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PSYCHOMETRIC PROPERTIES AND VALIDATION OF THE POLISH ADAPTATION OF THE SOURCES OF SPORT-CONFIDENCE QUESTIONNAIRE (SSCQ-PL)

The aim of the study was to validate and adapt the Sources of Sport-Confidence Questionnaire (SSCQ-PL) for use in Poland. The original tool (SSCQ) was created by Robin Vealey (1998) and consists of 41 items grouped into 9 subscales that each describes individual sources of sport-confidence. This paper describes the phases of the adaptation process. A total of 353 Polish athletes participated in the study, including active sportsmen, amateurs and professionals. The results confirm satisfactory psychometric properties of the Polish adaptation. The reliability and discriminatory power of the items was high. However, the authors decided to exclude the Situational Favorableness scale, which significantly decreased the reliability of the Polish version of the questionnaire. The internal validity of SSCQ-PL was confirmed using a confirmatory factor analysis. The SSCQ-PL scales correlated with most of the Multidimensional Self-Esteem Inventory (MSEI) scales and with the Trait Sport-Confidence Inventory-PL (TSCI-PL) scales, which confirmed the criterion validity of the tool.

Keywords: sources of sport-confidence, self-confidence, trait sport-confidence, self-esteem, adaptation, psychometric properties

Sport-confidence is commonly understood as one of the most critical characteristics influencing the quality of performance in sport (Mahoney, & Avenier, 1977; Maganaris, Collins, & Sharp, 2000; Vealey, 2005; Koehn, Pearce, & Morris, 2013). Vealey's (1986) conceptualization of sport-confidence divides it into trait confidence (SC-trait), state confidence (SC-state), and competitive orientation. When considered as a state, self-confidence can be unstable, depending on different factors; therefore, it is crucial to provide knowledge regarding the sources of self-confidence to better understand the phenomena. Several studies (Vealey, 1986, 1988) have confirmed that SC-trait and competitive orientation can influence SC-state; however, the

author of the original tool determined that there was no relevant research describing sources of sport-confidence. Bandura (1977, 1986) states that there are four sources of self-efficacy; however, there is still a need to develop sport-specific theories regarding confidence.

Vealey et al. (1998) developed the Sources of Sport-Confidence Questionnaire. The development process consisted of four phases; three phases involved developing the conceptual basis for the sources of sport-confidence and the last phase involved conducting a confirmatory factor analysis. The participants were collegiate and high school athletes. The aim of phase 1 was to identify preliminary sources of sport-confidence, to establish the items and format for the scale,

and to collect pilot data. First, after analysing the available literature and theories by Bandura (1977, 1986), Gould, Hodge, Peterson, and Giannini (1989), Williams (1994), and George (1988), the authors generated seven sources of sport-confidence: performance/mastery, ability/outcomes, preparation/effort, social support, vicarious experience, psychological strategies, and uncontrollable external sources. Next, the researchers developed 42 items for the scale, which included six items for each subscale. To eliminate response bias, the inventory was labelled "Athlete Self-Rating Scale". The pilot study was conducted with 11 collegiate athletes and 3 sport psychologists. The participants were asked to respond by choosing a number on a 7-point Likert scale by deciding how important certain factors were to them when they felt confident in various sport situations. At the end of the study, the participants had the opportunity to answer an open-ended question, where they could state other sources of sport-confidence. The participants were also asked about the clarity of the inventory's items. As a result, all items were retained for the next phase of the study, where statistical analyses would be performed. A total of 137 collegiate athletes participated in the second phase of the study. Seven factors were extracted: Physical/Mental Preparation, Demonstration of Ability, Social Support, Vicarious Experience, Luck/Superstition, and Environmental Comfort. The analysis of psychometric properties has shown the SSCQ to have adequate variability and reliability. In addition, according to the open-ended answers, one additional source of sport-confidence was identified – Physical Self-Perception. In Phase 3, 187 athletes from five different universities completed the revised version of the SSCQ (51 items divided into 8 subscales), the Trait Sport-Confidence Inventory (Vealey, 1986), and the Competitive Orientation Inventory (Vealey, 1986). The eight sources of sport-confidence were supported by the results of this phase. Furthermore, another source of sport-confidence (Coaches' Leadership) was

added based on the responses to the open-ended question. The results of all three tools supported the stated hypotheses. The analyses led to the exclusion and inclusion of some items, and subsequently, the revised version of the SSCQ, with 43 items divided into 9 subscales, was created. In the last phase of the study, the authors conducted a confirmatory factor analysis to analyse the data obtained from 208 high school basketball players. The athletes completed the SSCQ, the TSCI (Vealey, 1986), the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989; Ryan, 1982) and the Competitive State Anxiety Inventory-2 (Martens, Vealey, & Burton, 1990). The confirmatory factor analysis supported all nine sources of sport-confidence. Two items ("win" and "follow certain rituals") were deleted due to their low loadings. No significant connections between sources of sport-confidence and motivation, anxiety, or state self-confidence were found. The four phases established that the reliability and validity of the SSCQ were satisfactory. However, according to the authors (Vealey et al., 1998), further research on additional, more homogenous samples should be considered.

Gazdowska, Ryszkiewicz, and Parzelski (2015) conducted a pilot study of the Polish adaptation. A total of 100 Polish athletes aged 15–54 ($M = 25.96$; $SD = 9.03$) participated in the study. The study was conducted using an Internet testing platform and consisted of a short demographic survey, the translated version of the SSCQ, and adapted versions of the General Self-Efficacy Scale (GSES) and the Rosenberg Self-Esteem Scale (SES). The reliability of the SSCQ-PL was high and the mean Cronbach's Alpha of SSCQ-PL's nine scales was 0.807. Only the results of the Situational Favorableness scale were different from those of the other scales (Cronbach's Alpha = 0.53). An analysis of the construct validity revealed that most of the scales were significantly positively correlated. The confirmatory factor analysis confirmed the internal validity of the SSCQ-PL. The criterion validity was measured by correlating the SSCQ-PL

results with the SES and GSES results. The SES results were not significantly correlated with the SSCQ-PL results, whereas the GSES results were positively correlated with the SSCQ-PL results ($r = 0.182$; $p = 0.07$). Because of the marginal level of statistical significance, the results did not suggest a high criterion validity of the SSCQ-PL. Therefore, the questionnaire required further adaptation and analyses to ensure the tool has high reliability and validity.

METHOD

Participants

The adaptation procedure was conducted with a group of 353 Polish native speaking athletes (34% females and 66% males) aged 16–60 ($M = 24.39$; $SD = 8.99$). The participants included both amateur and professional athletes in different disciplines (both individual and team sports). In total, 48% of the participants were individual athletes ($N = 169$), and 52% of the participants practiced team sports ($N = 184$). The participants' disciplines are listed in Table 1. On average, the participants had been practicing their sports for 10 years ($M = 10.34$; $SD = 7.71$).

Materials

SSCQ-PL

As mentioned above, the original tool was created by Vealey et al. (1998). The adaptation process consisted of several stages described below (Gazdowska et al., 2015). First, two translators (none of whom were psychologists) independently translated the SSCQ from English to Polish. Next, the translators agreed on a common version, which was back-translated into English by a third translator. At the same time, a bilingual psychologist translated the questionnaire into Polish. Afterwards, all three versions were collected and subjected to a group comparative analysis by the two translators who conducted the independent translations and a sport psychologist who is fluent in English. Additionally, a group

Table 1. Sports practiced by the participants ($N = 353$)

	<i>N</i>	Percent
American Football	52	14.7
Soccer	47	13.3
Golf	30	8.5
Volleyball	28	7.9
Triathlon	24	6.8
Table Tennis	23	6.5
Basketball	17	4.8
Other ¹	17	4.8
Handball	16	4.5
Swimming	16	4.5
Ultimate Frisbee	14	4.0
Equestrian	12	3.4
Speed Skating	11	3.1
Tennis	9	2.5
Kendo	7	2.0
Ice Hockey	7	2.0
Badminton	5	1.4
Cycling	5	1.4
Dancing	5	1.4
Archery	4	1.1
Boxing	4	1.1

¹ Canoeing, fencing, kung fu, lacrosse, motocross, muay thai, skiing, shooting and rugby.

of five students of various disciplines (none of whom studied psychology) evaluated this version for clarity and readability. This procedure resulted in a complete Polish version of the Sources of Sport-Confidence Questionnaire (SSCQ-PL). The final version consisted of 41 items assessed on a 7-point Likert scale. The questions describe situations that an athlete can use to build their own sport-confidence. The experimental version of the SSCQ-PL has satisfactory reliability and validity.

TSCI-PL

The Trait Sport-Confidence Inventory was created by Robin Vealey (1986). The tool is used to measure sport-specific self-confidence as a trait. In this study, an experimental Polish version of the TSCI, which is undergoing the adaptation process, was used (Gazdowska, Parzelski, & Vealey, in press). The TSCI-PL consists of 13 items, and the participant is asked to state how self-confident he or she feels in sport-specific situations compared to the most self-confident athlete they know. A 9-point Likert scale is used in the inventory (1 indicates low self-confidence, 9 indicates high self-confidence). The experimental version of the TSCI-PL has satisfactory psychometric properties including relatively high reliability (0.94), internal validity, and criterion validity.

MSEI

The Multidimensional Self-esteem Inventory was created by O'Brien and Epstein (1988). Diana Fecenec adapted the tool for use in Poland (2008). The MSEI assesses self-esteem and consists of 11 scales, including Global Self-esteem, Competence, Lovability, Likability, Personal Power, Self-control, Moral Self-approval, Body Appearance, Body Functioning, Identity Integration, and Defensive Self-enhancement. The MSEI provides norms for respondents aged 16–69. It has satisfactory internal consistency (Cronbach's Alpha between 0.70 and 0.90) and high stability (pre-test/post-test relationship between 0.73 and 0.96).

Demographic survey

In the demographic survey, the participants were asked to answer five simple questions, starting with gender and age. They were asked to report the sport they practice and state how long they have been practicing. Finally, there was a space to report their biggest sport accomplishments. The point of the last question was to verify whether the person was actively involved in sports or just physically active from time to time. This question allowed the researchers to elimina-

te the respondents from further research if they were not really athletes and might interfere with the results if included.

Procedure

The testing materials were distributed either through an Internet testing platform or during organized meetings with the athletes. Each set consisted of an informed consent form, the demographic survey, the SSCQ-PL, the TSCI-PL, and the MSEI. The participants were randomly recruited for the study, and the researchers asked sports federations, clubs, and coaches to contact the athletes. Every athlete was able to obtain their results profile after completing the questionnaires. The participants completed the study in a non-competitive setting. On average, it took 32 minutes to complete all the questionnaires. The study was conducted for six months between July 2015 and January 2016.

RESULTS

To assess the psychometric properties of the SSCQ-PL, analyses were conducted using IBM SPSS Statistics version 23.0. The reliability was assessed using Cronbach's Alpha coefficient. The internal validity was verified using an exploratory factor analysis and a confirmatory factor analysis. The criterion validity was estimated using mutual correlations of the SSCQ-PL with the TSCI-PL and MSEI scales.

Descriptive statistics and reliability

Table 2 shows the descriptive statistics, normal distribution (Kolmogorov-Smirnov Z test), and reliability of the SSCQ-PL (Cronbach's Alpha).

Statistically significant results of the Kolmogorov-Smirnov Z test revealed that the assumption of normal distribution of the SSCQ-PL was violated. Based on the skewness and kurtosis values (which generally ranged between -1 and +1), a slight deviation from a normal

Table 2. Descriptive statistics, normal distribution, and reliability of the SSCQ-PL

	M	SD	Skewness	Kurtosis	Z ¹	p	Cronbach's Alpha
SSCQ-PL Mastery	5.71	0.83	-0.73	0.52	0.11	0.001	0.84
SSCQ-PL Demonstration of Ability	5.19	1.15	-1.00	1.11	0.12	0.001	0.81
SSCQ-PL Mental And Physical Preparation	5.71	0.81	-0.90	0.88	0.11	0.001	0.80
SSCQ-PL Physical Self-Perception	3.93	1.52	-0.07	-0.74	0.08	0.001	0.88
SSCQ-PL Support	5.24	1.09	-0.91	0.80	0.11	0.001	0.86
SSCQ-PL Vicarious Experience	4.17	1.33	-0.36	-0.47	0.08	0.001	0.87
SSCQ-PL Environmental Comfort	4.71	1.46	-0.77	-0.06	0.15	0.001	0.87
SSCQ-PL Situational Favorableness	4.73	0.93	-0.37	0.46	0.09	0.001	0.44
SSCQ-PL Leadership	5.02	1.37	-0.99	0.67	0.15	0.001	0.93

¹ Kolmogorov-Smirnov Z test with Lilliefors significance correction.

distribution was observed. This deviation was due to a negative skew in the data distribution, which shows that a large number of the participants obtained relatively high mean results.

The reliability of the SSCQ-PL was low for the Situational Favorableness scale (Cronbach's Alpha = 0.44) and high for the other scales (Cronbach's Alpha > 0.80). Verification of the discriminatory power of the SSCQ-PL items indicated that the 5th item on the Situational Favorableness scale ("get breaks from officials or referees") had low discriminatory power (0.152). Therefore, this item was removed from the scale. This removal resulted in an increase in discriminatory power (0.64). The discriminatory power of the other items ranged from 0.33 to 0.87 (Table 3). The construct validity of the scales was confirmed.

Internal validity

To determine the internal structure of the SSCQ-PL, two types of factor analyses were conducted. A principal component analysis with Oblimin rotation ($\delta = 0$) and Kaiser normalization with a forced number of factors (consistent with the original SSCQ) was conducted for the

exploratory factor analysis of the SSCQ-PL. The model with the forced number of nine factors explains 67.5% of the variance in the data. The factor loading value confirmed the compatibility of the internal structure of SSCQ-PL with the original version – SSCQ (Table 4). An item was included in a group if the factor loading was > 0.3. Item number 5 did not meet this criterion (factor loading = 0.12). These results confirm the legitimacy of removing this item from the scale because it did not successfully load onto any of the other components.

A confirmatory factor analysis was conducted in SPSS with the Bootstrap method (> 1.000 bootstrap samples). The parameters were estimated with the maximum likelihood method. The estimation of the fit between the model and the data was based on RMSEA (Root Mean Square Error of Approximation), GFI (Goodness of Fit Index), CFI (Comparative Fit Index), and NFI (Bentler-Bonett Normed Fit Index). A RMSEA lower than 0.08 with a GFI, CFI, and NFI higher than 0.9 was considered the minimal rate of acceptability for the model. Figure 1 presents the path diagram of the confirmatory factor analysis of the eight SSCQ-PL scales.

Table 3. Discriminatory power of the items in the SSCQ-PL

		Scale mean if item deleted	Scale variance if item deleted	Item-total correlation	Cronbach's Alpha if item deleted
Mastery	SSCQ-PL 4	23.03	11.30	0.57	0.84
	SSCQ-PL 13	22.70	11.88	0.65	0.81
	SSCQ-PL 21	22.63	12.03	0.70	0.80
	SSCQ-PL 30	22.92	11.93	0.63	0.82
	SSCQ-PL 40	22.84	10.77	0.74	0.79
Demonstration of Ability	SSCQ-PL 10	21.24	20.69	0.62	0.81
	SSCQ-PL 18	20.48	23.76	0.58	0.82
	SSCQ-PL 27	20.64	23.89	0.56	0.83
	SSCQ-PL 34	20.71	20.46	0.75	0.77
	SSCQ-PL 38	20.75	20.86	0.71	0.79
Mental and Physical Preparation	SSCQ-PL 2	28.48	17.80	0.52	0.80
	SSCQ-PL 3	28.48	16.27	0.63	0.77
	SSCQ-PL 12	28.84	17.40	0.52	0.80
	SSCQ-PL 20	28.55	16.58	0.64	0.77
	SSCQ-PL 29	28.65	16.18	0.65	0.77
	SSCQ-PL 36	28.42	17.85	0.49	0.80
Physical Self-Perception	SSCQ-PL 7	7.90	11.16	0.49	0.88
	SSCQ-PL 15	7.82	9.79	0.69	0.68
	SSCQ-PL 24	7.86	9.57	0.78	0.59
Support	SSCQ-PL 1	26.43	33.47	0.47	0.86
	SSCQ-PL 9	26.07	29.43	0.68	0.83
	SSCQ-PL 17	26.33	30.19	0.63	0.84
	SSCQ-PL 26	26.12	29.19	0.74	0.81
	SSCQ-PL 33	26.07	30.82	0.71	0.82
	SSCQ-PL 37	26.24	30.88	0.66	0.83
Vicarious Experience	SSCQ-PL 11	16.73	29.70	0.64	0.86
	SSCQ-PL 19	16.99	30.71	0.52	0.89
	SSCQ-PL 28	16.62	28.75	0.79	0.82
	SSCQ-PL 35	16.51	28.60	0.79	0.82
	SSCQ-PL 39	16.55	28.66	0.79	0.82
Environmental Comfort	SSCQ-PL 6	9.65	8.51	0.76	0.81
	SSCQ-PL 22	9.48	8.33	0.84	0.74
	SSCQ-PL 31	9.12	10.31	0.67	0.89
Situational Favorableness	SSCQ-PL 5	10.81	3.95	0.15 ¹	0.64
	SSCQ-PL 14	8.62	5.02	0.33	0.27
	SSCQ-PL 23	8.97	4.47	0.38	0.16
	SSCQ-PL 14 ²	5.23	1.45	0.48	-
	SSCQ-PL 23 ²	5.58	1.22	0.48	-
Leadership	SSCQ-PL 8	19.99	31.09	0.78	0.93
	SSCQ-PL 16	20.08	31.26	0.81	0.92
	SSCQ-PL 25	20.20	30.16	0.83	0.92
	SSCQ-PL 32	19.96	31.28	0.83	0.92
	SSCQ-PL 41	20.09	29.54	0.87	0.91

¹ Removing this item is recommended due to its' low discriminatory power.

² Discriminatory power if item 5 of the SSCQ-PL is deleted.

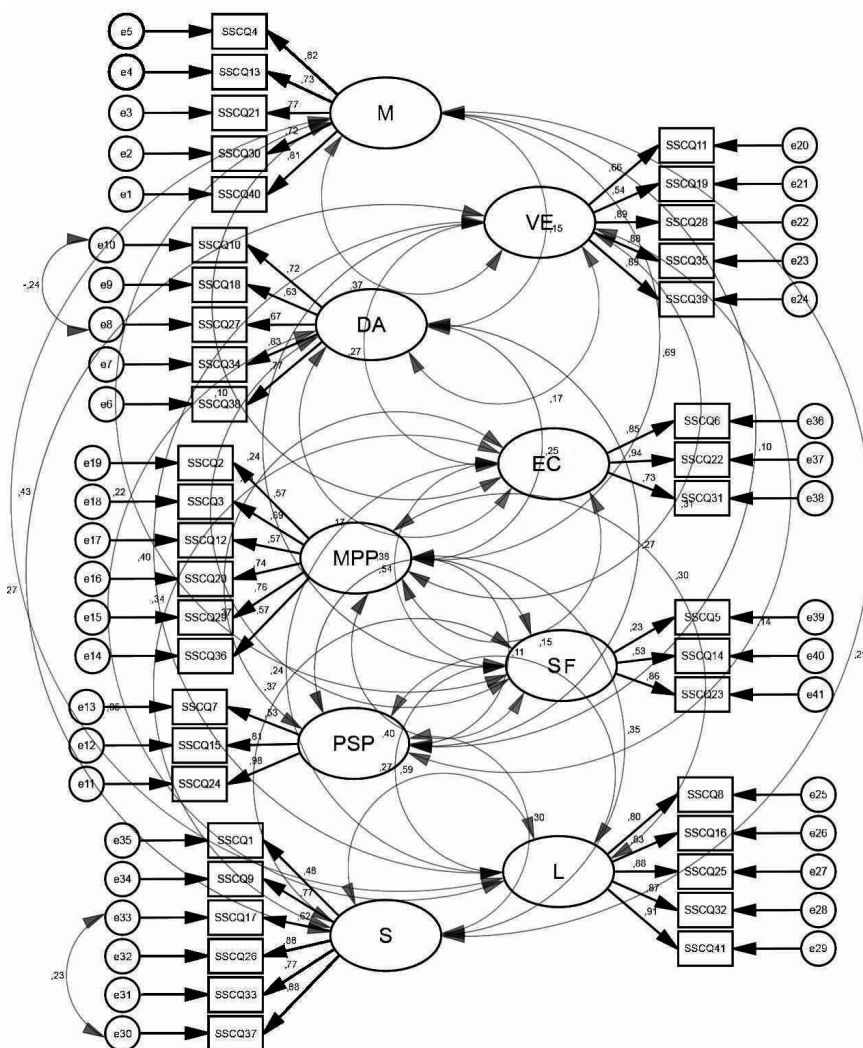
Table 4. Pattern matrix of the structure of the SSCQ-PL

		Component								
		1	2	3	4	5	6	7	8	9
Leadership	SSCQ-PL 16	0.88	-0.01	-0.03	0.00	-0.02	0.01	0.06	0.04	-0.06
	SSCQ-PL 25	0.87	-0.09	0.03	-0.07	-0.02	-0.01	0.04	-0.08	-0.01
	SSCQ-PL 41	0.87	-0.04	0.11	-0.12	0.01	-0.08	-0.07	0.02	0.07
	SSCQ-PL 32	0.85	0.04	-0.06	-0.07	-0.04	-0.05	-0.11	-0.06	0.00
	SSCQ-PL 8	0.85	0.04	-0.06	0.06	0.06	-0.01	0.04	-0.03	0.02
Mastery	SSCQ-PL 21	-0.08	0.80	-0.07	0.03	0.13	0.04	-0.04	-0.14	-0.04
	SSCQ-PL 40	0.02	0.78	0.00	-0.14	-0.11	-0.05	0.04	-0.02	-0.01
	SSCQ-PL 13	0.02	0.76	-0.02	0.04	0.03	0.04	0.01	-0.09	-0.04
	SSCQ-PL 4	0.01	0.74	-0.01	-0.09	0.05	0.00	0.01	0.07	0.12
	SSCQ-PL 30	0.01	0.67	0.12	0.02	-0.10	-0.09	-0.02	-0.14	-0.10
Demonstration of Ability	SSCQ-PL 34	0.02	0.09	0.86	-0.05	-0.01	0.03	-0.05	0.07	-0.03
	SSCQ-PL 38	-0.07	-0.04	0.84	0.02	-0.11	0.03	0.06	-0.07	-0.02
	SSCQ-PL 10	-0.04	-0.03	0.79	0.08	0.07	0.06	0.17	0.10	0.08
	SSCQ-PL 18	0.05	-0.04	0.73	0.05	0.09	-0.05	-0.10	-0.17	0.05
	SSCQ-PL 27	0.02	0.02	0.62	-0.20	0.01	-0.02	-0.05	-0.06	-0.17
Vicarious Experience	SSCQ-PL 28	0.04	0.05	0.01	-0.89	-0.12	-0.04	0.02	0.00	-0.06
	SSCQ-PL 35	0.08	0.00	-0.05	-0.87	-0.02	-0.05	0.03	0.06	-0.04
	SSCQ-PL 39	0.02	0.02	0.06	-0.85	0.01	-0.09	0.01	0.07	-0.03
	SSCQ-PL 11	0.04	0.10	0.00	-0.72	0.08	0.09	-0.01	0.02	0.08
	SSCQ-PL 19	0.00	-0.08	0.01	-0.54	0.25	-0.03	0.10	-0.21	0.15
Environmental Comfort	SSCQ-PL 22	0.04	-0.02	-0.01	0.03	0.90	0.00	0.07	0.02	-0.04
	SSCQ-PL 6	-0.07	0.00	0.09	0.00	0.88	-0.10	0.01	0.03	0.03
	SSCQ-PL 31	0.04	0.08	-0.04	-0.14	0.73	-0.05	-0.04	0.00	-0.21
Support	SSCQ-PL 37	-0.09	-0.01	0.05	-0.17	0.04	-0.76	0.04	-0.09	0.14
	SSCQ-PL 9	0.03	0.00	-0.14	0.02	0.20	-0.74	0.08	-0.08	0.05
	SSCQ-PL 26	0.15	0.01	-0.08	-0.05	0.09	-0.73	0.04	-0.09	0.08
	SSCQ-PL 17	-0.04	-0.08	0.07	-0.06	0.01	-0.72	-0.05	-0.06	-0.19
	SSCQ-PL 33	0.28	0.03	-0.04	0.06	-0.03	-0.72	0.03	0.00	0.04
	SSCQ-PL 1	0.06	0.14	0.09	0.06	-0.12	-0.60	0.00	0.29	-0.16
Physical Self-Perception	SSCQ-PL 24	-0.06	-0.05	0.05	-0.06	-0.01	-0.08	0.88	-0.04	-0.10
	SSCQ-PL 15	-0.11	-0.12	0.01	-0.06	-0.03	-0.07	0.88	-0.07	-0.12
	SSCQ-PL 7	0.16	0.18	-0.05	0.04	0.04	0.11	0.72	0.02	0.08
Mental and Physical Preparation	SSCQ-PL 3	-0.04	0.08	0.16	0.05	-0.04	-0.10	0.05	-0.72	-0.03
	SSCQ-PL 2	0.01	0.13	0.01	0.00	0.07	0.01	0.02	-0.68	0.25
	SSCQ-PL 20	0.03	0.22	0.00	-0.08	-0.03	0.00	0.00	-0.68	0.01
	SSCQ-PL 12	0.21	-0.02	0.04	0.11	0.03	-0.02	0.04	-0.60	-0.18
	SSCQ-PL 29	0.07	0.20	-0.06	-0.16	-0.10	-0.03	0.03	-0.56	-0.24
	SSCQ-PL 36	0.02	0.20	0.12	-0.08	0.01	-0.13	-0.09	-0.37	-0.22
Situational Favorableness	SSCQ-PL 5	0.18	0.13	0.17	-0.02	0.16	-0.08	0.20	0.19	0.12 ¹
	SSCQ-PL 14	-0.04	0.06	0.05	0.08	0.06	-0.06	0.12	-0.01	-0.80
	SSCQ-PL 23	0.10	-0.02	0.08	-0.05	0.41	0.04	0.08	-0.06	-0.61

¹ Removing this item is recommended due to its' low factor loading value.

Item 5 had low psychometric properties and the Situational Favorableness scale had low reliability; therefore, three models were analysed: a model including all the items in the original version (Model 1), a model excluding item 5 (Model 2), and a model excluding the Situational Favorableness scale (Model 3). The results are compared in Table 5.

Each of the three models meets the RMSEA criterion (value < 0.08). The GFI, NFI, and CFI indicators did not exceed the recommended value (0.9); however, their values were close to the acceptable threshold. It should be noted that the quality of the fit increased after item 5 was excluded (Model 2), and it further increased after excluding the entire Situational Favorableness



M – Mastery; DA – Demonstration of Ability; MPP – Mental and Physical Preparation; PSP – Physical Self-Perception; S – Support; VE – Vicarious Experience; EC – Environmental Comfort; L – Leadership

Fig. 1. Path diagram of the confirmatory factor analysis of the nine SSCQ-PL scales (Bootstrap method with the forced nine factors in accordance with the original SSCQ)

Table 5. Results of the Confirmatory Factor Analysis of the SSCQ-PL ($N = 353$)

	χ^2	df	p	RMSEA	GFI	NFI	CFI
Model 1	1664.20	741	0.001	0.060	0.806	0.810	0.884
Model 2	1576.94	702	0.001	0.060	0.818	0.820	0.889
Model 3	1418.58	635	0.001	0.059	0.820	0.829	0.897

Table 6. Values of the Spearman's rho correlation coefficient between the SSCQ-PL scales

	M	DA	PSP	MPP	VE	L	S	EC
M	-							
DA	0.150*	-	-	-	-	-	-	-
PSP	0.097*	0.269**	-	-	-	-	-	-
MPP	0.688**	0.247**	0.108*	-	-	-	-	-
VE	0.365**	0.165**	0.209**	0.305**	-	-	-	-
L	0.273**	0.055	0.133**	0.301**	0.404**	-	-	-
S	0.211**	0.138**	0.299**	0.346**	0.435**	0.585**	-	-
EC	0.099*	0.169**	0.381**	0.150**	0.266**	0.243**	0.345**	-

M – Mastery; DA – Demonstration of Ability; MPP – Mental and Physical Preparation; PSP – Physical Self-Perception; S – Support; VE – Vicarious Experience; EC – Environmental Comfort; L – Leadership.

** $p < 0.001$; * $p < 0.05$.

Table 7. Spearman's rho correlation coefficients between the SSCQ-PL and the MSEI scales

SSCQ-PL scales									
MSEI scales	M	DA	MPP	PSP	S	VE	EC	SF	L
GSE	0.175**	0.098	0.188**	0.059	0.091	0.029	0.071	0.060	0.018
C	0.156**	0.126*	0.242**	0.009	0.054	-0.054	-0.004	-0.040	-0.065
LO	0.234**	0.027	0.189**	0.022	0.164**	-0.027	0.036	0.015	0.067
LI	0.100	0.047	0.117*	0.006	0.132*	0.027	0.003	0.065	0.036
PP	0.149**	0.154**	0.183**	0.069	-0.010	-0.096	0.015	0.067	-0.087
SC	0.185**	-0.007	0.195**	-0.014	-0.032	0.009	0.051	-0.035	-0.011
MSA	0.135*	-0.092	0.192**	-0.078	-0.034	-0.120*	-0.178*	-0.043	-0.069
BA	0.058	0.138**	0.117*	0.047	0.095	-0.045	0.064	0.093	-0.118*
BF	0.138**	0.170**	0.209**	-0.008	0.042	-0.109*	-0.071	-0.006	-0.036
II	0.164**	-0.070	0.192**	-0.013	-0.023	-0.040	0.047	-0.017	0.001
DSE	0.071	-0.190*	0.027	-0.062	-0.063	0.070	-0.081	-0.057	0.021

GSE – global self-esteem; C – competence; LO – lovability; LI – likability; PP – personal power; SC – self-control; MSA – moral self-approval; BA – body appearance; BF – body functioning; II – identity integration; DSE – defensive self-enhancement

** $p < 0.001$; * $p < 0.05$.

scale (Model 3). Considering the accepted criteria, the analysed model had an acceptable fit with the data. After analysing the present results, the authors decided to exclude the Situational Favorableness scale from the Polish version of the SSCQ.

A Pearson's correlation revealed a significant positive correlation between the SSCQ-PL scales (Table 6), except for the correlation between the Demonstration of Ability and Leadership scales.

Criterion validity

The criterion validity of the SSCQ-PL was verified using a nonparametric correlation coefficient (Spearman's rho) between the SSCQ-PL and MSEI scales (Table 7). Several significant poor correlations have been reported between the MSEI and SSCQ-PL scales (i.e., Mastery, Demonstration of Ability, Mental and Physical Preparation). The obtained results do not fully meet the researcher's expectations. Basing on these correlations, the criterion validity should be considered acceptable.

A nonparametric correlation coefficient (Spearman's rho) was calculated between the SSCQ-PL and TSCI-PL scales (Table 8). Significant, poor, and positive correlations were found between the TSCI-PL and SSCQ-PL scales (Mastery, Demonstration of Ability, Mental and Physical Preparation, Support, Vicarious Experience and Leadership). No significant correlations were observed between the TSCI-PL and the SSCQ-PL subscales of Physical Self-Perception and Environmental Comfort.

Balance in terms of age

Table 9 shows the Spearman's rho correlation values between age and the SSCQ-PL scales. Significant, negative, and poor correlations were observed between age and the SSCQ-PL scales (i.e., Support, Vicarious Experience, and Leadership).

Balance in terms of gender

The mean results of the SSCQ-PL were compared between males and females using the nonparametric Mann-Whitney U test (Table 10).

Significant gender differences were reported for the SSCQ-PL scales (i.e., Mental and Physical Preparation, Support and Leadership). Women scored significantly higher than men.

Table 8. Spearman's rho correlation coefficients between the SSCQ-PL scales and the TSCI-PL

	TSCI-PL
SSCQ-PL Mastery	0.288**
SSCQ-PL Demonstration of Ability	0.217**
SSCQ-PL Mental And Physical Preparation	0.304**
SSCQ-PL Physical Self-Perception	0.068
SSCQ-PL Support	0.116*
SSCQ-PL Vicarious Experience	0.228**
SSCQ-PL Environmental Comfort	0.056
SSCQ-PL Situational Favorableness	0.120
SSCQ-PL Leadership	0.104*

** $p < 0.001$; * $p < 0.05$.

Table 9. Spearman's rho correlation coefficients between age and the SSCQ-PL scales

Tested scales	Age
SSCQ-PL Mastery	-0.030
SSCQ-PL Demonstration of Ability	-0.063
SSCQ-PL Mental And Physical Preparation	0.092
SSCQ-PL Physical Self-Perception	0.092
SSCQ-PL Support	-0.127*
SSCQ-PL Vicarious Experience	-0.146**
SSCQ-PL Environmental Comfort	-0.070
SSCQ-PL Leadership	-0.120*

** $p < 0.001$; * $p < 0.05$.

Table 10. Comparison of the means between females ($N = 120$) and males ($N = 233$)

Tested scales	Females		Males		U test statistics	
	M	SD	M	SD	U	p
SSCQ-PL Mastery	5.79	0.82	5.67	0.84	12852.50	0.21
SSCQ-PL Demonstration of Ability	5.12	1.17	5.23	1.14	13184.00	0.38
SSCQ-PL Mental And Physical Preparation	5.94	0.74	5.60	0.82	10541.00	0.001**
SSCQ-PL Physical Self-Perception	4.14	1.57	3.82	1.49	12399.50	0.08
SSCQ-PL Support	5.52	0.90	5.10	1.15	11086.50	0.001**
SSCQ-PL Vicarious Experience	4.13	1.33	4.19	1.34	13559.50	0.64
SSCQ-PL Environmental Comfort	4.78	1.37	4.67	1.50	13658.50	0.72
SSCQ-PL Leadership	5.37	1.10	4.84	1.46	11104.50	0.001**

** $p < 0.001$; * $p < 0.05$.

DISCUSSION

The present results confirm the satisfactory psychometric properties of the Polish adaptation of the SSCQ. Reliability, as measured by Cronbach's Alpha, was high for all the SSCQ-PL scales, except the Situational Favorableness scale. The high discriminatory power of the items proved the high internal correspondence and confirmed the construct validity of the tool. Item 5 ("get breaks from officials or referees") was an exception and was characterized by low discriminatory power, which significantly decreased the reliability of the Situational Favorableness scale.

The internal validity of the SSCQ-PL was confirmed. The exploratory and confirmatory factor analyses confirmed the compatibility of the internal structure of the adaptation with the structure of the original version of the tool. The model of the SSCQ-PL consisting of nine factors was acceptably matched to the data. Based on the results of the study, the authors decided to exclude the Situational Favorableness scale from the Polish version of the SSCQ. Removing the problematic scale increased the quality of the model. The poor reliability of the Situational Favorableness scale was probably due to the cultural context of the scale. In Polish culture, getting breaks from referees or gaining favour in

sports is associated with illegal situations such as bribery or cheating, unlike in American culture. The authors' decision to exclude the Situational Favorableness scale was also supported by the fact that it was not a main conceptual focus of sources of confidence (Vealey et al., 1998).

The criterion validity of the SSCQ-PL was measured by correlating it with TSCI-PL and MSEI scales. The criterion validity was confirmed based on numerous correlations. However, in case of MSEI, the correlations were not as significant as the researchers expected. This may be due to the fact that MSEI is not directly related to sport-confidence or sport-related self-esteem, while in SSCQ-PL the scales are describing sport situations. This is supported by the fact that there were more significant correlations in case of SSCQ-PL and TSCI-PL, which is a sport-specific tool. Therefore the criterion validity can be considered acceptable. Additionally, the SSCQ-PL scales are sensitive to age and gender variables.

The psychometric properties of the adapted tool are satisfactory; therefore, the SSCQ-PL can be used to measure sources of sport-confidence among Polish athletes. The adapted tool can contribute to the development of sport psychology in Poland because it is the first adapted tool that measures self-confidence in athletes.

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WŁAŚCIWOŚCI PSYCHOMETRYCZNE I WALIDACJA POLSKIEJ ADAPTACJI
KWESTIONARIUSZA ŹRÓDEŁ PEWNOŚCI SIEBIE W SPORCIE (SSCQ-PL)

ABSTRAKT

Celem przeprowadzonego badania była walidacja i adaptacja do warunków polskich narzędzia Sources of Sport-Confidence Questionnaire (SSCQ-PL). Oryginalny kwestionariusz (SSCQ) został stworzony przez Robin Vealey (1986), składa się z 41 pozycji należących do 9 podskal opisujących źródła pewności siebie w sytuacji sportowej. Artykuł opisuje fazy procesu adaptacji. W badaniu udział wzięło 353 osób, będących aktywnymi sportowcami, zawodowcami i amatorami. Wyniki potwierdzają zadowalające właściwości psychometryczne polskiej adaptacji. Rzetelność i moc dyskryminacyjna pozycji kwestionariusza okazały się być wysokie. Autorzy zdecydowali o usunięciu skali Sprzyjające Sytuacje, która w istotny sposób obniżała rzetelność polskiej wersji kwestionariusza. Trafność wewnętrzna SSCQ-PL została potwierdzona przy użyciu konfirmacyjnej analizy czynnikowej. Skale SSCQ-PL korelowały z większością skal Wielowymiarowego Kwestionariusza Samooceny (MSEI) i ze skalami Inwentarzem Pewności Siebie w Sporcie (TSCI-PL), co potwierdziło trafność kryterialną adaptowanego narzędzia.

Słowa kluczowe: adaptacja, właściwości psychometryczne, pewność siebie, źródła pewności siebie w sporcie, pewność siebie w sporcie