

Cognitive hardiness in coaching: Personality trait, skill, or outcome?

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Introduction: Client factors contribute the largest variance to predicting successful coaching (McKenna & Davis, 2009). One important client factor related to appraising work and life change and adversity as a challenge, possessing a sense of self-efficacy, and having an internal sense of locus of control is cognitive hardiness. The aim of this study is to help coaches clarify whether cognitive hardiness acts as a relatively stable personal resource influencing the outcomes of coaching (personality trait), something that can be improved by coaching (skill) or is a useful outcome measure.

Design: A total of 256 employees working in a tax audit company were asked to complete a set of validated measures to explore the association with specific individual factors (hardiness, happiness, proactive coping) with multiple work (job satisfaction, work self-efficacy, work conflict, and counterproductive behaviour) and health outcomes (physical symptoms, job burnout, and depression).

Results: Regression analyses were used to identify the individual factors that contributed to predicting work and health outcomes. Cognitive hardiness significantly added to predictions of burnout, depression, happiness, work locus of control, job satisfaction, work conflict, and proactive coping but not work-related self-efficacy, physical symptoms, or counterproductive behaviour ($p < .001$). Results of the stepwise multiple linear regression indicated that five variables significantly contributed to the prediction of cognitive hardiness (happiness, locus of control, depression, proactive coping, and burnout) accounting for R^2 of .56 ($F(9,256) = 60.82, p < .00$).

Conclusion: Extending prior research demonstrating significant change in cognitive hardiness following individually based coaching and training programmes using the same assessment, the results of this study lend support that this construct can act as personality trait, but also can be used as a useful outcome measure in coaching effectiveness, as well as a skill that can be enhanced as a result of specific psychoeducational techniques and strategies. Implications for coaching psychology, based on different conceptualisations of cognitive hardiness are discussed.

Keywords: coaching psychology; hardiness; resilience; wellbeing; stress.

Introduction

PRIOR research (McKenna & Davis, 2009) identified four ‘active ingredients’ that account for the majority of variance within coaching psychology and therapy outcomes including hope/expectancy (15 per cent), theory/technique (15 per cent), relationship alliance (30 per cent), and client factors (40 per cent). Additionally, two large-scale, randomised controlled executive coaching studies (de Haan et al., 2020) suggest that the working alliance

factor between coach and client may be even less important to coaching outcomes as was suggested in earlier research.

A comprehensive meta-analysis suggests that coaching success depends largely on specific client factors (e.g. hope, self-efficacy, self-esteem, core self-evaluation), a generally positive feeling about the coaching techniques used, and an overall satisfaction with the coaching relationship (Grover & Furnham, 2016; Tee et al., 2017). However,

there has been a relative paucity of research delineating the exact role of client factors in overall coaching success and this focus is both an emerging and understudied topic within coaching psychology.

One important individual factor that has been shown in prior research to be significantly associated with both work and health outcomes relevant to coaching psychology is cognitive hardiness (Bartone, 2008; Kobasa & Maddi, 1985; Nowack, 1999). Meta-analytic analysis by Eschleman, Bowling and Alarcon (2010) demonstrated incremental validity of diverse hardiness measures in predicting both individual and job-related outcomes (e.g. stressors, strains, social support, coping, and performance) after controlling for the core self-evaluation traits, the five-factor model traits (FFM), optimism, and positive/negative affectivity. As such, cognitive hardiness may act as a powerful individual trait that prompts resource utilisation and behaviour that can directly influence the success of coaching engagements.

However, it is not clear whether to conceptually treat cognitive hardiness as a fairly stable personality trait that can directly influence the course of coaching (e.g. setting and successfully completing goals) or as a malleable skill that can be modified through coaching engagements and used as one measure of overall coaching effectiveness or even as one of many relevant client outcome measures. The purpose of this paper is to review and discuss prior research providing evidence about how cognitive hardiness can be conceptualised as a skill that can be changed following coaching programmes, and to build on previously published research by presenting results of a new study with more diverse work and health outcomes that will provide additional evidence for conceptualising cognitive hardiness as an individual trait resource. Understanding the conceptual difference of cognitive hardiness can help coaches to determine if enhancing an individual's ability to consistency reappraise work and life challenges is one of many goals of coaching

engagements that can be formally measured (skill and outcome perspective), or whether this individual resource factor is important just to recognise as a predictor of different aspects of client success in work and life (personality trait perspective).

What is Cognitive Hardiness?

Cognitive hardiness was initially conceptualised as a moderately stable personality characteristic supportive of positive outcomes to negative life situations, stressor, and events (Bartone, 1999; Kobasa, 1979). As such, individuals who are hardy possess a stable set of appraisals and coping strategies to translate stressful work and life circumstances into opportunities for development or growth. The hardiness construct was originally conceived with three cognitive dispositional tendencies consisting of (a) a strong belief in personal control or influence over events and experiences, (b) a feeling of deep commitment or involvement in life's activities, and (c) viewing change as an exciting challenge or a perceived threat (Kobasa, 1979).

Several validated measures of hardiness exist and have been used widely in coaching research either utilising a uni-dimensional or multi-dimensional approach (e.g. Bartone, 1999; Clough & Strycharczyk, 2012; Maddi, 2007; Nowack, 1999). In general, cognitive hardiness has been found to be significantly associated with diverse work, and health outcomes in both cross-sectional and prospective studies (Kobasa et al., 1982; McCallister et al., 2006; Nowack, 1999). Additionally, meta-analytic analysis by Eschleman et al. (2010) demonstrated incremental validity of hardiness in predicting diverse work and wellbeing outcomes after controlling for the core-self-evaluation traits, each of the five-factor model traits (FFM), optimism and measures of positive/negative affectivity.

It is important to point out that although numerous measures and related conceptualisations of hardiness have been used in coaching, organisational psychology and health psychology research (e.g. resilience, grit, mental toughness, psychological capital,

character strengths, and core self-evaluations) it is difficult to conclusively evaluate the impact of this construct within coaching given the overlap in constructs and diverse scales deployed in published studies (Luthans et al., 2008). As such, findings in the coaching psychology literature are challenging to compare and interpret given that the diverse hardiness scales may or may not be measuring the same underlying concepts as originally defined by Kobasa (1979).

For example, one of the main difference between the concepts of cognitive hardiness and resilience, at the measurement level, is that cognitive hardiness tends to have a very concrete theoretical model both in terms of structure and rationale, whereas resilience can either be conceptualised as the ability to resist damage by trauma or a measure of actual recovery from such traumas (Harms et al., 2018; Peterson et al., 2014). There continues to be confusion between the concepts of resilience and hardiness in the literature, and whether they capture the same concept. At times, they are used interchangeably; at others, they are used as distinct constructs (e.g. Cheng et al., 2020; Beasley et al., 2003). Additionally, there are theoretical disagreements on how resilience is often defined leading to discrepancies in operationalising this construct. Research comparing 14 of the most popular measures of resilience suggest that four major factors emerge from exploratory factor analyses including adaptability/self-efficacy, emotion regulation, optimism, and social support that define this construct (Cheng et al., 2020). Additionally, it is known that specific coping strategies tend to be used differentially depending on the type of stressors people face and the effectiveness in terms of resilience outcomes varies (Garrido-Hernansaiz et al., 2020).

Using the same conceptualisation and measure of cognitive hardiness, this paper will briefly review several studies that demonstrate significant and positive change in hardiness following specific coaching/training engagements supporting a case for treating this construct as a set of actions, thoughts,

and behaviours that can be developed (skill perspective). We will also present new data, expanding on prior research, providing evidence of how cognitive hardiness can also serve as a personal resource to minimise the negative effect of stress on health and job outcomes (personality trait or outcome perspective). Implications of treating hardiness as a malleable skill or trait will be discussed in the context of coaching engagements.

Arguments for Cognitive Hardiness as a malleable skill

Prior research has suggested that resilience, with overlapping components of cognitive hardiness, can be improved by psychoeducational programmes and coaching. For example, a review of 14 studies indicated that individually based training can improve personal resilience and is a useful means of enhancing mental health and subjective wellbeing (Robertson et al., 2015). Several studies, briefly summarised below, provide some support for the argument that cognitive hardiness is a constellation of cognitions, emotions and behaviours that can be modified by structured executive coaching and psychoeducational programmes in both adolescents and adults. Each study summarised used a waiting-list control methodology and the same measure of cognitive hardiness strengthening the interpretation of the results given the common problem of redundant labelling of constructs in psychology (cf. Pfattheicher et al., 2017).

In two separate coaching studies with younger adults, cognitive hardiness scores significantly increased because of a structured coaching engagement relative to waiting list controls (Dulagil et al., 2016). The first study examined the impact of an evidence-based within subjects coaching intervention within an Australian high school. Participants were a cohort of 25 female high school students aged between 15 and 16 years (mean age = 15.9). The coaching programme was part of a broader positive education programme conducted by the school. Participants showed a significant increase in cognitive hardiness

($p < .03$) and a significant decrease in depression, anxiety and stress (Dulagil et al., 2016).

The second study used a randomised controlled experimental design with 56 female senior high school students (mean age 16 years) who were allocated to an individual life coach ($N=28$) or to a wait-list control group ($N=28$). Ten teachers were trained in theories and techniques of coaching psychology through a manualised 'Teacher as Coach' programme. Participants were randomly allocated to a Teacher-Coach with whom they met individually for 10 sessions over two school terms. A repeated measures ANOVA revealed a significant treatment by time interaction effect for cognitive hardiness ($F(1,33)=7.631$, $p < .05$). Follow-up tests revealed significant increases in cognitive hardiness ($t(17)=-8.401$, $p < .001$) for the coaching group, whereas participants in the control group showed no significant changes (Green et al., 2007).

Six other executive coaching or structured training programmes also demonstrated significant change in cognitive hardiness with working adults following the intervention compared to a waiting-list control group. In a randomised controlled study, 41 executives in a public health agency received 360-degree feedback, a half-day leadership workshop and four individual coaching sessions over 10 weeks increased cognitive hardiness and wellbeing compared to a control group. A repeated-measure ANOVA for the cognitive hardiness scale showed a significant time (Time 1, Time 2) by group (Group 1, Group 2) interaction effect, $F(1, 39) = 6.75$, $p < 0.05$, indicating that Group 1 had higher scores at the completion of coaching at Time 2, compared to Group 2 who did not receive coaching at that time (Grant et al., 2009).

In a second separate study, 29 executive coaches-in-training set personal goals and completed a 10 to 12 week, five-session, solution-focused cognitive-behavioural personal coaching programme (Grant, 2008). Three sessions were face-to-face with two by telephone. Participation in the

programme was associated with a significant reduction in anxiety, increased goal attainment and a significant increase in cognitive hardiness ($t(1,28)=-2.99$, $p < .01$) compared to a waiting-list control group.

A third study (Grant et al., 2010) randomly assigned 44 high school teachers to either coaching or a waitlist control group. The coaching used a cognitive-behavioural, solution-focused approach and was informed by theories of self-leadership and transformational leadership. Participants in the coaching group received multi-rater feedback on their leadership style and undertook 10 coaching sessions conducted by professional coaches over a 20-week period. A repeated measures ANOVA for cognitive hardiness did not show a significant main effect ($F(1,45)=1.79$, ns). However, there was a significant time (Time 1, Time 2) by group (Group 1, Group 2) interaction effect ($F(1,45)=6.24$, $p < .05$), Cohen's $d=0.72$, indicating that Group 1 had higher cognitive hardiness scores at the completion of coaching at Time 2, compared with Group 2.

A fourth study explored the impact of executive coaching during a period of organisational change on 31 executives and managers from a global engineering consulting organisation (Grant, 2014). Participation in this within-subject coaching programme was associated with a significant increase in goal attainment, enhanced solution-focused thinking, a greater ability to deal with change, increased leadership self-efficacy, cognitive hardiness and decrease in depression (all p 's $< .01$).

A fifth study evaluated a 12-week comprehensive 'Living Well' wellness programme to optimise the quality of life of those living with the challenges of the autoimmune disease multiple sclerosis (Giesser et al., 2013). A total of 315 participants were self-identified who may meet one or more of these three criteria: 1) recent diagnosis of less than five years; 2) possessing minimal symptoms; and 3) employed. The purpose of this study was to evaluate and compare three programmes: 1) Classroom-based

Living-Well programme (CB); 2) Blending learning programme (BL); and 3) Online Only (OL). A quasi-experimental design was used as no programme participants could be randomly assigned to the three delivery methods. Compared to the waiting list control group, participants reported significant improvements in cognitive hardiness, stress, social support, eating/nutrition habits, physical activity/exercise, psychological well-being, and reduced anxiety at the end of the 12-week programme (all p 's < .01).

Finally, a study of Vietnam veterans, peacekeepers, and police members ($N=65$) attending a nationally approved PTSD treatment programme found that participants diagnosed with PTSD had better psychological, physical health, world assumptions and quality of life at both the start and the end of the PTSD programme if they had high levels of initial cognitive hardiness (Bowen, 2011). It was also found that participants who developed increased cognitive hardiness experienced significantly less distress when discussing their traumatic experiences and reported fewer psychological symptoms and greater quality of life at the end of the eight-week PTSD treatment programme (all p 's < .05).

Taken together, these studies with both younger adults and full-time employees participating in either executive coaching or a structured training programme, all demonstrate significant increases in cognitive hardiness compared to a waiting-list control group. These studies support the conceptualisation of cognitive hardiness as a malleable skill that can be directly influenced by diverse coaching techniques and approaches. However, other studies, using the same conceptualisation and measure of cognitive hardiness, provide other evidence that this construct can also be conceptualised as a stable set of dispositions influencing coaching outcomes. As such, cognitive hardiness may possibly be used as one measurement indicator to evaluate overall success of coaching engagements.

Arguments for Cognitive Hardiness as a personality trait

Prior research, using the same cognitive hardiness scale used in this study (Nowack, 1989), supports the conceptualisation of cognitive hardiness as an important individual difference variable (trait perspective) that coaches can assess initially to provide information on one important client factor that can influence the coaching process and is associated with diverse work and health outcomes. Several of these cognitive hardiness trait perspective studies are briefly summarised below.

For example, Beasley et al. (2003) demonstrated that cognitive hardiness moderated the effects of emotional coping or adverse life events on psychological distress. Sharpley and Yardley (1999) reported that cognitive hardiness was a significant predictor of depression-happiness and individuals with high cognitive hardiness thresholds scored higher on the happiness end of the continuum.

Drummond (1997) reported that cognitive hardiness exerted main effects on self-reported physical health and was significantly associated with cortisol reactivity and a measure of job performance. In a three-year longitudinal study with 229 full-time police officers, cognitive hardiness significantly predicted self-reported hospitalisations but not absenteeism obtained by medical records (Green & Nowack, 1996).

In study of 297 employees from large New Zealand organisations, Cash and Gardner (2011) found significant positive associations between cognitive hardiness and job satisfaction, cognitive hardiness and job performance, and a significant negative relationship with cognitive hardiness and intention to turnover (all p 's < .01). Structural equation modelling revealed that the direct and positive relationship between cognitive hardiness and job satisfaction was the strongest path. A separate study of 164 track and field male coaches explored predictors of job burnout. The results showed that the conceptual model of the independent varia-

bles of cognitive hardiness, competitive trait anxiety, and social support, moderated the relationship between stress and the three dimensions of burnout (all p 's < 0.05).

The direct and relative influence of cognitive hardiness, the Type A behaviour, coping behaviour, and social support upon the intensity of self-reported job stress, daily hassles, anxiety and physical health were examined within a voluntary sample of 1925 white- and blue-collar employees within a large Australian university (Sharpley et al., 2010). Stepwise multiple regression analyses indicated that cognitive hardiness incrementally added to predictions of physical health beyond social support, Type A behaviour and coping style.

Finally, a longitudinal study tested whether cognitive hardiness moderates the adverse effects of deployment-related stressors on health and wellbeing of soldiers on short-tour peacekeeping operations (four to seven months). Australian Army reservists ($N=448$) were surveyed at the start, end and up to 24 months after serving as peacekeepers in Timor-Leste or the Solomon Islands (Orme & Kehoe, 2014). Despite range restrictions, scores on the cognitive hardiness scale significantly moderated the relationship between deployment stressors and a measure of psychological distress.

Together, these findings provide some support for the argument that cognitive hardiness can act as an important personal resource (trait perspective) and is associated with diverse health and wellbeing outcomes that can have an importance influence on aspects of coaching engagements (e.g. emotional regulation, goal setting). The current study extends prior research demonstrating a significant association with the same cognitive hardiness measure with wellbeing, but also includes more diverse job-related outcomes important to organisational coaching engagements and client outcomes. The inclusion of these additional job-related outcomes strengthens a case to be made to conceptualise cognitive hardiness as an important trait and client factor within coaching psychology.

Method

Participants and procedure

An online survey link and letter explaining the nature of a study investigating individual factors effecting job performance and health with assurances of confidentiality was sent to 1,960 registered Australian tax agents. A total of 275 completed questionnaires that could be used for analysis were returned for a response rate of 14 per cent. The sample of tax agents was composed of full-time tax advisors (98.0 per cent) working internally (85.3 per cent), predominantly male (76.7 per cent), over 50 years old (42.6 per cent) with tertiary education (65 per cent), and tenure of over 10 years (66.8 per cent).

Approval for this study was granted by the Ethics Committee at The University of Adelaide, Australia. Participation was voluntary with completion and return of the questionnaire constituted consent. All personal details were kept private and confidential via exclusion of sensitive data and multiple recoding processes. Participants received information about the study by letter prior to the survey.

Measures

Cognitive Hardiness

Cognitive hardiness was measured using the 30-item ($\alpha=0.84$) Cognitive Hardiness scale (Nowack, 1990, 1991). Example items are: 'When all else is bleak, I can always turn to my family and friends for help and support', and 'I expect some things to go wrong now and then, but there is little doubt in my mind that I can effectively cope with just about anything that comes my way' rated on a five-point agreement scale from 1 (strongly agree) to 5 (strongly disagree). Prior research supported the interpretation of a uni-dimensional scale (Beasley et al., 2003; Nowack, 1999).

Proactive Coping Scale

Coping was measured using the Reactions to Daily Events Questionnaire also known as the Proactive Coping Scale Greenglass (1999). The scale identified an individual's ability to

manage stress using problem solving/problem focused form of coping, and the coping strategies used by stress resilient individuals. The scale asks participants to rate the truth of items regarding their reactions to various situations. A four-point Likert scale was used from 1 (Not at all true) to 4 (Completely True). Example items are: 'I am a take charge person', 'I like challenges and beating the odds', and 'Despite numerous setbacks, I usually succeed in getting what I want'. Internal consistency reliability (α) for proactive coping was reported to be .80 (Greenglass, 1999).

Self-Efficacy at Work Scale

Efficacy was measured using the eight-item ($\alpha=0.91$) Self-efficacy at Work Scale (Jimmieson, 2000). Example items are: 'When I am working at a job I expect to be able to do well at it' and 'I feel confident that my knowledge, skills and capabilities equal or exceed those of my colleagues' rated on a six-point Likert scale from 1 (strongly disagree) to 6 (strongly agree).

Work Locus of Control Scale (WLCS)

The 16-item Work Locus of Control Scale was used to measure employee beliefs about job control (Spector, 1988). The Work Locus of Control is a general expectancy that positive outcomes are controlled by either the person's own actions (internal) or by others or luck (external). WLCS was found to have good internal consistency (α ranged between 0.75 and 0.85 in six samples) and stronger relationships than general locus of control measures, with job satisfaction and commitment as well as being a more precise predictor of work behavior (Spector, 1988). Respondents select responses for 16 items using a 6-point Likert scale ranging from 1 = Disagree very much to 6 = Agree very much. Total scores ranged from 16 to 96 providing an overall control score. Example items are 'A job is what you make of it' and 'If employees are unhappy with a decision made by their boss, they should do something about it', rated on a six-point scale from 1 (disagree very much) to 6 (agree very much).

Job Burnout Attitude Change: Job burnout was measured by the 24-item ($\alpha=.77$), Job Burnout Attitude Change measure (Niemirowski & Wearing, 2007). with a five-point Likert scale where 1=Strongly Agree and 5=Strongly Disagree. Example items are: 'I only do what I have to in my job', 'Job security is more important to me now than when I first began my job', and 'I am more interested in getting promoted quickly' rated on a five-point Likert agreement scale from 1 (Strongly agree) to 5 (strongly disagree).

The Level of Happiness / Depression Scale: Positive and negative affect (12-items) and depression (14-items) were measured by the Level of Happiness/Depression Sale (McGreal & Joseph, 1993) identified how frequently each statement of sad and happy feelings was true for participants at different times during the previous week. Example items are: 'I feel sad' and 'I felt mentally alert' rated on a five-point Likert frequency scale from 1 (never though five days) to 5 (Most of the time –five to seven days). This scale has demonstrated high internal consistency reliability ($\alpha=0.93$) and concurrent validity with the Beck Depression Inventory and convergent validity with the Beck Depression Inventory, Self-rating Depression Scale, and the Centre for Epidemiological studies Depression scale (McGreal & Joseph, 1993; Joseph, 1996).

Job Satisfaction: Job satisfaction was measured using the 15-item ($\alpha=0.77$) Job Satisfaction Scale (Tucker & McCoy, 1992). This scale measures a broad range of work-related issues that affected satisfaction and commitment. Example items are: 'This organisation inspires me to give my best job performance' and 'I am willing to put in a great deal of effort beyond that normally expected of me to help the organisation be successful', rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Interpersonal Conflict at Work (ICAWS): Interpersonal Conflicts are overt or covert behaviours ranging from minor disagreements to physical assaults. How often people experienced disagreements or were treated poorly at work was measured using the

six-item ($\alpha=0.74$) Interpersonal Conflict at Work (Spector & Jex, 1998). is a six-item scale with a five-point Likert scale ranging from 1=Never to 5=Very often. Example items are: 'How often are people rude to you at work?' and 'How often do you feel bullied at work?' rated on a six-point scale from 1 (never) to 6 (always). Interpersonal Conflict at work was found to be associated with various job strains, for example, job dissatisfaction, and physical symptoms, and related to organisational constraints, role conflict, intention to quit, and also anxiety and depression (Spector & Jex, 1998).

Physical Symptoms Inventory (PSI): Somatic or physical symptoms of strain at work was measured using the 18-item ($\alpha=0.77$) Physical Symptoms Inventory (Spector & Jex, 1998). This scale is an indicator of whether symptoms were deemed serious enough to seek medical attention and made it possible to separate physical illness from psychological distress. The scale consisted of 18 items and responses were 1=No, 2=Yes – but I did not see a doctor, or 3=Yes and I saw doctor, for each symptom. Sample symptoms included: 'trouble sleeping', 'headaches', 'loss of appetite', and 'fatigue', rated on a three-point scale from 1 (no), 2 (Yes but did not see a doctor) to 3 (Yes I saw a doctor).

Organisational Citizenship Behaviour (OCB): Citizenship behaviour at work was measured using the 10-item ($\alpha=0.84$) Stress Related Work Behaviour Scale (Spector & Jex, 1998). Example items are: 'Purposely worked slowly when things need to get done' and 'Refused to help someone at work', rated on a five-point Likert scale from 1 (never) to 5 (everyday).

Research design

Prior studies have treated hardiness as an outcome measure that can be successfully influenced by structured programmes such as executive coaching (Giesser et al., 2007, 2013; Grant, 2017) and this conceptualisation of hardiness suggests that it is malleable and can be changed with coaching and other interventions (i.e. the magnitude of change

in this skill can be measured). To explore this conceptualisation of cognitive hardiness (skill perspective), a stepwise regression analysis was run treating cognitive hardiness as a dependent variable to explore what personal and job-related research variables significantly contributed to predictions of this variable.

Alternatively, other studies, using this same cognitive hardiness measure, have established a tentative argument for this variable being an important personal resource in the face of work and life stress (trait perspective). The current cross-sectional design also allowed for analyses to explore whether cognitive hardiness is associated with both wellbeing and diverse job-related outcomes to build upon existing research. Stepwise regression analyses were used to explore the role of cognitive hardiness as a personal resource variable with diverse work and health outcomes. Two hypotheses tested to investigate interrelationships between cognitive hardiness and job and psychological wellbeing outcomes to better understand if the construct should be conceptualised as a trait or skill in future research despite limitations of this study to follow employees over time.

Hypothesis 1: Cognitive hardiness, treated as a dependent variable, will be significantly predicted by an individual's resilience factors (proactive coping, locus of control, burnout, work conflict, happiness/depression, job satisfaction, and organisational citizenship).

Hypothesis 2: Cognitive hardiness, treated as an individual resource variable, is a predictor of proactive coping, locus of control, burnout, work conflict, happiness/depression, job satisfaction and organisational citizenship.

Results

Means, standard deviations, internal consistency reliabilities, and bivariate correlations are shown in Table 1 below. Multiple regressions (using the stepwise method) determined which variables predicted cognitive hardiness, and which variables predicted proactive coping, job burnout, physical health, and mental wellbeing, and work performance measures.

Table 1: Means, SDs, α , and Intercorrelations for Study Variables.

Variables	M	SD	α	1	2	3	4	5	6	7	8	9	10	11
1. Hardiness	107.29	13.64	.84	---										
2. Happiness	44.29	9.51	.94	.63**	---									
3. Depression	24.30	8.49	.88	-.63**	-.73**	---								
4. Job burnout	2.01	0.73	.77	-.42**	.63**	-.63**	---							
5. Job satisfaction	3.81	0.44	.77	.30**	.35**	.21**	-.37**	---						
6. Physical symptoms	4.85	3.20	.77	-.32**	-.37**	.48**	.17**	.03	---					
7. Proactive coping	44.03	6.16	.87	.45**	.37**	-.27**	-.27**	.24**	.02	---				
8. Work Self-efficacy	46.30	4.67	.72	.32**	.29**	-.22**	-.27**	.19**	.01	.41**	---			
9. Work Conflict	1.49	0.46	.81	-.27**	.28**	.25**	.25**	-.31**	.16*	-.08	-.18**	---		
10. Locus of control	74.30	10.83	.83	.47**	.36**	-.39**	-.35**	.30**	-.23**	.39**	.19**	-.16**	---	
11. Organisational Citizenship	1.42	.29	.68	-.14*	-.26**	.21**	.28*	-.26**	.08	-.08	-.11	.35**	-.08	---

Note. N=261* p<.05. ** p<.01.

Table 2: Stepwise Multiple Regression Predictors of Cognitive Hardiness as a Dependent Variable.

Variable	B	95% CI	β	t	p
Happiness	.14	[.08, .21]	.27	4.11	.00
Locus of Control	.14	[.05, .23]	.15	2.95	.00
Depression	-.19	[-.27, -.11]	-.29	-4.52	.00
Proactive Coping	.19	[.10, .29]	.19	3.99	.00
Burnout	-.08	[-.16, -.01]	-.11	-2.88	.03
Job Satisfaction	.04			.74	.46
Physical Symptoms	-.40			-.80	.43
Self-Efficacy	.05			1.07	.28
Work conflict	-.08			-1.76	.08
Organisational citizenship	.05			1.13	.26

Note. $R^2 = .55$ ($N=256$). CI=confidence interval for B

Predictors of Cognitive Hardiness

Stepwise multiple regressions for the full sample were done to test which factors predicted cognitive hardiness, as shown in Table 2. Five factors (happiness, work locus of control, depression, proactive coping and burnout) significantly predicted cognitive hardiness accounting for a multiple $R^2=.56$ ($F(9, 256)=60.82, p<.00$). Hypothesis 1 was largely supported and suggests that individuals who experience low depression and burnout and a high level of work locus of control, proactively cope with work and life stress, report positive affect (happiness) are significantly likely to report being cognitively hardy.

Several work-related factors including job satisfaction, work conflict and organisational citizenship did not incrementally predict cognitive hardiness ($p>.05$). Overall, this stepwise regression suggests that an individual's psychological wellbeing and coping strategies were the variables most strongly contributing to cognitive hardiness. Treating cognitive hardiness as

a dependent or outcome variable, these findings suggest that specific coaching strategies to enhance cognitive reappraisal, emotional regulation and affect management (e.g. cognitive-behavioural techniques) might have the greatest impact on enhancing well-being, resilience, and cognitive hardiness.

Cognitive Hardiness as predictors of job and wellbeing outcomes

A series of stepwise multiple regressions for the full sample were also done to examine the role of cognitive hardiness to predict the work-related and wellbeing research outcomes in this study¹. Cognitive hardiness significantly added to predictions of burnout, depression, happiness, work locus of control and proactive coping but not self-efficacy, job satisfaction or counterproductive behaviour, providing partial support for Hypothesis 2.

Results of the stepwise multiple linear regression indicated that four variables significantly contributed to the prediction of job burnout (hardiness, job satisfaction, counter-

¹ Note. Regression results for each research variable are available by the author.

Table 3: Stepwise Multiple Regression Predictors of the research variables by Cognitive Hardiness.

Variable ¹	R ² Change	F Change	P
Job Burnout	0.18	54.40	.00
Depression	0.04	24.29	.00
Happiness	0.06	33.64	.00
Locus of Control	0.22	72.71	.00
Proactive Coping	0.20	14.17	.00
Work Conflict	0.06	17.27	.00
Job Satisfaction	0.16	5.212	.02

Note. $N=256$.

¹R Square=.55; $f(1, 250)=60.82, p<.00$.

²Cognitive Hardiness did not significantly contribute to predictions of self-efficacy, physical symptoms or organisational citizenship; stepwise F to remove $p=.10$.

productive behaviour, and locus of control) accounting for R² of .28 ($F(9, 256)=130.16, p<.00$) and four variables significantly contributed to predictions of physical symptoms (happiness, proactive coping, work locus of control and cognitive hardiness).

Results of the stepwise multiple linear regression indicated that five variables significantly contributed to the prediction of physical symptoms (R² of .29 ($F(9,256)=21.12, p<.00$) but did not include cognitive hardiness. For the wellbeing outcomes of depression and happiness, the stepwise multiple regression analyses indicated that three variables significantly contributed to the prediction of depression (happiness, physical symptoms, and hardiness) accounting for R² of .61 ($F(9,256) = 25.30, p<.00$) and also three contributed to predictions of happiness (depression, hardiness and job satisfaction) accounting for R² of .61 ($F(9,256)=129.13, p<.00$).

Cognitive hardiness also significantly contributed to predictions of proactive coping (cognitive hardiness, self-efficacy, locus of control and physical symptoms) accounting for R² of .34 ($F(9,256)=32.46, p<.00$) and work locus of control (cognitive hardiness, proactive coping, burnout, depression and job satisfaction) accounting for R² of .31 ($F(9, 256)=22.80, p<.00$). Taken together, these separate stepwise regressions analysis provide additional support for the

argument that cognitive hardiness plays an important role as an individual psychological resource in predicting both diverse work and wellbeing outcomes.

Discussion

This study builds on previous research using the same measure providing evidence that cognitive hardiness can have both direct and moderating effects on general health, somatisation, anxiety and depression (cf. Beasley et al., 2003; Nowack, 1989). As such, the present findings extend the literature showing associations of cognitive hardiness with both wellbeing and relevant job-related outcomes supporting the conceptualisation of this construct as a stable personality-based resource (trait). In these studies, individuals reporting higher levels of cognitive hardiness report less adverse health and greater positive job-related outcomes relative to those who report lower levels

Additionally, numerous psychoeducational and coaching programmes with both adults and young adult provide confirmatory evidence that cognitive hardiness can be increased following short-term engagements providing one metric of coaching success. As opposed to viewing hardiness as a relatively fixed personal resource (trait perspective), these studies lend support for cognitive hardiness also being conceptualised as a malleable

skill that can be enhanced with specific coaching strategies, techniques, and behavioural practise on the part of clients. Taken together, it appears that cognitive hardiness can indeed act as both a protective individual resource under stress (trait perspective) as well as an individual resource factor (skill perspective) that can be directly influenced by coaching. As such, there are numerous implications for coaching that will be briefly summarised here.

Coaching implications of Cognitive Hardiness as a skill

Although shown to be unidimensional, the theoretical underpinnings of the cognitive hardiness scale (Nowack, 1989) involve three cognitive dispositional tendencies including commitment and engagement with work and life activities, versus feelings of alienation and burnout; possession of an internal versus external locus of control and optimistic explanatory style; and a view of adversity and change in life as a challenge to rebound and promote growth as opposed to viewing such change as a threat that is immobilising (Kobasa & Maddi, 1985). Unpacking each of these underlying dispositions of the current scale provide some guidance for coaches about ways to enhance hardiness with their clients.

Regarding the commitment disposition underlying cognitive hardiness, at least three studies illustrate the important of client commitment to various coaching outcomes including the prediction of leadership performance (Boyce et al. (2010), successful career job search behaviour (Lim et al., 2019), and overall coaching effectiveness (Gan & Chong, 2015). As such, enhancing this underlying construct of cognitive hardiness appears to have specific desirable coaching outcomes as well as enhancing motivation to set goals and change behaviour in their clients. For example, coaches who use a strength-based approach (e.g. Burke & Passmore, 2019) might increase client commitment to goal-setting and behavioural change by first identifying and

then encouraging use of their own signature strengths with positive performance and wellbeing outcomes. In a six-group, random assignment placebo-controlled prospective study, Seligman et al. (2005) demonstrated that deployment of signature strengths facilitated a significant increase in overall happiness and decreased depressive symptoms that lasted for approximately three months.

To facilitate individual, professional and career development goal-setting coaches might use the 'Theory of Intentional Change' model (Boyatzis, 2006) that focuses on the gap between a client's 'real' self to their 'ideal' self to increase commitment to action and goal striving around the goals that are most intrinsically motivating. Several recent neuroscience-based studies using functional magnetic imagery (fMRI) suggest that using this coaching model activates networks and regions of the brain that are associated with big-picture thinking, engagement, motivation, stress regulation and parasympathetic modulation (default node network). As a result, clients are more motivated to set, pursue and successfully accomplish self-identified activities and goals (Boyatzis & Jack, 2018).

With respect to individual goal setting and goal striving with their clients, coaches might use implementation intentions using 'if/then' plans to enhance successful commitment and actions toward specific behavioural activities (Nowack, 2017). It has been established that the greatest commitment towards individual behaviour change goals in clients occurs when they first set and are nearing completion of their goals (e.g. Touré-Tillery & Fishbach, 2012). As a result, coaches should explore the creation of 'shorter middles' to make goals more bite-size and easier to achieve. When clients lose commitment to action and intrinsic motivation, coaches should encourage them to redefine or even abandon the pursuit of such goals. Evidence by Miller and Wrosch (2007) suggests that clients had difficulties disengaging from unattainable goals experienced significantly higher levels of the

inflammatory molecule C-reactive protein (CRP), possibly compromising health and wellbeing.

With respect to addressing the challenge disposition theoretical underpinning of cognitive hardiness, coaches should focus client's attention to learning versus performance-based goals (Nowack, 2017) and emphasise a growth-based mindset versus fixed-based mindset (Dweck & Yeager, 2019). A growth-based mindset is the belief that human capacities are not entirely fixed but can be enhanced and developed over time. Dweck and colleagues have shown that people who believe or are taught that abilities are malleable (growth mindset) rather than immutable (fixed mindset) tend to learn better and improve more (Dweck, 2008).

In recent electroencephalography (EEG) studies, growth-minded individuals demonstrate greater neural markers of attention to feedback and lower neural markers of emotional distress to errors compared to those with a fixed mindset (Moser et al., 2011). As such, coaches can help clients to view challenge and change in life through the lenses of opportunities for self-development and growth despite some recent criticisms of resilience being the most common trajectory following trauma and major life events (Galatzer-Levy et al., 2018; Infurna & Jayawickreme, 2019).

For the dispositional component of shifting clients to have a greater internal, rather than, external locus of control over work and life events within cognitive hardiness, coaches should consider evidence-based cognitive-behavioural approaches that include both refuting of irrational beliefs as well as cognitive reappraisal strategies. When work and life stressors are ongoing or otherwise not easily controllable, finding some feeling of mastery may help buffer against the impact of the stressor on a client's overall health and wellbeing. Self-efficacy and having an internal sense of control (belief in one's ability to cope with life's challenges) is a protective factor against depression and facilitates recovery from a wide range of

traumas, including natural disasters, terrorist attacks, military combat and criminal assaults (Tabibnia & Radecki, 2018).

Other techniques for coaches to explore with their clients to facilitate an internal locus of control and self-efficacy include encouraging emotional disclosure of thoughts and feelings (e.g. through written expression). This emotional disclosure can improve understanding of the circumstances, boosting a sense of control and inhibiting suppression of that emotion (cf., Ebstrup et al., 2011; Frattaroli, 2006; Pennebaker, 1997). Another technique that coaches can use is to help clients reframe or reinterpret work and life events to alter its emotional impact (cognitive reappraisal). A recent meta-analysis of emotion-regulation strategies to enhance perceived control over situations identified cognitive reappraisal, particularly perspective-taking, as most effective (Webb et al., 2012).

Finally, when control over work and life events seems weak or non-existent, coaches can help clients facilitate a sense of purpose and meaning to minimise the impact of stressors on wellbeing. For example, a study by Alimujiang et al. (2019) found in a cohort study of 6985 adults that life purpose was significantly associated with all-cause mortality. Their findings suggest that clarifying and defining legacy, purpose and meaning with clients may influence both life satisfaction and long-term health.

The techniques, strategies and approaches summarised here are neither unique nor exhaustive to the myriad of tools that coaches typically deploy, but they do provide a map to guide coaches in specific ways to address each of the three core dispositional components of cognitive hardiness. It is important to point out that most of these techniques were used within the published executive coaching and structured psychoeducational programmes summarised earlier that resulted in significant positive changes in cognitive hardiness scores over time (e.g. Giesser et al., 2013; Grant, 2014).

Coaching implications of Cognitive Hardiness as a personality trait

Conceptualising and treating cognitive hardiness as a moderately stable client personality factor or trait provide coaches with insight about possible successes and challenges their clients might face within the coaching engagement (e.g. goal setting/striving, soliciting feedback). As such, using a cognitive hardiness measure might serve as a reliable measure of individual change efforts following coaching or as part of an overall outcome evaluation approach including other popular coaching measures such as self-efficacy, self-esteem and job satisfaction/performance.

Several cross-sectional studies have investigated personality of the client as well as the combination of coach and client personality with specific coaching outcomes, but the results have been largely mixed (Grover & Furnham, 2016). In one prospective study of 116 leaders by Smither, London and Richmond (2005), clients high in sociability/extraversion were more likely to have sought additional feedback, and leaders high in responsibility/conscientiousness were more likely to have engaged in developmental behaviours six months following 360-degree feedback. In general, of the five-factor personality scales, conscientiousness appears to be more consistently and positively associated with the transfer and maintenance of new behaviours following coaching engagements (Grover & Furnham, 2016).

Cognitive hardiness has been shown to be significantly associated with all of the five factor personality factors, including extraversion ($r=.37$), agreeableness ($r=.41$), emotional stability ($r=-.46$), openness to experience ($r=.24$), and conscientiousness ($r=.38$), all $p's < .01$ (Barraza & Zak, 2009)². Clients who are cognitively hardy might be expected to react with less defensiveness to feedback (e.g. 360-degree feedback programmes) and have enhanced motivation to set, pursue and persevere in the face

of obstacles/challenges to ensure successful goal success during and following a coaching engagement (Nowack, 2019).

Finally, one important concern within current coaching research is a lack of agreement or definitive list of outcomes of coaching. In several studies, self-efficacy is commonly used as an outcome variable for measuring the effectiveness of coaching as is goal attainment, leadership effectiveness, hardiness/resilience, observed behavioural change over time and job specific outcomes such as job satisfaction or performance. Each of these possible type of outcome measures might be an improvement beyond the commonly used client self-report of satisfaction/improvement as better measures of overall coaching effectiveness.

Increasingly, enhancing specific psychological factors as a function of coaching is receiving more attention in coaching research (Grover & Furnham, 2016). Helping those being coached to reduce anxiety and effectively manage stress along with enhancing personal resilience and psychological wellbeing are often desirable outcomes of coaching engagements that have useful and important benefits for organisations as well (Grant et al., 2009).

The Cognitive Hardiness scale (Nowack, 1989) has already shown to be one possible outcome measure that coaches could consider using to both replicate and extend current research on successful coaching outcomes. Coaches could administer any validated measures of hardiness at the beginning and termination of the coaching engagement as one of several process and outcome-based measurements to identify relevant client change in cognitions, affect and behaviour.

Limitations

One of the strengths of this study was the use of a standardised measure of hardiness that provides comparison across previous published studies and replicability for future

² Note. Personal communication as these results were not reported in the published article.

research. Additionally, the use of both well-being and diverse job-related measures included in this present study allows for a richer analysis of the association of cognitive hardiness with important individual and organisational measures.

One limitation of this study is generalisation to other professions as our sample was comprised of only adult Australian tax agents. All measures relied on self-reported responses to a survey questionnaire introducing a possible common-method measurement error. In addition, the research was cross-sectional and not a longitudinal study, so implications of findings are also limited as the measures were not compared over time to confirm consistency, stability or changes. These temporal issues were identified as important to understanding responses to adversity and effectiveness of stress management and resilience programmes (Fisher & Ragsdale, 2019; Fletcher & Sarkar, 2013). Other limitations were using self-reported physical symptoms, not including other organisational factors such culture and values, training or co-worker and supervisor support as indicators of work-related stressors or resources.

The research was conducted during a relatively stable period in the tax industry and the theoretical model was based on identified issues that informed determinants of cognitive hardiness. Since then, large scale job losses restructuring, outsourcing, automation, and technological changes have and continue to significantly impact the tax sector industry. Finally, it is unclear how the results reported here would be different if the measures were collected during the current Covid-19 worldwide pandemic that likely will have an impact on individual and job-related outcomes such as satisfaction, depression, physical health, and psychological wellbeing.

Conclusion

The current study expanded prior research demonstrating that cognitive hardiness acts, in part, as a personal resource in the

face of work and life stress to enhance, not just health and wellbeing, but also diverse job-related outcomes (trait perspective). From this trait perspective, coaching to enhance cognitive hardiness using specific techniques and methods might not only lead to better wellbeing of clients, but foster a greater sense of control on the job, satisfaction with work being done, minimise job burnout and also enhance overall resilience (Kuntz et al. (2017).

Although initially conceptualised as a stable personality factor, research with the same measure of cognitive hardiness, has also been shown to be modified (skill perspective) as result of executive coaching and/or structured psychoeducational programmes (e.g., Grant 2014; Grant, Curtayne & Burton, 2009). As such, cognitive hardiness, conceptualised as a skill, might be used as one type of outcome measure to be included in executive coaching evaluations. The findings summarised here support prior research by Bartone (2012), who also argues the diverse measures of hardiness used in coaching and health research studies may simultaneously act as both a trait and state that is amenable to change depending on a myriad of individual, coach and contextual factors. Future research, with diverse hardiness measures, will continue to elucidate the conceptualisation and use of this construct in coaching psychology as a useful indicator of progress and/or a valuable personal resource effecting the course of coaching engagements. Such findings will also help to clarify and elucidate the important role of individual client factors in future coaching psychology research.

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