

The Psychometric Properties of the Hungarian Version of the Proactive Coping Inventory: Reliability, Construct Validity and Factor Structure

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ABSTRACT

The purpose of the study was to adapt the Proactive Coping Inventory to a Hungarian language context, and to evaluate its psychometric properties. The psychometric characteristics of the Hungarian version of the Proactive Coping Inventory (PCI-H) were examined, based on the data of 452 individuals (mean age= 25.84). Self-report questionnaires were filled out: Proactive Coping Inventory and the short version of the Beck Depression Inventory. In this paper we will present results referring to the reliability of the PCI-H subscales (Cronbach's alpha= .71 to .86), the construct validity of the inventory and the item analysis. We will also present the results of the Confirmatory Factor Analysis (CFA), which was conducted to test the fit of the original theoretically derived seven-factor structure of the PCI-H. The result of the factor analysis identified seven scales of the inventory ($\chi^2/df= 1.870$; CFI= .855; TLI=.845 RMSEA=.045; SRMR=.0678). Overall, the results of this validation study are highly promising. The subscales of the PCI have good reliability and construct validity, moreover the results of the CFA verify that the seven-factor model represents the original factor structure of PCI in an appropriate way.

Key words: Coping, Proactive Coping Inventory, Reliability, Confirmatory Factor Analysis.

Novelty and Significance

What is already known about the topic?

Despite the fact that proactivity, proactive behaviour and proactive personality are nowadays all very fashionable and frequently used expressions, they are largely understudied.

In Hungarian there has to date been no instrument to measure proactivity.

The original instrument, Proactive Coping Inventory shows high internal consistency and overall it has good validity. The instrument has already been translated into several languages.

What this paper adds?

We aim to adapt the Proactive Coping Inventory to a Hungarian language context, and to evaluate its psychometric properties.

Our results are highly promising.

The Hungarian version of the Proactive Coping Inventory offers opportunities and new research directions in clinical, health and social psychology in Hungary allowing the Hungarian research to cooperate with the international investigations.

Research conducted over the past few decades in the field of health psychology has mainly concentrated on coping. The concept of coping has become one of its central issues and also increasingly complex. Research questions have been composed with a

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variety of conceptual frameworks: several classifications of coping dimensions were used in the studies (Schwarzer & Schwarzer, 1996). The aim of our work has been to introduce a new coping approach and a new self-report inventory in Hungary.

As a consequence of the fact that the positive psychological approach is becoming increasingly widespread, as well as gaining recognition, researchers have paid significant attention to the study of an individual's strength and this new research focus has also manifested in the development of coping concepts (Lopez, Snyder & Rasmussen, 2003). At this point we must make a distinction between traditional coping models (e.g. Folkman & Lazarus, 1980, 1985) and proactive coping. Studies highlighting the positive aspects and characteristics of coping use the proactive coping concept to deal with positive, future-oriented coping (Schwarzer, 2000).

Research concentrating on the traditional concept of coping focuses on examining the strategies which reduce stress levels related to ongoing present or past events (Greenglass, 2002). Therefore these studies emphasise the process of how people cope with problems and stressful situations in their life. In this case the basic assumption is that the individual has to face several stressful situations and has to deal with risks and various consequences. As the stressful situation has already occurred, this can be considered reactive coping (Schwarzer & Taubert, 2002) in the sense that the person tries to alleviate the possible negative effects of this stressful event (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, Taubert, 1999; Greenglass, 2002). To sum up, traditional coping models, which have been assessed most frequently in coping research, highlight the reactive nature of coping, leaving out of consideration the future perspectives or prevention (the avoidance of negative events, harm or loss) (Abraham, Conner, Jones & O'Connor, 2008). This seems to be one of the most significant distinctions between the traditional and proactive coping conceptions.

Folkman and Moskowitz suggested that coping approaches in research must pay attention to the positive facet of coping, not only to the strategies which are considered to be reactions to a stressful situation (Folkman & Moskowitz, 2000). Introducing positive affect and positive emotions in the coping concept can contribute to an identification of new research questions. Folkman and Moskowitz (2004) highlighted that moving the focus to the future (coping with potential stressors in advance) could be one of the most important improvements in coping models.

In contrast to traditional coping, proactive coping is considered to be more future-oriented because the individual seems to have a vision of the future. The future holds opportunities, risks and demands, but these do not prove to be threatening; instead these difficulties can be regarded as challenges (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, Taubert, 1999; Greenglass, 2002). Proactive coping can be considered as goal management and traditional coping as risk management (Greenglass, 2002; Schwarzer & Knoll, 2009). Coping proactively is more active than coping with problems in a traditional way. The individual attempts to build up general resources, and the process of coping with these challenging and difficult situations in the distant future ensures personal growth by achieving goals. Now it seems obvious that proactive coping is not only more active but its motivational base is also more positive than it has been considered in the case of traditional coping concepts (Greenglass, 2002).

According to Schwarzer's (2000, 2001) Proactive Coping Theory, multiple types of coping can be distinguished, based on the time perspective of the demands and the subjective certainty of the occurrence of the event. In contrast to frameworks which emphasize the reactive nature of coping, the introduction of a time perspective might contribute to achieving balance in coping theories (Schwarzer & Luszczynska, 2008). He distinguished the following four types of coping: Reactive Coping, Anticipatory Coping, Preventive Coping and Proactive Coping (Schwarzer & Knoll, 2003, Schwarzer, 2001). In reactive coping the time perspective is the past or the present. The stressful situation has already occurred, so the person reacts to the critical event and simply alleviates harmful negative consequences and compensates for the loss. Accepting the situation is also a possible reaction (Schwarzer & Knoll, 2003, 2009; Schwarzer, 2001). Another type of coping strategy is anticipatory coping. The main difference between reactive coping and anticipatory coping is in the time perspective. In the case of anticipatory coping the stressful event has not yet happened, but the likelihood of its occurrence is very high. The critical event will happen in the near future (Schwarzer & Knoll, 2003, 2009; Schwarzer, 2001). In the case of preventive coping the individual prepares for the critical event by building up general resistance against non-normative life events: job loss, illness or disaster, which may or may not occur in the future (Schwarzer & Knoll, 2003, Schwarzer, 2001).

Proactive Coping. How can a proactive individual be described? Using proactive coping means that the person is goal-oriented, strives to achieve goals in the future and makes efforts to build up general resources, and in this way makes preparations for coping with future challenges effectively. A proactive individual identifies and utilizes social resources towards achieving a life goal. Informational and emotional resources are equally important in behaving proactively (Schwarzer & Knoll, 2003, 2009; Greenglass, 2002). Proactive and preventive coping are mainly manifested in the same behaviours. The only difference is the appraisal of the situation: there is a distinction between threat appraisal (preventive coping) and challenge appraisal (proactive coping). In proactive coping the individual is motivated to meet challenges (Schwarzer & Taubert, 2002; Schwarzer & Luszczynska, 2008; Schwarzer & Knoll, 2009). The results of research conducted using the proactive coping framework suggest that the relationship between vitality and proactive coping is also positive. When the individual appraises difficulties as challenges this can improve vitality (Greenglass, 2006). Research also suggests that life satisfaction, lower depression levels, optimism and well-being are highly associated with using proactive coping strategies (Uskul & Greenglass, 2005). PCI used in the work psychology field revealed a negative relationship between proactive coping and burnout (and anger) and a positive relation with professional efficacy (Greenglass, 2002).

It also should be noted that the term proactive coping has been conceptualised in two distinct ways. Aspinwall & Taylor (1997) presented another conceptualization of proactive coping: their concept of proactive coping also involves the recognition of the upcoming stressor, goal setting and planning (Brannon & Feist, 2010). The framework that we use as the basis for this paper labels the proactive coping term used by Aspinwall and Taylor as preventive coping because in their terms proactive coping is a strategy that involves preparation for future stressors (Aspinwall, 1997; Aspinwall

& Taylor, 1997); however, these stressors are not viewed as challenges, the upcoming stressor is considered to be threatening. These are two similar, yet distinct, constructions (Schwarzer and Taubert, 2002). Proactive coping has emerged as a new conception and research orientation in positive psychology.

Despite the fact that proactivity, proactive behaviour and proactive personality are nowadays all very fashionable and frequently used expressions, they are largely understudied. In Hungarian there has to date been no instrument to measure proactivity. Using the proactive coping concept and adapting the Proactive Coping Inventory to the Hungarian context can contribute to the development of a positive approach to coping in research.

The Proactive Coping Inventory (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, & Taubert, 1999) was compiled to assess more positive dimensions of coping than assessed by other traditional coping scales. Theoretically, this measurement is based on Ralph Schwarzer's Proactive Coping Theory described earlier. The multidimensional coping inventory consists of seven subscales: the Proactive Coping Scale, the Preventive Coping Scale, the Reflective Coping Scale, the Strategic Planning Scale, the Instrumental Support Seeking Scale, the Emotional Support Seeking Scale and the Avoidance Coping Scale. These subscales measure different dimensions of the proactive coping approach. Greenglass (2002) reported good psychometric properties of the instrument, including acceptable internal consistency and validity.

METHOD

Participants

The Hungarian version of the PCI was applied to a sample of 452 College and University students. The sample consists of 87 males and 357 females, and 8 respondents did not indicate their gender. The age of the participants ranged from 18 to 57 years; the average age was 25.84 years. The main characteristics of the respondents (age; sex; time spent in education) are given in Table 1.

Table 1. The main characteristics of the respondents ($N=452$).

Participants	Male <i>n</i> (%)	87 (19.2)		
	Female	357 (79)		
	Not answer	8 (1.8)		
		Male	Female	Not answer
Age	Mean (M)	25.84	29.45	24.96
	Standard Deviation (<i>SD</i>)	8.972	10.404	8.368
	Minimum	18	18	18
	Maximum	57	57	57
	Did not answer	9	-	1
Time spent in education (years)	Mean (M)	15.61	17.48	15.16
	Standard Deviation (<i>SD</i>)	3.107	3.902	2.711
	Minimum	12	13	12
	Maximum	34	34	28
	Did not answer	19		12

Measures

All subjects were given a test-battery, including self-report questionnaires. The test-battery was divided into three main parts. In the first part a demographic questionnaire was filled out with the participants that measured age, sex, time spent in education, the highest level of education completed, marital status, and the highest level of education completed by the subject's parents.

The second questionnaire was the *Proactive Coping Inventory* (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, & Taubert, 1999), a 55 item self-reporting instrument. The instrument has already been translated into several languages (translations are available at <http://www.psych.yorku.ca/greenglass/translations.php>).

Respondents indicate their answers on a 4-point scale: 1 means that the statement is not at all true while 4 indicates that the statement is completely true. There are no cut-off points; higher scores imply a great deal of positive and active skill in coping. It takes approximately 10-15 minutes to fill out the questionnaire.

The original instrument shows high internal consistency and overall the PCI had good validity. (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, & Taubert, 1999).

Subjects also completed an additional scale, which measured depression: the Beck Depression Inventory-short version (BDI-S) (Kopp & Fóris, 1993). The Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Steer, & Garbin, 1988) is one of the most widely used questionnaires to measure depression. The short, 9 items version of the BDI was used to assess depression symptoms. This scale (including 9 statements) was developed from the original 21 items scale by Hungarian psychologists (Kopp & Fóris, 1993). Respondents indicate their answers on a 4-point scale. The instrument is not appropriate to make diagnosis; it is however, appropriate to indicate the severity levels of depression.

Translation process

In the first stage, the 55 items of the PCI were translated independently into Hungarian by three translators. In the second stage, the three versions were compared to each other and to the original scale. The three translators identified differences and similarities in the translations and then they formed the first version of the PCI-H. The following stage was the back-translation process, in which the translator was not familiar with the original instrument. In the last stage the equivalence of the two versions was assessed by the author of the instrument and some recommended modifications to the final Hungarian version were made.

RESULTS

In order to assess the structural validity of the PCI-H, Confirmatory Factor Analysis (CFA) was performed using Maximum Likelihood Estimation, because variables were normally distributed ($Z = 915$, $p = .372$). To evaluate the model fit, we used the χ^2 per

degree of freedom (χ^2/df), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Residual (SRMR) (Schreiber, Stage, King, Nora, & Barlow, 2006).

Given the fact that we were not completely satisfied with all the indices, we did not accept the first model. Despite the fact that RMSEA and SRMR showed a good model fit (RMSEA= .054 and SRMR= .072), an adjusted model was calculated. The adjusted model took into account co-variances between error terms associated with a modification index above 10. These modifications made the fit indices reach the minimum acceptable values; thus two more indices marginally met the cut-off criteria for appropriate levels. With these modifications we accepted the original seven-scale model of the PCI-H with 55 items and 7 subscales.

The results of the second CFA were as follows: $\chi^2/df= 1.870$; CFI= .855; TLI= .845 RMSEA= .045; SRMR= .0678. All met the recommended criteria standards and indicated a good fit between the previously proposed model and our data (Hu & Bentler, 1999; Hair, Black, Babin, Anderson & Tatham, 2006)

The factor loadings varied between .300 and .588 in Factor 1 (Proactive Coping Scale), between .338 and .746 in Factor 2 (Reflective Coping Scale), between .538 and .778 in Factor 3 (Preventive Coping Scale), between .266 and .750 in Factor 4 (Strategic Planning Scale), between .509 and .735 in Factor 5 (Instrumental Support Seeking Scale) between .354 and .666 in Factor 6 (Emotional Support Seeking Scale) and between .527 and .891 in Factor 7 (Avoidance Coping Scale).

The Cronbach's alpha internal consistency indicator was used to assess the reliability of the PCI-H scales. The internal consistency of PCI-H subscales represented by Cronbach's alpha coefficients are shown in Table 2.

The reliability of PCI subscales proved to be extremely good. Reliability indices ranged from .71 (Strategic Planning Scale) to .86 (Instrumental Support Seeking Scale). The values of Cronbach's Alpha were above the recommended .70, and were thus considered acceptable.

The detailed results of the subscales were as follows. The Proactive Coping Scale with 14 items had high internal consistency (.82) as seen in the reliability measures. In addition, the scale also shows good item total correlations. One item ("When I apply for a position, I image myself filling it") had relatively low item total correlation (.194). However, the exclusion of this item did not improve the internal consistency. Item total correlations ranged from .194 to .563.

Table 2. Cronbach's Alphas of the PCI-H subscales.

PCI subscales	Canadian Sample (α)	Hungarian Sample (α)	Items of the Subscales (n)
1. Proactive Coping Scale	.85	.82	14
2. Reflective Coping Scale	.79	.85	11
3. Strategic Planning Scale	.83	.71	4
4. Preventive Coping Scale	.71	.80	10
5. Instrumental Support Seeking Scale	.85	.86	8
6. Emotional Support Seeking Scale	.73	.78	5
7. Avoidance Coping Scale	.61	.73	3

The Reflective Coping Scale consisting of 11 items showed excellent internal consistency (.85) with good item total correlations ranging from .304 to .662.

The 4 items Strategic Planning Scale had acceptable internal consistency (.71) and good item total correlations. The item total correlations of the scale ranged from .444 to .556. The Preventive Coping Scale with 10 items had high reliability with .80 Cronbach's Alpha Coefficient. The item total correlations ranged from .340 to .582.

The Instrumental Support Seeking Scale containing 8 items had very good reliability (.86) and excellent item total correlations: .489 to .717.

The Emotional Support Seeking Scale consists of 5 items and was characterised by a good internal consistency (.78) and very good item total correlations ranging from .525 to .625.

The Avoidance Coping Scale with 3 items has acceptable internal consistency (.73) with good item total correlations that ranged from .438 to .680.

The concept of coping suggests relationships between PCI-H subscales. Since proactive coping can be described as one's ability to collect and select information, identify resources, plan for future actions and construct the courses of these actions, preventive coping and strategic planning should correlate positively with proactive coping (Greenglass, 2002). We examined these relationships using Pearson's Correlation. As was hypothesized, the Proactive Coping Scale positively correlated with other subscales: the Reflective Coping Scale ($r = .495, p < .001$); the Strategic Planning Scale ($r = .268, p < .001$), the Preventive Coping Scale ($r = .321, p < .001$) and the Emotional Support Seeking Scale ($r = .147, p = .002$). As expected, the Proactive Coping Scale negatively correlated with the Avoidance Coping Scale ($r = -.132, p = .005$). This supports the idea that using proactive coping means coping actively and not in a passive way, unlike the process involved in avoiding problem solving.

The two subscales which focus on support seeking moderately correlated with each other ($r = .560, p < .001$)

The Reflective Coping Scale showed moderate correlations with the Strategic Planning Scale ($r = .549, p < .001$) and the Preventive Coping Scale ($r = .593, p < .001$). The Strategic Planning Scale also had a moderate correlation with the Preventive Coping Scale ($r = .560, p < .001$)

The interrelationships among the PCI-H subscales are similar to the patterns that have resulted on the original instrument (Greenglass, 2002). The descriptive statistics of the PCI-H Subscales are presented in Table 3. The mean and the standard deviation of the whole sample were assessed for each scale.

The results of the statistical analysis (Independent Samples *t*-test) show statistically significant differences between males and females in the case of six subscales: women were more likely to use instrumental and emotional support seeking than men ($t(442) = -2.452, p = .015$; $t(442) = -4.342, p < .001$). On four scales (Reflective Coping: $t(442) = 2.736, p = .006$; Strategic Planning: $t(442) = 2.571, p = .010$; Preventive Coping: $t(442) = 2.451, p = .015$; Avoidance Coping: $t(442) = 2.429, p = .016$) men scored higher than women.

In order to examine the construct validity of the PCI-H subscales, each of the scales was correlated (using Pearson's correlation) with the depression scores of the BDI-S.

Table 3. Examination of the main characteristics and the gender differences on PCI-H subscales.

PCI subscales	Whole sample (<i>n</i> = 452)		Female (<i>n</i> = 357)		Male (<i>n</i> = 87)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. Proactive Coping Scale	3.063	.428	3.058	.429	3.081	.438
2. Reflective Coping Scale	3.019	.482	2.986	.490	3.043	.434
3. Strategic Planning Scale	2.601	.630	2.565	.633	2.755	.562
4. Preventive Coping Scale	2.879	.489	2.849	.488	2.992	.473
5. Instrumental Support Seeking Scale	3.040	.569	3.071	.567	2.905	.556
6. Emotional Support Seeking Scale	3.090	.621	3.151	.602	2.834	.641
7. Avoidance Coping Scale	2.429	.783	2.386	.786	2.613	.752

As expected, negative correlations were observed between many subscales: between depression and proactive (moderate correlation, $r = -.439$, $p < .001$), reflective coping ($r = -.175$, $p < .001$), strategic planning and emotional support seeking, with low correlation coefficients. Positive correlation between avoidance coping and depression ($r = .228$, $p < .001$) was theoretically expected. Results are given in Table 4.

Table 4. Relations between PCI-H subscales and depression.

PCI subscales	BDI
1. Proactive Coping Scale	-.439**
2. Reflective Coping Scale	-.175**
3. Strategic Planning Scale	-.098*
4. Preventive Coping Scale	-.035
5. Instrumental Support Seeking Scale	-.070
6. Emotional Support Seeking Scale	-.163**
7. Avoidance Coping Scale	.228**

Notes: *correlation is significant at the .05 level (2 tailed);
**correlation is significant at the .01 level (2 tailed).

DISCUSSION

The introduction of the positive psychological framework in coping research could contribute to a better understanding of human coping mechanisms. Measuring not only reactive coping mechanisms but also proactive coping creates a new approach in the field of coping research. Although the concept of proactivity is becoming more and more popular, to date there has been no validated instrument in Hungary to assess proactive coping.

The purpose of the present study was to perform the adaptation and validation of the Hungarian version of the PCI. Overall, the results of this validation study are very promising. Our findings suggest that the PCI-H is a reliable instrument to measure coping from a positive psychological viewpoint.

The PCI-H shows acceptable internal and external consistency and the results of the CFA verify that the seven-factor model appropriately represents the original factor structure of PCI. According to the results the instrument is applicable and offers

opportunities and new research directions in clinical, health and social psychological research (e.g. in the field of work and organizational psychology).

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