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Coping and defending: Age differences in maturity of defense mechanisms and coping strategies

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Coping and defending: Age differences in maturity of defense mechanisms and coping strategies

Previous studies have examined either coping strategies or defense mechanisms; however, few have considered both. This research examined age differences in the type of defense mechanisms and coping strategies that people employ. In addition, gender differences, personality and environmental variables were taken into account. The three age groups used in this study included: 17-23 year olds, 40-47 year olds and 63-70 year olds. The youngest participants used significantly less mature defense mechanisms and significantly more immature defense mechanisms than the middle age and the oldest group. However, there was no significant difference in maturity of defense mechanisms between the middle age and the oldest group. In contrast, there were no age differences revealed for effectiveness of coping strategies people employ. One further interesting finding was that people with a higher purpose in life were more likely to use mature defense mechanisms. This research concludes that when developing theories on stress, psychologists might benefit from considering both defense mechanisms and coping strategies.

Coping and defending: Age differences in maturity of defense mechanisms and coping strategies

INTRODUCTION

How do the dynamics of coping change with the process of aging? Research in the area of adaptive coping (e.g., Aldwin, Sutton, Chiara & Spiro, 1996; Ben-Zur, 2002, Gutmann, 1974; Lazarus & Folkman, 1984; Vaillant, 1993, 1994, Vaillant & Mukamal, 2001) has increased in recent years with the growing number of people living into old age. Yet we still know little of the nature of young and older people's coping strategies, and even less of the relative effectiveness of different ways of coping.

Theorists tend to examine either defense mechanisms or coping strategies, but rarely consider both in their research. According to psychoanalytic theorists, individuals unconsciously employ defense mechanisms to avoid stress (e.g., Vaillant, 1993). In contrast, cognitive theorists state that coping is a conscious response, whereby people utilize thoughts and actions to manage the demands of stressful transactions (e.g., Lazarus & Folkman, 1984). Contrary to past research, this current study investigates both these theoretical positions. In considering defense mechanisms, Vaillant's understanding of mature and immature defense mechanisms are drawn upon in this paper (e.g., Soldz & Vaillant, 1998, Vaillant, 1977, 1993, 1994).

This study primarily focuses on age differences in defense mechanisms and coping strategies. Three main views have been proposed to explain varying developmental patterns in defending and coping. First, the 'regression hypothesis'

states that while some older people continue to use the entire range of adaptive mechanisms, many return in later life to the use of more immature defense mechanisms (Gutmann, 1974). Second, the 'growth hypothesis' proposes that defense mechanisms used by older people become increasingly more effective and less distorting of reality (Vaillant, 1977). Finally, the 'contextual view' asserts that age differences in coping should be attributed to the different types of stresses that different age groups must cope with, rather than considering different age groups' ability to cope with stress (Folkman & Lazarus, 1980; McCrae, 1982, 1984).

Dispositional and situational variables may also influence effective coping. For example, early research proposed that individuals cope better if they believe they have control over a situation (e.g., Anderson, 1977). Others have posited that self-esteem may be a contributing factor (e.g., Janoff-Bulman, 1982). Moreover, Lazarus and Folkman (1984) have suggested that a person with strong existential beliefs might be more inclined to use better coping techniques. In addition, these theorists contend that coping strategies may be influenced by the amount of stress an individual experiences.

Theorists have also been interested in apparent gender differences in coping. Typically the research reveals that men are socialised to use more problem-focused, direct and effective coping strategies compared to women (Pearlin & Schooler, 1978). In contrast, women tend to employ more emotion-focused coping strategies than men, such as avoiding confrontation, and relying on social support (e.g., Labouvie-Vief, Hakim-Larson & Hobart, 1987; Piko, 2001).

As mentioned above, this paper concentrates on Vaillant's work on defense mechanisms. Although Vaillant maintained that there are an infinite number of defense mechanisms, he identified eighteen of the most commonly employed

mechanisms. He arranged these into a hierarchy, from least to most mature ways of defending. Vaillant argued that immature defense mechanisms are typically ineffective and socially undesirable. The immature defense mechanisms that he identified include: projection, schizoid fantasy, hypochondriasis, passive aggression, and acting out. In contrast, individuals who employ more mature defense mechanisms are able to integrate reality, interpersonal relationships and private feelings. These mature mechanisms include: altruism, humour, suppression, anticipation and sublimation. Vaillant and colleagues (1977, 1986) proposed a universal developmental sequence of defense mechanisms. In his longitudinal investigations of the 'Grant men' he found that defenses used by middle-aged men, compared to adolescent men, were more effective and less distorting of reality (Vaillant, 1977). Hence, he argued that immature mechanisms decrease with age, whereas mature mechanisms increase with age.

Lazarus and Folkman (1984) have defined coping as "constantly changing and behavioral effects to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p.141). This definition is process-oriented, as opposed to the trait-oriented view outlined by ego psychologists, such as Vaillant.

One of the core concepts of Lazarus' theoretical formulation of coping involves cognitive appraisal. Lazarus, DeLongis, Folkman and Gruen's (1985) model of stress and coping argues that there are primary and secondary appraisals involved in coping. Primary appraisal includes what is at stake for the person; that is, whether the individual assesses the stressful situation as harmful, threatening or challenging. Secondary appraisal involves the individual's coping resources and options. These theorists maintain that there are two main types of coping functions, namely, problem-

focused, which is directed at managing or altering the problem causing the distress, and emotion-focused, which is directed at regulating the emotional response to the problem. The literature suggests that emotion-focused forms of coping are more likely to be effective when there has been an appraisal that nothing can be done to modify harmful, threatening, or challenging environmental conditions. Problem-focused forms of coping, on the other hand, are more effective when such conditions are amenable to change (Folkman & Lazarus, 1980).

In respect to aging, studies have generally found that older adults uses less escapism or avoidant coping (e.g., Aldwin & Reveson, 1985, cited in Aldwin, 1991), but use similar levels of problem focused coping compared to younger people (Blanchard-Fields, Sulsky & Roninson-Whelen, 1991; Irion & Blanchard-Fields, 1987). However, not all theorists are in agreement with the latter result. Blanchard-Fields, Jahnke and Camp (1995), Folkman, Lazarus, Pimley and Novacek (1987), and Pearlin & Skaff (1995) have argued that older persons are less likely to use active problem-solving coping strategies compared to younger people. However, the reason for this discrepancy is partly explained in the way these researchers have carried out their analysis. For example Folkman et al. (1987) examined the ratio of the strategy compared to the overall number of strategies used.

In addition to effective coping strategies, some researchers have argued that the number of stresses and the type of stress affects coping. Kanner, Coyne, Schaefer & Lazarus (1981) argue that the number of daily hassles and uplifts can affect adaptation outcomes. In their paper they state that this is a better predictor of coping than life event stresses.

The main aim of this study is to determine if there are any age differences in the type of defense mechanisms and coping strategies that people employ. Few

researchers to date have included defense mechanisms and coping strategies simultaneously in their studies. In fairly recent research, Cramer (2000) has argued that the study of defense mechanisms is resurging. This paper investigates both these processes. This research will also investigate gender differences. Furthermore, other personality and environmental variables will be taken into account, including, locus of control, self-esteem, meaning in life, and number of stresses. In view of previous findings, the following hypotheses were generated:

- (1) That as age increases an individual's defense mechanisms and coping strategies increase in maturity.
- (2) That men will use more problem-focused strategies, and women more emotion-focused strategies.
- (3) The greater the control an individual believes they have over their environment, the more mature defense mechanisms and coping strategies that person will employ.
- (4) The higher a person's self-esteem, the more mature defense mechanisms and coping strategies that person will employ.
- (5) The greater a person experiences a sense of meaning and purpose in life, the more mature defense mechanisms and coping strategies that individual will use.
- (6) The more daily stresses appraised by the individual, the less mature their defense mechanisms and coping strategies.

METHOD

This investigation was carried out using a cross-sectional design with three age groups, and equal numbers of men and women. Participants were recruited until there were an equal number of 40 in each group. After piloting, the number and length of surveys were altered for the main study.

(a) The short Defense Style Questionnaire ('DSQ') was chosen in preference to the full DSQ (Andrews, Pollack & Stewart, 1989), since after piloting it was found that the combination of surveys was taking too long to complete.

(b) The measure for uplifts (Kanner et al., 1981) was excluded from the study.

(c) In the 'Ways of Coping Questionnaire' (Folkman & Lazarus, 1988) subjects were originally requested to chose a stressful situation which they appraised as a threat.

This was changed to a challenge, since after piloting it was found that the participants typically found it easier to think of a challenging situation.

Participants

Three age groups were specified on an a priori basis. The youngest sample consisted of 17-23 year olds, the middle-age sample of 40-47 year olds, and the oldest age group consisted of 63-70 year olds. The 'young' old were chosen in preference to the 'old' old because it was thought that the 'old' old would encounter difficulties concentrating on filling out the number of questionnaires employed in this study.

Various socio-demographic factors were taken into consideration in an attempt to control for potential confounds. Suburb of residence was based on Congalton's

(1969) 7-point suburb scale, which yields a rating of socio-economic status, in which a rating of one represents the most prestigious suburb, and seven the least prestigious. Only those who resided in areas rated as high as 1-3 on the socio-economic scale were included in the study, in order to control for any confounding due to social class. Furthermore, subjects who had completed the final year of high school or higher were included in the study. This was implemented to avoid confounding caused by educational level.

Social groups residing in the areas rated from 1-3 on Congalton's (1969) scale were asked to participate in the research. These included: university students, students at a theological college, marine engineers, office workers, and a lawn bowls club. Of the 131 people approached, 11 declined to participate either before or during the study.

Overall, 120 respondents completed the questionnaires. There were 40 subjects in each of the three age groups, with equal numbers of males and females. The mean age for the 17-23 year old women was 19.1 years, the 17-23 year old men was 19.55 years, the 40-47 year old women was 42.95 years, the 40-47 year old men was 42.75 years, the 63-70 year old women was 66.15 years, and the 63-70 year old men was 66.2 years.

Instruments

In addition to demographic information, such as age, sex, educational level, marital status, present employment, health and number of friends, the following measures were administered to all respondents:

Defense Style Questionnaire (DSQ) devised by Andrews, Pollack & Stewart (1989) was employed to measure the defense mechanisms proposed by Vaillant. Andrews et al. (1989) state that the DSQ is intended to be an instrument which can measure those aspects of defensive functioning to which an individual has sufficient conscious access. It lists a hierarchy of defenses from immature to neurotic to mature defenses. The short version, consisting of 36 items was used in this study. The short DSQ emphasizes the mature and immature factors at the expense of the neurotic factor. Since the aims of this study do not include measuring neurotic defenses, the short form sufficiently meets the needs of this study. Andrews et al. (1989) found that for 'normal' subjects, with a higher score indicating a high usage of that defense style, the average score for immature defenses was 2.84 (SD = 0.93), while the average score for mature defenses was 5.90 (SD = 1.13).

The Ways of Coping Questionnaire developed by Folkman & Lazarus, (1988) measures coping processes within the context of a specific encounter, rather than individuals' coping dispositions or styles. It consists of eight problem and emotion coping scales. The coping strategies include: confrontive coping (M = 3.94, SD = 2.09), distancing (M = 3.05, SD = 1.78), self-controlling (M = 5.77, SD = 2.87), seeking social support (M = 5.40, SD = 2.40), accepting responsibility (M = 1.87, SD = 1.44), escape-avoidance (M = 3.18, SD = 2.48), planful problem solving (M = 7.25, SD = 2.34), and positive reappraisal (M = 3.48, SD = 2.96). Confrontive coping and planful problem solving are defined as problem-focused strategies. The emotion-focused strategies are distancing, self-controlling, accepting responsibility and escape avoidance. Seeking social support is considered as having both problem and emotion focused properties. Folkman and Lazarus (1988) argue that the questionnaire has both

high face and construct validity; however, internal consistency is relatively low in comparison to the traditionally accepted range.

Given that Lazarus and Folkman (1984) state that people's coping strategies may vary according to how they primarily appraise the situation, subjects were asked in this present study to choose a situation that they appraised as a 'challenge'. Secondary appraisal was assessed on a 4-point Likert scale. Subjects were asked to rate the extent to which the situation was one which they could change or do something about: 1 indicated 'nothing could be done', 2 indicated 'a little', 3 indicated 'quite a bit, and 4 indicated 'a great deal'. Maturity of coping strategies was assessed using the subject's secondary appraisal. If the respondent scored a secondary appraisal of 1 or 2, then a mature score would be indicated by a high score on the emotion-focused coping strategies. In contrast, if the subject scored a secondary appraisal of 3 or 4 then a mature score would be indicated by a high score on the problem-focused strategies.

Relative scores, as suggested by Folkman and Lazarus (1988) were created for each subject. A relative score for each scale is computed by (a) calculating the average item score for the items on a given scale by dividing the sum of the ratings on the scale by the number of items on that scale, (b) calculating the sum of the average item scores across all eight scales, and (c) dividing the average item score for a given scale by the sum of the average item scores across all eight scales.

The Daily Hassles Questionnaire developed by Kanner et al. (1981) was used to measure hassles, which were defined as irritants that can range from minor annoyances to fairly major pressures, problems or difficulties. Test-retest reliability is fairly high for this questionnaire, with $r = 0.79$. In Kanner and his colleagues (1981)

research they have found that average scores for men were 22.4 (SD = 16.9), while average scores for females were 18.9 (SD = 13.3).

Locus of Control was measured using Rotter's (1966) inventory. Test-retest reliability for the Rotter test is relatively high ($r=0.72$). The Rotter inventory is a forced choice test, consisting of 29 items. High scores on this test indicate high external control.

The Purpose-In-Life Test ('PIL') developed by Crumbaugh (1968) was used to measure individuals' purpose and meaning in life. Average scores for this test include: successful businessmen and professionals (M = 118.9, SD = 11.3), indigent hospital patients (M = 106.4, SD = 14.5). This questionnaire consists of 20 items rated from 1 (low purpose) to 7 (high purpose). A high score on this test indicates a high purpose and meaning in life. Crumbaugh (1968) has argued that this test has good reliability.

The Self-Esteem Scale developed by Rosenberg (1962) was chosen to measure self-esteem because of its brevity. It has high reliability for such a small scale (test re-test reliability over two weeks = 0.85). Silber and Tippett (1965) have found that this test correlates well with similar measures. The scale consists of ten items answered on a 4-point scale, although each question is only scored as agreement or disagreement. A high score indicates a high self-esteem.

Procedure

Sessions were held for participants to complete the survey, to ensure that similar conditions were experienced by all filling out the questionnaire. Participants generally took between 30 to 45 minutes to complete all the questionnaires.

RESULTS

The following analyses were carried out to test the first hypothesis that as age increases an individual's defense mechanisms and coping strategies increase in maturity.

DSQ

In respect to the DSQ, measures of mature and immature defense mechanisms obtained were found to be significantly related ($r = -0.308$; $p < .001$). Age was found to be significantly related to mature ($r = 0.403$; $p < .001$), and immature ($r = -0.527$; $p < .001$). Sex was not found to be significantly related to mature ($r = -0.091$; $p > .005$) or immature ($r = 0.015$; $p > .005$). A MANOVA was performed, using the dependent variables mature and immature, and the independent variables were age and sex.

Using Wilk's criterion, sex and the interaction of age by sex were not significant. Age, however, was found to be significant. Therefore, a one-way multivariate analysis of variance was performed on age alone. Wilk's criterion indicated that the combined dependent variables were significantly affected by age ($F_{4,232} = 13.75$; $p < 0.000$).

Univariate F-tests showed a significant age effect for both mature ($F_{2,117} = 11.60$; $p < 0.000$) and immature ($F_{2,117} = 22.86$; $p = 0.000$). The standardized discriminant

function coefficient showed that both mature (-0.517) and immature (0.797) defenses make unique contributions to discriminating between groups. Furthermore, the discriminant functions give some support for the first research hypothesis, since they reveal that as mature defenses increase, immature defenses decrease almost proportionately.

A one-way analysis of variance was performed between mature defenses and age (young, middle age, old) to determine which groups differed. The assumptions of normality and equal variance were met. The means indicated that as one ages, maturity of defense mechanisms increase. Multiple comparisons of mean mature by age were carried out using the Bonferroni method with a conservative significance level of .01. A significant difference was found between the youngest group ($\underline{M} = 5.22$, $\underline{SD} = 0.92$) and the middle age group ($\underline{M} = 5.92$, $\underline{SD} = 1.21$) with $t = -2.945$, and between the youngest group and the oldest group ($\underline{M} = 6.35$, $\underline{SD} = 1.04$) with $t = -4.772$. However, there was no significant difference found between the middle age group and the oldest group. Using r^2 to estimate the strength of the statistical relationship, it was found that only 16% of the variation of mature defenses could be explained.

A one-way analysis of variance was performed between immature defenses and age (young, middle age, old) to determine which groups differed. The assumptions of normality and equal variance were met. It appeared that as age increases, the amount of immature defenses one employs decreases. Multiple comparisons for mean immature by age were carried out using the Bonferroni method with a conservative significance level of .01. It was found that there were significant differences between the youngest group ($\underline{M} = 3.52$, $\underline{SD} = 0.80$) and the middle age group ($\underline{M} = 2.79$, $\underline{SD} = 0.95$) with $t = 3.970$, and between the youngest and the oldest

group ($M = 2.30$, $SD = 0.95$) with $t = 6.668$. However, the difference between the middle age group and the oldest group was not significant. Using r^2 to estimate the strength of the statistical relationship, it was found that 28% of the variation of immature defense mechanisms could be explained.

Ways of Coping

It was decided to analyse the results from The Ways of Coping, in the same way that Lazarus has carried out in previous research (e.g., Folkman et al., 1987). Thus, a MANOVA was performed on the dependent variables confrontive coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem solving, and positive reappraisal, and the independent variables age and sex and secondary appraisal. Separate analyses were carried out on secondary appraisal = low in changeability and secondary appraisal = high in changeability.

The first analysis considered the secondary appraisal low in changeability. Using the Wilk's criterion it was found that neither sex or the interaction of age by sex were significant. A significant difference was identified for age. Since age alone was found to be significant, another MANOVA was performed for the independent variables against age ($F_{16,120} = 2.68$; $p = .001$). The univariate F-tests indicated that distancing and accepting responsibility were significant at $p = 0.01$, while self-controlling and planful problem solving neared significance (Table 1). It is noteworthy that these results only partly support the first hypothesis.

INSERT TABLE 1

Multiple comparisons of the significant variables distancing and accepting responsibility were performed by age using the Bonferroni method with a conservative significant level of .01. For distancing it was found that only the youngest group was significantly different from the oldest group ($t = 3.48$). For accepting responsibility again only the youngest group was significantly different from the oldest group ($t = 3.65$).

The second analysis considered the secondary appraisal high in changeability. Using the Wilk's criterion it was found that neither sex or the interaction of age by sex were significant. Since a significant difference was found to exist for age, another MANOVA for the independent variables against age ($F_{16,80} = 3.16$; $p < .000$) was carried out. The univariate F-tests, shown in Table 2 below, indicate that accepting responsibility and escape-avoidance were significant at a level of $p = 0.01$.

INSERT TABLE 2

Multiple comparisons of the significant variables accepting responsibility, and escape-avoidance were performed by age using the Bonferroni method with a conservative significant level of $p = 0.01$. For accepting responsibility it was revealed that the youngest group was significantly different from the oldest group ($t=2.96$) and the middle group ($t=3.04$), only at $p = 0.05$. For escape-avoidance, it was found that the youngest group was significantly different from the middle age ($t=3.50$) and the oldest group ($t=3.75$), at $p = 0.01$.

To test the second hypothesis a MANOVA was carried out on the dependent variables, which were the coping strategies identified on The Ways of Coping and the independent variables age and sex. Using Wilk's criterion sex and the interaction of

age by sex were not significant. Age, however, was found to be significant ($F_{16,214} = 0.66$; $p = 0.001$). Univariate F-tests showed a significant age effect for accepting responsibility ($F_{2,114} = 10.7$; $p < 0.000$), and escape-avoidance ($F_{2,114} = 6.45$; $p = 0.002$). As shown in the above analysis for age differences, the youngest group typically used more accepting responsibility and escape-avoidance. These results give no support to the second hypothesis.

In considering the addition hypotheses, a multivariate analysis of covariance was performed on the two dependent variables mature and immature, by the three age groups. It was elected not to use the variables from The Ways of Coping Questionnaire, since age was not found to relate significantly with them. Choice of covariates were determined on theoretical and empirical grounds. These included: locus of control, self-esteem, purpose in life, and daily stresses or hassles. As shown in Table 3, all of the covariates were significantly related to the dependent variables.

INSERT TABLE 3

As shown in Table 4 below, age differed significantly on all of the covariates. The older groups appear to be scoring lower on external locus of control, higher on purpose in life and higher on self-esteem.

INSERT TABLE 4

Using Wilk's criterion, the combined dependent variables were found to be significantly related to the combined covariates ($F_{8,224} = 6.45$; $p < 0.000$). Univariate t-tests were examined to investigate the relative contribution of covariates to the within-

cells regression. The covariates which were significant at $p = 0.05$ were PIL contributing to mature ($t = 2.92$; $p = 0.004$) and immature ($t = -3.27$; $p = 0.001$), and self-esteem contributing to immature ($t = -2.54$; $p = 0.013$).

A reduced model was then obtained fitting the covariates PIL and self-esteem with the dependent variables mature and immature by age. Using Wilk's criterion, it was found that the combined dependent variables were highly significantly related to the combined covariates ($F_{4,228} = 12.06$; $p < 0.000$). The effect of age after adjusting for the combined covariates was significantly related to the combined dependent variables ($F_{4,228} = 7.43$; $p < 0.000$).

After adjusting for the combined covariates, the univariate F-tests showed that age effect was significant for the dependent variables mature ($F_{2,115} = 5.08$; $p = 0.008$) and immature ($F_{2,115} = 10.19$; $p < 0.000$). The standardised discriminant functions revealed that immature contributes slightly more to discriminating between groups than mature.

An analysis of covariance was performed on mature with the covariate PIL by age. The univariate regression analysis revealed that PIL is related to mature ($t = 3.96$; $p < 0.000$). This model accounted for 26% of the variance in mature. An analysis of covariance was also performed on immature with the covariates PIL and self-esteem by age. The univariate regression analysis showed that both PIL ($t = -3.51$; $p = 0.001$) and self-esteem ($t = -2.71$; $p = 0.008$) were related to immature. This model accounted for 45% of the variance. In respect to the hypothesis, these results found no support for hypothesis 3 (concerning locus of control), or hypothesis 6 (concerning daily hassles). Hypothesis 4 that stated the higher a person's self-esteem, the more mature and less immature the defense mechanisms and coping strategies that person will employ, was partly supported. Finally, hypothesis 5, which stated that the greater a

person experiences a sense of meaning and purpose in life, the more mature and less immature the defense mechanisms and coping strategies that individual will use, was fully supported.

DISCUSSION

Overall, the results do not provide convincing support for the first hypothesis. It is, however, interesting that results from the DSQ were more likely to support the 'growth' hypothesis, while the results from the Ways of Coping Questionnaire were more likely to support a 'contextual' view.

Findings from the DSQ revealed that the youngest participants used significantly less mature defense mechanisms and significantly more immature defense mechanisms than the middle age and the oldest group. However, there was no significant difference between the middle age and the oldest group. Therefore, these findings are particularly interesting as they give further light to Vaillant's (1977) longitudinal study which examined subjects' defense mechanisms up until mid-life.

To reiterate, maturity of coping is defined as using more emotion-focused coping strategies when the situation is assessed to be low in changeability and more problem-focused coping strategies when the situation is assessed to be high in changeability. Results elicited from the Ways of Coping Questionnaire gave little support for the 'growth hypothesis'. Overall, age differences were only found for the coping strategies accepting responsibility and escape-avoidance, which the younger group used more than the older groups. Results from subjects who rated their stressful situation as 'low in changeability' gave little support to Hypothesis 1. Age differences were only found for distancing and accepting responsibility and the difference found

for accepting responsibility was contrary to the research hypothesis. Moreover, results from participants who rated their stressful situation as 'high in changeability', also gave little support to Hypothesis 1. The differences obtained were only for accepting responsibility and escape-avoidance. Hence, the findings revealed from the Ways of Coping Questionnaire are more inclined to support a contextual view in preference to the growth or regression hypothesis. It is also noteworthy that these results rendered support for the view that older persons use similar levels of problem focused coping compared to younger people (e.g., Blanchard-Fields, et al., 1991; Irion & Blanchard-Fields, 1987).

The results from this study raise an important question. Why do these two questionnaires support two different hypotheses? One possible explanation could be that the Ways of Coping Questionnaire only produces results of a person's coping strategies for one stressful encounter; therefore, a complete picture of a person's coping repertoire might not be obtained (this might also explain other discrepancies in results mentioned above). It may be necessary in further research to ask the subject to complete the questionnaire a number of times with different types of stressful encounters in mind.

A second explanation for the different findings might be that individuals utilize both defense mechanisms and coping strategies and that these are, as some authors convincingly argue, quite different from one another (e.g., Vaillant, 1977; Lazarus & Folkman 1984). As previously discussed, Vaillant (1977) defines defense mechanisms as partially unconscious mechanisms, which the ego uses to resolve conflict. He defined which defense mechanisms he considered to be more effective in resolving conflict, and which are least effective. In contrast, Lazarus believed that coping involves constantly changing efforts to manage a stressful situation. He

believed that coping is process-oriented, rather than trait-oriented. This understanding of effective coping strategies is quite different to Vaillant's theory of effective defending. Therefore, it is plausible to argue that individuals use both defense mechanisms and coping strategies and that only defense mechanisms are related to age.

An acceptance of this second explanation leads to some important implications as to how people deal with stress as they age. In turn it may shed further light to the ongoing debate of successful aging. The study of successful aging is a burgeoning field. The types of chronic daily stresses the elderly are exposed to and the strategies they employ to deal with this stress have been considered in respect to successful aging. For example, Holahan, Holahan and Wonacott (2001) have recently argued that a greater use of active approach-oriented coping leads to successful aging. However, despite the emphasis in recent studies on the relationship between coping and successful aging, little attention has been given to defense mechanisms and their role in successful aging. Cramer (2000) has proposed that cognitive psychologists are beginning to accept the existence of defenses, which has relevance for clinical practices. The results from this current study suggests that it is critical that psychologists begin to consider both defense mechanisms and coping strategies when they turn their attention to successful aging.

More research is required into the study of defending and coping, in order to confidently contend that individuals utilize both defense mechanisms and coping strategies and that these are qualitatively different from one another. It is noteworthy, that the DSQ and The Ways of Coping were developed quite differently. The defenses on the DSQ were derived theoretically from a hierarchy of defense mechanisms as defined by Vaillant. In contrast, the scales on The Ways of Coping Questionnaire

were to a large degree derived empirically. That is, items were chosen initially as being diverse and representative examples of potential coping responses, not because they represented theoretical categories of coping. The definition for maturity of coping was arrived at, only after the coping strategies used on the test were devised.

A number of the additional hypotheses were not supported; including the hypotheses on gender differences, locus of control, and number of stresses. This might have been because of the type of tests employed (for example, Rotter's locus of control questionnaire, is arguably out of date), or that indeed that these variables are unrelated to the maturity and immaturity of defending and coping.

This study obtained evidence that a high self-esteem is related to low scores on immature defense mechanisms. There was, however, no evidence to support the hypothesis that a high self-esteem was related to high scores on mature defending. Moreover, there was no evidence to suggest that self-esteem was related to more or less effective coping strategies.

One of the most interesting results revealed in this study, as predicted, was that an individual's purpose in life has some effect on coping. It was revealed that participants with a high purpose and meaning in life scored higher on mature defense mechanisms, while participants with a low purpose and meaning in life scored higher on immature defense mechanisms. This is a particularly interesting finding, given that although Lazarus and DeLongis (1983) and Lazarus and Folkman (1984) have theoretically contended that a person's beliefs can affect coping, they had not yet empirically tested this assertion. In addition, others have posited that “maintaining meaning and purpose in life may become progressively more challenging as older persons face the cumulative losses of aging” (Holahan et al., 2001; p. 397). In the

future, researchers might consider such findings in their work on how the elderly deal with stress.

One of the major strengths of this study is the breadth of data it collected. Unlike previous research, this current study measured both coping strategies and defense mechanisms. Furthermore, the inclusion of numerous covariates in this study provided more information about individual's coping patterns. Another major strength of this research is related to the selection of the research groups. Contrary, to past studies, a young middle age and old groups were included.

The limitations of this research must also be considered. The sample was limited to a middle-class, well-educated sample in order to control for possible confounds. A more in-depth study would include a greater breadth of social groups, as well as respondents who were both educated and uneducated. In addition, the cross-sectional research designed was a limitation, as it did not allow for an examination of how an individual changes his/her defense styles and coping strategies over time. Indeed, Costa and McCrae (1993) posit that on the basis of longitudinal results that aging has little effect on coping and that enduring dispositional characteristic are more important for psychologists to examine.

In conclusion, the findings obtained in this study and further investigations may have some practical implications. A greater understanding of why age affects maturity and immaturity of defending might be utilized to help improve people's quality of life. Furthermore, if research reveals that an individual's purpose in life can be enhanced, as a consequence we might be able to improve the types of defending mechanisms individuals employ.

Table 1

Relative scores for coping on the WOC for low in changeability

COPING SCALE	Young (17-23 yrs) n = 27	Mid-Age (40-47 yrs) n = 20	Old (63-70 yrs) n = 23	F	p
confrontive coping					
<u>M</u>	0.118	0.107	0.085	1.90	0.157
<u>SD</u>	0.05	0.05	0.08		
distancing					
<u>M</u>	0.093	0.096	0.172	6.75	0.002
<u>SD</u>	0.04	0.07	0.12		
self-controlling					
<u>M</u>	0.136	0.156	0.178	3.09	0.052
<u>SD</u>	0.05	0.06	0.07		
seeking social support					
<u>M</u>	0.170	0.195	0.153	1.61	0.208
<u>SD</u>	0.05	0.08	0.08		
accepting responsibility					
<u>M</u>	0.113	0.08	0.048	7.06	0.002
<u>SD</u>	0.06	0.07	0.05		
escape-avoidance					
<u>M</u>	0.124	0.079	0.115	2.29	0.109
<u>SD</u>	0.06	0.06	0.09		
planful problem solving					
<u>M</u>	0.118	0.149	0.103	3.04	0.054
<u>SD</u>	0.06	0.07	0.05		
positive reappraisal					
<u>M</u>	0.121	0.149	0.147	0.91	0.409
<u>SD</u>	0.069	0.089	0.092		

Table 2

Relative scores for coping on the WOC for high in changeability

COPING SCALE	Young (17-23 yrs) n = 27	Mid-Age (40-47 yrs) n = 20	Old (63-70 yrs) n = 23	F	p
confrontive coping					
<u>M</u>	0.085	0.106	0.120	1.64	0.204
<u>SD</u>	0.04	0.05	0.06		
DI distancing					
<u>M</u>	0.106	0.089	0.07	1.49	0.236
<u>SD</u>	0.04	0.06	0.04		
self-controlling					
<u>M</u>	0.164	0.156	0.143	0.55	0.583
<u>SD</u>	0.05	0.04	0.08		
seeking social support					
<u>M</u>	0.114	0.181	0.172	2.65	0.082
<u>SD</u>	0.08	0.07	0.08		
accepting responsibility					
<u>M</u>	0.158	0.081	0.076	5.63	0.006
<u>SD</u>	0.08	0.07	0.07		
escape-avoidance					
<u>M</u>	0.128	0.067	0.609	8.30	0.001
<u>SD</u>	0.06	0.05	0.04		
planful problem solving					
<u>M</u>	0.181	0.182	0.215	0.54	0.587
<u>SD</u>	0.096	0.07	0.10		
positive reappraisal					
<u>M</u>	0.107	0.137	0.140	1.00	0.377
<u>SD</u>	0.06	0.08	0.06		

Table 3

Pearson's correlations between dependent variables and covariates

	Mature	Immature
Locus of Control	-0.347**	0.339**
Self-esteem	0.316**	-0.511**
Purpose in Life	0.435**	-0.533**
Hassles	-0.178*	0.248**

*p < 0.05, ** p < .01

Table 4

Means of covariates by age

VARIABLE	ENTIRE SAMPLE	YOUNG	MID-AGE	OLD	GROUP DIFF
Control					
<u>M</u>	9.99	12.1	9.50	8.35	<u>F</u> = 11.4
<u>SD</u>	3.9	3.6	3.6	3.6	<u>p</u> = 0.000
Self-esteem					
<u>M</u>	8.32	7.43	8.55	8.98	<u>F</u> = 10.1
<u>SD</u>	1.7	1.8	1.6	1.5	<u>p</u> = 0.000
PIL					
<u>M</u>	108.16	100.18	109.80	114.50	<u>F</u> = 8.38
<u>SD</u>	16.9	16.7	13.0	17.8	<u>p</u> = 0.000
Hassles					
<u>M</u>	15.10	19.95	11.37	13.98	<u>F</u> = 6.5
<u>SD</u>	11.4	15.6	7.0	8.1	<u>p</u> = 0.002

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