

Future-Oriented Coping and Personality

Suzie Drummond and Paula Brough

School of Applied Psychology and Griffith Health Institute, Griffith University, Australia

Introduction

Significant progress in both the theoretical and applied aspects of occupational stress has occurred over the past decade, illustrated by the emergence of new research models and their accompanying generation of research activities (e.g., Brough, O'Driscoll, Kalliath, Cooper, & Poelmans, 2009; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Dollard, Shimazu, Bin Nordin, Brough, & Tuckey, 2014). However, coping research has achieved far more modest outcomes. Discussions continue concerning the most appropriate definitions, measurements and taxonomies of coping (e.g., Brough, O'Driscoll, & Kalliath, 2005a; O'Driscoll, Brough, & Kalliath, 2009). Indeed coping has become such a 'difficult' construct to research that it is often excluded from stress investigations altogether. This exclusion is in stark contrast to the recognition of the centrality of coping to the stress process as was originally defined by Folkman, Lazarus and colleagues. The transactional stress and coping theory (Lazarus, 1966) and more recent theories such as Edwards' (1988) cybernetic coping theory both defined coping as an individual response maintaining a state of equilibrium and thus preserving well-being. Exactly *how* these coping responses fit within the psychological stress process and how coping should be best measured remains under discussion (e.g., Brough, Dollard, & Tuckey, 2014).

Several decades of coping research has succeeded in drawing our attention to the identification of coping as a *state-based* or a *trait-based* (dispositional) individual response and the corresponding qualitative and/or quantitative measurement techniques which accompany these responses (Brough, O'Driscoll, & Kalliath, 2005b). However it is

noticeable that many researchers fail to identify the basic type of coping they propose to assess and this oversight partly explains the lack of adequate progress in coping research. Some recent discussions suggest for example, that *future-oriented proactive coping* may be a significant advancement to coping research (Aspinwall, 2004; Folkman & Moskowitz, 2004). Future-oriented coping identifies ways in which individuals can best cope with an anticipated future stressor such as an examination, medical procedure or work restructure. Hence the focus in future-oriented coping is training individuals to cope with *future* stressors, as opposed to evaluating the coping strategies individuals used to manage past stressors.

In this chapter we review the current evidence and discussions concerning future-oriented coping, including the mixed evidence for relationships between coping and personality constructs. We also present some small original empirical research which explores the stability over time of the most widely used future-oriented coping measure (the Proactive Coping Inventory (PCI); Greenglass, Schwarzer, Jakubiec, Fiksenbaum, & Taubert, 1999), and we assess the associations over time between future-oriented coping and some key personality constructs. The aim of this chapter is to collate and extend current discussions of future-oriented coping.

Future-Oriented Coping

Recent attention has focused on how individuals cope with *future* stressors and this is commonly described as *future-oriented coping*. Future-oriented coping is comprised of different types of coping behaviours, but the most prominent are *proactive coping* and *preventive coping*. Schwarzer (2000) defined proactive coping as efforts aimed at building up resources to enhance one's potential and opportunities for personal growth that might arise due to a future event. An example of proactive coping is undertaking skills training to improve the likelihood of gaining a job promotion. Proactive coping is therefore driven by challenge appraisals (Schwarzer & Knoll, 2003) and is related to active goal management

(Schwarzer, 2000). Preventive coping includes the accumulation of resources to assist in reducing the severity of the impact of a future event. Stockpiling food, water, and other necessary items in the event of a cyclone or flood is a good example of preventive coping. Preventive coping is akin to risk management, where the risks are seen as broad, with individuals accumulating resources ‘just in case’. Therefore, preventive coping is driven primarily by threat appraisals.

Currently, the most widely used measures of proactive and preventive coping are the subscales within the Proactive Coping Inventory (PCI; Greenglass et al., 1999a). The PCI consists of seven subscales, six of which measure different elements of future-oriented coping, namely proactive coping, preventive coping, reflective coping, strategic planning, emotional support seeking, instrumental support seeking, and one subscale assesses avoidance coping. The PCI was developed on the premise that coping is a multidimensional construct operating simultaneously at cognitive and behavioural levels. Coping is, therefore, conceptualised as an “approach to life, an existential belief that things will work out...because the individual takes responsibility for outcomes” (Greenglass et al., 1999a, p. 5). In this regard, the various future-oriented coping constructs measured by the PCI are considered to be dispositional measures of coping, reflecting the types of coping *styles* that people would generally utilise, rather than situation-specific coping actions. Therefore, the PCI reveals the tendency to which people are likely to utilise one or more future-oriented coping styles. Only limited (cross-sectional) research has discussed the full PCI, warranting Folkman’s (2009) call for establishing the stability of the PCI subscales over time to support its assertion as a dispositional measure. One of the aims of the empirical research we report in this chapter, therefore, was to test the stability of the PCI subscales over time.

Coping and Personality

Personality has long been recognised as having an influence on coping styles and behaviours (Carver & Connor-Smith, 2010; Connor-Smith & Flachsbart, 2007; Costa & McCrae, 1990; Hewitt & Flett, 1996; O'Driscoll & Brough, 2010; Penley & Tomaka, 2002). Traditional forms of coping (i.e., reactive coping such as problem-focused, emotion-focused, and avoidance coping) have often been reported as mediating the relationship between personality and health and work-related outcomes. For example, Carver et al. (1993) found that optimism predicted an increase in emotion-approach coping, which in turn reduced distress over time in a sample of breast cancer patients. Similarly, Knoll, Rieckmann, and Schwarzer (2005) reported that neuroticism increased negative affect over time by increasing evasive coping, and decreased positive affect over time by decreasing positive coping. Furthermore, Chang (2012) demonstrated support for maladaptive perfectionism increasing burnout of hospital nurses by increasing emotion-focused coping. Studies such as these provide support for the role that coping plays in mediating the effect of personality on outcomes.

However, not all studies have found support for these relationships. Inconsistent results have been reported depending on whether coping is measured as a dispositional or situational variable, that is, whether coping styles or coping strategies are the focus. Additionally, the use of cross-sectional and longitudinal study designs also appears to influence whether significant mediation effects are observed (see Brough et al., 2005b). For example, Knoll et al. (2005) tested the long-term mediating relationships between neuroticism, coping, and positive and negative affect using both situational and dispositional forms of coping. Knoll et al. reported that dispositional coping did not mediate the relationships, but that situational coping did. Conversely, Panayiotou, Kokkinos, and Kapsou (2014) reported that dispositional forms of active coping and avoidance coping significantly mediated the cross-sectional relationship between agreeableness and distress, and

dispositional avoidance coping also mediated the cross-sectional relationship between neuroticism and distress. These examples illustrate the inconsistent results regarding the mediating role of dispositional coping between personality and outcomes. The empirical research described in this chapter, therefore, seeks to clarify the long-term impact of dispositional coping.

As proactive and preventive coping are both dispositional constructs, it is also important to understand if these future-oriented coping styles operate as mediators between personality and outcomes. In comparison to reactive coping, limited research has examined the mediating effects of proactive and preventive coping with personality, and none of these studies have employed longitudinal designs. For example, Griva and Anagnostopoulous (2010) found that proactive coping mediated the relationship between optimism and anxiety, and between self-esteem and anxiety, thereby modelling optimism and self-esteem as preceding proactive coping. Similarly, Chang and Chan (2013) reported that proactive coping mediated the relationship between optimism and burnout, while Albion, Fernie, and Burton (2005) found support for the mediating role of proactive coping between proactive attitude and self-efficacy. Furthermore, Stanojevic, Krstic, Jaredic, and Dimitrijevic (2013) reported that proactive coping mediated the relationship between optimism and satisfaction with life, and self-efficacy and satisfaction with life. Based on these examples, optimism was clearly found to work with proactive coping in the prediction of health and work-related outcomes.

No published studies could be located that tested preventive coping and personality variables in the same manner, which highlights a significant gap in this literature. Simple correlation analyses have demonstrated preventive coping is related to personality and health outcomes, suggesting that mediating effects may occur. For example, Ouwehand, de Ridder, and Bensing (2006) reported positive correlations between preventive coping and future

orientation and goal orientation, while Sohl and Moyer (2009) found preventive coping was positively related to optimism. Negative relationships have also been reported for preventive coping with perceived stress (Hu & Gan, 2011) and depression (Gan, Yang, Zhou, & Zhang, 2007). Further research on these relationships is clearly warranted to provide insight into the relationships between personality and future-oriented coping. The study described in this chapter contributes to current knowledge and understanding about the role of future-oriented coping with personality variables, as well as providing an insight into the mediating relationships when coping is measured dispositionally and longitudinally.

Research Aims and Hypotheses

There were two primary aims of this empirical research: (1) to establish the stability of the PCI to provide evidence for its use as a dispositional measure of future-oriented coping; and (2) to examine the mediating effects of proactive and preventive coping between personality and psychological health, over time. To achieve these aims, we tested two hypotheses:

Hypothesis 1: The Proactive Coping Inventory will demonstrate adequate test-retest reliability coefficients to demonstrate its stability over time.

Hypothesis 2: Proactive and preventive coping will mediate the relationship between personality variables and psychological strain over time, after controlling for baseline levels of psychological strain.

Method

Participants and procedure. The research was advertised to undergraduate students at an Australian university via emails, lectures, and on course websites. In exchange for participation, participants received course credit (first year participants only) or were entered into a draw to win \$150 cash (all other participants). Two hard copy surveys were distributed to volunteer participants with a six month time lag. A total of $N = 179$ useable surveys were

returned at Time 1 (53% response rate) and $N = 125$ useable surveys were returned at Time 2 (58% response rate). Of these, $N = 67$ were matched across the two administrations. The response rates are representative of the average response rates in academic settings (Baruch, 1999). Surveys were matched across the two time points using a unique code provided by each participant.

Participants ranged in age from 17 to 44 years ($M = 23.45$; $SD = 7.04$) and were primarily female ($n = 58$; 87%), Caucasian ($n = 51$; 76%), and lived at home ($n = 43$; 64%). Most respondents were in the first year of university ($n = 48$; 72%) and were enrolled full-time ($n = 64$; 96%) in a Psychology degree ($n = 64$; 96%). A series of multivariate analysis of variance (MANOVA) procedures were conducted to determine whether differences existed on (1) the demographic variables, (2) the personality variables, and (3) the PCI subscales and psychological strain between completers versus non-completers (i.e., respondents who completed only Time 1 surveys versus those who completed both the Time 1 and Time 2 surveys). The results revealed there were no significant differences for psychological strain, the demographic or personality variables, but significant differences did exist on the PCI subscales ($F[8, 170] = 2.22$, $p = .03$, Pillai's trace = .10; partial $\eta^2 = .10$). Respondents who only completed the Time 1 surveys reported higher levels of preventive and reflective coping compared to the respondents who completed both surveys.

Measures.

Future-oriented coping. The PCI (Greenglass et al., 1999b) contains 55 items and seven scales. Table 1 indicates the subscales, examples items, number of items, and reliability coefficients as reported by Greenglass et al. (1999a). Responses were scored on a 4-point scale ranging from 1 (*not at all true*) to 4 (*completely true*). Greenglass et al. (1999a) reported reliability coefficients ranging between .61 and .85 across Canadian and Polish-Canadian samples.

INSERT TABLE 1 HERE

Optimism. Optimism was measured using the 10-item Revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994). Participant responses were made on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*), with higher scores representing greater optimism. Example items include “*I am always optimistic about my future*” and “*If something can go wrong for me, it will*” (negatively-worded). Reliability coefficients ranging from .70 to .81 have been reported in the literature (Geers, Helfer, Kosbab, Weiland, & Landry, 2005; Mäkikangas, Kinnunen, & Feldt, 2004; Scheier et al., 1994).

Neuroticism. Neuroticism was measured with the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Participants indicated their agreement or disagreement to 12 items on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). High scores reflect higher levels of neuroticism. Reliability coefficients ranging from .81 to .88 have been reported (Costa & McCrae, 1992; Eaton & Bradley, 2008; Jones, Banicky, Pomare, & Lasane, 2004).

Past and future orientation. The Temporal Orientation Scale (TOS; Jones et al., 2004) was used to measure past and future orientation. A total of 10 items pertaining to past orientation (“*I think about the past a lot*”) and future orientation (“*I keep working at a difficult, boring task if it will help me to get ahead*”) were included. Responses were scored on a 7-point scale ranging from 1 (*not true of me*) to 7 (*very true of me*). Jones et al. (2004) reported average reliability coefficients of .80 (past orientation) and .72 (future orientation).

Goal orientation. The tendency to set goals and make plans was assessed using the Goal Orientation scale (Malouff et al., 1990). Responses were scored on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) to 15 items such as “*I often plan for*

the future.” Reliability coefficients ranging from .73 to .86 have been reported in the literature (Jones et al., 2004; Ouwehand et al., 2006).

Psychological strain. The 12-item General Health Questionnaire (GHQ-12; Goldberg, 1972) was used to assess generic psychological strain. Participants responded to a list of 12 affective statements concerning their psychological health over the past few weeks relative to their usual level of health. Responses were scored on a 4-point scale ranging from 0 (*not at all*) to 3 (*much more than usual*) to questions such as “*Lost much sleep over worry?*” Higher scores indicated higher levels of psychological strain. Acceptable reliability coefficients ranging from .85 to .91 have been reported in the literature (Kalliath, O’Driscoll, & Brough, 2004; Mansell, Brough, & Cole, 2006).

Data analysis. The data were analysed via bootstrapping with the PROCESS macro (Hayes, 2013) in SPSS version 21. For each analysis, 5,000 bootstrap resamples and 95% bias corrected confidence intervals were utilised. Heteroscedasticity-consistent standard errors (HSEs) were also calculated to account for the slight deviations from normality (Edwards & Lambert, 2007). To provide a more stringent measure of mediation, Time 1 psychological strain was included as a covariate in each analysis, and both types of coping were included simultaneously as mediators to account for their shared effects on the outcome variable. Based on recent recommendations in the literature (Hayes, 2013; Zhao, Lynch, & Chen, 2010), an indirect effect was judged to be significant if the confidence intervals did not contain zero.

Results

The means, standard deviations and alpha reliability coefficients are reported in Table 2. All variables exhibited acceptable means and standard deviations, and demonstrated good internal consistency (i.e., $\alpha = .70$ or above), however the measurement of avoidance coping was not reliable (T1 $\alpha = .43$; T2 $\alpha = .50$). Each of the PCI subscales demonstrated test-retest

reliability coefficients ranging between $r = .60$ to $r = .78$. These values were within Schorr's (2001) guidelines that recommend trait measures should exhibit stability coefficients between .60 and .80. Therefore, Hypothesis 1 regarding the stability of the PCI subscales was supported.

INSERT TABLE 2 HERE

The correlation results are presented in Table 3. As expected, significant correlations were observed for all personality variables and proactive coping at Time 1 and Time 2 in the expected directions. Only future orientation and goal orientation at both Time 1 and Time 2, and neuroticism at Time 1 were significantly related to preventive coping. Proactive coping was associated with reduced psychological strain at both Time 1 and Time 2, but preventive coping was only associated with reduced strain at Time 1. These results demonstrate that proactive coping exhibits stronger associations with personality and psychological strain compared to the same relationships with preventive coping.

INSERT TABLE 3 HERE

Indirect effects. Hypothesis 2 tested the mediating effects of proactive and preventive coping between personality and psychological strain over time. The results of the bootstrapped analyses are presented in Table 4. Preventive coping was not a significant mediator of any of the relationships between personality and strain. Proactive coping however, acted as a significant mediator for the effects of personality on strain for each of the personality variables except neuroticism. The effects were such that future orientation, goal orientation, and optimism decreased psychological strain over time by increasing proactive coping, and past orientation increased strain over time by decreasing proactive coping. Taken together, these results provided partial support for Hypothesis 2.

INSERT TABLE 4 HERE

Discussion

Hypothesis 1 tested whether the PCI subscales would be stable over time by examining the test-retest coefficients over a six month time lag. As per Schorr's (2001) recommendations, the PCI subscales were within the acceptable ranges for trait measures (i.e., between $r = .60$ and $.80$). These results provide support for the consideration of the PCI as a dispositional measure of coping. One area of concern however, was the low reliability for avoidance coping at both time points. These results suggest that respondents had difficulty reliably answering the avoidance coping items, possibly because they do not fit with the overall emphasis of the PCI, which is concerned with active, positive forms of coping with the future. Other research has also reported difficulties with the avoidance coping subscale. For example, Roesch et al. (2009) reported the avoidance coping subscale had less than acceptable reliability (i.e., $\alpha = .57$), and Cantwell, Scevak, Bourke, and Holbrook (2012) also reported that the avoidance coping subscale failed to load on a single factor during CFA procedures and was therefore removed from their study. While the results of this study provide support for the stability of the PCI over time, they also indicate further work is required to achieve a reliable avoidance coping subscale.

Hypothesis 2 tested the mediating relationships between personality, future-oriented coping, and psychological strain over time. The results partially supported this hypothesis, demonstrating that proactive coping mediated the relationship between past orientation, future orientation, goal orientation, and optimism with psychological strain over time. Preventive coping was not a significant mediator of any of these relationships. The results demonstrated that when the personality variable had a beneficial impact on the outcome (i.e., reduced psychological strain) the inclusion of proactive coping enhanced this effect, such that personality increased proactive coping, which in turn reduced levels of strain. Conversely, when personality had a detrimental impact on the outcome (i.e., increased psychological strain), the inclusion of proactive coping worsened this effect, such that personality

(specifically past orientation) decreased proactive coping, which then increased levels of strain.

These results are consistent with existing research, demonstrating that positive, approach types of coping can have beneficial impacts on outcome variables by transmitting the positive effects of personality. For example, proactive coping was found to carry the effects of optimism to psychological strain, similar to Griva and Anagnostopoulous (2010) and Stanojevic et al. (2013). Goal orientation was also found to have a beneficial outcome by increasing proactive coping, supporting research by Porath and Bateman (2006) who reported that learning and performance goal orientations increased performance by increasing proactive behaviour, and Parker, Martin, Colmar, and Liem (2012) who found that mastery goal orientation decreased burnout by increasing problem-focused coping. Similarly, our results extend the findings of Fortunato and Furey (2011) who reported that future-focused thinking was associated with less depression, while past-focused thinking was associated with more anxiety and depression. The results reported here demonstrated that the effects of future orientation and past orientation were transmitted through proactive coping to psychological strain in a similar direction. The added benefits of the results of this study are that these effects were found for a measure of dispositional future-oriented coping in a longitudinal sample. The results therefore directly contribute to the scarce literature on longitudinal future-oriented coping research by demonstrating these effects are present over time.

In regards to the lack of significant mediating effects for preventive coping, prior research has often reported that preventive coping is less influential compared to proactive coping, particularly when included simultaneously in analyses. For example, when preventive coping was included with proactive coping in a model predicting social well-being, preventive coping was not a significant predictor (Zambianchi & Bitti, 2013).

Similarly, Sohl and Moyer (2009) suggested that the relationships between preventive coping and outcomes may be due to its shared variance with proactive coping. The results of the current study were consistent with this suggestion by the finding that preventive coping was not a significant mediator when tested simultaneously with proactive coping. These results suggest that preventive coping was not uniquely important in transmitting the effect of the personality variables included in this study on psychological strain. Further research with other variables will be important to increase insight into the impact of preventive coping.

Neuroticism revealed it was a stronger direct predictor of psychological strain than the effect through proactive or preventive coping. This is consistent with Mirnics et al. (2013) who reported that the direct effect of neuroticism on psychopathology was more strongly evident than an indirect effect through dispositional coping. Interestingly, Bouchard, Guillemette, and Landry-Léger (2004) found that the mediating effect of coping between neuroticism and psychological distress was significant when coping was measured as a situational construct. These examples may point to a mediating effect when coping is measured situationally, but a stronger direct effect for neuroticism when coping is measured dispositionally. Clearly these relationships need further testing to clarify how neuroticism interacts with future-oriented coping in the prediction of psychological ill-health.

Limitations and future research. As the majority of research into future-oriented coping has been cross-sectional, this study contributes to the literature by incorporating measurements over time, and illustrating the stronger effect of proactive coping as compared to preventive coping in reducing psychological strain. There are however, two notable limitations. Firstly, the small sample size restricted the complexity of the analyses that could have been conducted. While bootstrapping via the PROCESS macro is an acceptable method for testing indirect effects, larger samples would enable testing via complex procedures such as structural equation modelling. We acknowledge that a small sample size is also equated

with a greater impact of non-normality and less power to detect significant effects (Field, 2013), which may have contributed to some of the non-significant relationships.

Secondly, each personality variable was investigated as a separate predictor.

Personality traits do not occur in isolation, and may act in a causal sequence to influence each other. For example, being optimistic may increase levels of future orientation which may in turn influence coping; or being higher in neuroticism may lead to a higher past orientation which might then decrease future-oriented coping. Testing these relationships in more detail in future research would be informative to clarify how exactly personality is related to future-oriented coping.

Conclusion

This chapter has provided insight into a new area of coping research: future-oriented coping. We considered current research findings in this area, including the mixed results for the associations between future-oriented coping and personality. We presented original longitudinal empirical research to provide evidence for the dispositional nature of the PCI, as well as to investigate the mediating relationships between future-oriented coping, personality, and psychological strain. The results revealed that the test-retest coefficients for the PCI were consistent with those expected of trait measures, and that proactive coping was superior to preventive coping in acting as a mediator between various personality traits and psychological strain over time. Overall, the study demonstrated that future-oriented coping operates in a similar manner to reactive coping in mediating the effects of personality on psychological strain. Finally, we also provided evidence for the mediating effects of dispositional coping in a longitudinal sample.

References

- Albion, M. J., Fernie, K. M., & Burton, L. J. (2005). Individual differences in age and self-efficacy in the unemployed. *Australian Journal of Psychology*, 57, 11-19. doi: 10.1080/00049530412331283417
- Aspinwall, L.G. (2004). Proactive coping, wellbeing, and health. In N.J. Smelser & P.B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 16447-16451). Oxford, UK: Elsevier.
- Aspinwall, L. G. (2011). Future-oriented thinking, proactive coping, and the management of potential threats to health and well-being. In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (pp. 334-365). Oxford: Oxford University Press.
- Baruch, Y. (1999). Response rate in academic studies – a comparative analysis. *Human Relations*, 52, 421-438. doi: 10.1177/001872679905200401
- Bouchard, G., Guillemette, A., & Landry-Leger, N. (2004). Situational and dispositional coping: An examination of their relation to personality, cognitive appraisals, and psychological distress. *European Journal of Personality*, 18, 221-238. doi: 10.1002/per.512
- Brough, P., Dollard, M., & Tuckey, M. (2014). Theory and methods to prevent and manage occupational stress: Innovations from around the globe. *International Journal of Stress Management*, 21, 1-6. doi: 10.1037/a0035903
- Brough, P., O'Driscoll, M., & Kalliath, T. (2005a). Evaluating the criterion validity of the Cybernetic Coping Scale: Cross-lagged predictions of psychological strain, job and family satisfaction. *Work & Stress*, 19, 276-292. doi: 10.1080/02678370500287507
- Brough, P., O'Driscoll, M., & Kalliath, T. (2005). Confirmatory factor analysis of the Cybernetic Coping Scale. *Journal of Occupational and Organisational Psychology*, 78, 53-61. doi: 10.1348/096317904X23754

- Brough, P., O'Driscoll, M., Kalliath, T., Cooper, C.L., & Poelmans, S. (2009). *Workplace psychological health: Current research and practice*. Cheltenham, UK: Edward Elgar.
- Cantwell, R. H., Scevak, J. J., Bourke, S., & Holbrook, A. (2012). Identifying individual differences among doctoral candidates: A framework for understanding problematic candidature. *International Journal of Educational Research*, 53, 68-79. doi: 10.1016/j.ijer.2012.02.001
- Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679-704. doi: 10.1146/annurev.psych.093008.100352
- Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, M. F., Robinson, D. S...Clark, K. C. (1993). How coping mediates the effect of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology*, 65, 375-390. doi: 10.1037/0022-3514.65.2.375
- Chang, Y. (2012). The relationship between maladaptive perfectionism with burnout: Testing mediating effect of emotion-focused coping. *Personality and Individual Differences*, 53, 635-639. doi: 10.1016/j.paid.2012.05.002
- Chang, Y., & Chan, H-J. (2013). Optimism and proactive coping in relation to burnout among nurses. *Journal of Nursing Management*. Advance online publication. doi: 10.1111/jonm.12148
- Connor-Smith, J. K., & Flachsbart, C. (2007). Relations between personality and coping: A meta-analysis. *Journal of Personality and Social Psychology*, 93, 1080-1107. doi: 10.1037/0022-3514.93.6.1080
- Costa, P. T. Jr., & McCrae, R. R. (1990). Personality: Another "hidden factor" in stress research. *Psychological Inquiry*, 1, 22-24. doi: 10.1207/s15327965pli0101_5
- Costa, P. T. Jr., & McCrae, R. R. (1992). *NEO PI-R professional manual*. Odessa, Florida: Psychological Assessment Resources, Inc.

- Demerouti, E., Bakker, A.B., Nachreiner, F., & Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499-512.
- Dollard, M., Shimazu, A., Bin Nordin, R., Brough, P., & Tuckey, M. (Editors). (2014). *Psychosocial Factors at Work in the Asia Pacific*. London, UK: Springer.
- Eaton, R. J., & Bradley, G. (2008). The role of gender and negative affectivity in stressor appraisal and coping selection. *International Journal of Stress Management*, 15, 94-115. doi: 10.1037/1072-5245.15.1.94
- Edwards, J.R. (1988). The determinants and consequences of coping with stress. In C.L. Cooper & R. Payne (Eds.), *Causes, coping and consequences of stress and work* (pp. 233-263). Chichester, NY: John Wiley.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics and sex and drugs and rock 'n' roll*. (3rd ed.). London: Sage Publications.
- Folkman, S. (2009). Questions, answers, issues, and next steps in stress and coping research. *European Psychologist*, 14, 72-77. doi: 10.1027/1016-9040.14.1.72
- Folkman, S., & Moskowitz, J.T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 745-774.
- Fortunato, V. J., & Furey, J. T. (2011). The theory of MindTime: The relationships between future, past, and present thinking and psychological well-being and distress. *Personality and Individual Differences*, 50, 20-24. doi: 10.1016/j.paid.2010.08.014
- 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: 0.1016/j.paid.2007.02.009
- Geers, A. L., Helfer, S. G., Kosbab, K., Weiland, P. E., & Landry, S. J. (2005). Reconsidering the role of personality in placebo effects: Dispositional optimism,

- situational expectations, and the placebo response. *Journal of Psychosomatic Research*, 58, 121-127. doi: 10.1016/j.jpsychores.2004.08.011
- Goldberg, D. P. (1972). *The detection of psychiatric illness by questionnaire*. Oxford: Oxford University Press.
- Greenglass, E., Schwarzer, R., Jakubiec, D., Fiksenbaum, L., & Taubert, S. (1999a, July). *The Proactive Coping Inventory (PCI): A multidimensional research instrument*. Paper presented at the 20th International Conference of the Stress and Anxiety Research Society, Krakow, Poland.
- Greenglass, E., Schwarzer, R., & Taubert, S. (1999b). *The Proactive Coping Inventory (PCI): A multidimensional research instrument*. Retrieved October 22, 2008 from <http://userpage.fu-berlin.de/~health/greenpci.htm>
- Griva, F., & Anagnostopoulous, F. (2010). Positive psychological states and anxiety: The mediating effect of proactive coping. *Psychological Reports*, 107, 795-804. doi: 10.2466/02.20.PR0.107.6.795-804
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: The Guildford Press.
- Hewitt, P. L., & Flett, G. L. (1996). Personality traits and the coping process. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications* (pp. 410-433). New York: John Wiley & Sons.
- Hu, Y., & Gan, Y. (2011). Future-oriented coping and job hunting among college students. *The Psychological Record*, 61, 253-268. Retrieved from <http://web.b.ebscohost.com/ehost/detail?sid=61cc36ab-22f4-4d08-9109-4d1787a76347%40sessionmgr115&vid=1&hid=122&bdata=JnNpdGU9ZWwhvc3QtbGl2ZSZzY29wZT1zaXRl#db=bth&AN=61152634>

- Jones, J. M., Banicky, L., Pomare, M., & Lasane, T. P. (2004). *A temporal orientation scale: Focusing attention on the past, present and future*. Unpublished manuscript. University of Delaware.
- Kalliath, T. J., O'Driscoll, M. P., & Brough, P. (2004). A confirmatory factor analysis of the General Health Questionnaire – 12. *Stress and Health*, 20, 11-20. doi: 10.1002/smi.993
- Knoll, N., Rieckmann, N., & Schwarzer, R. (2005). Coping as a mediator between personality and stress outcomes: A longitudinal study with cataract surgery patients. *European Journal of Personality*, 19, 229-247. doi: 10.1002/per.546
- Lazarus, R.S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Mäkikangas, A., Kinnunen, U., & Feldt, T. (2004). Self-esteem, dispositional optimism, and health: Evidence from cross-lagged data on employees. *Journal of Research in Personality*, 38, 556-575. doi: 10.1016/j.jrp.2004.02.001
- Malouff, J., Schutte, N., Bauer, M., Mantelli, D., Pierce, B., Cordova, G., & Reed, E. (1990). Development and evaluation of a measure of the tendency to be goal oriented. *Personality and Individual Differences*, 11, 1191-1200. doi: 10.1016/0191-8869(90)90144-G
- Mansell, A., Brough, P., & Cole, K. (2006). Stable predictors of job satisfaction, psychological strain, and employee retention: An evaluation of organizational change within the New Zealand customs service. *International Journal of Stress Management*, 13, 84-107. doi: 10.1037/1072-5245.13.1.84
- Mirnics, Z., Heincz, O., Bagdy, G., Surányi, Z., Gonda, Z., Benko, A....Juhasz, G. (2013). The relationship between the Big Five personality dimensions and acute psychopathology: Mediating and moderating effects of coping strategies. *Psychiatra*

Danubina, 25, 379-388. Retrieved from <http://hrcak.srce.hr/psychiatria-danubina?lang=en>

- O'Driscoll, M. & Brough, P. (2010). Work organisation and health. In S. Leka & J. Houdmont (Eds). *Occupational health psychology*. (pp. 57-87). Chichester: Wiley-Blackwell.
- O'Driscoll, M., Brough, P., & Kalliath, T. (2009). Stress and coping. In S. Cartwright & C, Cooper. *The Oxford handbook of organizational well being*. (pp. 237-266). Oxford: Oxford University Press.
- Ouwehand, C., de Ridder, T. D., & Bensing, J. M. (2006). Situational aspects are more important in shaping proactive coping behaviour than individual characteristics: A vignette study among adults preparing for ageing. *Psychology & Health*, 21, 809-825. doi: 10.1080/14768320500537639
- Panayiotou, G., Kokkinos, C. M., & Kapsou, M. (2014). Indirect and direct associations between personality and psychological distress mediated by dispositional coping. *The Journal of Psychology: Interdisciplinary and Applied*, 148, 549-567. doi: 10.1080/00223980.2013.817375
- Parker, P. D., Martin, A. J., Colmar, S., & Liem, G. A. (2012). Teachers' workplace well-being: Exploring a process model of goal orientation, coping behavior, engagement, and burnout. *Teaching and Teacher Education*, 28, 503-513. doi: 10.1016/j.tate.2012.01.001
- Penley, J. A., & Tomaka, J. (2002). Associations among the Big Five, emotional responses, and coping with acute stress. *Personality and Individual Differences*, 32, 1215-1228. doi: 10.1016/S0191-8869(01)00087-3

- Porath, C. L., & Bateman, T. S. (2006). Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology, 91*, 185-192. doi: 10.1037/0021-9010.91.1.185
- Roesch, S. C., Aldridge, A. A., Huff, T. L. P., 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. (2000). Manage stress at work through preventive and proactive coping. In E. A. Locke (Ed.), *The Blackwell handbook of principles of organizational behavior*, (pp. 342-355). Oxford: Blackwell Publishers Ltd.
- Schwarzer, R., & Knoll, N. (2003). Positive coping: Mastering demands and searching for meaning. In S. J. Lopez & C. R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures*, (pp. 393-409). Washington, DC: American Psychological Association.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*, 1063-1078. doi: 10.1037/0022-3514.67.6.1063
- Schorr, A. (2001). Subjective measurement in appraisal research: Present state and future perspectives. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 331-349). Oxford: Oxford University Press.
- Sohl, S. J., & 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

- Stanojevic, D., Krstic, M., Jaredic, B., & Dimitrijevic, B. (2013). Proactive coping as a mediator between resources and outcomes: A structural equations modeling analysis. *Applied Research in Quality of Life*, November, 1-15. doi: 10.1007/s11482-013-9274-2
- Zambianchi, M., & Bitti, P. E. R. (2013). The role of proactive coping strategies in time perspective, perceived efficacy on affect regulation, divergent thinking and family communication in promoting social well-being in emerging adulthood. *Social Indicators Research*, March, 1-15. doi: 10.1007/s11205-013-0307-x
- Zhao, X., Lynch, J. G. Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37, 197-206. doi: 10.1086/651257

Table 1. *PCI Subscale Items, Examples, and Reliability Coefficients*

Subscale	No. of items	Example item	Reliability
Proactive Coping	14	<i>I am a 'take charge' person</i>	.80 - .85
Preventive Coping	10	<i>I prepare for adverse events</i>	.79 - .83
Reflective Coping	11	<i>I imagine myself solving difficult problems</i>	.79 - .80
Strategic Planning	4	<i>I make a plan and follow it</i>	.71
Emotional Support Seeking	5	<i>Others help me feel cared for</i>	.64 - .73
Instrumental Support Seeking	8	<i>I ask others what they would do in my situation</i>	.84 - .85
Avoidance Coping	3	<i>When I have a problem I like to sleep on it</i>	.61 - .74

Note. Reliability coefficients reported by Greenglass et al. (1999a).

Table 2. *Means, Standard Deviations, and Reliability Coefficients at Time 1 and Time 2 for Personality and Coping Variables*

	Time 1		Time 2		Test-retest
	Mean (SD)	Alpha	Mean (SD)	Alpha	Reliability
Past Orientation	3.85 (1.19)	.79	3.55 (1.14)	.77	.67
Future Orientation	4.49 (1.07)	.74	4.64 (0.99)	.75	.77
Goal Orientation	3.63 (0.63)	.87	3.66 (0.56)	.90	.85
Neuroticism	2.91 (0.77)	.87	2.76 (0.78)	.89	.88
Optimism	2.53 (0.82)	.89	2.60 (0.82)	.89	.83
Proactive Coping	2.95 (0.44)	.85	3.06 (0.41)	.85	.78
Preventive Coping	2.82 (0.49)	.83	2.93 (0.44)	.80	.72
Reflective Coping	2.84 (0.43)	.83	2.97 (0.43)	.84	.74
Strategic Planning	2.83 (0.62)	.78	3.03 (0.51)	.72	.60
Instrumental Support	3.01 (0.57)	.89	3.17 (0.52)	.88	.76
Emotional Support	3.16 (0.62)	.80	3.30 (0.52)	.77	.70
Avoidance Coping	2.72 (0.53)	.43	2.72 (0.56)	.50	.64
Strain	1.05 (0.58)	.91	0.84 (0.42)	.85	.59

Note. Test-retest reliability coefficients are significant at $p < .001$.

Table 3. *Correlations between T1 Personality, Coping, and Strain, and T2 Coping and Strain*

	1	2	3	4	5	6	7	8	9	10
1. T1 Past Orientation										
2. T1 Future Orientation	.04									
3. T1 Goal Orientation	.01	.51***								
4. T1 Neuroticism	.63***	-.17	-.11							
5. T1 Optimism	-.52***	.15	.03	-.65***						
6. T1 Proactive Coping	-.43***	.50***	.48***	-.66***	.55***					
7. T2 Proactive Coping	-.32**	.40***	.43***	-.53***	.52***	.78***				
8. T1 Preventive Coping	-.14	.53***	.52***	-.31**	.24	.50***	.45***			
9. T2 Preventive Coping	-.13	.38***	.46***	-.21	.05	.36***	.47***	.72***		
10. T1 Strain	.60***	-.12	.01	.75***	-.70***	-.57***	-.48***	-.27*	-.17	
11. T2 Strain	.47***	-.08	.04	.63***	-.55***	-.53***	-.42***	-.15	.02	.59***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4. *Bootstrapped Indirect Effects for Time 1 Personality predicting Time 2 Strain via Time 1 Proactive and Preventive Coping*

	Via Proactive Coping		Via Preventive Coping	
	<i>b</i> (<i>SE b</i>)	CI	<i>b</i> (<i>SE b</i>)	CI
Past – Coping	-.155 (.048)	-.251, -.060	-.057 (.053)	-.162, .049
Coping – Time 2 Strain	-.319 (.135)	-.589, -.050	.112 (.109)	-.105, .329
Indirect effect	.050 (.027)	.009, .118	-.006 (.010)	-.039, .004
Direct effect		.049 (.044)	-.040, .138	
Future – Coping	.204 (.053)	.098, .309	.242 (.059)	.125, .360
Coping – Time 2 Strain	-.391 (.139)	-.668, -.114	.087 (.116)	-.144, .318
Indirect effect	-.080 (.036)	-.165, -.021	.021 (.028)	-.028, .083
Direct effect		.045 (.046)	-.046, .136	
Goal – Coping	.334 (.082)	.169, .498	.402 (.072)	.258, .547
Coping – Time 2 Strain	-.465 (.154)	-.773, -.157	.050 (.114)	-.178, .278
Indirect effect	-.155 (.061)	-.297, -.054	.020 (.044)	-.066, .109
Direct effect		.160 (.086)	-.012, .332	
Neuroticism – Coping	-.377 (.059)	-.494, -.259	-.201 (.076)	-.352, -.050
Coping – Time 2 Strain	-.222 (.145)	-.511, .068	.119 (.103)	-.086, .324
Indirect effect	.084 (.054)	-.017, .200	-.024 (.024)	-.08, .010
Direct effect		.193 (.084)	.025, .361	
Optimism – Coping	.294 (.058)	.178, .411	.142 (.093)	-.043, .328
Coping – Time 2 Strain	-.295 (.145)	-.585, -.005	.116 (.103)	-.090, .322
Indirect effect	-.087 (.043)	-.179, -.010	.017 (.021)	-.006, .081
Direct effect		-.104 (.077)	-.259, .050	

Note. 95% bias corrected confidence intervals. Significant effects are bolded.