CURRENT RESEARCH IN SOCIAL PSYCHOLOGY

http://www.uiowa.edu/~grpproc/crisp/crisp.html

Volume 12, Number 10
Submitted: April 18, 2007
First Revision: May 30, 2007
Accepted: June 12, 2007
Published: June 12, 2007

SELF-COPING COMPLEXITY: THE ROLE OF RELATIONAL, INDIVIDUAL AND COLLECTIVE SELF-ASPECTS AND CORRESPONDING COPING STYLES IN STRESS AND HEALTH.

Elizabeth A. Hardie
Christine Critchley
Kate Swann
Swinburne University of Technology

ABSTRACT

A geographically diverse western adult sample (n=546) from Australia, New Zealand, the British Isles and North America reported comparable self-aspects, coping styles, recent stress and health states. Latent class analysis identified 3 cluster groups characterized by strong (n=231), medium (168) and weak (n = 147) patterns of self and coping, or Self-Coping Complexity (SCC). All SCC clusters reported similar recent stress and physical health, but the Low SCC group reported the poorest social, emotional, cognitive and sexual well-being, while the Medium and High SCC groups reported the greatest well-being. In the face of comparable stress, those with greater SCC enjoyed better psychosocial health.

.

INTRODUCTION

Self is said to influence the process of coping with stress (Cross, 1995), while self-complexity is said to buffer against stress-related ill-being (Linville, 1987). Recent research using a tripartite model of self (Brewer & Gardner, 1996; Kashima, Yamaguchi, Kim, Choi, Gelfand, & Yuki, 1995; Sedikides & Brewer, 2001) shows that self-aspects guide corresponding styles of coping (Hardie, 2005) and that relational, individual and collective self-aspects are linked to the process of coping effectively with corresponding types of stress (Hardie, Kashima & Pridmore, 2005). These studies suggest that multiple, well-developed self-aspects provide an enhanced capacity to cope with stress, thus promoting better health outcomes.

Recent reviews of self-complexity research suggest that the assessment of self-complexity be refined (Koch & Shepperd, 2004; Rafaeli-Mor & Steinberg, 2002; Solomon & Haaga, 2003). Studies have often assumed that coping effectively with stress is an implicit consequence of greater self-complexity (Koch & Shepperd, 2004), but, apart from one recent study which showed that both self-aspects and coping skills influence health outcomes (Solomon & Haaga, 2003), there is little research which explicitly examines both self and coping in relation to stress and health. In order to address this gap, Hardie, Critchley and Morris (2006) proposed an expanded conceptualization of complexity which included both self-aspects and coping styles. They hypothesized that people with multiple, well-developed self-aspects would possess multiple, corresponding coping styles. Those with greater self-coping complexity (SCC) would have an enhanced capacity to cope with stress and, consequently, better health outcomes; while those with more limited self-coping patterns would experience poorer health. Using student samples from eastern and western cultures, they identified clusters of students with expansive and restricted patterns of self-coping complexity. Cluster membership was not associated with culture or gender, and cluster groups reported comparable levels of stress; however, those with greater SCC reported better health. This research suggested that self-coping complexity may confer a health advantage on men and women from any culture, but the findings were based on student samples from one English-speaking western country (Australia) and several Asian countries. As the role of SCC needs to be explored in community samples from various countries and cultures, the present study surveyed adults from Australia-New Zealand, the British Isles and North America, in order to explore patterns of self-coping complexity, levels of stress, and health outcomes in samples from three English-speaking western regions.

Self-Aspects and Self-Complexity

Self has traditionally been analyzed in terms of two contrasting aspects: autonomy or connection with others. These have been described as independent and interdependent self-construal (Markus & Kitayama, 1991) or individual self and collective self (Triandis, 1989). The individual or independent self was defined by separateness from others, while the collective or interdependent self was defined by shared connections with others. Since the latter included both dyadic interpersonal relationships and collective social group memberships, a new model was proposed to distinguish three distinct self-aspects. This tripartite model posits three fundamental self-aspects, Individual, Relational and Collective, which, respectively, reflect self-definition in terms of one's unique personal qualities, dyadic relationships and group memberships (Brewer & Gardner, 1996; Kashima & Hardie, 2000; Kashima et al., 1995; Sedikides & Brewer, 2001).

Proponents of two-part models have often described self-construal as an enduring style of either independence or interdependence, however many contemporary theorists agree that the self is made up of multiple components or self-aspects which coexist within an integrated system of self-representations. The relative influence of a particular self-aspect may be context-dependent (Brewer & Gardner, 1996; Holland, Roeder, van Baaren, Brandt & Hanover, 2004); however, chronic accessibility of certain self-aspects can provide an orientation which guides cognitions, emotions, and behaviours, including those involved in the process of coping with stress.

Research on self-complexity has typically conceptualized self-aspects as the number of traits and roles endorsed by a person in a card sorting task (Linville, 1987). These traits and roles can arguably be subsumed by the three domains of the tripartite model (Hardie et al., 2006), with the individual self including a person's unique traits and characteristics (tall, intelligent), the relational self including close interpersonal roles (best friend, partner) and the collective self including roles within social groups (work team, church group).

Self and Health

Research on self and health has often shown an association between individual self-construal and well-being (Oyserman, Coon & Kemmelmeier, 2002), however many studies confound self and culture by "applying Hofstede". In this popular methodology, based on the findings of Hofstede's (1980) study of individual and collective values in 40 countries, self-construal is assumed but not assessed (Hardie et al., 2006). People from English-speaking western cultures such as the US or Australia are assumed to have a well developed individual self-aspect, while those from Eastern cultures such as Japan or Korea are assumed to have a strong collective self. Apart from the obvious difficulties of identifying a person's "culture" on the basis of birthplace, language, family background or country of residence, it appears that previously reported differences in well-being have been attributed to the self without actually measuring self-aspects.

In some studies of self and health, only a single self-aspect is assessed. For example, a recent Australian study found a strong individual self to be associated with poorer social and psychological health, but only individual self-construal was assessed (Scott, Ciarrochi & Deane, 2004). A US study suggested that Americans could suffer the psychological ill-effects of a strong relational self when this interdependent self-aspect was at odds with the independent cultural context, however only one self-aspect, relational-interdependent (but not individual-independent), was assessed (Cross & Vick, 2001). When multiple self-aspects are measured, Australian research suggests that people with multiple, well-developed self-aspects in individual, relational and collective domains report greater well-being (Hardie et al., 2005). It is not yet clear if the health benefits of multiple self-aspects hold up across western samples from other regions, or if this is simply an Australian phenomenon.

Culture, Gender and Self

Much previous research on the self has focussed on differences between eastern and western cultures (e.g., Markus & Kityama, 1991) or between men and women (e.g., Cross & Madson, 1997). Cross-cultural and mono-cultural studies show a consistent pattern of gender differences

in relational-interdependence. Women of all cultural backgrounds seem to have a stronger relational self-aspect than men (Cross & Madson, 1997; Kashima et al., 1995).

Culture differences in the self have been well-documented (Markus & Kityama, 1991; Triandis, 1989); however, many studies have measured only one self-aspect, while others have not assessed self at all, instead assigning self-orientation to the sample on the basis of culture (see Hofstede, 1980; Oyserman et al., 2002). Systematic culture differences are less clear-cut when multiple self-aspects are assessed (Kashima et al., 1995). People from western cultures generally develop strong independent/individual self-aspects, however, research suggests that Americans can also develop a relational style of interdependent self-construal (Cross, Bacon & Morris, 2000). Australians seem to develop moderate to strong self-aspects in three domains, relational, individual and collective (Hardie et al, 2005; Kashima & Hardie, 2000). Comparisons of the three RIC self-aspects across eastern and western cultures have been reported, with eastern (i.e., Asian) samples reporting comparable individual self-aspects, but stronger relational and collective self-aspects than western (i.e., Australian) samples (Hardie et al, 2006; Kashima et al., 1995). Comparisons across western cultural contexts have not been reported, thus, it is not clear if people in various English-speaking western contexts such as Australia, New Zealand, the British Isles, Canada or the United States possess comparable self-aspect profiles.

Self, Coping and Health

Coping can be described as adjustment to the demands, threats or challenges of a stressful situation (see, e.g., Lazarus & Folkman, 1984). Adjustment can involve a wide range of activities; however, coping has often been treated as two-dimensional. In direct or problem-focussed coping the person attempts to adjust or manage the stressful situation, while in emotion-focussed or indirect coping the person tries to adjust or manage their own response to the situation (see Hardie et al., 2006). Some research suggests that people adopt characteristic styles of coping with stress which are guided by self-aspects (e.g., Cross, 1995; Weisz, Rothbaum & Blackburn, 1984). Recent Australian research suggests that coping styles may provide the crucial link between self, stress and health. In a series of studies, Hardie and colleagues reconceptualized sources of stress and styles of coping to reflect relational, individual and collective (RIC) demands and corresponding RIC adjustment strategies. Stressful situations can place demands on the person alone (individual stress), but the source of stress can also be deemed to be relational stress when the situation involves a significant other, or collective stress when the situation involves a social group (see Hardie et al., 2005). Their first study showed that congruence between relational, individual and collective self-aspects and corresponding sources of stress was conducive to well-being, while self-stress incongruence (e.g., someone with a strong collective self attempting to cope with relational stress) was associated with greater ill-being (Hardie et al., 2005). Self-aspects did not direct the actual sources of stress in a person's life, but they did seem to guide the strategies people used to cope with stress. Moreover, the match or mismatch between self and stress was associated with better or poorer health outcomes. This finding was followed up with subsequent studies showing that the strength of each RIC self-aspect was associated with endorsement of a corresponding RIC coping style (Hardie, 2005; Hardie et al., 2006). When multiple self-aspects and multiple coping styles were assessed, a strong individual self was associated with a preference for independent stress adjustment activities (individual coping), a strong relational self was associated with a preference for

strategies which involve a significant other (relational coping), and a strong collective self was related to a preference for strategies which involve a social group to which the person belongs (collective coping). These studies confirmed that self-aspects guided preferred coping strategies in samples of Australian and Asian students (Hardie, 2005; Hardie et al., 2006).

Self-Coping Complexity

Research on self-complexity has shown that both self-aspects and cognitive coping skills are similarly beneficial to health (Solomon & Haaga, 2003). Since several authors suggested that the assessment of self-complexity needed refinement (Rafaeli-Mor & Steinberg, 2002; Solomon & Haaga, 2003), an expanded form of self-coping complexity (SCC) was explored in a series of studies by Hardie, Critchley and Morris (2006). They surmised that multiple self-aspects would promote the development of an enhanced repertoire of multiple coping strategies and, in turn, this greater self-coping complexity might reduce the ill-effects of stress and promote well-being. This contention was supported. Results showed that having strong self-aspects and corresponding coping styles in multiple domains was associated with greater well-being. When faced with comparable levels of stress, students with greater self-coping complexity reported less stress-related ill-being and better health.

Hardie et al. (2006) used cluster analysis and latent class analysis to classify students according to their self-coping profiles. In one study, two cluster groups were identified in a sample of Australian students representing western culture. In another study, using a more culturally diverse sample of students from western (Australian) and eastern (Asian) cultures, three latent cluster groups were identified. Analyses of both western and mixed culture samples consistently yielded a cluster of students with high SCC, characterized by strong self-aspects and coping strategies in all three domains, individual, relational and collective. This pattern was associated with the greatest health benefit for men and women of any cultural background. The Australian-only sample included one limited SCC cluster which was characterized by relatively weak self-aspects and low levels of coping in all three domains. The culturally diverse sample yielded two distinct types of limited SCC clusters: the Independent cluster had strong individual self-aspects and a preference for individual coping, while the Interdependent cluster had strong relational and collective self-aspects and corresponding relational and collective coping styles. Cluster groups in all samples reported comparable levels of stress, but the more limited self-coping patterns were associated with poorer health. The high SCC pattern was associated with better health among men and women from both eastern and western backgrounds.

The Present Study

The present study was designed to test the self-coping complexity hypothesis in a geographically diverse sample of adults from English-speaking western cultural contexts. Multiple, well-developed self-aspects were expected to promote a multidimensional, well-rounded repertoire of coping resources which would allow effective adjustment to stress and, therefore, better health. We first set out to confirm that adults from Australia, New Zealand, the British Isles (England, Scotland, Ireland, Wales) and North America (USA, Canada) reported comparable self-aspects, coping styles, recent stress levels and current health states of well-being and ill-being. We then aimed to identify clusters of respondents with expansive and restricted SCC profiles as had been

found in Hardie and colleagues' (2006) Australian sample. In the face of comparable levels of recent stress, respondents in expansive SCC cluster groups were expected to enjoy greater well-being and less ill-being than respondents in limited SCC cluster groups.

METHOD

Participants and Procedure

A sample of 546 adults (Mean age = 37.05 years, SD = 12.71, range 18 to 70) living in three English-speaking western regions (n = 247 Australia and New Zealand, n = 139 United Kingdom, n = 160 North America) completed an online questionnaire. Of the original 650 respondents, 104 were excluded from the present study because they lived in a variety of countries where English is not the primary language (e.g., Africa, Asia, Eastern Europe, Middle East, Russia, Scandinavia, South America, Southern Europe) and which would be deemed eastern/non-western/collective in Hofstede's (1980) widely used classification scheme.

Participants were recruited through various Australian community sources (e.g., advertisements about the survey and take-away slips printed with the web address were distributed to schools, shops and churches) and websites in Australia (e.g., NineMSN.com.au) and elsewhere (e.g., Yahoo.com). The limitations of such nonprobabilistic sampling must be acknowledged. These self-selected respondents with internet access are unlikely to represent the populations of their respective countries, however this online data collection strategy allowed speedy, inexpensive access to large numbers of respondents. This strategy has been deemed appropriate for the purpose of developing and refining theories (Best & Krueger, 2004), as was the case in the present exploration of self-coping complexity.

Females were generally over-represented in the sample (168 men, 379 women), but similar gender proportions were found in each cultural group, Chi-square (2) = 2.15, p = .34. Most participants were currently in a relationship (61%), the remainder single. Most were in paid employment (40% full-time, 26% part-time, 34% not employed). Geographic region was not associated with relationship status, Chi-square (2) = 4.11, p = .13, or employment status, Chi-square (4) = 3.76, p = .44, however there was an age difference, F (2, 544) = 8.82, p <.001, with post hoc comparisons (p <.05) showing the Australians (M = 34.8 years) were slightly younger than the British (M = 37.8 years) and North Americans (M = 40.2 years) in the sample.

Measures

Relational, Individual and Collective Self-Aspects were assessed with the 30-item RIC Self-Aspects scale (Kashima & Hardie, 2000). This scale uses 10 sets of item triads to assess the relative strength of R Self, I Self and C Self, respectively For example, a single item stem such as "I regard myself as" is followed by three responses: a good partner and friend (R), someone with his/her own will (I), a good member of my social group (C). All three responses are rated for each item triad using a 7-point scale (1 = not like me, 7 = very much like me). Total self-aspect scores are computed by summing ratings for the 10 R responses, 10 I responses and 10 C responses, respectively. The scale has previously been found to be reliable and valid (Kashima &

Hardie, 2000) and subscales showed acceptable internal consistency in the present study, with alpha coefficients of .72 for R Self, .64 for I Self, and .81 for C Self.

Relational, Individual and Collective Coping Styles were measured with the 36-item RIC Coping Scale (Hardie et al., 2006). The scale is comprised of three 6-item subscales representing relational coping (e.g., I get help from my partner/close friend), individual coping (e.g., I decide on a plan of action by myself) and collective coping (e.g. I follow the advice of my group). Items are rated on a 6-point scale, (0 = never use this strategy, 5 = very frequently use this strategy). The scale has shown sound psychometric properties, with evidence of convergent and discriminant construct validity and internal reliability (Hardie et al., 2006). Good internal consistency was found in the current study (alphas of .85 for R Cope, .81 for I Cope, and .94 for C Cope).

Recent Stress was assessed with the Relational, Individual and Collective Stress Scale (Hardie et al., 2005). Items are rated on a 6-point scale (0 = none at all, 5 = very high). Sets of items can be summed to represent sources of stress in each of the three RIC domains (I stress from personal problems such as your own health or career, R stress from dyadic situations involving a partner, family member or close friend, C stress from situations involving a work team, club or social group to which you belong) or all items can be summed to represent total level of recent stress. This scale has been shown to be psychometrically sound (Hardie et al., 2005). For the present study, item ratings were summed to reflect total recent stress (alpha coefficient .95).

Health was measured with the 30-item Multidimensional Health States Scale (MHSS, Hardie et al., 2006). The 15-item Well-Being (WB) scale includes five subscales: Social WB, Physical WB, Emotional WB, Cognitive WB and Sexual WB. The 15-item Ill-Being (IB) scale includes five subscales: Depression, Anxiety, Hostility, Somatic Symptoms, and Cognitive IB. Each health state was rated on a 6-point scale (0 = not experienced, 5 = strongly experienced) for a specific timeframe, in this case, the past week. Each 3-item subscale was summed to yield five well-being subscale and five ill-being subscale scores, each with a possible range of 0 to 15. Previous research has confirmed the reliability and validity of the MHSS (Hardie et al., 2005). In the present study, internal consistency alphas for WB subscales ranged from .86 to .90, while alphas for IB subscales ranged from .80 to .92.

RESULTS AND DISCUSSION

Sample Means

For ease of interpretation, scores on the RIC self, RIC coping and recent stress measures were standardized to 100-point scales. Comparison of the three regional groups confirmed that they did not differ on any of the study variables (see Table 1); therefore the 546 participants were treated as a single nonprobabilistic sample of adults from English-speaking western countries.

Table 1. Western Region Group Means, Sample Means and Standard Deviations for RIC Self-Aspects, Coping Styles, Recent Stress, and Health States of Well-Being and Ill-Being.

	ANZ (n = 247)	BI (n = 139)	NA (n = 160)	Mean (SD)
Relational Self	84.98	86.35	86.18	85.68 (9.0)
Individual Self	78.28	80.73	80.32	79.50 (9.6)
Collective Self	74.53	75.71	74.79	74.90 (12.7)
Relational Coping	65.21	66.58	66.06	65.81 (18.0)
Individual Coping	71.38	72.93	71.49	71.80 (13.8)
Collective Coping	45.33	46.74	45.48	45.74 (18.9)
Recent Stress	50.63	48.98	48.37	49.55 (12.9)
Social Well-Being	10.92	11.39	11.81	11.30 (3.3)
Physical Well-Being	7.73	7.50	7.56	7.62 (3.8)
Emotional Well-Being	8.45	9.16	8.98	8.79 (3.8)
Cognitive Well-Being	9.75	10.26	10.48	10.09 (3.5)
Sexual Well-Being	7.21	7.42	7.70	7.41 (4.6)
Depression	6.53	5.68	5.68	6.07 (4.5)
Anxiety	7.42	6.72	7.54	7.28 (4.3)
Hostility	7.23	6.62	6.94	6.99 (4.4)
Somatic Symptoms	6.60	6.20	6.63	6.51 (4.8)
Cognitive Ill-Being	7.50	7.14	7.14	7.30 (4.4)

Notes: N = 546, ANZ = Australia & New Zealand, BI = British Isles, NA = North America.

Gender differences ($p < .01$) were found for relational self and relational coping, with women reporting a stronger R self-aspect (M = 86.64) than men (M = 83.51), and more relational coping (M = 67.54) than men (M = 61.90). This was consistent with previous studies reporting a female bias in relational interdependence (Cross & Madson, 1997; Kashima et al., 1995). Men and women in this sample did not differ on I self, I coping, C self or C coping.

As shown in Table 1, this sample reported a very strong relational self-aspect, a weaker yet moderately strong individual self-aspect, and a weaker moderate collective self-aspect (within-subjects contrasts $p < .001$ for all comparisons). The pattern of means for self-aspects was consistent with previously reported means for RIC self-aspects in Australian student samples (Kashima & Hardie, 2000; Hardie et al., 2005), however, the over-representation of women with strong relational self-aspects would have inflated the sample mean for R self.

For coping styles, the sample reported high levels of individual coping, lower levels of relational coping and the lowest levels of collective coping ($p < .001$ for all comparisons). Previous research on Australian students has shown a slightly different pattern, with students reporting similarly high levels of relational and individual coping, but lower levels of collective coping (Hardie et al., 2006). Adults in the present study appeared to use only moderate amounts of relational coping, and higher levels of individual coping, perhaps reflecting a greater personal responsibility in relation to adult life stress.

In terms of stress and health, the sample reported moderate levels of recent stress (near the scale mid-point of 50). On average, these western adults reported moderately high levels of well-being and moderate levels of ill-being on health subscales with a potential range of 0 to 15.

The Influence of RIC Self-Aspects on RIC Coping Styles

Three separate regression analyses were conducted with set of R Self, I Self, and C Self scores treated as predictors for the criterion variables of R Coping, I Coping and C Coping, respectively. It was expected that the set of self-aspects combined would contribute to all coping scores, but that only a matched self-aspect would be an independent predictor of its corresponding style of coping.

The regression with R Coping as the criterion was significant, $F(3,542) = 26.03$, $p < .001$, R squared = .36. The set of three self-aspects accounted for 13% of the variance, but only R Self was a significant independent predictor of R Coping, standardized beta = .42, $t = 7.50$, $p < .001$. The regression with I Coping as the criterion was significant, $F(3,542) = 14.76$, $p < .01$, R squared = .28. The set of self-aspects accounted for 8% of the variance in I Coping and, as expected, I Self was the only independent predictor, standardized beta = .26, $t = 5.55$, $p < .001$. For C Coping, the regression analysis was significant, $F(3,542) = 26.01$, $p < .001$, R squared = .36, with 13% of the variance in C Coping explained by the set of three self-aspects. The only independent predictor was C self, standardized beta = .43, $t = 7.76$, $p < .001$. Thus, all hypotheses were supported, with the strength of each self-aspect predicting the endorsement of a corresponding coping style.

These results were consistent with previous research linking self and coping (Cross, 1995; Weisz et al., 1984) and with recent studies confirming the role of self-aspects in relation to coping styles (Hardie, 2005; Hardie et al., 2006). It appears that self-aspects guide a person's preferred strategies for coping with stress: the stronger a particular self-aspect, the more likely that a person will endorse a parallel style of coping. Thus, a person with multiple, strong self-aspects would be expected to endorse multiple coping strategies.

Latent Class Analysis: Identification of SCC Clusters

Latent class cluster analysis (Goodman, 1974) was used to explore the existence of distinct groups of participants who varied according to their self-aspects and coping styles. The three self scores and three coping scores were used to form the clusters via LatentGold Version 3.0.1 (Vermunt & Magidson, 2000). To determine the correct number of clusters using continuous indicators, the Baysian Information Criterion (BIC) and classification error statistics were used. Using fit criteria recommended by Vermunt and Magidson (2000, 2002), the simplest model with the smallest BIC value and lowest classification error was chosen to represent the number of identified classes. Initial BIC values suggested that several solutions were possible (2-clusters: BIC = 25852.83, classification error = .09; 3-clusters: BIC = 23530.31, classification error = .07; 4-clusters: BIC = 23169.63, classification error = .06). It was decided that the 3-cluster solution (entropy R square = .84) provided the best fitting, most parsimonious model because this solution demonstrated greater simplicity, but similar fit to the 4-cluster solution, and showed superior fit to the 2-cluster solution. A large proportion of the sample was in Cluster 1 (n = 231;

42%), with 31% (n = 168) in Cluster 2, and 27% (n = 147) in Cluster 3. As shown in Table 2, the parameter estimates for the model indicate the contribution of each self and coping variable to the three clusters. Significant positive parameter estimates were found for all self and coping variables in relation to Cluster 1, no parameter estimates were significant for Cluster 2, and all estimates were found to be significant and negatively weighted for Cluster 3. This suggested that the set of RIC self and coping factors reliably defined the first and third clusters.

The three clusters were profiled according to the pattern of means for self and coping scores. RIC self-aspects and RIC coping styles varied significantly ($p<.001$) across the three clusters (see Table 2). Two separate MANOVAs were conducted, the first revealing significant differences between clusters on the set of RIC self-aspects, $F(6,1084) = 29.75$, $p<.001$, and the second revealing cluster differences on the set of RIC coping styles, $F(6,1084) = 44.34$, $p<.001$.

Table 2. Cluster Profiles: Parameter Estimates, Standard Errors and Mean Scores for RIC Self-Aspects and RIC Coping Style Scores Across Three Cluster Groups.

	High SCC (n = 231) Parameter (S.E.)	Medium SCC (n = 168) Parameter (S.E.)	Low SCC (n = 147) Parameter (S.E.)
R Self ***	4.37 (0.48)#	0.61 (0.64)	-4.99 (0.70)#
Means:	89.53 a	85.78 b	79.56 c
R Coping ***	9.70 (1.24)#	0.99 (0.94)	-10.70 (1.45)#
Means:	74.16 a	65.66 b	52.85 c
I Self ***	4.23 (0.60)#	-0.43 (0.62)	-3.80 (0.71)#
Means:	83.33 a	78.59 b	74.53 c
I Coping ***	5.62 (0.97)#	0.74 (0.69)	-6.35 (1.22)#
Means:	77.22 a	71.87 b	63.21 c
C Self ***	6.41 (0.68)#	0.53 (0.91)	-6.94 (0.94)#
Means:	80.59 a	74.69 b	66.26 c
C Coping ***	9.33 (1.48)#	1.06 (0.91)	-10.38 (1.41)#
Means:	53.82 a	45.68 b	33.09 c

Notes: N = 546; R = relational, I = individual, C = collective; # $p <.01$ for all High SCC and Low SCC parameter estimates; *** $p <.001$, Means with matching subscripts do not differ.

Univariate analyses with post hoc comparisons showed that, in relation to the other cluster groups, Cluster 1 respondents reported the strongest relational, individual and collective self-aspects, and the highest levels of relational, individual and collective coping ($p <.001$ for all comparisons). This large cluster, with its well-developed, expansive pattern of multiple self-aspects and coping styles was deemed the high self-coping complexity (High SCC) group. Cluster 2 with its significantly lower, yet moderate levels of multiple self-aspects and coping styles was labelled the average or Medium SCC group. Cluster 3, which reported the weakest self-aspects and coping styles in all domains, was deemed the Low SCC group.

Cluster membership was not associated with region, Chi-square (4) = 8.01, $p > .01$, or gender, Chi-square (2) = 7.40, $p > .01$. Women were over-represented in all clusters, but this was consistent with the gender ratio of the sample.

Comparison of SCC Clusters on Stress and Health

ANOVA was used to compare the 3 clusters on recent stress. No differences were found, $F(2,543) = 1.71$, $p = .18$, verifying that all cluster groups reported similar levels of recent stress (see Table 3). This finding was important because it confirmed that all groups had experienced similar stress, thus reducing the possibility that differences in well-being or ill-being might be a result of different stress levels among the cluster groups.

Table 3. Comparison of Mean Scores for Recent Stress and Health Outcomes Across Three Cluster Groups.

	High SCC (n = 231)	Medium SCC (n = 168)	Low SCC (n = 147)
Recent Stress	50.61 a	49.37 a	48.10 a
Social WB ***	11.90 a	11.39 a	10.30 b
Physical WB	7.93 a	7.66 a	7.08 a
Emotional WB ***	9.22 a	9.09 a	7.76 b
Cognitive WB ***	10.90 a	10.19 a	8.72 b
Sexual WB ***	8.06 a	7.63 a	6.12 b
Depression	5.53 a	6.01 a	6.96 a
Anxiety	6.94 a	7.37 a	7.71 a
Hostility	6.77 a	6.99 a	7.32 a
Somatic Symptoms	6.21 a	6.62 a	6.84 a
Cognitive IB	6.94 a	7.06 a	8.14 a

Notes: N = 546; WB = well-being, IB = ill-being; *** $p < .001$, means with matching subscripts do not differ.

Two separate MANOVAs were conducted to examine cluster differences in well-being and ill-being, respectively. The three clusters differed on the set of 5 well-being subscales, $F(10,1078) = 4.42$, $p < .001$, but not on the 5 ill-being subscales, $F(10,1078) = 1.49$, $p = .14$.

For the five dimensions of well-being, follow-up univariate comparisons showed that the clusters differed on social, emotional, cognitive and sexual well-being, but reported similar levels of physical well-being. As shown in Table 3, the High SCC and Medium SCC groups reported similarly high levels of well-being, while the Low SCC group reported significantly lower levels of social, emotional, cognitive and sexual well-being.

For the five dimensions of ill-being, follow-up univariate results confirmed that all three groups reported similar levels of anxiety, hostility and somatic symptoms; however there was a trend for cluster differences in depression and cognitive ill-being. As these differences reached only the .05 level of significance, and the overall multivariate result was not significant, these differences were not considered to be statistically reliable. As shown by the cluster means reported in Table 3, there was a non-significant trend for greater ill-being in the Low SCC group.

In light of the pattern of results showing that higher self-reported self and coping scores (high and medium SCC clusters) were associated with higher well-being scores, these findings might be challenged as a simple social desirability response bias. This seems unlikely, however, since

inflated well-being was not reported by higher SCC groups in relation to physical health, and there was no reliable pattern of bias shown in self-reported ill-being scores.

Overall, significant differences were found among the cluster groups on psychological well-being, but not ill-being. Those in the High and Medium SCC groups, with moderate to strong self-aspects and moderately high levels of available coping strategies in individual, relational and collective domains, reported the best health, particularly in the areas of social, sexual, cognitive and emotional well-being. No consistent pattern was found for physical health. All cluster groups reported similar levels of physical well-being and somatic symptoms, suggesting that self-coping complexity may be unrelated to physical health.

GENERAL DISCUSSION

The current findings lend support to the role of self-coping complexity in relation to stress and health. The results were consistent with Hardie and colleagues' (2006) previous studies on self-coping complexity in student samples. In particular, their results using a western sample of Australian students showed similar high (expansive) and low (limited) SCC cluster groups, based on relatively stronger or weaker amounts of all RIC self-aspects and all RIC coping styles, as those found in the geographically diverse sample of western adults used in the present study.

The two expansive and limited clusters found in Hardie et al.'s (2006) Australian sample were identified using a somewhat subjective hierarchical agglomerative cluster analysis technique. In the present study, using the more statistically rigorous technique of latent class analysis, three clusters were identified, but only two of these (Clusters 1 and 3) were statistically reliable as indicated by their parameter estimates (see Table 2). The moderate group (Cluster 2) of the present study seemed to represent an average level of SCC which conferred similar health benefits to the more expansive high SCC group. When selecting the best fitting model, a 2-cluster solution was rejected over the 3-cluster solution because the former showed a higher BIC value and greater classification error than the latter. It may be that only high and low SCC groups are meaningful in western samples, but it is not yet clear what constitutes "high" and "low" levels of RIC self-aspects and coping styles since cluster techniques can only identify relative patterns of higher or lower self and coping scores. Expansive self-coping patterns seem to be more beneficial than limited patterns, but further research is needed to find appropriate cut-off scores to represent high and low levels of each self-aspect and coping style.

Overall, these results support those of Hardie et al. (2006). The present findings suggest that the expansive high SCC and limited low SCC clusters can be replicated using different clustering techniques, using older adult samples, and using samples of respondents (albeit self-selected) from several regions of the western world.

No cluster groups were identified in the present sample which could match the independence-limited cluster (strong individual self, individual coping style) or the interdependence-limited cluster (strong relational and collective self-aspects, relational and collective coping styles) found in Hardie et al.'s (2006) mixed culture sample. Perhaps the independence-limited and interdependence-limited self-coping patterns are more prevalent among international and/or student samples, but relatively infrequent among western adults. These possibilities, and the

range of potential self-coping complexity patterns which may be found within and between cultures, require further investigation.

Culture and gender have long been associated with particular self-orientations (Cross & Madson, 1997; Kashima et al., 1995; Markus & Kityama, 1991). Results of the current study confirm a female relational bias in self and coping, but they do not confirm the popular view that people in western cultures have a dominant independent-individual self-orientation (Hofstede, 1980; Markus & Kityama, 1991; Triandis, 1989). Culture and gender have sometimes been conflated in self-construal research and this remains a contentious issue. It makes little sense to say that women, and people from eastern cultures, are interdependent; while men, and people from western cultures, are independent (see Kashima et al. 1995). For this sample of men and women from English-speaking western cultures women reported stronger relational self-aspects and greater endorsement of relational coping styles than men. However, no systematic gender differences were found for individual or collective domains of self and coping. Moreover, when clustering techniques were used to group people according to their self-coping complexity patterns, no associations between SCC cluster membership, gender or cultural context were apparent. The high, medium and low self-coping complexity groups identified in this study were comprised of similar proportions of men and women from Australia, New Zealand, the British Isles, Canada and the United States.

These findings also oppose the possibility that strong a strong individual self-orientation is associated with greater well-being (see Oyserman, et al., 2002). Indeed, recent Australian studies suggest that a single orientation, a strong individual self, may be associated with poorer health (Scott et al., 2004); while multiple self-aspects seem to provide health benefits for men and women from Australia and Asian countries (Hardie et al., 2006). The current results suggest that a large, self-selected sample of adults from several English-speaking western regions appeared to enjoy a health advantage through the development of strong self-aspects in three domains: relational, individual and collective.

The current findings are consistent with the spirit of the self-complexity hypothesis (Linville, 1987); however, the assessment of multiple self-aspects and coping styles attempts to address recent concerns about how to include the implicit element of coping and how best to operationalize self-complexity (Rafaeli-Mor & Steinberg, 2002; Solomon & Haaga, 2003). The tripartite conceptualization of self and coping into relational, individual and collective domains allows for an expanded approach to the assessment of traits and roles (self-aspects) and stress adjustment strategies (coping). This approach seems promising as it includes the previously neglected element of coping and, as demonstrated by the present findings, confirms the hypothesized links between greater self-coping complexity and enhanced well-being.

Self-complexity theory (Linville, 1987) was originally developed in relation to stress-related ill health. Most previous self-complexity studies have not measured well-being, instead treating low levels of depression or physical illness as indicators of the health benefits of self-complexity (e.g., Linville, 1987; Solomon & Haaga, 2003). The present findings, showing that higher SCC was associated with greater well-being but not ill-being, highlight the danger of treating the absence of ill-being as an indicator of well-being. In line with recent calls for a more comprehensive assessment of well-being (Diener & Seligman, 2004), the current research

demonstrates the importance of measuring multiple dimensions of both well-being and ill-being when assessing health outcomes.

SUMMARY AND CONCLUSION

This study explored the newly developed concept of Self-Coping Complexity (SCC). Latent class analysis was used to identify groups of adults with expansive and more limited self-coping profiles. Those with higher SCC consistently reported the greatest well-being, supporting the proposition that self-coping complexity, as assessed by the strength of coexisting relational, individual and collective self-aspects and the endorsement of parallel coping styles, is beneficial to health.

The present findings, taken together with recent studies (Hardie, 2005; Hardie et al., 2005; 2006) suggest that the tripartite RIC framework provides a promising approach to the study of self, coping and health across gender and cultures. When faced with similar levels of stress, those with greater self-coping complexity seem to fare better than those with more limited self-coping profiles. Results did not suggest that high SCC could reduce physical symptoms or emotional problems; however as self-coping complexity increased from weak to moderate to strong, an expansive RIC self-coping pattern provided clear health benefits in social, emotional, cognitive and sexual well-being. SCC was not associated with gender in the current research, suggesting that both men and women can benefit from an expansion of their self-coping patterns. Further research is needed to understand how multiple self-aspects and corresponding coping styles are developed so that more people can gain a health advantage through greater self-coping complexity.

REFERENCES

Brewer, M.B., & Gardner, W. (1996). Who is this “we”? Levels of collective identity and and self representations. *Journal of Personality and Social Psychology, 71*, 83-93.

Cross, S.E. (1995). Self-construals, coping, and stress in cross-cultural adaptation. *Journal of Cross-Cultural Psychology, 26*, 673-697.

Cross, S.E., Bacon, P.L. & Morris, M.L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology, 78*, 791-808.

Cross, S.E. & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin, 122*, 5-37.

Cross, S.E. & Vick, N.V. (2001). The interdependent self-construal and social support: The case of persistence in engineering. *Personality and Social Psychology Bulletin, 27*, 820-832.

Diener, E. & Seligman, M.E.P. (2004). Beyond money: Toward an economy of well-being. *Psychological Science in the Public Interest, 5*, 1-31.

Goodman, L.A. (1974). Exploratory latent structure analysis using both identifiable and unidentifiable models. *Biometrika, 61*, 215-231.

Hardie, E.A. (2005) Stress-coping congruence: A tripartite conceptual framework for exploring the health consequences of effective and ineffective coping. *E-Journal of Applied Psychology, 1*, 27-34.

Hardie, E.A., Critchley, C. & Morris, Z. (2006). Self-coping complexity: Role of self-construal in relational, individual and collective styles and health outcomes. *Asian Journal of Social Psychology, 9 (3),* 224-235.

Hardie, E.A., Kashima, E.S. & Pridmore, P. (2005). The influence of relational, individual and collective self-aspects on stress, uplifts and health. *Self and Identity, 4,* 1-24.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Beverly Hills, CA: Sage.

Holland, R.W., Roeder, U., van Baaren, R.B., Brandt, A.C., & Hannover, B. (2004). Don't stand so close to me. The effects of self-construal on interpersonal closeness. *Psychological Science, 15*, 237-242.

Kashima, E.S., & Hardie, E.A. (2000). Development and validation of the relational, individual, and collective self-aspects (RIC) scale. *Asian Journal of Social Psychology, 3,* 19-48.

Kashima, Y., Yamaguchi, S., Kim, U., Choi, S-C., Gelfand, M.J., & Yuki, M. (1995). Culture, gender, and the self: A perspective from individualism-collectivism research. *Journal of Personality and Social Psychology, 69,* 925-937.

Koch, E.J. & Shepperd, J.A. (2004). Is self-complexity linked to better coping? A review of the literature. *Journal of Personality, 72*, 727-760.

Lazarus, R.S. & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

Linville, P.W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology, 52*, 663-676.

Markus, H., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion and motivation. *Psychological Review, 98*, 224-253.

Oyserman, D., Coon, H..M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128,* 3-72.

Rafaeli-Mor, E. & Steinberg, J. (2002). Self-complexity and well-being: A review and research synthesis. *Personality and Social Psychology Review, 6*, 31-58.

Scott, G., Ciarrochi, J. & Deane, F.P. (2004). Disadvantages of being an individualist in an individualistic culture: idiocentrism, emotional competence, stress and mental health. *Australian Psychologist, 39,* 143-153.

Sedikides, C., & Brewer, M.B. (Eds.) (2001). *Individual self, relational self, collective self*. Philadelphia, Pennsylvania: Psychology Press.

Solomon, A. & Haaga, D.A.F. (2003). Reconsideration of self-complexity as a buffer against depression. *Cognitive Therapy and Research, 27*, 579-591.

Triandis, H.C. (1989). The self and social behaviour in differing cultural contexts. *Psychological Review, 96,* 506-520.

Vermunt, J.K. & Magidson, J. (2000). *Latent Gold Users Guide*. Belmont, MA: Statistical Innovations Inc.

Vermunt, J.K. & Magidson, J. (2002). Latent class cluster analysis, pp 89-106 in J.A. Hagenaars & A.L. McCutcheon (Eds.) *Applied latent class analysis*. Cambridge: Cambridge University Press.

Weisz, J.R., Rothbaum, F.M. & Blackburn, T.C. (1984). Standing out and standing in: The psychology of control in America and Japan. *American Psychologist, 39*, 955-969.

AUTHOR BIOGRAPHIES

Elizabeth Hardie is a Social Psychologist and Senior Lecturer in Psychology at Swinburne University of Technology, Australia. Email: ehardie@swin.edu.au

Christine Critchley is a Social Psychologist and Senior Lecturer in Psychology at Swinburne University of Technology, Australia. Email: ccritchley@swin.edu.au

Kate Swann was a Psychology Honours student in the Faculty of Life and Social Sciences, Swinburne University of Technology. She is currently a trainee psychologist in a family services agency. Email: kswann04@bigpond.net.au

APPENDIX A: MEANS, STANDARD DEVIATIONS, AND CORRELATIONS FOR SELF-ASPECTS, COPING STYLES, STRESS, AND HEALTH VARIABLES

N = 546	R self	I self	C self	R cope	I cope	C cope	T Stress	Soc WB	Phys WB
Mean	85.68	79.50	74.90	65.81	71.80	45.74	49.55	11.30	7.62
SD	9.00	9.59	12.67	18.04	13.81	18.89	12.98	3.34	3.83
I self	.41**								
C self	.67**	.38**							
R cope	.35**	.10	.18**						
I cope	.09	.26**	.15**	.22**					
C cope	.17**	.08	.34**	.31**	.24**				
T stress	.01	.01	.06	.10	.07	.13			
SocWB	.32**	.16**	.33**	.17**	.19**	.21**	-.10		
PhysWB	.11	.13	.16**	.07	.20**	.11	-.10	.37**	
EmotWB	.18**	.21**	.18**	.20**	.25**	.20**	-.23**	.42**	.34**
CogWB	.20**	.24**	.21**	.16**	.35**	.20**	-.21**	.48**	.42**
SexWB	.20**	.21**	.17**	.22**	.19**	.12	-.07	.40**	.44**
Depress	-.10	-.10	-.09	-.13	-.11	-.15	.32**	-.31**	-.30**
Anxiety	-.03	-.09	-.04	-.04	-.08	-.10	.41**	-.18**	-.25**
Hostility	-.06	-.03	-.09	-.07	-.08	-.12	.35**	-.23**	-.20**
CogIB	-.05	-.05	-.03	-.07	-.10	-.09	.38**	-.26**	-.35**
Symp	.04	-.11	.03	-.01	-.12	-.04	.23**	-.09	-.18**

(APPENDIX A, CONTINUED)

N = 546	Emot WB	Cog WB	Sex WB	Dep	Anx	Hostil	Cog IB	Symp
Mean	8.79	10.09	7.41	6.07	7.28	6.99	7.30	6.51
SD	3.80	3.54	4.57	4.54	4.27	4.38	4.43	4.78
CogWB	.62**							
SexWB	.36**	.47**						
Depress	-.46**	-.44**	-.22**					
Anxiety	-.44**	-.35**	-.14**	.72**				
Hostility	-.38**	-.31**	-.14**	.68**	.69**			
CogIB	-.39**	-.41**	-.24**	.58**	.60**	.55**		
Symp	-.28**	-.22**	-.10	.38**	.42**	.37**	.50**	

Notes: N = 546, p <.001, R = relational, I = individual, C = collective, T Stress = total stress, Soc WB = social well-being, Phys WB = physical well-being, Emot WB = emotional well-being, Cog WB = cognitive well-being, Sex WB = sexual well-being, Dep = depression, Anx = Anxiety, Hostil = Hostility, Cog IB = cognitive ill-being, Symp = somatic symptoms.