ORIGINAL ARTICLE

Psychometric properties of the Psychological Capital Questionnaire (KKaPsy)

Agnieszka Lipińska-Grobelny [ID] A,B,C,D,E,F, *Olga Zwardoń-Kuchciak* [ID] A,B,C,D,E,F

Institute of Psychology, University of Łódź, Łódź, Poland

BACKGROUND
The aim of the study was to prepare and design a Polish version of the Psychological Capital Questionnaire. The psychometric tool allows synthetic assessment of four personal resources known to play a significant role in effective functioning, viz. self-efficacy, hope, optimism and resilience.

PARTICIPANTS AND PROCEDURE
The psychometric properties of the questionnaire were developed in two studies, the first one involving 308 people (166 women and 142 men) and the second involving 206 people (111 women and 95 men).

RESULTS
Confirmatory factor analysis confirmed that the tool has a four-component structure with an overall score. It is characterized by satisfactory internal consistency (α = .73-.86), stability (rtt = .85-.92) and construct validity.

CONCLUSIONS
The Psychological Capital Questionnaire is a reliable and valid tool that can be used in research and in practice.

KEY WORDS
psychological capital; self-efficacy; hope; optimism and resilience

Agnieszka Lipińska-Grobelny, Olga Zwardoń-Kuchciak

BACKGROUND

Although the concept of *capital* is associated primarily with material resources, the social sciences have extended its meaning to include the reserves owned by an individual or a group. Currently, the term is applied not only to *economic* capital (what do we own?), but also to *human* (what do we know?), *cultural* (what are we doing? what are we creating?), *social* (who do we know?) and *psychological* capital (who are we?). The latter, the subject of the present analysis, derives from the field of positive psychology and is related to, but not identical with, human capital.

Psychological capital (PsyCap) is a higher-order latent variable that encompasses four components: self-efficacy, optimism, hope and resilience. A number of studies have confirmed a relationship between psychological capital and better performance at work (Judge & Bono, 2001; Luthans et al., 2007a), as well as with high motivation and work engagement (Bakker & Xanthopoulou, 2013), a positive self-assessment of one's chances of success (Peterson et al., 2011), pro-activity (Chen, 2013), higher self-esteem (Peterson et al., 2011), happiness (Williams et al., 2015), mental health (Singh & Singh, 2018) or more effective problem-solving strategies and innovativeness at work (Luthans et al., 2011).

Luthans et al. (2007a) suggest that psychological capital, in addition to such latent variables as positive orientation (Łaguna et al., 2011) or core self-evaluations (Chirkowska-Smolak, 2012), is more responsible for human adaptive functioning than the individual factors within it. Although Luthans et al. (2007a) derived the construct from the work environment, the universality of the measured personal resources that are linked to outcomes of general importance for individuals led to the decision to prepare a universal tool to measure this concept. Therefore, the aim of this study was to design a Polish version of the psychological capital scale (PsyCap). Currently no such specific tool exists to assess PsyCap in general in Poland, and studies therefore have to use a set of four research tools, which lengthens the entire process and is associated with a common method bias. The design of the Polish version of the Psychological Capital Questionnaire (KKaPsy) provides an important alternative instrument for use in research and clinical or organizational practice.

PSYCHOLOGICAL CAPITAL – A CLARIFICATION OF THE TERM

Seligman (2005) formulates the thesis that an individual begins to feel *flow* when engaging in work. In this sense, flow is regarded as a state of mind and body characterized by a feeling of elation and euphoria while performing activities with full concentration.

When a person experiences *flow*, they begin to develop and utilize their resources that comprise future psychological capital. Based on this assumption, researchers began the search for positive psychological states that are open to development and influence desirable attitudes and behaviour. These initially included self-efficacy, hope, optimism, subjective well-being (happiness), and emotional intelligence (Luthans, 2002a). Further research by Luthans resulted in the refinement of the components of psychological capital, which were eventually reduced to four personal resources, namely self-efficacy, optimism, hope, and resilience (Luthans, 2002b). Psychological capital can be measured and developed (Luthans et al., 2007b). The ways in which the various components of PsyCap can be conceptualized will be presented below.

This paper will first address the concept of *self-efficacy* introduced by Bandura in the late 1970s. The concept describes the strength of the general belief held by an individual in their ability to cope with obstacles and difficult situations. Indeed, individuals tend to demonstrate little motivation to act unless they believe that their actions can generate benefits and prevent harm. Hence, a belief in one's self-efficacy is an important dimension in optimal human functioning (Bandura, 1977, 2007). The concept is also believed to demonstrate a positive relationship with other variables included in psychological capital (Luthans et al., 2007b).

The relationship with resilience and optimism is particularly important, and a significant influence is also observed for hope. Snyder (2002) defines hope as a positive motivation consisting of willpower and the belief in one's ability to find solutions. Understood in this way, hope can be referred to more specifically as hope for success, because it refers to the expectation of positive outcomes from one's actions. It is not an emotional state, but a cognitive motivational process (Łaguna et al., 2005). Individuals with high levels of hope find it easier to relate to people, cope better with stress, and adapt faster to environmental change (Luthans, 2002a).

The third component of psychological capital, optimism, has been variously described. One of the better known concepts is the theory of dispositional optimism by Scheier and Carver (1985), who define optimism as a relatively stable and situation-independent personality trait that manifests itself in the expectation that positive rather than negative life events will occur more frequently. Research shows that it is an important dimension that promotes psychophysical well-being, success, and greater resistance to stress (Poprawa, 1996). Optimists tend to believe in their own strengths and the actions they take. Czapiński (1985) considers that optimism is associated with a positive evaluation of reality.

The fourth component of psychological capital is resilience. In the literature a distinction is made

between resilience, which means the ability to overcome difficult life events, and resiliency, which refers to a relatively stable personality trait. In a study of self-control, Block and Block (1980) indicate that it is reasonable to distinguish two dimensions of resilience, one being connected with ego-resiliency and the other with ego-control. Thus, ego-resilience refers to the resource that allows one to adapt to the constantly changing demands of life in the form of difficult situations as well as everyday events. Ego-control means refraining from motivational and emotional impulses (Block & Kremen, 1996). Individuals characterized by high resilience are more predisposed to cope with adversity and have overall better functioning in life (Fredrickson, 2001).

THE MEASUREMENT OF PSYCHOLOGICAL CAPITAL

The standard scale used to measure PsyCap is the Psychological Capital Questionnaire (PCQ-24) by Luthans et al. (2007a). The questionnaire was based on modified items from previously published scales: hope (State Hope Scale by Snyder et al., 1996), optimism (Life Orientation Test by Scheier & Carver, 1985), resilience (Resilience Scale by Wagnild & Young, 1993), and self-efficacy (Role Breadth Self-Efficacy Scale by Parker, 1998). Later Harms and Luthans (2012) developed the Implicit Psychological Capital Questionnaire (I-PCQ) to reduce the influence of social approval on responses. Lorenz et al. (2016) developed the Compound PsyCap Scale (CPC-12), shortened to 12 items, which can be used in all contexts, not only professional ones. With this perspective, Luthans and Youssef-Morgan (2017) reduced a 24-item tool to 12 statements (PCQ-12), dispensing with reversed questions (Dawkins et al., 2013).

A psychometric evaluation of the study, conducted by Dawkins et al. (2013), based on an exploratory and confirmatory analysis of the PCQ-24 and PCQ-12 tools, confirmed the reliability of the measure across different cultural and organizational settings. As the construct in question is of interest to researchers around the world, further validation of the PCQ-24 has been conducted, among others, in South Africa (Azanza et al., 2014; Du Plessis & Barkhuizen, 2012; Görgens-Ekermans & Herbert, 2013), in China (Qingshan et al., 2014), in Portugal (Antunes et al., 2017) and in Brazil (Tashima Cid et al., 2020). Most of these studies confirmed the original (four-factor) structure of the tool, with correlations between factors ranging from .36 to .77 and Cronbach's α coefficient from .80 to .90. However, some analyses using the PCQ-24 and PCQ-12 found a two-factor model to be a better fit (Avey et al., 2008; Azanza et al., 2014; Luthans et al., 2007b; Rus et al., 2012; Stajković, 2006), while others favoured a three-factor (Du Ples-

sis & Barkhuizen, 2012) or even a five-factor model (Antunes et al., 2017; Rego et al., 2010).

THE POLISH VERSION OF THE PSYCHOLOGICAL CAPITAL QUESTIONNAIRE (KKAPSY) – RECONSTRUCTION

The aim of the present study was to prepare a Polish version of a tool for measuring psychological capital. As no such Polish version currently exists, its development will be an important research opportunity, not only due to the popularity of the concept itself, but also the possibility for its findings to be compared with those obtained in other cultural contexts.

Earlier work by the authors of this article on the adaptation of the PCQ-24 by Luthans et al. (2007a) and the CPC-12 by Lorenz et al. (2016) did not yield satisfactory results in terms of confirmatory factor analysis (the four-factor model of psychological capital was not confirmed). Therefore, it was decided to prepare a Polish version of the tool, modelled on the Psychological Capital Questionnaire, with the procedure used in creating the PCQ-24 described by Luthans et al. (2007a).

To achieve this, the members of the research team for this study chose the scales for each of the four positive facets. The selection criteria were not only that the scale had to demonstrate high reliability and validity in the published literature, but it also had to be either developed for or capable of measuring the state-like constructs making up the PsyCap. These four instruments that were determined to best meet these criteria were: the Generalized Self-Efficacy Scale by Schwarzer and Jerusalem (1995) in Polish adaptation by Juczyński (1999), the Hope for Success Questionnaire by Łaguna et al. (2005), the Life Orientation Test by Scheier et al. (1994) in Polish adaptation by Poprawa and Juczyński (Juczyński, 1999), and the Resilience Questionnaire by Kaczmarek (2011).

A total of 304 people (221 women and 83 men) aged 18 to 73 years ($M = 28.91$, $SD = 10.96$) participated in the pilot study. Most of the respondents had completed secondary (56.6%) or higher (41.4%) education, and all were professionally active. Exploratory factor analysis was used to select items with the highest factor loadings, i.e. exceeding the minimum value of 0.4. Based on the results of exploratory factor analysis the statements with the highest factor loadings, exceeding the minimum value of 0.40, were selected. In a similar way to the procedure proposed by Luthans et al. (2007a), the first, experimental version of the Psychological Capital Questionnaire (KKaPsy) comprised 24 statements, which were selected from an item pool consisting of the four above-mentioned tools. Following this, the emerged items were paraphrased at least three times and evaluated by a group of 24 competent judges, these being year 4 and 5 Psy-

chology students. The judges assessed the paraphrases in terms of linguistic correctness and consistency with the original statement. Through this analysis, a pool of the 24 most appropriate and universal statements was created, to which a six-point scale was added, where 1 meant *strongly disagree* and 6 meant *strongly agree*. In the instructions, the respondent was asked to state what he/she thought about himself/herself with reference to each item. The experimental version of the Psychological Capital Questionnaire was further tested for psychometric properties in two separate studies (Table 1).

Table 1

Means, standard deviation, and factor loading for individual items included in the experimental version of the Psychological Capital Questionnaire (KKaPsy) (N = 304)

Statement	M	SD	Factor			
			Self-efficacy	Hope	Optimism	Resilience
1. I am convinced that in unexpected situations I am able to cope successfully.	2.97	0.55	.69			
2. I can stay calm in difficult situations because I know I can rely on my ability to deal with them.	2.90	0.53	.69			
3. I usually know what to do in embarrassing situations.	2.93	0.69	.68			
4. Thanks to my ingenuity, I can cope with unexpected situations.	3.06	0.63	.67			
5. I can solve most problems if I put enough effort into it.	3.21	0.56	.64			
6. I am always able to solve difficult problems if I try hard enough.	3.16	0.59	.63			
7. I can consider many options for solving problems	6.40	1.08		.68		
8. I am eagerly implementing my ideas.	6.09	1.26		.67		
9. I can consider many opportunities for achieving the goals which I care about the most.	6.52	1.06		.67		
10. My life experience has prepared me well for the challenges of the future.	6.11	1.38		.58		
11. Even when others give up, I know that I can find a solution to the problem.	5.83	1.19		.56		
12. I achieve the goals I set myself.	5.83	1.04		.56		
13. I am generous to my friends.	2.81	1.02			.65	
14. I like to taste new dishes that I have not tried before.	2.57	1.15			.65	
15. People see me as an energetic person.	2.92	0.99			.63	
16. When things are difficult, I usually expect a successful solution.	3.09	0.89			.60	
17. If I'm going to fail, I'm going to fail.	2.09	1.16			.47	
18. I almost never expect things to turn out the way I wanted.	2.45	1.13			.45	

Table continues

Table 1

Table continued

Statement	M	SD	Factor			
			Self-efficacy	Hope	Optimism	Resilience
19. I am always optimistic about the future.	3.23	0.91				.60
20. I often hope that something good will happen to me.	3.31	0.68				.59
21. Overall, I expect more good than bad to happen to me.	3.09	0.75				.58
22. I like to try different paths to get to familiar places.	2.89	1.02				.50
23. I can usually make a favourable impression on others.	3.13	0.66				.48
24. I'm more curious about different things than most people.	3.12	0.79				.35

PSYCHOMETRIC PROPERTIES OF THE POLISH VERSION OF THE PSYCHOLOGICAL CAPITAL QUESTIONNAIRE (KKAPSY)

STUDY 1. INTERNAL STRUCTURE OF THE PSYCHOLOGICAL CAPITAL QUESTIONNAIRE (KKAPSY)

The goal of the first study was to verify the internal structure of the tool. For this purpose, an exploratory and confirmatory factor analysis was performed, and the starting point was the experimental version of the Psychological Capital Questionnaire (KKaPsy) with 24 items. All calculations were performed in IBM SPSS 25.0 and IBM SPSS AMOS 25.0.

PARTICIPANTS AND PROCEDURE

The first study involved 308 respondents aged 19 to 62 years ($M = 35.74$, $SD = 9.56$), among whom were 166 women and 142 men. All participants were professionally active and their overall work experience ranged from one to 42 years ($M = 13.50$, $SD = 9.15$). Most of the respondents had a university degree (62.3%). More than 35% of the respondents had secondary and basic vocational education. The survey was conducted online. A similar procedure was used by the authors of the PCQ-24 (Luthans et al., 2007a). The whole procedure was prepared according to the principles of the Declaration of Helsinki: the subjects were instructed to participate voluntarily, they were informed about the purpose and course of the study, and were assured that the results would be used for scientific purposes only. The respondents were provided with a link, which initially allowed them to read information about the entire study, then after giving their consent, they proceeded to complete a metric and the first version of the tool, consisting of 24 statements.

RESULTS

The exploratory factor analysis (EFA) began by checking whether the data were structured to allow for a factor model. The significance of Bartlett's test of sphericity ($\chi 2 = 5621.72$, $df = 666$, $p < .001$) and the K-M-O measure = 0.78 suggested that the sample selection was adequate for conducting the EFA analysis. Then the internal structure of the Psychological Capital Questionnaire (KKaPsy) was verified based on the principal components method with oblimin rotation and Kaiser normalization, due to the correlation of psychological capital components. The adopted four-factor model, based on Kaiser's criterion and the scatterplot test, explained a total of 44.2% of the variance. The authors of this paper began to test the fit of a 24-item model with 6 items on each scale. The verified model was not a good fit to the data (RMSEA = 0.12, GFI = 0.75, AGFI = 0.7). Considering the recommended minimum factor loading value and the model parameters' fit to the data, 12 statements with the highest factor loadings ranging from 0.53 to 0.72 entered the final version of the questionnaire (Table 2).

Confirmatory factor analysis (CFA) conducted for the final version of the KKaPsy questionnaire confirmed the best fit of the four-component model with

the total score that is recommended by Luthans et al. (2007a) for the study (Table 3 and Figure 1). The coefficients of RMSEA, GFI, AGFI were favourable and met the conditions of good model fit. RMSEA (0.075-0.076) did not exceed the acceptable criterion value (≤ 0.08). The AGFI and GFI measure exceeded the required value of 0.80 and reached 0.89 (AGFI) and 0.93 (GFI).

Table 2

Means, standard deviation, and factor loading for individual items included in the final version of the Psychological Capital Questionnaire (KKaPsy) (N = 308)

| Statement	M	SD	Factor			
			Self-efficacy	Hope	Optimism	Resilience
1. I am convinced that in unexpected situations I am able to cope successfully.	4.70	0.88	.72			
2. I can stay calm in difficult situations because I know I can rely on my ability to deal with them.	4.51	1.05	.72			
3. I usually know what to do in embarrassing situations.	4.56	0.92	.71			
4. I can consider many options for solving problems.	4.91	0.81		.74		
5. I eagerly implement my ideas.	4.65	1.08		.71		
6. I can consider many opportunities for achieving the goals which I care about the most.	4.79	0.93		.70		
7. I am generous to my friends.	4.92	0.97			.67	
8. I like to taste new dishes that I have not tried before.	4.76	1.27			.67	
9. People see me as an energetic person.	4.61	1.17			.64	
10. I am always optimistic about the future.	4.22	1.37				.63
11. I often hope that something good will happen to me.	4.36	1.16				.59
12. Overall, I expect more good than bad to happen to me.	4.37	1.23				.53

Table 3

Results obtained by the confirmatory factor analysis of the final version of the Psychological Capital Questionnaire (N = 308)

Model	χ^2	df	p	RMSEA	GFI	AGFI	CFI
Four-factor	130.60	48	< .001	.075	.93	.89	.90
Four-factor with overall result	139.42	50	< .001	.076	.93	.89	.89
Three-factor	37.41	24	.043	.153	.97	.95	.98
Three-factor with overall result	37.41	24	.041	.042	.97	.95	.98
Single-factor	342.48	54	< .001	.134	.83	.75	.67

Figure 1

Relationships between the parameters in the final version of Psychological Capital Questionnaire, standardized using the four-factor model with the overall result (N = 308)
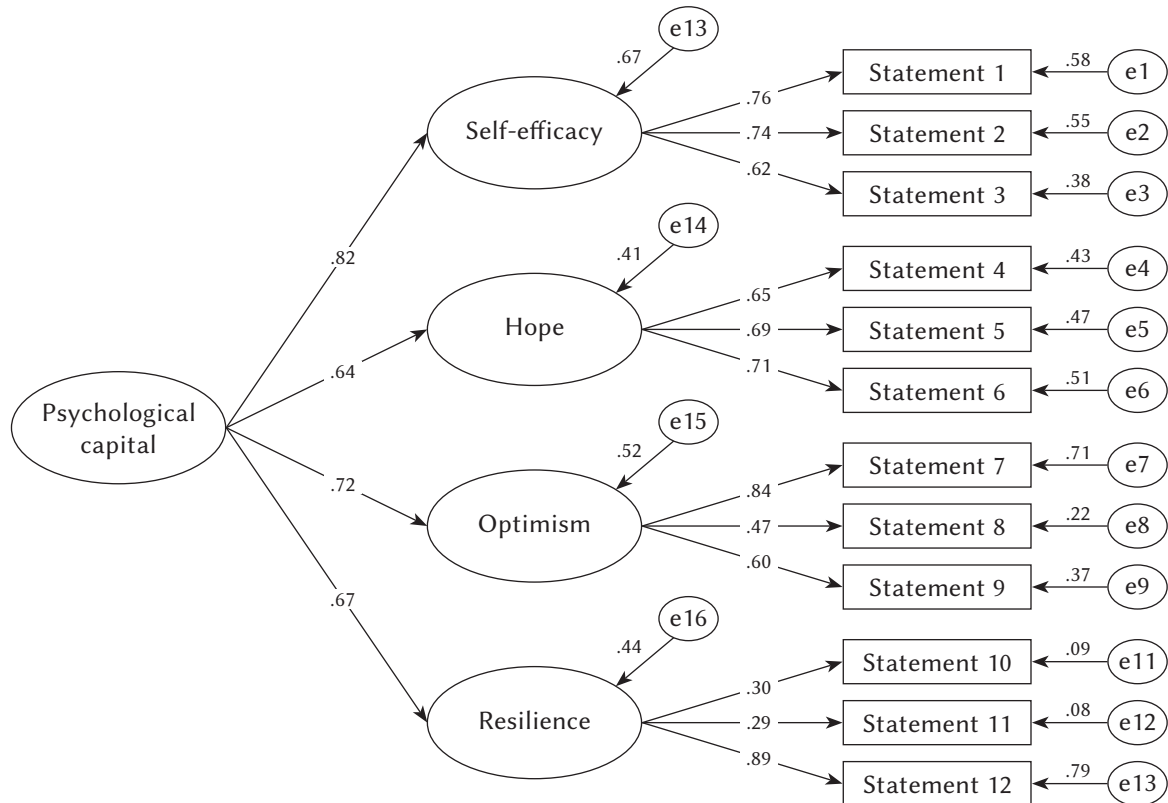
STUDY 2. RELIABILITY AND VALIDITY OF THE PSYCHOLOGICAL CAPITAL QUESTIONNAIRE (KKAPSY)

In the second study, it was decided to check the reliability and validity of the final version of the 12-item Psychological Capital Questionnaire (KKa-Psy). The reliability was verified using Cronbach's α coefficient and the test-retest method, while validity was tested with reference to construct validity, which shows the relationship of the KKaPsy tool with a variable derived from a given psychological theory. With reference to the validation study on the Compound PsyCap Scale (CPC-12) by Lorenz et al. (2016), it was assumed that the overall psychological capital score would positively correlate with positive affect, vigour, devotion, absorption, work engagement, and the personality dimensions from the Big Five model, and negatively with negative affect.

PARTICIPANTS AND PROCEDURE

The second sample group consisted of 206 subjects, including 111 women and 95 men aged 20 to 62 years

($M = 35.79$, $SD = 8.98$). All respondents were professionally active, and their overall work experience ranged from one to 45 years ($M = 14.15$, $SD = 9.41$). More than 47% of the respondents had completed higher education and 52% had completed secondary and vocational education. The above survey was conducted online in accordance with the principles of the Declaration of Helsinki. The respondents were provided with a link, which initially allowed them to read information about the entire study, then after giving their consent, they proceeded to complete a metric and a set of questionnaires (described below).

MEASURES

The Job Affect Scale (JAS) by Brief et al. (1988) in Polish adaptation by Zalewska (2002) was used to measure positive and negative affect at work. The scale consists of 20 adjectives, 10 of which describe positive affect and 10 negative affect. The subject's task is to rate on a 7-point scale how strongly he or she felt a given emotion at work during the past two weeks. The measurement of both types of affect has internal

Table 4

Test-retest results of the Psychological Capital Questionnaire (N = 206)

	Self-efficacy	Hope	Optimism	Resilience	Overall result
rtt	.91	.86	.85	.87	.92
p	< .001	< .001	< .001	< .001	< .001

consistency above the expected. Cronbach's α for positive affect was .84, for negative affect – .79.

The Utrecht Work Engagement Scale (UWES) by Schaufeli and Bakker (2003) in Polish adaptation by Szabowska-Walaszczyk et al. (2011) was used to examine work engagement. The questionnaire contains 17 items and 3 subscales. Both the vigour and absorption subscales consist of 6, and devotion is measured with 5 items. Cronbach's α for the whole questionnaire in the study was .91, which is comparable to the result obtained in the adaptation and indicates very high reliability. For the individual subscales, the results of reliability testing in the referenced study were as follows. For the vigour subscale Cronbach's α was .81, for the devotion subscale it was .88, and for the absorption subscale it was .79.

The Ten-Item Personality Inventory (TIPI) by Gosling et al. (2003) is a short assessment of the Big Five personality dimensions: (1) extraversion, (2) agreeableness, (3) conscientiousness, (4) emotional stability, and (5) openness to experience. TIPI-PL was adapted by Sorokowska et al. (2014). Items are rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The values of Cronbach's α coefficient are similar to the results obtained by the authors of the Polish adaptation of TIPI and range from .45 (openness to experience) to .73 (emotional stability).

The Psychological Capital Questionnaire (KKaPsy) by Lipińska-Grobelny and Zwardoń-Kuchciak enables one to measure the general PsyCap as well as its four components: self-efficacy, hope, optimism, resilience. The respondents are asked to state what he/she thought about himself/herself with reference to each of 12 items on a six-point scale, from 1 (*strongly disagree*) to 6 (*strongly agree*). The results, relating to the reliability and validity of KKaPsy, will be presented later in this article.

RESULTS

Data analysis was performed using IBM SPSS 25.0. The results obtained indicated that the tool had satisfactory internal consistency (Cronbach's α for PsyCap = .83; Cronbach's α for Self-efficacy = .85; Cronbach's α for Hope = .82; Cronbach's α for Optimism = .86; Cronbach's α for Resilience = .73). Regarding the stability of the KKaPsy measure, at the

first measurement point, 299 subjects (160 women and 139 men) participated in the study. After four weeks, the number of subjects decreased to 206 (111 women and 95 men). The correlation analysis between the results of the first and second tests confirmed high absolute stability coefficients (.85-.92) (Table 4).

The following variables were used to assess the construct validity: positive and negative affect, verified with the Job Affect Scale (JAS), and vigour, absorption, devotion and general work engagement, measured with the Utrecht Work Engagement Scale (UWES). Pearson's *r* correlation results yielded confirmation of the expected relationships. The overall psychological capital score, as its components, correlated positively with positive affect, vigour, devotion, absorption, work engagement, and negatively with negative affect. The correlation coefficients ranged from .18 to .56 (Table 5).

An additional criterion of construct validity was the results of correlations among the total psychological capital score and its components, and the personality dimensions from the Big Five model, namely extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience (TIPI-PL). The expectation of positive correlations of each scale was confirmed, with Pearson's *r* coefficients ranging from .18 to .64 (Table 6). In conclusion, the analysis of the construct validity of the Psychological Capital Questionnaire (KKaPsy) confirmed the assumptions made and thus allows KKaPsy to be considered as a valid instrument.

DISCUSSION AND CONCLUSION

The purpose of this research was to prepare and design a psychometric scale for measuring psychological capital, since there is no Polish tool for the general assessment of PsyCap. As a rule, the study is carried out including four questionnaires, which definitely prolongs the whole research process and may be subject to common method bias. Psychological capital plays an important role in the personal and professional sphere because it promotes a sense of happiness and psychological well-being (Li et al., 2015; Williams et al., 2015). It is associated with higher performance at work (Judge & Bono, 2001; Luthans et al., 2007a), high motivation and engagement

Table 5

Analysis of the construct validity of Psychological Capital Questionnaire based on correlation with the Job Affect Scale (JAS) and the Utrecht Work Engagement Scale (UWES) (N = 206)

	Positive affect (JAS)	Negative affect (JAS)	Vigour (UWES)	Absorption (UWES)	Devotion (UWES)	Work engagement (UWES)
r PsyCap	.51	−.26	.56	.35	.35	.47
p	< .001	< .001	< .001	< .001	< .001	< .001
r Self-efficacy	.24	−.03	.36	.18	.20	.28
p	< .001	.613	< .001	.008	.003	< .001
r Hope	.37	−.32	.49	.21	.32	.40
p	< .001	< .001	< .001	< .001	< .001	< .001
r Optimism	.38	−.22	−.40	.22	.25	.37
p	< .001	< .001	< .001	< .001	< .001	< .001
r Resilience	.52	−.23	−.42	.32	.28	.34
p	< .001	< .001	< .001	< .001	< .001	< .001

Table 6

Analysis of the construct validity of the Psychological Capital Questionnaire by correlation with the Polish version of the Ten Item Personality Inventory (N = 206)

	Extraversion	Agreeableness	Conscientiousness	Emotional stability	Openness to experience
r PsyCap	.61	.38	.25	.64	.28
p	< .001	< .001	< .001	< .001	< .001
r Self-efficacy	.33	.24	.21	.45	.18
p	< .001	< .001	.002	< .001	.007
r Hope	.36	.21	.25	.32	.25
p	< .001	.002	< .001	< .001	< .001
r Optimism	.53	.35	.29	.60	.18
p	< .001	< .001	< .001	< .001	.007
r Resilience	.53	.29	.18	.33	.26
p	< .001	< .001	.008	< .001	< .001

(Bakker & Xanthopoulou, 2013), a positive evaluation of one's chances and striving for success (Peterson et al., 2011). In addition, some reports indicate the effectiveness of intervention programmes of psychological capital development (Dello Russo & Stoykova, 2015; Luthans et al., 2006), demonstrating the applied nature of this construct, for example, in training, therapeutic or coaching practice.

The present results indicate that the Psychological Capital Questionnaire (KKaPsy) can be considered a reliable and valid tool for measuring the mentioned latent variable and its individual components in the form of self-efficacy, optimism, hope, and resilience. In addition to the pilot study with 304 participants, factor analysis, reliability and validity analysis were conducted in two samples (a total of 514 people were surveyed).

Exploratory and confirmatory factor analysis were used in the development of the final version of the 12-item tool. All statements achieved factor loadings well

above 0.4, and the model itself had a satisfactory fit to the data. Moreover, further analyses confirmed the internal consistency of both the total score and the individual scales, ranging from Cronbach's α = .73 (Resilience) to Cronbach's α = .86 (Optimism). This is in agreement with Dawkins et al. (2013) and Luthans et al. (2007a), who reported Cronbach's α values around .80. Although the internal consistency for the Resilience scale is slightly lower, it nevertheless exceeds the required value of 0.7. Moreover, the measurement with the Psychological Capital Questionnaire is characterized by high stability, the highest for the total score (rtt = .92). Regarding the hypotheses of the relationship between the PsyCap total score and the other constructs, all of them were confirmed, which provides further support for the construct validity of the instrument. The PsyCap positively correlated with positive affect, vigour, devotion, absorption and work engagement, while it negatively correlated with negative affect. Moreover, high psychological capital was found to co-vary with extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience.

Finally, some limitations of the present study and future research directions should be noted. First of all, most of the sample population had a higher education level and were female. This points to the need for further validation analyses in more demographically diverse groups. Second, the KKaPsy Questionnaire has all the limitations associated with the self-report method; despite this, its short, simple form facilitates analyses on the PsyCap construct. Third, longitudinal studies using the KKaPsy could provide a premise for evaluating the effects of this variable on human functioning in the personal and professional spheres.

In conclusion, our findings confirm the construct validity and reliability (internal consistency and stability) of the Psychological Capital Questionnaire (KKaPsy) for assessing overall PsyCap as well as its four components.

References

Antunes, A. C., Caetano, A., & Pina-Cunha, M. (2017). Reliability and construct validity of the Portuguese version of the Psychological Capital Questionnaire. *Psychological Reports, 120*, 520–536. https://doi.org/10.1177/0033294116686742

Avey, J. B., Luthans, F., & Mhatre, K. H. (2008). A call for longitudinal research in positive organizational behavior. *Journal of Organizational Behavior, 29*, 705–711. https://doi.org/10.1002/job.517

Azanza, G., Domínguez, A. J., Moriano, J. A., & Molero, F. J. (2014). Capital psicológico positivo: Validación del cuestionario PCQ en España [Positive psychological capital: Validation of the PCQ questionnaire in Spain]. *Anales de Psicología, 30*, 294–301. https://doi.org/10.6018/analesps.30.1.153631

Bakker, A. B., & Xanthopoulou, D. (2013). Creativity and charisma among female leaders: The role of resources and work engagement. *International Journal of Human Resource Management, 24*, 2760–2779. https://doi.org/10.1080/09585192.2012.751438

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (2007). *Teoria społecznego uczenia się* [The theory of social learning]. PWN.

Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behaviour. In W. A. Collins (Ed.), *Development of cognition, affect and social relations: The Minnesota symposia on child psychology* (Vol. 13, pp. 39–101). Erlbaum.

Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology, 70*, 349–361. https://doi.org/10.1037/0022-3514.70.2.349

Brief, A. P., Burke, M. J., George, J. M., Robinson, B. S., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology, 73*, 193–198. https://doi.org/10.1037/0021-9010.73.2.193

Chen, H. (2013). *The relationship between psychological capital and proactive career behaviour of Chinese white collar workers in their early career.* Retrieved from http://hrmstudy.com/wpcontent/uploads/2015/02/Chen2013.pdf

Chirkowska-Smolak, T. (2012). Psychologiczny model zaangażowania w pracę [A psychological model of work engagement]. Wydawnictwo Naukowe UAM.

Czapiński, J. (1985). *Wartościowanie – zjawisko inklinacji pozytywnej (o naturze optymizmu)* [Valuing – the phenomenon of positive inclination (of the nature of optimism)]. Ossolineum.

Dawkins, S., Martin, S., Scott, J., & Sanderson, K. (2013). Building on the positives: a psychometric review and critical analysis of the construct of psychological capital. *Journal of Occupational and Organizational Psychology, 86*, 348–370. https://doi.org/10.1111/joop.12007

Dello Russo, S., & Stoykova, P. (2015). Psychological capital intervention (PCI): a replication and extension. *Human Resources Development Quarterly, 26*, 329–347. https://doi.org/10.1002/hrdq.21212

Du Plessis, Y., & Barkhuizen, N. (2012). Psychological capital, a requisite for organizational performance in South Africa. *South African Journal of Economic and Management Sciences, 15*, 16–30. https://doi.org/10.4102/ sajemsv15i1.122

Fredrickson, B. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory

of positive emotions. *American Psychologist, 56*, 218–226. https://doi.org/10.1037//0003-066x.56.3.218

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*, 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1

Görgens-Ekermans, G., & Herbert, M. (2013). Psychological capital: Internal and external validity of the Psychological Capital Questionnaire (PCQ-24) on a South African sample. *South African Journal of Industrial Psychology, 39*, 1131. https://doi.org/10.4102/sajip.v39i2.1131

Harms, P. D., & Luthans, F. (2012). Measuring implicit psychological constructs in organizational behaviour: an example using psychological capital, *Journal of Organizational Behaviour, 33*, 589–594. https://doi.org/10.1002/job.1785

Juczyński, Z. (1999). *Narzędzia pomiaru w promocji i psychologii zdrowia* [Measurement tools in health promotion and psychology]. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control and emotional stability – with job satisfaction and job performance: a meta-analysis. *Journal of Applied Psychology, 86*, 80–92. https://doi.org/10.1037/0021-9010.86.1.80

Kaczmarek, Ł. (2011). Kwestionariusz Sprężystości Psychicznej – polska adaptacja Ego Resiliency Scale [Psychological Resilience Questionnaire – Polish adaptation of Ego Resiliency Scale]. *Czasopismo Psychologiczne, 17*, 263–265.

Li, X., Kan, D., Liu, L., Shi, M., Wang, Y., Yang, X., Wang, J., Wang, L., & Wu, H. (2015). The mediating role of psychological capital on the association between occupational stress and job burnout among bank employees in China. *International Journal of Environmental Research and Public Health*, 12, 2984–3001. https://doi.org/10.3390/ijerph120302984

Luthans, F. (2002a). Positive organizational behaviour: Developing and managing psychological strengths. *Academy of Management Executive, 16*, 57–75. https://doi.org/10.5465/AME.2002.6640181

Luthans, F. (2002b). The need for and meaning of positive organizational behaviour. *Journal of Organizational Behaviour, 23*, 695–706. https://doi.org/10.1002/job.165

Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behaviour, 27*, 387–393. https://doi.org/10.1002/job.373

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007a). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology, 60*, 541–572. https://doi.org/10.1111/j.1744-6570.2007.00083.x

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007b). *Psychological capital: Developing the human competitive edge*. Oxford University Press.

Luthans, F., Youssef, C. M., & Rawski, S. L. (2011). A tale of two paradigms: The impact of psychological capital and reinforcing feedback on problem solving and innovation. *Journal of Organizational Behaviour Management, 31*, 333–350. https://doi.org/10.1080/01608061.2011.619421

Luthans, F., & Youssef-Morgan, C. M. (2017). Psychological capital: an evidence-based positive approach. *Annual Review of Organizational Psychology and Organizational Behaviour, 4*, 339–366. https://doi.org/10.1146/annurev-orgpsych-032516-113324

Lorenz, T., Beer, K., Putz, J., & Heinitz, K. (2016). Measuring psychological capital: Construction and validation of the Compound PsyCap Scale (CPC-12). *PLoS One, 11*, e0152892. https://doi.org/10.1371/journal.pone.0152892

Łaguna, M., Oleś, P., & Filipiuk, D. (2011). Orientacja pozytywna i jej pomiar: Polska adaptacja skali orientacji pozytywnej [Positive orientation and its measure: Polish adaptation of the Positivity Scale]. *Studia Psychologiczne, 49*, 47–54.

Łaguna, M., Trzebiński, J., & Zięba, M. (2005). *Kwestionariusz nadziei na sukces. Podręcznik* [The Hope for Success Questionnaire. Manual]. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 83*, 835–852. https://doi.org/10.1037/0021-9010.83.6.835

Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., & Zhang, Z. (2011). Psychological capital and employee performance: a latent growth modelling approach. *Personnel Psychology, 64*, 427–450. https://doi.org/10.1111/j.1744-6570.2011.01215.x

Poprawa, R. (1996). Zasoby osobiste w radzeniu sobie ze stresem [Personal resources in coping with stress]. In G. Dolińska-Zygmunt (Ed.), *Elementy psychologii zdrowia* [Elements of health psychology] (pp. 103–141). Wydawnictwo Uniwersytetu Wrocławskiego.

Qingshan, H., Le, L., & Xuansheng, C. (2014). Research of employees' psychological capital structure under the background of Chinese culture. *International Business Research, 7*, 175–182. https://doi.org/10.5539/ibr.v7n7p175

Rego, A., Marques, C., Leal, S., Sousa F., & Pina-Cunha, M. (2010). Psychological capital and performance of Portuguese civil servants: Exploring neutralizers in the context of an appraisal system. *The International Journal of Human Resource Management, 21*, 1531–1552. https://doi.org/10.1080/09585192.2010.488459

Rus, C. L., Baban, A., Jesus, S. N., & Andrei, D. (2012). An analysis of the psychometric properties of the Psychological Capital Questionnaire-12. *Journal of Educational Sciences and Psychology, 1*, 110–122.

Schaufeli, W., & Bakker, A. (2003). *UWES – Utrecht Work Engagement Scale. Preliminary manual.* Occupational Health Psychology Unit, Utrecht University.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology, 4*, 219–247. https://doi.org/10.1037/0278-6133.4.3.219

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a re-evaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*, 1063–1078. https://doi.org/10.1037/0022-3514.67.6.1063

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy Scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: a user's portfolio. Causal and control beliefs* (pp. 35–37). NFER-Nelson.

Seligman, M. (2005). *Prawdziwe szczęście* [The authentic happiness]. Media Rodzina.

Singh, A., & Singh, A. (2018). Role of psychological capital in the mental health of women teachers. *Journal of Critical Reviews, 5*, 14–22.

Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry, 13*, 249–275. https://doi.org/10.1207/S15327965PLI1304_01

Snyder, C. R., Sympson, S. C., Ybasco, F. C., Borders, T. F., Babyak, M. A., & Higgins, R. L. (1996). Development and validation of the State Hope Scale. *Journal of Personality and Social Psychology, 70*, 321–335. https://doi.org/10.1037/0022-3514.70.2.321

Sorokowska, A., Słowińska, A., Zbieg, A., Sorokowski, P. (2014). *Polska adaptacja testu Ten Item Personality Inventory (TIPI) – TIPI-PL* [Polish adaptation of the Ten Item Personality Inventory (TIPI) – TIPI-PL]. WrocLab.

Stajković, A. D. (2006). Development of a core confidence-higher order construct. *Journal of Applied Psychology, 91*, 1208–1224. https://doi.org/10.1037/0021-9010.91.6.1208

Szabowska-Walaszczyk, A., Zawadzka, A. M., & Wojtaś, M. (2011). Zaangażowanie w pracy i jego korelaty: adaptacja skali UWES autorstwa Schaufeliego i Bakkera [Work engagement and its correlates: an adaptation of the UWES scale by Schaufeli and Bakker]. *Psychologia Jakości Życia, 10*, 57–74.

Tashima Cid, D., do Carmo Fernandes Martins, M., Dias, M., & Fermiano Fidelis, A. C. (2020). Psychological Capital Questionnaire (PCQ-24): Preliminary evidence of psychometric validity of the Brazilian version. *Psico-USF, 25*, 63–74. https://doi.org/10.1590/1413-82712020250106

Wagnild, G., & Young, H. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Management, 1*, 165–178.

Williams, P., Kern, M. L., & Waters, L. (2015). A longitudinal examination of the association between psychological capital, perception of organizational virtues and work happiness in school staff. *Psychology of Well-Being, 5*, 5. https://doi.org/10.1186/s13612-015-0032-0

Zalewska, A. (2002). Skala afektu w pracy – wstępne wyniki prac nad adaptacją techniki [The Job Affect Scale – preliminary results of work on adaptation of the technique]. *Studia Psychologiczne, 40*, 173–192.