asocial functioning, MH mental health, VT vitality (HT "reported health transition" – this indicator is assessed separately, i.e. the current state of health in comparison to the health status of the previous year). These subscales form two significant dimensions of the quality of life, i.e. physical and mental ones [15-17].

So far in literature has tended to focus primarily on economic and social evaluation of the quality of life [18-20]. However, human health is a state which covers various spheres, i.e. physical (also known as somatic), mental, social, spiritual, environmental and sexual well-being [21]. The best described seems to be physical health, which is the foundation of all other dimensions.

However, the original approach of the comprehensive measurement of the positive health (somatic, mental and social) of a human being and its survival ability is presented by Kalina (the profile of sense of positive health and survival abilities – SPHSA [22]. This methodology takes into account two stages: the first, declared sense of these phenomena; second, diagnosed rates [22, 23]. The previous application of SPHSA provides knowledge about the subjective sense of these three dimensions of health and the ability to survive mainly students of health-oriented

education [22, 24-26] Also, the physical activity of the respondents is a differentiating factor. Only two reports from conference presentations provide knowledge about the declared sense of somatic health of physiotherapy students (measured by an SPHSA questionnaire) and about indicators diagnosed empirically [27, 28].

This publication is the first that informs about the results of testing professional powerlifting athletes. The beginnings of powerlifting go back to the fifties of the 20th century, and in the present form to the end of the sixties, when the International Powerlifting Federation (IPF) was founded in 1972, setting with time a uniform list of rules.

The aim of the research is knowledge of the subjective sense of positive health and survival ability top powerlifters concerning their sex, age, declared physical activity, BMI.

MATERIAL AND METHODS

The study material involved 103 participants of the European Championships in powerlifting held in Poland in 2017. The group included 75 men (72.8%) and 28 women (27.2%) aged 17 to 72, mean age of 34.9 ±13.9 years. Altogether, the Championships held between 25 June and 1 July 2017 gathered representatives of 21 countries (Global Powerlifting Committee).

The study was determined the profile of Sense of Positive Health and Survival Abilities (SPHSA) [22]. It comprises 23 indices divided into 4 groups: 8 of somatic health (A), 4 of mental health (B), 3 of social health (C) and 8 of survival ability (D). The sense of the intensity of particular indices is evaluated in the 1 to 5 scale where: 1 very low, 2 low, 3 average, 4 high, 5 very high. Additional index "0" is reserved to aspect D. The results, therefore, relate to the profile declared by powerlifters. Gender (in tables: sex), age, declared physical activity as well as weight and height (which enabled to calculate the BMI) they formed the basis for distinguishing subgroups for in-depth analysis.

RESULTS

Structure of subgroups according to the main classification criteria

The study participants were classified into three BMI subgroups: average (33.0%), overweight

(34.0%), obese (33.0%). As for physical activity, the sportsmen assessed it proportionately, i.e. 54.4% as hig and 45.6% as average (Table 1).

Table 1. BMI and physical activity subgroups of the examined powerlifters (n = 103).

Variable	Number (n)	%
BMI classification		
correct weight	34	33.0
overweight	35	34.0
obesity	34	33.0
Self-assessed physical activity		
average	47	45.6
high	56	54.4

Declared profile of sense of health and survival ability

Those who practice powerlifting rated their social health at the highest level 4.32 ±0.71, whereas their mental health at the lowest one at 3.30 ±0.77, with a total SPHSA index of 3.81 ±0.50. The analysis of variables determining the declared level of health profiles did not show significant differences concerning sex and age. However, significant differences were found in the case of BMI and declared physical activity. In the case of BMI, significant differences were found in mental health with higher values indicated by the obese compared to those with correct BMI (Table 2).

Physical activity assessment revealed significant differences in somatic health profile with higher values in persons with high declared activity 4.07 (±0.61), compared to those with an average activity level of 3.74 ±0.55 (Table 2).

Declared of sense of indicators somatic health

Among the eight somatic health indicators (BMI, resting HR, systolic blood pressure, diastolic blood pressure, aerobic capacity, muscle strength and flexibility), muscle strength was self-rated the highest 4.16 ±0.92, whereas flexibility – the lowest 3.53 ±1.21. Significant differences were revealed in some indicators for such variables as age, sex, and declared physical activity. No such association has been demonstrated for the BMI though. In the case of the age variable, significantly higher values were demonstrated in the younger group; that is in those with the BMI amounting to 4.13 ±0.91, compared to the elderly (3.83 ± 0.74), and in the variable of flexibility, with higher values in the older group (3.98 ± 0.94) than, the younger ones (3.24 ±1.29). There were no significant differences in the BMI index (correct weight, overweight, obesity) in any other indicator of somatic health. The highest variability was found in the group of persons with average and high declared physical activity. Those with well-assessed activity exhibited higher values in somatic health (BMI, HR), aerobic and anaerobic capacity, as well as muscle strength variable (Table 3).

Table 2. Declared by powerlifters their profile of sense of health and survival ability (including selected subgroups).

Variable		Health profile				
		Semantic health	Mental health	Social health	Survival abilities	SPHSA index
Total (n = 103)	$\bar{x}$	3.92	3.30	4.32	3.78	3.81
	SD	0.61	0.77	0.71	0.74	0.50
Age (years):						
17-35 (n = 62)	$\bar{x}$	3.90	3.22	4.25	3.75	3.77
	SD	0.65	0.74	0.78	0.74	0.53
36-72 (n = 41)	$\bar{x}$	3.97	3.41	4.42	3.84	3.88
	SD	0.53	0.81	0.58	0.75	0.45
Mann-Whitney U test	Z	−0.86	−1.52	−0.93	−0.98	−1.21
	p	0.3923	0.1289	0.3515	0.3293	0.2261
Gender:						
women (n = 28)	$\bar{x}$	3.79	3.16	4.40	3.58	3.69
	SD	0.68	0.93	0.58	0.92	0.60

Variable		Health profile				
		Semantic health	Mental health	Social health	Survival abilities	SPHSA index
men (n = 75)	x̄	3.98	3.35	4.29	3.86	3.86
	SD	0.57	0.70	0.75	0.65	0.45
Mann-Whitney U test	Z	−1.28	−1.23	0.45	−1.11	−1.50
	p	0.2013	0.2185	0.6553	0.2652	0.1334
BMI classification:						
proper weight (n = 34)	x̄	3.87	**2.993**	4.39	3.74	3.74
	SD	0.73	0.78	0.64	0.76	0.53
overweight (n = 35)	x̄	3.84	3.34	4.12	3.68	3.73
	SD	0.55	0.76	0.89	0.80	0.54
obesity (n = 34)	x̄	4.07	**3.561**	4.45	3.93	3.97
	SD	0.50	0.67	0.51	0.65	0.40
Kruskal-Wallis test	H	2.40	**11.16**	2.27	1.47	4.15
	p	0.3011	**0.0038***	0.3214	0.4806	0.1253
Physical activity:						
average (n = 47)	x̄	**3.74***	3.38	4.23	3.67	3.71
	SD	0.55	0.83	0.63	0.82	0.50
high (n = 56)	x̄	**4.07***	3.22	4.40	3.88	3.90
	SD	0.61	0.72	0.76	0.66	0.49
Mann-Whitney U test	Z	**−2.47**	0.95	−1.93	−0.92	−1.65
	p	0.0133*	0.3425	0.0537	0.3582	0.0992

*significant differences at p<0.05; [1]- significant differences (p<0.05) regarding proper weight; [3]-significant differences (p<0.05) regarding obesity

Declared of sense of indicators mental health

The highest values in the indicators of mental health concerned the ability to overcome stress(3.85 ±0.92) and concerning tolerance (3.77 ±1.19), whereas lower: aggressiveness (2.76 ±1.45) and anxiety (2.81 ±1.36). Of the four analysed variables, significant differences were revealed of aggressiveness in the BMI classification, with higher indicators in the overweight persons (3.66 ±1.33), compared to those with correct BMI 2.18 ±1.53 (Table 4).

Table 3. Declared by powerlifters their sense of indicators of somatic health (including selected subgroups).

Variable		Somatic health							
		1	2	3	4	5	6	7	8
Total (n = 103)	x̄	4.01	3.89	3.88	3.99	3.96	3.98	4.16	3.53
	SD	0.86	0.95	0.84	0.89	0.84	0.94	0.92	1.21
Age (years):									
17-35 (n = 62)	x̄	**4.13***	4.02	3.95	4.02	3.90	3.84	4.06	**3.24***
	SD	0.91	0.95	0.88	0.86	0.90	1.06	0.96	1.29
36-72 (n = 41)	x̄	**3.83***	3.71	3.78	3.95	4.05	4.20	4.29	**3.98***
	SD	0.74	0.93	0.79	0.95	0.75	0.68	0.84	0.94
Mann-Whitney U test	Z	**2.17**	1.82	0.94	0.18	−0.79	−1.52	−1.19	**−2.85**
	p	**0.0303***	0.0683	0.3458	0.8558	0.4301	0.1294	0.2336	**0.004***
Sex									

Variable		Somatic health							
		1	2	3	4	5	6	7	8
women (n = 28)	x̄	3.96	3.71	3.68	3.93	3.71	3.68	**3.68***	**3.93***
	SD	0.69	0.94	0.86	1.02	0.85	1.16	1.02	1.12
men (n = 75)	x̄	4.03	3.96	3.96	4.01	4.05	4.09	**4.33***	**3.39***
	SD	0.91	0.95	0.83	0.85	0.83	0.82	0.81	1.22
Mann-Whitney U test	Z	−0.69	−1.41	−1.64	−0.30	−1.78	−1.65	**−3.12**	**2.01**
	p	0.4910	0.1593	0.1011	0.7658	0.0754	0.0984	**0.002***	**0.045***
BMI classification:									
correct weight (n =34)	x̄	3.91	3.82	3.82	3.82	4.00	3.88	3.97	3.74
	SD	1.00	1.17	0.97	1.03	0.82	0.91	1.06	1.11
overweight (n = 35)	x̄	3.86	3.74	3.80	4.03	3.77	3.77	4.09	3.63
	SD	0.77	0.85	0.87	0.86	0.91	1.06	0.92	1.00
obesity (n = 34)	x̄	4.26	4.12	4.03	4.12	4.12	4.29	4.41	3.24
	SD	0.75	0.77	0.67	0.77	0.78	0.76	0.70	1.46
Kruskal-Wallis test	H	4.50	3.24	0.95	1.25	2.69	5.30	3.26	2.24
	p	0.1052	0.199	0.6212	0.5339	0.2600	0.0706	0.1955	0.3266
Physical activity:									
average (n = 47)	x̄	**3.74***	**3.7***	3.70	3.89	**3.70***	**3.72***	**3.83***	3.72
	SD	0.74	0.89	0.83	1.01	0.76	0.93	0.99	1.06
high (n = 56)	x̄	**4.23***	**4.07***	4.04	4.07	**4.18***	**4.20***	**4.43***	3.38
	SD	0.89	0.97	0.83	0.78	0.86	0.90	0.76	1.32
Mann-Whitney U test	Z	**−3.44**	**−2.43**	−1.94	−0.71	**−2.91**	**−2.76**	**−3.32**	1.24
	p	**0.0006***	**0.0151***	0.0521	0.4773	**0.0036***	**0.0058***	**0.0009***	0.2155

1 BMI, **2** resting HR, **3** systolic blood pressure, **4** diastolic blood pressure, **5** aerobic capacity, **6**-anaerobic capacity, **7** muscle strength, **8** flexibility; *significant differences at p<0.05.

Declared of sense of indicators social health

As for the indicators of social health, comparable values were found for such variables as respecting fair play rule (4.41 ±0.79), respecting supreme values (4.38 ±0.89), and responsibility (4.17 ± 0.82). Significant differences were demonstrated only for the variable concerning declared physical activity in the domain of respecting supreme values, which was higher in individuals whose declared high physical activity (4.55 ±0.83) when compared to those reporting average activity 4.17 ±0.92 (Table 5).

Table 4. Declared by powerlifters their sense of indicators of mental health (including selected subgroups).

Variable		Mental health			
		Aggressiveness	Sense of fear	Stress coping skills	Tolerance
Total (n = 103)	x̄	2.76	2.81	3.85	3.77
	SD	1.45	1.36	0.92	1.19
Age (years):					
17-35 (n = 62)	x̄	2.69	2.61	3.94	3.63
	SD	1.39	1.41	0.94	1.22

Variable		Mental health			
		Aggressiveness	Sense of fear	Stress coping skills	Tolerance
36-72 (n = 41)	x̄	2.85	3.10	3.73	3.98
	SD	1.56	1.24	0.90	1.13
Mann-Whitney U test	Z	−0.78	−1.73	1.16	−1.53
	p	0.4331	0.0836	0.2461	0.1262
Sex:					
women (n = 28)	x̄	2.32	2.79	3.86	3.68
	SD	1.68	1.37	0.93	1.28
men (n = 75)	x̄	2.92	2.81	3.85	3.80
	SD	1.33	1.36	0.93	1.16
Mann-Whitney U test	Z	−1.60	−0.21	−0.03	−0.37
	p	0.1097	0.8345	0.9782	0.7111
BMI classification:					
correct weight (n = 34)	x̄	**2.182**	2.50	3.65	3.65
	SD	1.53	1.24	0.98	1.15
overweight (n = 35)	x̄	**3.061**	2.77	3.89	3.63
	SD	1.33	1.42	0.93	1.35
obesity (n = 34)	x̄	3.03	3.15	4.03	4.03
	SD	1.36	1.37	0.83	1.03
Kruskal-Wallis test	H	**8.09**	4.07	2.85	2.24
	p	**0.0175***	0.1304	0.2403	0.3260
Physical activity:					
average (n = 47)	x̄	2.91	2.94	3.81	3.87
	SD	1.52	1.33	0.85	1.19
high (n = 56)	x̄	2.63	2.70	3.89	3.68
	SD	1.40	1.39	0.98	1.19
Mann-Whitney U test	Z	1.27	0.95	−0.64	0.93
	p	0.2043	0.3419	0.5190	0.3539

*significant differences at p<0.05;
[1]- significant differences (p<0.05) regarding proper correct weight; [2]-significant differences (p<0.05) regarding overweight

Declared of sense of indicators survival skills

In survival skills, the highest values were indicated concerning body balance distribution tolerance skills 4.12 ± 0.91 and the lowest in lifesaving skills in water 3.01 ±1.64. As for survival abilities, significant differences were found concerning each of the four variables. Athletes in older age declared higher values in swimming ability and first aid skills. As for sex, essential differences were visible in self-defence skills with higher values evident in men. In the case of BMI classification, significant differences were shown in self-defence skills, where the highest values were identified in the obese. Also, in the declared physical activity, significant differences were found concerning self-defence skills, where persons with higher declared activity demonstrated higher values. A notable difference was also noticed in survival in favour of those with higher declared physical activity value (Table 6).

DISCUSSION

Knowledge of different dimensions of health is a prerequisite for its proper evaluation. According to Eriksson, Lindström [21] it is a

Table 5. Declared by powerlifters their sense of indicators of social health (including selected subgroups).

Variable		Social health		
		Respecting „fair play" rule	Respecting supreme values	Responsibility
Total (n = 103)	x̄	4.41	4.38	4.17
	SD	0.79	0.89	0.82
Age (years):				
17-35 (n = 62)	x̄	4.34	4.35	4.06
	SD	0.89	0.93	0.90
36-72 (n = 41)	x̄	4.51	4.41	4.34
	SD	0.60	0.84	0.66
Mann-Whitney U test	Z	−0.62	−0.37	−1.41
	p	0.5349	0.7118	0.1586
Gender:				
women (n = 28)	x̄	4.57	4.36	4.29
	SD	0.50	0.95	0.71
men (n = 75)	x̄	4.35	4.39	4.13
	SD	0.86	0.87	0.86
Mann-Whitney U test	Z	0.83	−0.07	0.73
	p	0.4074	0.9465	0.4682
BMI classification:				
correct weight (n = 34)	x̄	4.41	4.56	4.21
	SD	0.74	0.70	0.81
overweight (n = 35)	x̄	4.29	4.06	4.03
	SD	0.96	1.11	0.95
obesity (n = 34)	x̄	4.53	4.53	4.29
	SD	0.61	0.71	0.68
Kruskal-Wallis test	H	0.78	5.27	1.10
	p	0.6785	0.0717	0.5767
Declared physical activity				
average (n = 47)	x̄	4.38	**4.17***	4.13
	SD	0.64	0.92	0.80
high (n = 56)	x̄	4.43	**4.55***	4.21
	SD	0.89	0.83	0.85
Mann-Whitney U test	Z	−1.08	**−2.61**	−0.67
	p	0.2792	**0.0091***	0.5032

*significant differences at $p < 0.05$

Table 6. Declared by powerlifters their sense of indicators of survival skills (including selected subgroups).

Variable		Survival abilities							
		1	2	3	4	5	6	7	8
Total (n =103)	x̄	4.12	4.00	3.91	4.07	3.62	3.01	3.50	4.04
	SD	0.91	0.85	0.83	1.01	1.34	1.64	1.23	0.85
Age (years):									
17-35 (n = 62)	x̄	4.15	4.05	3.95	4.18	**3.40***	2.87	**3.31***	4.06
	SD	1.01	0.89	0.86	0.93	1.35	1.62	1.15	0.81
36-72 (n = 41)	x̄	4.07	3.93	3.85	3.90	**3.95***	3.22	**3.78***	4.00
	SD	0.75	0.79	0.79	1.11	1.26	1.65	1.29	0.92
Mann-Whitney U test	Z	0.93	0.87	0.78	1.30	**−2.29**	−1.18	**−2.18**	0.17
	p	0.3523	0.3835	0.4365	0.1923	**0.022***	0.2373	**0.029***	0.8687
Sex:									
women (n = 28)	x̄	3.82	3.86	3.86	**3.64***	3.21	2.79	3.57	3.93
	SD	1.19	0.93	1.04	1.31	1.62	1.75	1.37	0.98
men (n = 75)	x̄	4.23	4.05	3.93	**4.23***	3.77	3.09	3.47	4.08
	SD	0.76	0.82	0.74	0.83	1.19	1.60	1.18	0.80
Mann-Whitney U test	Z	−1.48	−0.93	0.01	**−2.05**	−1.44	−0.80	0.63	−0.46
	p	0.1401	0.3517	1.0000	**0.0403***	0.1486	0.4208	0.5313	0.6422
BMI classification:									
correct weight (n = 34)	x̄	4.09	3.82	3.76	**3.883**	3.65	3.06	3.59	4.09
	SD	0.83	0.87	0.82	1.15	1.30	1.48	1.18	0.83
overweight (n = 35)	x̄	3.91	3.91	3.86	**3.833**	3.57	3.00	3.57	3.80
	SD	1.12	0.89	0.94	0.92	1.44	1.70	1.36	0.96
obesity (n = 34)	x̄	4.35	4.26	4.12	**4.501**	3.65	2.97	3.32	4.24
	SD	0.69	0.75	0.69	0.83	1.30	1.77	1.15	0.70
Kruskal-Wallis test	H	2.97	4.83	2.99	**12.86**	0.02	0.02	1.35	3.68
	p	0.2265	0.0892	0.2240	**0.0016***	0.9910	0.9905	0.5096	0.1592
Physical activity:									
average (n = 47)	x̄	3.91	3.89	3.87	**3.72***	3.57	2.89	3.66	**3.83***
	SD	1.04	0.81	0.97	1.08	1.51	1.84	1.27	0.92
high (n = 56)	x̄	4.29	4.09	3.95	**4.36***	3.66	3.11	3.36	**4.21***
	SD	0.76	0.88	0.70	0.86	1.18	1.45	1.18	0.76
Mann-Whitney U test	Z	−1.85	−1.25	−0.21	**−3.40**	0.24	−0.21	1.42	**−1.15**
	p	0.0639	0.2128	0.8318	**0.0007***	0.8075	0.8342	0.1550	**0.032***

1 body balance disturbance tolerance skills, **2** precision skills before and during activity, **3** safe falling skills, **4** self-defence skills, **5** swimming ability **6** lifesaving skills in the water, **7** first aid skills, **8** survival abilities in solitude; *significant difference assumed at p<0.05;; [1,2]- significant differences (p<0.05) regarding proper weight and overweight; [3]- significant differences (p<0.05) regarding obesity

kind of foundation that comprises the physical dimension, also known as somatic, as well as mental, social, spiritual, environmental, and sexual well-being. Among the numerous methods of researching health, there is a methodology devised by Kalina [22], which presents its various dimensions. This methodology, in contrast to the recommended methods, takes into account the factor that is very important in modern Times – The survival ability. So far, this tool has been used mainly in the research conducted on students in different fields of study [22, 24-28].

It was interesting to learn the patterns of subjective health evaluations in athletes, for instance, while testing people who do powerlifting as a discipline that checks the strength of all body muscles. They must perform three strength tasks: a squat with a barbell, a bench press, and a deadlift. The SPHSA index (included health score and survival ability) for the lifters amounted to 3.81 ±0.50, and it was comparable to that of medical students [25]. Given the prevalence of social health (4.32 ± 0.71), lower values, i.e. 3.30 ±0.77 were revealed in mental health, which differed from other studies where the lowest values were found in survival abilities [22, 24-28]. In the majority of the previously conducted studies, no significant differences were found in the four analysed health profiles.

Further, significant differences in health indexes of the tested persons were visible in the dimension of mental health in the group of obese athletes, when compared to those with the correct BMI values, with higher values evidenced in the obese. Notable differences were also found in somatic health with higher values in the persons with high declared physical activity about the mean.

As for somatic health, the highest values were declared by athletes concerning their muscle strength (4.16 ± 0.92), which seems to be natural in participants doing powerlifting. Further, men were found to achieve significantly higher scores than women in muscle strength. A significant difference was also demonstrated in people with higher declared physical activity. Women declared decidedly higher values in flexibility, which seems to be typical of this gender. The most significant differences in almost all dimensions of somatic health were visible in the individuals exhibiting higher declared physical activity, which may indicate that their awareness of the role somatic health plays in human life is much higher.

In the domain of mental health, the ability to overcome stress seemed dominant, which was confirmed by the research in medical students. Significant differences were found in those tested concerning aggression, where higher values were visible in overweight patients than those with healthy BMI. However, mental health indicators concerning age, sex, declared physical activity is not significantly different.

In self-rated social health, the respecting of fair play gained the highest value, which can be explained by the fact that in this particular discipline results are objective (they are given in kilograms). Accordingly, the principle of fair play might be said to be superior. As for the analysed variables, the only significant difference was shown concerning the supreme values in those with higher declared physical activity.

Estimating survival abilities include body balance distribution tolerance skills, self-defence skills and survival ability in solitude (above 4 points). Here, the most significant variations within each of the four analysed variables were visible. The most frequent diversity was found in self-defence skills in men, the obese and those with high declared physical activity. Significant differences were also demonstrated in the elderly in swimming ability and providing first aid, which was probably due to their more substantial life experience. There was also a variation in the survival ability in those with higher declared physical activity, which seems to play a crucial role in survival.

It is justified to emphasize the fact that Dawid Dobosz [29, 30] is the first researcher using the SPHSA questionnaire to verify the declared sense of somatic health of young women and men with the results of recommended objective indicators. The results surprise us with relatively low compliance of the declared indicators with the empirically verified ones: only 1 (11.1%) of the general index of somatic health among 9 men is consistent, while such compliance applies to 5 (33%) of the 15 examined women.

CONCLUSIONS

Knowledge of the subjective profiles of their health in powerlifters might lead to similar evaluations in athletes of other disciplines. The overall index of subjective health assessment of the leading European lifters corresponds to the one

in the researched students. However, another configuration of individual profiles is visible with regard to the dimension of social health. The overall health profile and survival ability (SPHSA index) of the study group correspond to the one described in the research of other groups (students) concerning social health value, which was the highest. High declared physical activity turned out to be the critical variable influencing high-value variations in health profiles.

REFERENCES

1. Felce D, Perry J. Quality of life – its definition and measurement. Res Dev Disa 1995; 16(1): 51-74

2. World Health Organization. WHOQOL, Measuring Quality of Life. Division of mental health and prevention of substance abuse. Geneva: WHO; 1997

3. Tulchinsky TH, Varavikova EA. The new public health. New York: Academic Press; 2000

4. Wysocki MJ, Miller M. Paradygmat Lalonde'a: Światowa Organizacja Zdrowia i nowe zdrowie publiczne. Prz Epidemiol 2003; 57: 505-512 [in Polish]

5. Bień B. Starzenie pomyślne versus zwyczajne. Gerontol Pol 1997; 5(4): 40-43 [in Polish]

6. Kulik TB, Pacian A. Zdrowie publiczne. Warszawa: PZWL; 2014 [in Polish]

7. World Health Organization. Constitution of the World Health Organisation. Basic Documents. 45 ed. Geneva: WHO; 2006

8. Jegier A, Szmigielska K, Bilińska M et al. Health – related quality of life in patients with coronary heart disease after residential versus ambulatory cardiac rehabilitation. Circ J 2009; 73(3): 476-483

9. Parrish RG. Measuring Population Health Outcomes. Prev Chronic Dis 2010; 7(4): A71

10. Dudzińska M, Tarach JS, Nowakowski A. Pomiar jakości życia zależnej od zdrowia. Diabetol Klin 2011; 12(2): 56-64 [in Polish]

11. Ames SC, Jones GN, Howe J et al. A prospective study of the impact of stress on quality of life: an investigation of low-income individuals with hypertension. Ann Behav Med 2001; 23(2): 112-119

12. Turska W, Skowron A. Metodyka oceny jakości życia. Farm Pol 2009; 65(8): 572-580 [in Polish]

13. Maruish ME, Saris-Baglama RN. Supplement to the SF-36v2® Health Survey Primer for Healthcare Providers: Assessment of End-Stage Renal Disease. Lincoln: QualityMetric, Inc.; 2008

14. Maryniak A. List do redakcji w sprawie kwestionariusza SF-36. Kardiol Pol 2010; 68: 256 [in Polish]

15. Ware JE. SF-36 Health Survey Update. Spine 2000; 25(24): 3130-3139

16. Ware JE, Kosinski M, Dewey JE. Introduction. In: Ware JE, Kosinski M, Dewey JE, editors. How to score version 2 of the SF-36 Health Survey (Standard and Acute forms). Lincoln: QualityMetric, Inc.; 2002

17. Smith KJ, Kosinski M. PRM25 Psychometric Comparibility of Single Item and Grid form Administration of the SF-36V2™ Health Survey. Value Health 2011; 14(3): A150

18. Self A, Thomas J, Randall C. Measuring national well-being: life in the UK, 2016. Office for National Statistics UK; 2016 [accessed 2019 May 10]. Available from: URL: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/measuringnationalwellbeing/2016

19. Suh E, Tsang T, Vizard P et al. Quality of Life in Europe: Social Inequalities. Third European Quality of Life Survey. Luxembourg: Publications Office of the European Union; 2013: 19-34

20. Czapiński J, Panek T. Diagnoza społeczna: warunki i jakość życia Polaków: raport. Warszawa: Ministerstwo Pracy i Polityki Społecznej, Centrum Rozwoju Zasobów Ludzkich; 2014 [in Polish]

21. Eriksson M, Lindström B. A salutogenic interpretation of the Ottawa Charter. Health Promot Int 2008; 23(2): 190-199

22. Kalina RM. The profile of sense of Positive Health and Survival Abilities indices (subjective assessment) as a diagnostic tool used in health-related training. Arch Budo 2012; 8(3): 179-188

23. Kalina RM, Kalina A. Methods for measurement of somatic health and survival abilities in the framework of the SPHSA questionnaire – methodological aspects. Arch Budo Sci Martial Art Extreme Sport 2013; 9: 17-30

24. Jagiełło W, Sawczyn S, Jagiełło M et al. The subjective profile of positive health and survival abilities in female students differing as to physical activity. Arch Budo 2012; 8(4): 219-224

25. Bergier B. The diversity of the profiles involving the sense of positive health and survival abilities of Polish students of paramedical sciences. Arch Budo 2015; 11: 17-25

26. Tsos A, Olejnik A, Szepeluk A. Subjective health profiles among Ukrainian students of Medical Vocational School. Health Probl Civil 2016; 10(1): 32-38

27. Dobosz D. Empiryczna weryfikacja poczucia zdrowia pozytywnego (wymiar somatyczny) przez młode kobiety o zawodowych kompetencjach z zakresu edukacji zdrowotnej. Międzynarodowa Konferencja Naukowa Studentów i Doktorantów. Aktywność Fizyczna i Zdrowie w Ujęciu Interdyscyplinarnym; 2017 May 12; Częstochowa, Poland. Częstochowa: ProJack; 2017: 26-27 [in Polish]

28. Dobosz D. Empirical verification of self-rated positive health (somatic aspect) in male students of physiotherapy. Book of Abstracts of the 2nd World Congress on Health and Martial Arts in Interdisciplinary Approach, HMA 2018, 2018 Jun 14-17; Gdansk, Poland. Gdansk: University of Physical Education and Sport; 2018: 20-21

29. Dobosz D. Empirical verification of self-rated positive health (somatic dimension) in men with professional competence in the field of health education. Arch Budo Sci Martial Art Extreme Sport 2018; 14: 93-100

30. Dobosz D. Empirical verification of self-rated positive health (somatic dimension) in women with professional competence in the field of health education. Pedagog Psychol Med-Biol Probl Phys Train Sport 2019; 23(2): 66-75

31. Dictionary of Sport and Exercise Science. Over 5,000 Terms Clearly Defined. London: A & B Black; 2006

32. World Health Organization. Health promotion Glossary. Geneva: Division of Health Promotion, Education and Communications (HPR); 1998

33. Kalina RM, Jagiełło W, Barczyński BJ. The method to evaluate the body balance disturbation tolerance skills – validation procedure of the "Rotational Test". Arch Budo 2013; 9(1): 59-69

34. Parnicka U. Physical activity in promoting health of the elderly. Health Prob Civil 2018; 12(4): 265-271