

## Testing the Uni-dimensionality of Proactive and Preventive Coping

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### ABSTRACT

Proactive coping and preventive coping are oriented on certain future rewards and challenges that are not appraised as threats. The objective of the study is to answer the question whether the coping scales are both uni-dimensional constructs as measured by the Proactive Coping Inventory. The underlying factor structure was empirically assessed using exploratory factor analysis in university students enrolled in a traditional face-to-face course delivery format in a medium-sized public university in the Czech Republic. Moreover, item analysis and correlations with other personality variables were carried out. The present study opens discussion about construct validity that has not been tested in the presented educational environment.

*Key words:* proactive coping, preventive coping, Proactive Coping Inventory, factor analysis.

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### *Novelty and Significance*

*What is already known about the topic?*

- The distinctness of proactive and preventive coping has been questioned.
- Proactive coping and preventive coping are broadly researched concepts in the American context but have not been sufficiently investigated in other cultural environments.
- Proactive coping is positively correlated with preventive coping, social support and well-being and negatively correlated with depression.

*What this paper adds?*

- Proactive coping and preventive coping are internally consistent uni-dimensional constructs in a female predominate Czech sample of full-time university students in helping professions.
- Validity of the distinct constructs of proactive and preventive coping may not be supported empirically in heterogeneous samples.
- Assessing proactive and preventive coping as measured by the Proactive Coping Inventory suggests refinements of the scales.

Within the forward-looking coping strategies that integrate processes of personal quality of life management with those of self-regulatory goal achievement, proactive coping differs from traditional conceptions of coping. Proactive copers see risks, and opportunities in the future, but they do not perceive them as negative threats. Instead, they perceive the stressful experiences with more positive motivation than in the traditional view of coping. Schwarzer and Taubert (2002) define proactive coping as the individuals' efforts to build up general resources to achieve challenging goals and personal growth without sense of potential threat, or assessment of harm.

Preventive coping, is defined as an effort involving resources to reduce the severity of negative outcomes (Reuter & Schwarzer, 2009). In preventive coping, individuals face the risk of a negative event that may or may not occur in the distant future (such as job loss, disaster, or poverty). Since all kinds of stressful situations could become a reality, the individual builds up general resistance resources by accumulating wealth,

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purchasing insurance, developing social bonds, and fine-tuning life skills. What unites both concepts of proactive coping and preventive coping in the general sense is that they are both future-directed; often referred to as a single concept, called “future-oriented coping” (Gan, Yang, Zhou, & Zhang, 2007).

Both constructs, proactive coping and preventive coping, are broadly researched concepts, especially in Western culture. Besides examining achieved overall level and the differences in population, researchers have analyzed its factor structure. While some studies have confirmed the uni-dimensional nature of the constructs (Gan, Yang, Zhou, & Zhang, 2007; Greenglass, Schwarzer, & Taubert, 1999; Roesch, Aldridge, Huff, Langner, Villodas, & Bradshaw, 2009), others have not (López & Cunha, 2008). The results seem to be inconsistent across measurements and other coping/personality variables used. Despite the fact that the same tool measuring proactive and preventive coping was used, the number and nature of items vary across national versions of the instrument.

These discrepancies may also influence the methodological approaches chosen by the researchers handling analysis, as mentioned by Drummond and Brough (2016). The Exploratory Factor Analyses (EFAs) have been widely performed with proactive and preventive items, followed by Confirmatory Factor Analyses (CFAs) with item parceling (Sohl & Moyer, 2009) or, conversely, researchers conducted EFAs using proactive and preventive coping scaled scores rather than items (Moring, Fuhrman, & Zauszniewski, 2011). Testing the assumption of an a priori relationship pattern using CFA without exploratory analysis is also common (Almássy, Pék, & Papp, 2014) as well as usage of the various combinations of the EFA methods to decide how many factors were appropriate to retain for rotation. Likewise, an oblique rotated pattern matrix and orthogonal rotation methods were frequently employed. Similarly, the sample size and differences may account for differences in dimensionality. Recently, the most commonly researched samples consist of university students with a mean age of approximately 20 years (Gan et alii, 2007; Roesch et alii, 2009; Sohl & Moyer, 2009; Vaculíková, 2016), and the average range of a sample size is approximately 200-300 respondents.

Based on the mentioned mixed results of the distinct uni-dimensional structure of the proactive and preventive coping, the hypothesis testing proactive and preventive coping construct validity as measured by the PCI was formulated. To better understand the underlying structural relationships the EFA technique was employed. We hypothesized that proactive coping and preventive coping are both distinct uni-dimensional constructs across data analyzed in this study.

## METHOD

### *Participants*

The study received approval from the Human Resources Ethics Committee and Institutional Review Board of the Univerzita Tomáše Bati ve Zlíně (Czech Republic). The sample was utilized with independence of observations; i.e., the data were collected in a group setting with no form of interaction with one another. All participating students were assured that the questionnaire is anonymous and confidential.

### *Instruments*

*Measure of proactive and preventive coping.* The validated Czech version of the *Proactive Coping Inventory* (PCI; Šolcová, Lukavsky, & Greenglass, 2006) that is identical with

the original English version of the PCI (Greenglass *et alii*, 1999) was used to measure proactive and preventive coping. The PCI subscales show reasonably good psychometric properties including internal consistency for each subscale with  $\alpha$ 's ranging from .80 to .85 for proactive coping, and between .79 and .83 for preventive coping. The factorial structure and homogeneity was confirmed in both language versions. Fourteen items within the proactive coping subscale combine inherent goal setting with autonomous goal attainment behavior (i.e., "I like challenges and beating the odds"). The preventive coping subscale consisting of 10 items (i.e., "I prepare for adverse events") deals with a potential, but noncurrent threat by drawing on existing experiences before the stressor fully occurs. The PCI items use a four-point Likert scale ranging from 1 (*not at all true*) to 4 (*completely true*).

*Measure of social support.* Respondents completed the nineteen-item *Social Support Survey* (MOS; Sherbourne & Stewart, 1991; Czech validation by Kožený & Tišanská, 2003). Each item was rated on a four-point scale ranging from 1 (none of the time) to 4 (all of the time), with a high overall score indicating a high level of social support. According to the instructions the items (i.e., "Someone who understands your problems") ask how often each of the presented kind of social support is available to respondents if needed. Reported Cronbach's alphas  $>.90$  (Robitaille, Orpana, & McIntosh, 2011).

*Measure of well-being.* The *Schwartz Outcomes Scale-10* was used (SOS-10; Blais *et alii*, 1999; Czech validation by Dragomirecká, Lenderking, Motlová, Goppoldová, & Šelepová, 2006). Respondents indicated their degree of psychological well-being over the past two weeks on a four-point scale ranging from 1 (none of the time) to 4 (all of the time), with a higher score representing greater well-being. An example item is "I am often interested and excited about things in my life." Its internal consistency in published studies has ranged from  $\alpha = .84$  to .96.

*Measure of depression.* The presence and severity of symptoms of depression were measured with the twenty-one-item *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996) validated for the Czech environment (Preiss & Vacř, 1999). Each of the 21 items corresponds to a symptom of depression (i.e., sadness, pessimism, self-dislike, self-criticism, etc.). Items are summed to give a single score for the BDI-II. A four-point scale was used with Cronbach's alphas of the original BDI-II ranging from .83 to .96.

### Data analysis

The main objective of the present research was to explore the latent factor structure underlying students' proactive and preventive coping behavior, i.e., to verify if the selected scales have satisfactory construct validity and at the same time are internally consistent. First, the quantitative approach using exploratory factor analysis (EFA) was used. The number of factors was based on a visual inspection of Catell's scree plot and a combination of methods such as the Kaiser-Guttman criterion and the Monte Carlo parallel analysis. The principal component (PCA) and the oblique Oblimin rotation that allows the relationship between the factors (.30) were used. The decisions to remove an item from the scale were based on: (1) item loadings below .32; (2) cross-loadings on more than one factor above .32; (3) communalities for the each variable; and (4) eigenvalues greater than 1. The internal consistency was checked by Cronbach's alpha coefficient.

Second, missing values were handled using the Expectation Maximization (EM) technique and multivariate outliers were determined by Mahalanobis distance values. The discriminant validity was checked calculating Person product-moment correlation coefficients with subjective well-being, social support and feelings of depression. Preliminary analyses were performed to ensure no violation of the analysis assumptions. IBM SPSS v. 22 was used to perform the analysis.

## RESULTS

Data cleaning was conducted indicating missing values and multivariate outliers. The hypothesis that data are missing completely at random is an assumption that must be satisfied prior to replacing missing values with various imputation techniques. The sample had a non-significant Little's Missing Completely at Random (MCAR) tests, justifying the use of the EM algorithm for replacing missing values with predicted values. Influential multivariate outliers were obtained with Mahalanobis distance analysis that exceeded the critical chi-square value at  $p < .001$ . All outliers above the critical chi-square value were removed from further analyses (Field, 2005).

Prior to performing PCA, the suitability of data for EFA was assessed. Inspection of the correlation matrix revealed the presence of relationship (.30). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was .84, exceeding the recommended value of .60 (Kaiser, 1960) and Bartlett's Test of Sphericity reached statistical significance ( $\chi^2(276) = 2489.51, p < .001$ ), supporting the factorability of the correlation matrix.

PCA's revealed the presence of six components with eigenvalues exceeding 1, explaining 53% of the variance, ranging from 22% to 4%. This was not further supported by the results of the Monte Carlo parallel analysis, which showed only four components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (24 variables/447 respondents). However, an inspection of the scree plot revealed a clear break after the second component. On this basis, the Oblimin rotation was calculated, yielding an interpretable two-factor structure with items falling into the appropriate factor as expected by theory. An exception was item 37 ("I try to pinpoint what I need to succeed") from proactive coping falling into the preventive coping factor. However, this item deals with a potential threat in the future and therefore naturally corresponds to the preventive coping scale. Simultaneously item 55 ("I develop my job skills to protect myself against unemployment") from preventive coping fell into the proactive coping factor showing that respondents did not appraise this situation as a threat, but rather they perceived the development of their job skills as a positive outcome.

The two-factor solution accounted for 32% of the variance and comprised a factor measuring proactive coping (12 items) and another for preventive coping (9 items). The factor pattern and structure matrix coefficients of the proactive coping (F1) and preventive coping (F2) scales of the PCI are displayed in Table 1. The inter-factor correlations were moderate ( $r = .30, p < .001$ ). The best explained variability of the two factors was in variable 50 ("I try to manage my money well in order to avoid being destitute in old age") and variable 11 ("Rather than spending every cent I make, I like to save for a rainy day"). On the other hand, item 48 ("When I apply for a position, I image myself filling it"), item 39 ("I make sure my family is well taken care of to protect them from adversity in the future"), and item 8 ("I try to let things work out on their own" -reverse scored), did not load highly on any of the factors, resulting in their deletion. This result has been consistently demonstrated across a range of samples (Gan *et alii*, 2007; López & Cunha, 2008; Roesh *et alii*, 2009; Wu, Chen, & Yao, 2008). A closer inspection of these items shows that the items combine very distant goals for a sample of university students.

Table 1 shows the item-total correlations testing if any item is inconsistent with the averaged behavior of the others; that is, whether the item fits the meaning of the averaged measure. In general, each of the subscales showed good item-total correlations

Table 1. Pattern and Structure Matrix for PCA with Oblimin Rotation on two-factor Solution.

Item Number*	Pattern		Structure		h <sup>2</sup>	M (SD)	α-i
	F1	F2	F1	F2			
22. I like challenges and beating the odds.	.73		.71		.63	2.52 (.92)	.80
53. If someone tells me I can't do something, you can be sure I will do it.	.73		.70		.56	2.84 (.79)	.80
41. I always try to find a way to work around obstacles; nothing really stops me.	.67		.69		.49	2.73 (.75)	.80
35. When I have a problem, I usually see myself in a no-win situation. (r)	.62		.49		.54	2.74 (.83)	.81
33. Despite numerous setbacks, I usually succeed in getting what I want.	.61		.62		.48	2.80 (.66)	.80
54. When I experience a problem, I take the initiative in resolving it.	.57		.62		.65	2.55 (.68)	.80
45. I often see myself failing so I don't get my hopes up too high. (r)	.51		.46		.63	2.65 (.92)	.82
51. I turn obstacles into positive experiences.	.51		.53		.47	2.80 (.82)	.81
28. I visualize my dreams and try to achieve them.	.50		.56		.55	2.97 (.79)	.81
1. I am a "take charge" person.	.50		.51		.44	2.66 (.65)	.81
15. After attaining a goal, I look for another, more challenging one.	.43		.49		.38	2.24 (.81)	.81
55. I develop my job skills to protect myself against unemployment.	.40		.49		.44	2.87 (.76)	.81
43. I think ahead to avoid dangerous situations.		.72		.69	.55	2.86 (.71)	.71
18. I prepare for adverse events.		.69		.66	.52	2.66 (.75)	.71
30. I plan my strategies to change a situation before I act.		.64		.66	.57	2.60 (.75)	.71
11. Rather than spending every cent I make, I like to save for a rainy day.		.60		.53	.73	2.77 (.96)	.72
47. I plan strategies for what I hope will be the best possible outcome.		.54		.60	.51	2.87 (.75)	.72
50. I try to manage my money well in order to avoid being destitute in old age.		.52		.50	.74	2.85 (.97)	.73
25. Before disaster strikes I am well-prepared for its consequences.		.49		.51	.44	2.33 (.74)	.72
4. I plan for future eventualities.		.44		.47	.38	2.75 (.74)	.73
37. I try to pinpoint what I need to succeed.		.43		.47	.48	3.09 (.65)	.74
Number of items	12		9				
M (SD)	2.70 (.46)		2.74 (.46)				
Eigenvalue	5		2				
Explained variance in %	22		10				
Cronbach's α	.82		.75				

Notes: (r)= reversed items; \*= numbers of the items correspond to the PCT's original order; α-i= Cronbach alpha if the item is deleted.

since the correlation coefficients did not increase after deleting the items from the subscales in any of the cases.

Furthermore, reliability for the new model fit (consisting of 21 items) reached  $\alpha = .83$ , demonstrating good internal consistency. Each factor achieved sufficient (lowerbound) estimate of the reliability ( $\alpha = .82$  and  $.75$ , respectively). Taken together, EFA suggests that the general model representing student's enrolled in the formal education system from the Czech Republic with two factors covered by 21 items is a reasonable representation of the data.

As a part of the determination of item discriminations, each item's means of the coping scales were further compared between students who scored higher than percentile 75 (above the third quartile) and those who scored lower than percentile 25 (below the first quartile) for each subscale. Table 2 shows that all of the items had significant discrimination indices ( $p < .001$ ), which indicated that the proactive and preventive coping scales successfully discriminated students with high and low coping styles.

As part of the verification of the content validity of the PCI subscales, the correlations between the coping scales, social support, well-being and signs of depression were calculated and tested for discriminant validity. First, we expected that revised coping scales would be associated positively with the presence of social support and

Table 2. Item Discrimination Analysis between High and Low Proactive Coping, and Preventive Coping scores.

Proactive item No.	<i>M</i> ( <i>SD</i> ) for low scores ( <i>n</i> = 135)	<i>M</i> ( <i>SD</i> ) for high scores ( <i>n</i> = 104)	<i>p</i>	Preventive item No.	<i>M</i> ( <i>SD</i> ) for low scores ( <i>n</i> = 134)	<i>M</i> ( <i>SD</i> ) for high scores ( <i>n</i> = 98)	<i>p</i>
22	1.77 (.66)	3.40 (.70)	<.001	43	2.22 (.57)	3.51 (.56)	<.001
53	2.19 (.62)	3.53 (.56)	<.001	30	1.92 (.59)	3.23 (.57)	<.001
41	2.12 (.65)	3.43 (.54)	<.001	18	2.13 (.59)	3.42 (.56)	<.001
35	2.13 (.76)	3.32 (.71)	<.001	47	2.24 (.64)	3.54 (.54)	<.001
33	2.31 (.57)	3.25 (.59)	<.001	11	2.42 (1.0)	3.12 (.84)	<.001
54	1.99 (.53)	3.07 (.56)	<.001	25	1.87 (.63)	2.92 (.70)	<.001
45	2.26 (.90)	3.11 (.88)	<.001	50	2.53 (.96)	3.12 (.99)	<.001
51	2.28 (.77)	3.47 (.59)	<.001	4	2.32 (.65)	3.32 (.64)	<.001
28	2.44 (.72)	3.58 (.62)	<.001	37	2.72 (.59)	3.57 (.57)	<.001
1	2.22 (.64)	3.07 (.56)	<.001				
15	1.76 (.65)	2.83 (.77)	<.001				
55	2.74 (.77)	3.25 (.62)	<.001				

subjective well-being (operationalized as judgement of one's life satisfaction), as these measurements represent improved psychological outcomes. Second, as future oriented positive pursuit of a proactive and preventive coping, we expected that those scales would be associated negatively with the signs of perceived depression.

Preliminary analysis assessed the violation of the assumption of normality using the Shapiro-Wilk test ( $p < .001$ ). Therefore, Spearman's rho coefficient was calculated. The correlation coefficients presented in Table 3 show that proactive coping was significantly and positively correlated with preventive coping and well-being, as was expected. There was a medium, negative correlation with depression. As well as a small, positive significant correlation with social support. The strength of the correlation between coping scales was re-tested whilst controlling for gender and educational level with no changes in the significance of the correlations found.

On the other hand, preventive coping was significantly positively associated with well-being. The coefficient of determination for well-being shows that there is 40% of overlap between the two variables. Well-being was positively associated with social support and negatively with depression as expected.

Table 3. Intercorrelations between Coping Scales, Social Support, Well-Being and Depression.

	<i>M</i> ( <i>SD</i> )	1	2	3	4	5
1. Proactive coping	2.70 (.46)	(.82)				
2. Preventive coping	2.74 (.46)	.38**	(.75)			
3. Social support	3.52 (.44)	.18**	.07	(.93)		
4. Well-being	2.94 (.48)	.49**	.16**	.38**	(.83)	
5. Depression	1.35 (.38)	-.38**	-.07	-.23**	-.60**	(.86)

Notes: Alpha coefficients are presented on the diagonal; \*\* =  $p < .01$ .

## DISCUSSION

In order to shed further light on the reported unstable results of the dimensionality and distinctiveness of proactive coping and preventive coping, the latent structure of these constructs was empirically assessed on a sample of university students. Proactive and preventive coping are the most commonly researched future-oriented constructs dealing with anticipated stressful events that are not yet present (Schwarzer & Taubert, 2002).

The distinction and uni-dimensionality of proactive and preventive coping as measured by the PCI subscales and confirmed by the previous research (Gan *et alii*, 2007; Roesh *et alii*, 2009) was partly confirmed in this study. The results from the

exploratory factor analysis used to determine the number of latent factors underlying a set of manifested/measured variables supported existence of the two distinct factors. Revised proactive and preventive coping subscales were found to have good internal reliability and satisfactory discriminant validity in a Czech sample of university students in helping professions. However, few changes were made as has been consistently demonstrated across a range of samples (Gan *et alii*, 2007; López & Cunha, 2008; Roesch *et alii*, 2009; Wu, Chen, & Yao, 2008). More specifically, item 48 (“When I apply for a position, I image myself filling it”), item 39 (“I make sure my family is well taken care of to protect them from adversity in the future”), and item 8 (“I try to let things work out on their own” -reverse scored), had low loadings resulting in their deletion.

The relationships between proactive and preventive coping and other personality variables was confirmed as stated by Dunkel-Schetter (1984), Gan, Hu, and Zhang (2010), Greenglass and Fiksenbaum (2009), and Holland and Holahan (2003). Those who employ coping strategies based on proactivity more often perceive that their lives are going well and avail of a wide social support. On the other hand, proactive coping was associated with lower negative behaviors, such as depression (Almássy *et alii*, 2014).

Based on the positive relationship between proactive and preventive coping with well-being and social-support and the negative relationship with feelings of depression, the present study has several practical implications. As proposed by Gan *et alii* (2007, 2010), integration of proactive coping programs into mental health education may be promising not only for new students entering college. Therefore, proactive coping is especially important for these students/professionals due to its future stress minimization. When a stressful event is a possibility rather than an actuality, its full impact may be lessened or averted (Aspinwall & Taylor, 1997). Also when a stressful event is about to appear, a student/professional may possess a wide range of options to handle it and chronic stress may be kept to a low level.

Further, it is assumed that the development of future-oriented coping is not only a necessary condition for effective preparation for the future profession, but, ultimately, represents personality growth of students. As such, insights gained by teaching skills of proactive and preventive coping may bring meaningful results in improving the psychological adjustment of university students. Also, regular monitoring and empirical data processing of proactive and preventive coping over a certain period of time may be beneficial.

There are several limitations to the current study. Two primary limitations are now discussed. First of all, as stated by Roesch *et alii* (2009), the PCI is a dispositional measure of coping. Thus, responses to nonspecific external stressors may result in a different action. Second, these results are generalizable only to this presented research sample of university students in helping professions. Therefore, inferring from the presented findings the proactive and preventive coping behavior of the entire population would be inappropriate. Given that a sincere effort was made to minimize influence of the results by forcing students to participate in the research, voluntary anonymous participation was conducted. Nevertheless, non-forced participation seemed to be appropriate, even though it posed the risk of a smaller-sized analysis. The recommended sample size for reliable results is greater than 100 and 5 times the number of items. In this case, the presented sample size of the data analyzed in this study can be taken as a reasonable representation of the reality/population (Winter, Dodou, & Wieringa, 2009).

This study contributes to the recent discussions on the uni-dimensionality of proactive and preventive coping by using the PCI in a sample of university students

enrolled in a traditional face-to-face course delivery format in the Czech Republic. Presented investigation of the psychometric properties and factorial structure of the PCI subscales assessing proactive and preventive coping suggests refinements of the scales. More specifically, they indicate that more attention should be paid to items 48 and 8 originally falling under the proactive coping factor and item 39 falling under the preventive coping factor. Future research involving verification of the constructs on the population may enhance our understanding of the theoretical distinction between the two coping behavioral strategies.

## REFERENCES

- Almássy Z, Pék G, & Papp G (2014). The psychometric properties of the Hungarian version of the Proactive Coping Inventory: Reliability, construct validity and factor structure. *International Journal of Psychology and Psychological Therapy*, *14*, 115-124.
- Aspinwall LG & Taylor SE (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin*, *121*, 417-436.
- Beck AT, Steer RA, & Brown GK (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Blais MA, Lenderking WR, Baer L, deLorell A, Peets K, Leahy L, & Burns C (1999). Development and initial validation of a brief mental health outcome measure. *Journal of Personality Assessment*, *73*, 359-73.
- Dragomirecká E, Lenderking WR, Motlová L, Goppoldová E, & Šelepová P (2006). A brief mental health outcomes measure: Translation and validation of the Czech version of the Schwartz Outcomes Scale-10. *Quality of Life Research*, *15*, 307-312. Doi: 10.1007/s11136-005-1389-y
- Drummond S & Brough P (2016). Proactive coping and preventive coping: Evidence for two distinct constructs? *Personality and Individual Differences*, *92*, 123-127. Doi:10.1016/j.paid.2015.12.029
- Dunkel-Schetter C (1984). Social support and cancer: Findings based on patient interviews and their implications. *Journal of Social Issues*, *40*, 77-98. Doi: 10.1111/j.1540-4560.1984.tb01108.x
- Field A (2005). *Discovering Statistics Using SPSS*. London: Sage
- Gan Y, Hu Y, & Zhang Y (2010). Proactive and preventive coping in adjustment to college. *The Psychological Record*, *60*, 1-15.
- Gan Y, Yang M, Zhou Y, & Zhang Y (2007). The two-factor structure of future-oriented coping and its mediating role in student engagement. *Personality and Individual Differences*, *43*, 851-863. Doi: 10.1016/j.paid.2007.02.009
- Greenglass ER (2002). Proactive coping and quality of life management. In E Fydenberg (Ed.), *Beyond coping: Meeting goals, visions and challenges* (pp. 37-62). London: Oxford University Press.
- Greenglass ER & Fiksenbaum L (2009). Proactive coping, positive affect, and well-being: Testing for mediation using Path analysis. *European Psychologist*, *14*, 29-39. Doi: 10.1027/1016-9040.14.1.29
- Greenglass ER, Schwarzer R, & Taubert S (1999). The Proactive Coping Inventory (PCI): A multidimensional research instrument. Retrieved from <http://userpage.fu-berlin.de/~health/greenpci.htm>
- Holland KD & Holahan, CK (2003). The relation of social support and coping to positive adaptation to breast cancer. *Psychology and Health*, *18*, 15-29. Doi: 10.1080/0887044031000080656
- Kaiser HF (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, *20*, 141-151.
- Kožený J & Tišanská L (2003). Dotazník sociální opory MOS: Vnitřní struktura nástroje [Social Support Survey MOS: Internal structure]. *Československá psychologie*, *47*, 135-143.
- López MP & Cunha MP (2008). Who is more proactive, the optimist or the pessimist? Exploring the role of hope as a moderator. *The Journal of Positive Psychology*, *3*, 100-109. Doi: 10.1080/17439760701760575
- Moring J, Fuhrman R, & Zauszniewski JA (2011). Interrelatedness of proactive coping, reactive coping, and learned resourcefulness. *Measurement and Evaluation in Counseling and Development*, *44*, 204-214. Doi: 10.1177/0748175611414722
- Preiss M & Vacíř K (1999). *BDI-II. Beckova sebesposuzovací škála pro dospělé BDI* [BDI-II. Beck Depression Inventory]. Brno: Psychodiagnostika.



- Reuter T & Schwarzer R (2009). Manage stress at work through preventive and proactive coping. In EA Locke (Ed.), *Handbook of principles of organizational behavior* (pp. 499-516). Chichester: John Wiley & Sons.
- Robitaille A, Orpana H, & McIntosh CN (2011). Psychometric properties, factorial structure, and measurement invariance of the English and French versions of the Medical Outcomes Study social support scale. *Health Reports*, 22, 33-40.
- Roesch SC, Aldridge AA, Huff TLP, Langner K, Villodas F, & Bradshaw K (2009). On the dimensionality of the Proactive Coping Inventory: 7, 5, 3 factors? *Anxiety, Stress & Coping*, 22, 327-339. Doi: 10.1080/10615800802082304
- Schwarzer R & Taubert S (2002). Tenacious goal pursuits and striving toward personal growth: Proactive coping. In E Fydenberg (Ed.), *Beyond coping: Meeting goals, visions and challenges* (pp. 19-35). London: Oxford University Press.
- Sherbourne CD & Stewart AL (1991). The MOS social support survey. *Social Science & Medicine*, 32, 705-14.
- Sohl SJ & Moyer A (2009). Refining the conceptualization of a future-oriented self-regulatory behavior: Proactive coping. *Personality and Individual Differences*, 47, 139-144. Doi: 10.1016/j.paid.2009.02.013
- Šolcová I, Lukavský J, & Greenglass, ER (2006). Dotazník proaktivního zvládání životních situací [The Proactive Coping Inventory: Czech adaptation]. *Československá Psychologie*, 50, 148-162.
- Vaculíková J (2016). Proactive Coping behavior in sample of university students in helping professions. *Sociální pedagogika/Social Education*, 4, 38-55. Doi: 10.7441/soced.2016.04.02.03
- Winter JCF, Dodou D, & Wieringa, PA (2009). Exploratory factor analysis with small sample sizes. *Multivariate Behavioral Research*, 44, 147-181. Doi: 10.1080/00273170902794206
- Wu CH, Chen KH, & Yao C (2008). Validation of the proactive coping scale in a sample of Chinese population. *Journal of Psychology in Chinese Societies*, 9, 103-120

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