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OPTIMISM, COPING, AND ADAPTATION IN OLDER WOMEN

 Anne Boland, Ottawa, Canada, 1995



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ABSTRACT

This study looked at the relations among optimism, perception of stress, coping, and adaptation in women over the age of 60. It was hypothesized that optimism in older women would be associated with lower levels of perceived stress, a greater propensity to appraise stressors as challenges rather than as threats or losses, more adaptive coping strategies, fewer symptoms of distress, and higher levels of life satisfaction. The study used a prospective correlational design. One hundred and thirteen women took part in two interviews, separated by a minimum interval of three months.

Although optimism was found to be correlated with most of the dependent variables (DVs), hierarchical regression analyses revealed that it lost its predictive power when the effects of the covariates, particularly Time 1 measures of the DVs and neuroticism, were statistically removed. The most important predictors of coping, distress, and life satisfaction were initial measures of these variables, followed by neuroticism.

The discussion of the findings revolved around the importance of clarifying the construct of optimism. It was concluded that more research is needed to determine whether it is best conceptualized as bipolar or two-dimensional; in the latter case, optimism and pessimism would be related but separate constructs. Furthermore, the relationship of these constructs with neuroticism and extraversion needs to be further clarified.

The results raise the question of whether the constructs of optimism and pessimism are subsumable under one or more of the "Big Five" personality factors (i.e., neuroticism, extraversion, openness, agreeableness, and conscientiousness).

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CHAPTER 1: INTRODUCTION

Optimism, Stress, and Adaptation

The cognitive revolution in Psychology has sensitized psychologists to the subjectivity of perception, the relativity of knowledge, and the predisposition people have to engage in illusory thought. The constructivist approach to perception is based on the premise that the mind is actively involved in the process of perception. Mahoney (1982) captured the essence of constructivism well when he wrote that people co-create the reality to which they react, thus shaping their own fate by creating their own circumscribed meanings from the vast array of their experiences.

The study of optimism as a predictor of stress, coping, and adaptation relates to how a particular set of perceptual biases affects psychological adjustment. If "perception is selection" (Goleman, 1985), one might ask whether certain selections (e.g., optimistic ones) are more adaptive than others, and, if so, whether people can choose the more adaptive ones. This study addresses the first question only. In his recent book, Learned Optimism, Seligman (1992) proposed that optimism can, and should, be learned because it can help prevent maladaptive responses (e.g., depression) to negative life events. He has adapted the cognitive-behavioural intervention model to the learning of optimistic beliefs.

The recent resurgence of interest in how optimism relates to adjustment received added impetus from the development by Scheier and Carver (1985) of the construct of "dispositional optimism". Their work brings together two originally unconnected fields of research: the clinical areas of hopelessness, stress and coping, and the social areas of behavioral self-regulation and optimism. Interestingly, their definition of optimism as a stable personality variable, as opposed to a situationally determined one, has been supported by two genetic studies which found evidence for its heritability (Plomin, Scheier, Bergeman, Pedersen, Nesselroade & McClearn, 1992; Schulman, Keith, & Seligman, 1993).

Stress in Later Life

The increase of research in the past two decades into how individuals cope with stress is due to the recognition that the relation between stress and health (mental and physical) is a mainly indirect one. It is not so much stress per se that affects people, but rather how they appraise it and cope with it (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman, Lazarus, Gruen, & DeLongis, 1986; Lazarus & Folkman, 1984b; McCrae, 1989).

There has been little research on stress and coping in the elderly population (Holahan, Holahan, & Belk, 1984; Lazarus & DeLongis, 1983; Renner & Birren, 1980). This is unfortunate,

given the particular vulnerability of elderly people to the deleterious effects of stress, the aging of the population worldwide, and the need to understand more clearly the factors associated with successful aging. Although older people appear to experience fewer stressful life events than younger adults (Chiriboga, 1980; Lazarus & DeLongis, 1983), there is some evidence that stress has a stronger effect on them (Chiriboga & Cutler, 1980; Renner & Birren, 1980). The numerous social, interpersonal, physical, and economic losses associated with aging are not only stressful in themselves, but also constitute a decrease in the resources available to elderly persons to cope with stressors (Chaisson-Stewart, 1985; Chiriboga, 1980). An important difference between elderly persons who experience emotional distress and those who do not may be their differing abilities to cope with the changes that accompany aging (Chaisson-Stewart, 1985; Pfeiffer, 1977).

The dramatic growth in the number of people living to old age, and the overall aging of the population world-wide (Fillenbaum, 1984), should provide the impetus for increased research in this area. This would create a stronger empirical basis from which to develop programs to support elderly persons' achievement of successful aging (Folkman, Lazarus, Pimley, & Novacek, 1987). Costa and McCrae (1980b) and Kozma, Stones, and McNeil (1991) strongly suggest that individual differences, or dispositional styles, should be taken into account when devising such programs.

An Interactive Model of Coping

One major influence in the area of stress and coping research has been Lazarus' interactive model (Lazarus, 1966; Lazarus & Folkman, 1984b). In this model, stressful events are seen as person-event transactions, appraised by persons as relevant to their well-being and taxing or exceeding their coping resources. The person and the environment are viewed as being in a dynamic, mutually reciprocal, and bidirectional relationship (Folkman, Lazarus, Gruen & DeLongis, 1986). Two types of appraisal occur in every stressful event: primary and secondary appraisal. The former is an evaluation of the event's potential impact on well-being. It may be seen variously as a source of loss or harm (if some damage has already occurred), threat (if potential damage may occur), or challenge (if emphasis is on potential mastery or gain), in a number of different areas, such as work, self-esteem, or the health of a loved one. Secondary appraisal refers to the person's evaluation of the controllability of the event and of coping resources and options. Although the terms "primary" and "secondary" may lead one to believe that they occur sequentially, Lazarus emphasizes that they are in continuous interaction, each influencing the other throughout the coping process, and in turn being influenced by coping itself (Lazarus & Launier, 1978). In their review article on stress and coping, Matheny, Aycock, Pugh, Curlette, and Silva Cannella (1986) concur with Lazarus that it is

perceived (rather than actual) demands and resources that predict the stress response.

Coping refers to the thoughts and actions that people use to manage the demands of stressful transactions. These can be directed toward altering the troubled person-environment transaction (problem-focused coping) or toward regulating distressing emotions (emotion-focused coping). People use both forms of coping in virtually every type of stressful transaction (Folkman et al., 1987). The effectiveness of the particular coping strategies utilized by the person is largely a function of the context in which they are used. If the situation is appraised as controllable, problem-focused coping is probably the better strategy to use; if it is appraised as uncontrollable, then emotion-focused strategies may be preferable (Folkman & Lazarus, 1980; Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986; Lazarus & Folkman, 1984b; Matheny et al., 1986).

In Lazarus' model, coping is seen as a process that is continually changing over time and across situations. It is therefore essential for the researcher in the area to obtain several measures across and within situations in order to detect the presence of stable patterns (Folkman & Lazarus, 1980; Lazarus & DeLongis, 1983).

Although Folkman et al. (1986) have recognized the importance of stable factors such as personality in stress and coping, they have strongly emphasized situational variables in their person-situation interactional model. They believe that an

emphasis on coping styles or coping dispositions would reduce the flexibility required to adjust to the demands of particular situations. This position is controversial and has been challenged by other researchers in the field (Carver, Scheier & Weintraub, 1989; Costa & McCrae, 1980a, 1980b; McCrae, 1982, 1984, 1989; McCrae & Costa, 1986). This issue will be addressed more fully later.

Major and Minor Life Events

Stress has been defined both in terms of major life events and minor daily hassles. Life events refer to the more dramatic and severely taxing situations (e.g., the death of a loved one or serious financial difficulties) that require substantial readjustment in a person's life. Daily hassles consist of the irritating and frustrating demands that plague people day in and day out. They include annoying practical problems such as losing things, traffic jams, and inclement weather (Kanner, Coyne, Schaefer, & Lazarus, 1981; Lazarus & DeLongis, 1983).

Research has revealed that measures of daily hassles are better predictors of morale, psychological symptoms, and somatic health than are measures of life events. They share most of the predictive outcome variance contributed by life events, while adding some of their own (Burks & Martin, 1985; DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982; Kanner et al, 1981; Monroe, 1983). Similar results have been obtained with groups of elderly

subjects (Holohan et al., 1984; Landreville, Vézina, & Giroux, 1989). Pearlin and Lieberman (1979) suggest that the impact of many life events on psychological health is due not so much to their acute, one-time occurrence, but rather to the fact that they create durable, persistent problems that impinge on the daily lives of people. DeLongis et al. (1982) have suggested that hassles are proximal measures of stress, whereas life events are distal measures. They have also remarked that whereas life events may cause many hassles, there are a large number of hassles that are unrelated to life events: noise, pollution, chronic family problems, and so on. These would account for the independent contribution of hassles to the predictability of outcome. Life events and daily hassles may be seen as complementary measures in the study of stress (Chiriboga & Cutler, 1980; Holohan et al., 1984).

Situational vs Dispositional Predictors of Stress and Coping in Later Life

Research on stress and coping in elderly persons has been conducted from situational, developmental, and dispositional perspectives. The situational viewpoint is based on the premise that elderly persons may cope with stress differently than younger persons because the sources of their stressors are different. Those who hold a dispositional viewpoint believe that coping style is a dimension of personality which remains

relatively stable throughout the lifespan (Costa & McCrae, 1980a, 1980b; McCrae, 1982, 1989). In a developmental perspective, it is believed that coping responses differ throughout the lifespan as a function of the maturational changes associated with aging (Folkman et al., 1987).

Lazarus and his colleagues have typically adopted a cognitive/situational perspective in their work on stress and coping. From their perspective, there is a continuous dynamic interplay between the environment, the person, and cognitive factors, and it is impossible to clearly separate them (Folkman & Lazarus, 1980; Lazarus, DeLongis, Folkman, & Gruen, 1985). From their study comparing coping responses in older and younger adults, Folkman and Lazarus (1980) concluded that the source of stress, rather than age, was more important in predicting coping responses. More specifically, coping style was related to whether the stressor was defined as a challenge, threat, or loss. In their 1987 study, Folkman et al. found that older persons were more likely to adopt emotion-focused strategies (such as distancing and positive reappraisal) and were less likely to use problem-focused strategies (such as social support or confrontation) than were younger adults. They interpreted this finding as a function of the perceived and actual uncontrollability of the sources of stress faced by the elderly. Irreversible losses in the areas of health and social support were much more frequent for older than for younger adults.

McCrae (1982, 1984) similarly found that coping in older subjects could be explained largely in terms of the source of the stressors, that is, whether they were classified as challenges, threats, or losses. Challenges were associated, across age groups, with rational action, positive thinking, and drawing strength from adversity, whereas threats and losses were predictive of reliance on faith, fatalism, and wishful thinking. He found that older subjects experienced a decrease in the number of challenges, and an increase in the number of threats, which were mostly health related. Losses occurred equally across the lifespan. When these factors were controlled, coping style did not significantly differ across age groups. McCrae (1982, 1984) noted, however, that these situational factors accounted at most for 16% of the variance in coping and suggested that individual differences in personality probably accounted for a larger percentage of the variance. In a later article, McCrae (1989) reported data from a seven-year longitudinal study which strongly suggest that both dispositional and situational factors are important predictors of coping in later life and that aging, per se, does not seem to influence the choice of coping strategy. He also noted the importance of controlling for cohort differences in this area of research.

In spite of their bias toward a focus on situational factors, Lazarus and his colleagues have conceded that it is also important to study the stable person-environment transactions:

A major challenge in stress and coping research is to develop a method for describing the stable aspect of appraising and coping that does not sacrifice the cognitive and behavioral richness of these processes...Researchers should turn their attention to the stable aspects of the person-environment transactions (Folkman, Lazarus, Gruen, & DeLongis, 1986, p. 578).

In their 1983 article, Lazarus and DeLongis argued that whatever happens to a person is given meaning and personal significance by the more or less stable features of personality. At the level of primary appraisal, some people (e.g., those with higher beliefs regarding control) seem to be "predisposed" to perceive events as challenges, rather than as threats (Lazarus & Launier, 1978). Lazarus and DeLongis (1983) and Folkman, Lazarus, Gruen, and DeLongis (1986) suggested that such cognitive or interpretative predispositions stem from the personality features of commitments (values, ideals, and goals) and beliefs about self and the world. They also suggested that there are two broad types of beliefs that are of relevance to stress and coping: beliefs regarding personal control over events (essentially Bandura's notions of self-efficacy and outcome-efficacy), and existential beliefs, such as belief in God, fate, or some higher natural order. It is these beliefs that, in part, distinguish optimists from pessimists (Scheier & Carver, 1985).

Costa and McCrae (1980a, 1980b; and also McCrae & Costa, 1986) have strongly argued for a revival of the personality or trait approach to the understanding of stress and coping in elderly persons. Their review of the literature has led them to conclude that personality factors affect happiness to a far greater extent than do external circumstances and that even self-reported health (which is a strong predictor of well-being in the elderly) correlates highly with the personality trait of neuroticism. In their 1986 study, they found strong relations among the personality traits of neuroticism, extraversion, and openness to experience, on the one hand, and coping style, on the other. Subjects who scored high on a neuroticism scale exhibited a "neurotic" coping style, consisting of hostile reactions, escapist fantasy, self-blame, sedation, withdrawal, and passivity. Extraverts tended to rely on rational action, positive thinking, and restraint ("mature" coping style). Open individuals were more likely to use humour, whereas closed individuals leaned more toward faith. Neuroticism, extraversion, and openness to experience were found to be mutually independent personality traits, uncorrelated with each other.

Costa and McCrae (1980b) reported a very interesting finding from a study in which they administered a modified Holmes and Rahe (1967) Schedule of Recent Life Events to a group of middle-aged adults and assessed their personalities before and after the 10-year period during which these events occurred. They found that virtually all of the controllable life events were related

to and predicted by personality. Neuroticism predicted marital (divorce), financial, and sexual problems. Openness predicted geographical moves and career changes, whereas intelligence predicted work promotions. They concluded, as did Mahoney (1982), that people take an active part in shaping the events to which they react. Although life events have traditionally been viewed as playing a causal role with regard to well-being and adjustment, research is showing the circular influences between personality, life events, and adjustment. In a longitudinal study, Aldwin, Levenson, Spiro III, and Bossé (1989) found a significant relation between neuroticism and measures of life events, daily hassles, and mental health taken 10 years later. In their 4-year longitudinal analysis of personality as a predictor of objective life events, Magnus, Diener, Fujita, and Pavot (1993) found evidence for a link between neuroticism and negative life events, and between extraversion and positive life events.

The literature, then, seems to point to the importance of both situational and dispositional factors in determining stress perceptions and coping responses. In response to the need to measure both situational and dispositional aspects of coping, Carver et al. (1989) have developed a new measure of coping that can assess both aspects of coping responses. This scale, the COPE, was developed within the framework of their theory of dispositional optimism, a trait which they consider important in moderating the effects of stress on adaptation. An analysis of

the correlations between subjects' reported dispositional style of coping and their coping in specific situations revealed generally low-to-moderate relations for most of the strategies measured. Thus, although they are related, each measure contributes unique variance to the prediction of coping.

Situational vs Dispositional Predictors of Adaptation in Later Life

Psychological adaptation has been defined in terms of both emotional distress and well-being (emotional and physical). Although these terms may appear to belong to opposite ends of the same continuum, they actually point to independent constructs (Costa & McCrae, 1980a, 1980b, 1984, 1985; Kozma et al., 1991; Stones & Kozma, 1989; Watson & Pennebaker, 1989). Psychological distress refers to the presence, in varying degrees, of pathological symptoms such as depression, anxiety, guilt, or anger. It is associated with the construct of neuroticism, which is the propensity to experience negative affectivity.

Well-being, on the other hand, represents more than the lack of psychological distress. Referred to with many different terms in the literature (e.g., life satisfaction, morale, mental health, and happiness), well-being is an indicator of positive affectivity and reflects a propensity to experience energy, excitement, and enthusiasm. Well-being is associated with the personality dimension of extraversion. Emotional distress and

well-being are related to objective life conditions but also remain distinct from them (George, 1981; Costa & McCrae, 1984; Costa, McCrae & Zonderman, 1987; Kozma et al, 1991; Watson & Pennebaker, 1989).

A number of variables have repeatedly been found to be related to adaptation in later life. In his 1978 review of the literature on well-being, Larson reported that the factors which consistently emerged as significant correlates of well-being in Americans over 60 years of age were: perceived health, economic status (particularly at the lower levels of income), and social interaction (having a confidant). Interestingly, these important situational factors failed to account for most of the variance in well-being scores. Kozma and Stones (1978) also reviewed research in this area, and found perceived health and perceived economic status to be the two most significant predictors of well-being, followed by locus of control. In his 1983 research on the correlates of well-being in a group of 80 elderly persons, Duckitt found that the personality trait of neuroticism was substantially the strongest predictor, followed by perceived health and intimate friendships. Diener (1984) and Kozma et al. (1991) draw a distinction between bottom-up and top-down explanations of well-being in later life. In the bottom-up approach, perceived well-being is viewed as the direct and indirect result of certain precursors, such as health or financial status. In the top-down approach, it is viewed as an enduring, inner propensity which influences how factors such as

health or financial status are perceived and dealt with. Linking personality traits such as neuroticism or perceived locus of control to well-being combines features of both bottom-up and top-down approaches.

From their extensive review of the literature, Kozma et al. (1991) concluded that subjective evaluation predicts three times more variance in perceived well-being than do objective measures in the areas of health, housing, income, job, and marital status. These subjective variables account for up to 30 percent of the variance in perceived well-being. They interpreted this finding in terms of two aspects of cognitive style: first, the propensity of people to compare themselves to others when evaluating their own situation, and second, the tendency to evaluate different domains of life in a similar manner. The latter tendency might represent a trait or an underlying predisposition to experience well-being or happiness. This is captured in the title of one of their articles, "Happy are those who are happy" (Stones & Kozma, 1986). In the same review, Kozma et al. (1991) also showed that social involvement accounted for up to 8% of the variance in well-being scores and chronic stress accounted for up to 10%. Social support was shown to moderate the effects of stress. Personality factors, such as hardiness (which includes a component of optimism), extraversion, and neuroticism, predicted up to 14% of the variance in well-being.

The propensity to happiness has repeatedly been associated with extraversion. More specifically, it has been associated

with the subscales of positive emotions, warmth, and assertiveness on the NEO-PI (Costa & McCrae, 1984). These factors have been shown to account for 5 to 14% of the variance in well-being (Costa & McCrae, 1980a, 1980b, 1984, 1985; Costa et al., 1987; Kozma et al., 1991). Kozma et al. (1991) and Larson (1978) noted that subjective satisfaction, personality, stress/hassles, and demographic variables only account at most for 30% of the variance in well-being. The most powerful predictor of well-being at any particular point in time is previous well-being, which can account for up to 62% of the variance. This stability in current and past well-being scores may start to decrease after ages 70 to 75 (Kozma et al., 1991). This may be due to the serious health-related problems associated with the latter stages of aging. Because of their association with distress and well-being, the factors of neuroticism, perceived health, chronic stress, economic status, age, and social relations were defined as covariates in this study.

Optimism as a Predictor of Coping and Adaptation

Research in the behavioural health fields has, until recently, been largely influenced by a disease or dysfunction-oriented model. Psychologists, for example, have focused on the study of negative emotions and largely ignored the effects of positive experience and emotions (Lazarus, Kanner & Folkman, 1980; Reker & Wong, 1985). The study of optimism (at times

referred to as "hope" in the literature) has been largely ignored, whereas its opposites, hopelessness and depression, have been the focus of much research.

Hope can occur even when an individual's efforts are known not to be sufficient. Hope can occur in the face of very severe, or even desperate, threat. Yet, the devastating effects of the absence of hope, or the state of hopelessness, have received far more attention. It would be profitable to give the same attention to the power of hopefulness to sustain coping and commitment as that given to hopelessness (Lazarus, Kanner, & Folkman, 1980, p. 210).

Abramson, Metalsky and Alloy (1989) concluded their article on hopelessness depression in a similar vein:

A passage from Solzhenitsyn's (1973) writings on the destructive labour camps in the Gulag Archipelago is provocative. In discussing corruption of prisoners in the camps, Solzhenitsyn says he is not going to explain the cases of corruption. Why, he says, should we worry about explaining the house that in subzero weather loses its warmth?...The hopelessness theory attempts to explain not only how hope is lost in the face of adversity but also how it can endure (p. 369).

Although much research has grown out of an emphasis on pathology, the recent interest in optimism falls within a health orientation (Reker & Wong, 1985; Snyder, 1989) and has largely been influenced by developments in the area of social psychology. More specifically, Carver and Scheier's (1981a, 1981b) theory of behavioural self-regulation has led to the development of their concept of optimism as a dispositional variable which can affect the perception of stress, the choice of coping strategies, and the experience of well-being or psychological distress. Recent reports suggest that optimism moderates the effects of stress on general adaptation through its relation to coping (Scheier & Carver, 1987, 1992).

Control Theory of Behavioural Self-Regulation

Social psychology has made important contributions to the clinical field in such areas as self-schema, social-learning theory, and attitude change. Carver and Scheier's (1981a, 1981b) theory of the self-regulation of behaviour, control theory, has been another area of relevance to the field. Their model has led them to conceptualize dispositional optimism as a motivational variable which moderates coping responses to stress, thereby affecting psychological and physical health. They define dispositional optimism as generalized positive expectancies. As such, optimism would be the opposite of Abramson, Metalsky, and

Alloy's (1989) concept of hopelessness (generalized negative expectancies) and may serve to inoculate against hopelessness depression.

The control theory of self-regulation proposes that goal-directed behaviour is determined by a binary feedback system which acts as a guide to the attainment of a particular goal. Discrepancy between a desired goal and reality leads to an attempt at bridging the gap. Attempts at bridging the gap are in turn mediated by the person's assessment of "outcome expectancy", or an estimation that the desired goal will be reached. Control theory predicts that outcome expectancy will be mediated by one's perception of circumstances and of self-efficacy (personal ability to make the required changes). If outcome expectancy is viewed positively, efforts to attain the goal will be renewed. If viewed negatively, disengagement (physical or psychological) will occur (see Appendix A).

In their original model of behavioural self-regulation, Carver and Scheier focused more on specific outcome expectancies and their specific behavioural correlates (Scheier & Carver, 1985). It became clear to them, however, that some categories of behaviour seemed to be influenced by more than one task-specific outcome expectancy (e.g., when adaptation to a range of difficulties across a certain time period is required). It also became clear to them that the "reasons" given for outcome expectancies could encompass factors other than self-efficacy: for example, environmental contingencies, other people, or just

simply good and bad luck. They conceptualized generalized positive expectancies as optimism, and generalized negative expectancies as pessimism.

Behavioural Self-Regulation: Control Theory vs Self-Efficacy

There are obvious similarities between Scheier and Carver's control theory and Bandura's (1977) theory of self-efficacy. Both emphasize the role of outcome expectancies in the regulation of behaviour. Their definition of this construct, however, differs. Bandura defines outcome expectancy as the subjective probability that a certain behaviour will result in a particular outcome. He emphasizes "self-efficacy" (the belief that one is able or unable to engage in the required behaviour) as being the final pathway to the behaviour required to achieve the desired goal. Scheier and Carver, on the other hand, de-emphasize self-attribution and include other factors (such as environmental constraints, other people, or various beliefs in luck, God, or the universe) as significant determinants of outcome expectancy. Judgments about external circumstances therefore interact with self-efficacy to produce outcome expectancy. Appendix B compares the two models on their definition of outcome expectancy. As shown, control theory stipulates that a person whose self-efficacy is relatively low may nevertheless remain motivated to reach a certain goal because of a generalized belief that "all shall be well". This may be translated into a more specific

belief that someone will somehow be there to help, or that God or the Universe will intervene providentially. No such alternative is given in Bandura's model. Scheier and Carver's approach encompasses both the "external" and the "internal" dimensions of locus of control (Rotter, 1966). Another major difference between the two models pertains to their degree of generality or specificity. Bandura (1977, 1982, 1986) sees efficacy expectancies as specific to particular tasks and settings. Scheier and Carver view expectancies as possibly operating at many different levels of specificity, from the very specific ("I am able to prepare this meal"), to the very general ("I am usually successful at what I attempt"). They argue that generalized expectancies are very important when the outcome being assessed is general in scope, multiply determined, or when the person has had no prior experience with similar situations (Scheier & Carver, 1988, 1992; Carver & Scheier, 1994).

Behavioural Self-Regulation: Control Theory vs Attribution Theory of Depression

Research on depression has increased in the past 20 years (Abramson, Metalsky, & Alloy, 1988). Much has been written about hopelessness, including the recent formulation of a theory of hopelessness depression, which is a revision of Abramson, Seligman, and Teasdale's (1978) reformulated theory of learned helplessness. The hopelessness theory of depression is a

diathesis-stress theory which proposes to define and explain the occurrence of a subtype of depression, hopelessness depression, which is characterized by the loss of hope. According to this model, a global and stable attributional style for negative events (pessimism) is a risk factor for the development of hopelessness depression when it interacts with the occurrence of a negative event. Hopelessness itself is the proximal, sufficient cause of depression. The theory of Abramson et al. (1989) has been developed from a very different perspective than Scheier and Carver's model of optimism. The model of hopelessness depression has its roots in Seligman's (1975) study of noncontingent conditioning experiences in animals, from which he developed the learned helplessness model of depression in humans. Scheier and Carver, on the other hand, arrived at their concept of optimism from work on their self-regulation model of "normal" human behaviour. Although the two areas have developed quite independently, both have arrived at a similar conclusion regarding the importance of generalized expectancies, one focusing on hopelessness or pessimism, the other on hope or optimism. The definitions given for each construct are strikingly complementary. Abramson et al. (1989) define hopelessness as an "expectation that highly desired outcomes will not occur or that highly aversive ones will occur, coupled with an expectation that no response in one's repertoire will change the likelihood of occurrence of these outcomes" (p. 359). Scheier and Carver (1987) define optimism as "generalized

expectations that good things will happen" (p. 171). The study of optimism, then, would seem to be the much needed complement of its more highly researched opposite, and would therefore have implications for the treatment and prevention of hopelessness depression. As Abramson et al. (1989) propose, depression may ultimately best be understood in the larger context of nondepression, and the hopelessness theory may help explain both how hope is lost and how it is maintained. Needles and Abramson (1990) have developed a model for recovery from depression which follows from the hopelessness theory. The presence of a global and stable attributional style for positive events (optimism), in interaction with the occurrence of positive events or a decrease in negative events, would lead to a remission of depressive symptoms through the restoration of hopefulness. They tested their recovery model with a sample of depressed college students and their results supported their model. Depressed students who had an enhancing (optimistic) attributional style and who experienced positive life events or a decrease in the number of negative events were more likely to overcome their depression through an increase in hopefulness.

As Hammen (1988) remarks, most people who face stressful events do not become depressed, and, although stress is related to depression, it accounts for only 4 to 15% of the variance. Similarly, mental-health problems affect only a minority of the elderly population (Simon, 1980). Most of them look back at their life with satisfaction and continue to find life as

interesting as ever (Harris & Associates, 1975). As mentioned earlier, research seems to indicate that personality is more crucial to life satisfaction and adaptation than are objective circumstances (Costa & McCrae, 1980a, 1980b; Kozma et al., 1991; Ormel & Wohlfarth, 1991). Self-reported health is the only circumstantial variable that consistently shows up as a predictor of well-being and has been shown to be powerfully influenced by the personality factor of neuroticism (Costa & McCrae, 1980a).

Research must also focus on what keeps people healthy and on factors that might protect the person from the effects of stress. This might involve studying personality factors that predict good physical health. It might also involve greater emphasis on coping, especially since animal research suggests that coping responses can decrease stress-induced tumour growth...researchers should also focus on groups that are likely to be at great risk for immune-relevant disorders such as the elderly and young children (Jemmott & Locke, 1984, p. 103).

It is from this perspective that the present research aims to better understand the relations among optimism, health, and adaptation in elderly persons, as they cope with the many challenges, threats, and losses in their lives.

Optimism and Related Constructs

In order to study optimism within the context of their control theory of self-regulation, Scheier and Carver (1985) developed a measure of this construct, which they called the Life Orientation Test (LOT). The LOT is a 12-item test which assesses positive generalized expectancies without implying any specific basis for these expectancies. As noted earlier, their definition of optimism encompasses both internal and external attributions of positive expectancies.

As part of the same study, Scheier and Carver (1985) conducted a convergent and discriminant validation of their measure of optimism with measures of the following constructs: locus of control (Rotter, 1966), self-esteem (Rosenberg, 1965), hopelessness (Beck, Weissman, Lester & Trexler, 1974), depression (Beck, 1967), perceived stress (Cohen, Kamark & Mermelstein, 1983), and social desirability (Crowne & Marlowe, 1964).

Optimism was found to be positively correlated with internal locus of control ($r = .34$), self-esteem ($r = .48$), and social desirability ($r = .26$). It was found to be negatively correlated with hopelessness ($r = -.47$), depression ($r = -.49$), and perceived stress ($r = -.55$). They concluded that although the correlations are in the expected directions, they are not of such magnitude as to indicate redundancy between the various measures.

The link between optimism and neuroticism has sparked research to further validate the construct of optimism as

measured by the LOT. In 1989, Smith, Pope, Rhodewalt, and Poulton published an article which challenged interpretations of findings based on the LOT. They conducted a convergent-discriminant validation study of the LOT with university undergraduates. They replicated earlier findings on its relations with symptom report (concurrent and prospective) and coping strategies. However, when measures of neuroticism, defined as anxiety scores on the Taylor Manifest Anxiety Scale (TMAS; Taylor, 1953) and on the State-Trait Anxiety Inventory (A-Trait; Spielberger, Gorsuch & Lushene, 1970), were statistically partialled out, most of these correlations were no longer significant. Correlations with the coping strategies of self-blame and support seeking decreased but remained significant. Smith et al. concluded that the construct of optimism remains an important one but that the LOT may not be a valid measure of it. They advise caution in interpreting results based on the LOT and recommend that other populations be used in studying the relations among optimism, neuroticism, coping, and symptom report.

In addressing this criticism, Scheier et al. (1989) presented three strong arguments in favor of the LOT's ability to differentiate neuroticism from optimism. First, they pointed out that Smith et al.'s study had established a link between neuroticism and health self-reports, but not between neuroticism and objective health measures. Their own study with coronary-artery bypass patients established the predictive value of

optimism scores for actual, "hard" health measures. This would seem to indicate that the LOT was measuring more than simple neuroticism. Second, they noted that the predictive value of optimism with these coronary patients remained significant even when initial anxiety and hostility scores on the Multiple Affect Adjective Checklist (MAACL; Zuckerman, 1960) were statistically controlled. Although the MAACL differs from traditional measures of neuroticism, one can assume that its subscales of anxiety and hostility would provide some indication of neuroticism. Third, they reported data from an unpublished, exploratory study in which items from the LOT were mixed with items from neuroticism scales, one of which was the A-Trait (Spielberger et al., 1970). These items were subjected to a factor analysis which revealed a separate optimism factor. This factor predicted a significant amount of the variance in both coping strategies and reports of physical symptoms.

In 1994, Scheier, Carver, and Bridges conducted a study in which they addressed the issue of the differentiation between neuroticism and the LOT. They used the Emotional Stability subscale of the Guilford-Zimmerman Scale (GZTS; Guilford, Zimmerman, & Guilford, 1976) as their measure of neuroticism and used the dispositional version of the COPE. Their results showed that the LOT still predicted depression and certain coping strategies after statistical removal of the effects of neuroticism. However, it no longer predicted physical symptom

report. They concluded that the LOT was significantly differentiated from neuroticism.

Although further validation of the LOT was not a primary purpose of this dissertation, neuroticism was included as a covariate measure in order to control for its potential confounding effects on the dependent variables. As an additional cautionary step, the Optimism/Pessimism Scale (O/P; Dember, Martin, Hummer, Howe, and Melton, 1989) was included in the measures. This scale was chosen because of its conceptual fit with Scheier and Carver's construct of dispositional optimism. It was felt that a second measure of optimism may help clarify the nature of the relationship between optimism and neuroticism. For example, the LOT may be found to be highly correlated with neuroticism, but the O/P may not be. In that case, the difficulty may lie with the psychometric properties of the LOT and not with the construct of optimism per se.

Optimism, Coping, and Adaptation

Optimism has been shown to predict both coping and adaptation in a number of different populations. In their 1985 study with 141 male and female undergraduate students, Scheier and Carver found that optimism, as measured by the LOT, was predictive of physical symptom reports over the stressful 4-week period of final exams. The predictive value of optimism remained significant even when initial symptom reports were statistically

controlled. In this early study, Scheier and Carver did not control for neuroticism or other relevant variables such as mood or stress levels. In support of these findings, Scheier and Carver (1992) reported unpublished data on college students which indicated that optimism was a significant predictor of adjustment to university life across the first semester, even when the influence of other variables such as self-esteem, locus of control, desire for control, and baseline levels of mood were statistically controlled. It should be noted, however, that neuroticism was not controlled for in that study. Similarly, Aspinwall and Taylor (1992) reported that the LOT had direct and indirect effects on adjustment to college life in a group of over 500 undergraduate students during a three-month period. Indirect effects contributed to the prediction of adjustment through coping style. Again, these researchers did not control for neuroticism, nor did they control for the effect of initial level of adjustment.

Carver and Gaines (1987) conducted a study on the relation between optimism and post-partum depression with a group of 75 women whom they initially tested in their last trimester of pregnancy. They found that LOT scores were predictive of post-partum depression even after initial depression scores were statistically controlled.

In an effort to ascertain the predictive value of optimism for objective indices of health, Scheier et al. (1989) assessed the relations among optimism scores and indices of recovery in 51

middle-aged male patients who had undergone coronary-artery bypass surgery. The patients, whose average age was 49 years old, were all relatively similar in terms of severity of medical condition and extensiveness of medical intervention. Scheier et al. found that optimists recovered from surgery more quickly, experienced fewer signs of intraoperative complications, and returned to their different life activities at a faster rate than did pessimists. At a six-month follow up, they reported a higher quality of life than did the pessimists. In coping with the stress related to their illness, optimists tended to be more directly involved with their treatment and more problem-focused than pessimists. They were less likely than pessimists to dwell on the negative aspects of their situation, to use denial, or to mentally disengage from the experience. The fact that pessimists tended to mentally disengage fits with control theory, which predicts that when physical removal from a stressful situation is not possible for pessimists, they will disengage from it mentally in order to cope with the emotional distress (see Appendix A). These effects were obtained after statistically controlling for initial health levels, medical interventions, and emotional distress (i.e., hostility, anxiety, and depression prior to surgery). Not surprisingly, optimists reported significantly lower levels of hostility prior to surgery than did pessimists and higher levels of satisfaction with the care and support they were receiving one week post-surgery. They did not differ from pessimists on the measures of anxiety or depression. At a 5-year

postsurgery follow-up, optimism continued to be an important prospective predictor of subjective well-being, general quality of life, full-time employment, lower degree of physical pain associated with angina, and better health-promoting habits (Scheier & Carver, 1992). The findings from this study are particularly significant because they are based on "hard health outcome" and not solely on self-report measures. However, these researchers did not measure initial levels of subjective well-being, nor did they statistically control for neuroticism.

Another prospective study in the area of health psychology was carried out with 59 women (mean age of 58 years) who had been diagnosed with early-stage breast cancer (Carver et al., 1993). They found that with statistical controls for age, type of treatment, and previous emotional distress, optimism predicted coping style and emotional distress at the 3-month, 6-month, and 12-month follow-up interviews. The three coping strategies most strongly associated in the expected direction with optimism were acceptance, denial, and behavioural disengagement. Path analyses indicated that these three coping strategies mediated the relation of optimism to well-being. These researchers also failed to control for the influence of neuroticism on the DVs.

In a study focusing on optimism and coping style, Scheier, Weintraub, and Carver (1986) compared close to 300 hundred undergraduate students on their coping responses to the most stressful event which they had undergone in the previous two months. In assessing coping responses with the Ways of Coping

Checklist (Folkman & Lazarus, 1980), they found that optimists relied more on positive reinterpretation, social support, and problem-solving when they appraised the event as controllable, and more on acceptance when they appraised it as uncontrollable. They did not indulge in venting their emotions, nor did they deny or distance themselves from their goal. Pessimists, on the other hand, used the emotion-focused strategies of denial, disengagement, and focus on emotional distress. Perception of the controllability of the stressor was unrelated to the optimism-pessimism dimension. Scheier et al. (1986) concluded that optimists use strategies that are more adaptive and less dysfunctional, especially in contexts where persistence and active efforts are required. Similar results were obtained by Fontaine, Manstead, and Wagner (1993) with a group of over 400 undergraduate students. As Carver et al. (1993) suggest, it would seem that optimists exemplify the ideal of the "serenity prayer", striving to accept the things they cannot change and to change the things they can. These results were further replicated with another group of almost 1,000 undergraduate students (Carver, Scheier, & Weintraub, 1989).

A study by Reker and Wong (1985) with a group of 80 elderly subjects provides further support for Scheier and Carver's findings and conclusions. They investigated the relations among optimism (which they defined as the number of positive events their subjects were looking forward to) and physical and psychological well-being two months later. They found that, in

comparison to pessimists, optimists reported higher levels of well-being at the end of the two-month follow-up period. Although their measure was quite different from Scheier and Carver's, their results point to similar conclusions.

Scheier and Carver (1985, 1992) suggest that the relation of optimism to well-being and health may be mediated by coping style. Presumably, the positive expectancies of optimists lead to more effective problem-solving with fewer adverse health consequences. It may be that optimists are more likely than pessimists to engage in health-enhancing behaviours in times of stress. They speculate that optimism may also have a direct effect on physiological mechanisms by influencing the immune system, for example. Aspinwall and Taylor (1992) and Carver et al. (1993) also found evidence for this mediation effect.

Another way in which optimism may be related to well-being and adjustment is through the perception of stress. Optimism, as measured by the LOT, has been shown to be significantly correlated in the expected direction with the perception of chronic stress and psychological symptoms (Blankstein, Flett, & Koledin, 1991; Hooker, Monahan, Shifren, & Hutchinson, 1992; Scheier & Carver, 1985). Optimistic people may simply not define events as stressful to the same extent that pessimistic people do. Once again, however, neuroticism may have confounded the relation between optimism and the criterion measures.

Summary

It appears that research conducted independently and from different theoretical orientations is converging toward similar conclusions regarding the importance of personality variables as predictors of stress, coping, and adaptation. More particularly, there seems to be strong evidence that dispositional optimism may be one of these personality factors.

OBJECTIVES AND HYPOTHESES

The purpose of this research was twofold: to determine whether optimism could predict the appraisal of stress, coping, emotional distress, and well-being in older women, and to determine the patterns of relations among these variables.

HYPOTHESES. The following hypotheses were proposed in relation to a group of women over the age of 60:

Hypothesis 1: Optimism will predict lower levels of daily stress over a three-month period, over and above the effects of initial level of chronic stress, age, income, neuroticism, social support, and perceived health.

Justification. Optimism is a perceptual style that predisposes individuals to focusing on the positive aspects of life. It is also associated with beliefs in the availability of internal and external coping resources. This positive secondary appraisal should in turn decrease perception of the stressfulness of common daily events. Blankstein et al. (1991), Hooker et al. (1992), and Mroczek et al. (1993) found significant negative correlations between optimism and reported chronic stress.

Covariates were chosen on the basis of previously mentioned research linking these factors to psychological distress and

well-being (Duckitt, 1983; Kozma & Stones, 1978; Kozma et al., 1991; Larson, 1978; Smith et al., 1989).

Hypothesis 2: Optimism will be positively related, over a three-month period, to adaptive coping strategies (active coping, planning, positive reinterpretation, and acceptance). This relation will be found over and above the effects of initial adaptive coping, age, income, neuroticism, social support, and health perception.

Hypothesis 3 Optimism will be negatively related, over a three month period, to maladaptive coping strategies (denial, focusing on/venting of emotions, behavioural and mental disengagement). This relation will be found over and above the effects of initial maladaptive coping, age, income, neuroticism, social support, and health perception.

Justification for Hypotheses 2 and 3. Defining adaptive and maladaptive coping style on an a priory basis, and linking these to stable or personality factors are both controversial ideas (Carver, Scheier, & Weintraub, 1989; McCrae, 1984; McCrae & Costa, 1986). These hypotheses are derived from results reported by Scheier et al. (1986) and Carver et al. (1989). They found that problem-solving (i.e., active coping and planning), positive reinterpretation, and acceptance were adaptive coping strategies, and were most often used by their more optimistic undergraduate

subjects. They also found that denial, venting of emotions, and disengagement (behavioural and mental) were maladaptive strategies and were characteristic of the coping style more often chosen by their more pessimistic subjects. Similar results were found with coronary bypass surgery patients (Scheier et al., 1989) and with women diagnosed with early stage breast cancer (Carver et al., 1993).

Hypothesis 4: Optimism will predict, over a three-month period, lower levels of psychological distress, over and above the effects of initial psychological distress, age, income, neuroticism, social support, perceived health, and level of daily stress at Time 1.

Hypothesis 5: Optimism will predict, over a three-month period, higher levels of life satisfaction, over and above the effects of initial life satisfaction, age, income, neuroticism, social support, perceived health, and level of daily stress at Time 1.

Justification for Hypotheses 4 and 5. Scheier and Carver (1985) found that optimism was predictive of physical symptomatology in undergraduate students during a stressful exam period. Carver and Gaines (1987) showed that optimism could predict post-partum depression in a group of pregnant women, and Carver et al. (1993) found that optimism predicted emotional distress in women diagnosed with breast cancer. Scheier and Carver (1992) reported

that optimism could predict quality of life in coronary bypass surgery patients over a 5-year period. In their 1992 study, Scheier & Carver found that optimism predicted adjustment in undergraduate students. Reker and Wong (1985) found that optimism was a predictor of well-being in elderly persons over a two-month period.

Research Questions. The following research questions were proposed on the basis of past findings on optimism. In contrast to the hypotheses, these research questions were exploratory in that no previous research had directly addressed the questions.

Research Question 1: Optimism will interact with daily stress level to predict psychological distress. Those who score higher on optimism will show a lower degree of increase in psychological distress as a function of stress than those who score lower on optimism. This interaction will be shown over and above the effects of initial distress level, age, income, neuroticism, social support, perceived health, and the direct effects of chronic stress level at Time 1, and optimism.

Research Question 2: Optimism will interact with daily stress to predict life satisfaction. Those who score higher on optimism will show a lower degree of decrease in life satisfaction as a function of stress than those who score lower on optimism. This

interaction will be shown over and above the effects of initial well-being, age, income, neuroticism, social support, perceived health, and the direct effects of chronic stress level at Time 1, and optimism.

Justification for Research Questions 1 and 2. Relations have been shown among the factors of optimism, stress, distress, and life satisfaction. It would seem plausible to speculate that optimism would act as a diathesis factor interacting with stress to affect adjustment levels.

CHAPTER 2: METHODOLOGY

Subjects and Recruitment.

Criteria for inclusion in the study were that participants be female, 60 years or older, that they be living autonomously, be free of any major incapacitating illness, and that they be able to undergo the interviews and answer the required questions. Male subjects were excluded in order to reduce the number of subjects required by controlling for gender.

Subjects were recruited from the following seniors' groups in the Ottawa-Carleton region:

1. Seniors' Centre at the University of Ottawa.
2. Rideau Retirement Home.
3. Edinborough Retirement Home.
4. Unitarian Church Retirement Home.
5. Unitarian Church Congregation.
6. Good Companions Seniors' Group.
7. Elizabeth Bruyère Day Program for Seniors.
8. Residents in the general Ottawa-Carleton area.

The method of recruitment varied according to the targeted group. Residents in the general Ottawa-Carleton region were invited to participate in the study through ads that appeared in the Ottawa Citizen and the Pennysaver (both local newspapers), Ottawa Seniors' Today (a newspaper for seniors), Seniors' Sentinel (published by the Senior Citizens' Council), Roger's

cablevision, and Maclean cablevision. These ads invited women over the age of 60 to take part in a University of Ottawa research project on well-being in later life by contacting the main investigator at her home phone number. A general outline of the initial telephone screening interview is shown in Appendix C. The other method of recruitment was done through the directors or coordinators of the residences and organizations listed above. The nature of the study was briefly outlined during an initial telephone contact (see Appendix D). A meeting was arranged to discuss how they could participate in the recruitment. For example, they could place posters and letters of invitation to potential participants in key locations in their buildings (see Appendices E and F). They could also personally mention the project to particular individuals whom they felt might enjoy being involved. In two instances (Good Companions and Elizabeth Bruyère), the main investigator was invited to address a group of seniors who were already meeting on a specified date for other reasons. Interested women were asked to contact the main investigator at her home number to obtain additional information and to set up a first interview.

Table 1 summarizes the demographic characteristics of the subjects who were eligible and who agreed to participate. Most were under the age of 75, were either married or widowed, and perceived their financial status as adequate or more than adequate. Only 3% had not completed secondary school and over

half had completed college or university. Most lived alone or with their spouse.

Table 1
Sociodemographic characteristics of participants.

Variable	N (T = 109)	Percentage
Age		
60-64	16	15
65-69	25	23
70-74	37	34
75-79	11	10
80-84	13	12
84...	07	06
Marital Status		
Married	36	33
Widowed	39	36
Divorced/Separated	20	18
Single	14	13
Educational Level		
Elementary	03	03
Secondary	34	31
College/technical	21	19
University	36	33
Post-graduate	15	14
Financial Status		
Not adequate	10	09
Adequate	71	65
More than adequate	28	26
Living Arrangements		
Alone	56	51
With spouse	31	28
With children	06	06
Retirement home	16	15

Sample size

A statistical power analysis was done, with a significance criterion of .05, a power of .80, and a medium variance effect size of .15. On the basis of this power analysis (Cohen & Cohen, 1975) it was estimated that approximately 115 subjects would be required for this study. Out of the 113 subjects who were recruited, only two did not complete the second interview. This left a sample size of 111 subjects.

Research design

The study followed a prospective correlational design. Participants were interviewed twice with a minimum of three months between the first and the second interview. The three-month interval was chosen on the basis of practical considerations and because some of the previous studies cited in the literature review had used a comparable time interval (Aspinwall & Taylor, 1992; Carver & Gaines, 1987; Carver et al., 1993; Scheier & Carver, 1985, 1992).

Procedure

Participation consisted of taking part in two different interviews, separated by a minimum three-month interval. Most participants were seen in their own home, although a small

minority asked to be interviewed elsewhere and were seen at the Seniors' Centre of the University of Ottawa. Interviews consisted of answering verbally items from a number of questionnaires that were read aloud by the investigator. This procedure was followed in order to maximally engage participants and to provide the opportunity to clarify ambiguity or confusion in the instruments.

Interview 1. The interview started by obtaining the subjects' informed consent (see Appendix G). The first interview required approximately three and a half hours. Break periods were taken as required. Many participants had prepared refreshments for this occasion.

Interview 2. The format was essentially the same as for the first interview but consisted of fewer questionnaires. The required time was approximately one and a half hours (see Appendix H for a list of the variables that were measured during both interviews, and Appendix I for a list of the measures administered specifically at Times 1 and 2).

I conducted approximately 80% of the interviews and trained two other female Psychology graduate students to conduct the remaining 20% in a standardized fashion.

The order in which the questionnaires were answered was counterbalanced .

Measures

Personal Information. Personal Information of a demographic nature was obtained from the participants. This included information about age, marital status, education, employment status, income, type of residence, and living arrangements (see Appendix J).

Provision of Social Relations Scale (PRS). The Provision of Social Relations Scale is a 15-item scale developed by Turner, Frankel, & Levin (1983) which measures perceived social support from friends and family. For each item, respondents are asked to rate on a five-point scale how closely the statement describes the way they are. The revised version of this scale was used in this study. Total scores could range from 0 to 60. Reported alpha coefficients for the PRS range from .75 to .87 (Turner et al., 1983). The coefficient alpha was .81 for participants tested in this study (see Appendix K).

Revised Hassles Scale (Adapted). The Revised Hassles Scale (DeLongis et al., 1988) has been adapted for an elderly population by eliminating items deemed irrelevant to an older population. These were determined by conducting a frequency analysis of the items most often responded to by older subjects (Vézina & Giroux, 1988). This Adapted Revised Scale contains 44 items, each rated on how much of a hassle the situation described

has been for the respondent during the previous week. Rating is done on a 4-point scale, from 0 (none or not applicable) to 3 (a great deal). Total hassles scores are obtained by summing ratings given to the items and can range from 0 to 132. Reported coefficient alpha for the scale was .90 (Vézina & Giroux, 1988). Coefficient alpha for this group was .86 for Time 1, and .84 for Time 2 (see Appendix L).

COPE. The COPE (Carver, Scheier, & Weintraub, 1989) measures coping strategies used by respondents in various stressful situations. It was developed within the framework of Scheier and Carver's (1988) model of behavioral self-regulation, and is therefore comprised of items and subscales which are of direct relevance to their model of optimism. They report factor analyses which confirm their a priori definitions of the COPE subscales (Carver et al., 1989).

The COPE is a 60-item scale, which measures 15 different coping strategies: positive reinterpretation, active coping, planning, social support-emotional, social support-instrumental, suppression of competing responses, religion, acceptance, mental disengagement, behavioral disengagement, focus on/venting of emotions, denial, restraint, alcohol/drugs, humour. Each item is answered on a 4-point scale, from "I didn't do this at all" to "I did this a lot". It can be used as a measure of dispositional and situational coping. Reported coefficient alphas for the

subscales of the COPE were all higher than .60 (Carver et al., 1989).

For this study, the situational version was used in order to determine whether optimism was predictive of coping style in actual, concrete situations. Certain items were selected to form a subscale of "adaptive coping" and a subscale of "maladaptive coping". Adaptive coping was comprised of the items related to active coping (e.g., "I concentrated my efforts on doing something about it"), planning (e.g., "I made a plan of action"), positive reinterpretation (e.g., "I looked for something good in what was happening", and acceptance (e.g., "I got used to the idea that it happened"). More specifically, the following 16 items made up this scale: 5, 25, 47, 58 (active coping); 19, 32, 39, 56 (planning); 1, 29, 38, 59 (positive reinforcement); 13, 21, 44, 54 (acceptance). Scores totals could range from 0 to 64. Maladaptive coping included items related to mental and behavioral disengagement (i.e., "I daydreamed about things other than this", "I just gave up trying to reach my goal"), denial (e.g., "I refused to believe that it had happened", and focus on and venting of emotions (e.g., "I let my feelings out"). More precisely, the following 16 items made up this scale: 2, 16, 31, 43 (mental disengagement); 9, 24, 37, 51 (behavioral disengagement); 6, 27, 40, 57 (denial); 3, 17, 28, 46 (focus on/venting of emotions). Score totals could range from 0 to 64. Coefficient alphas for Time 1 were .84 for adaptive coping and

.75 for maladaptive coping. For Time 2, they were .82 for adaptive coping and .59 for maladaptive coping.

Before answering items on the COPE, participants were asked to identify which event they had experienced as most stressful during the past three months and whether they appraised it as a challenge, a threat, or a source of loss or harm. Their answer to this question was given a nominal score of 1 for "challenge" and 2 for "threat or loss". They were also asked whether they considered this stressor to be one that was controllable or one that was uncontrollable. Again, they received a nominal score of 1 for "controllable" and 2 for "uncontrollable". Items on the COPE were answered in relation to the identified stressor (see Appendix M).

Life Orientation Test (LOT). The LOT (Scheier & Carver, 1985) was developed to assess level of optimism. It is comprised of 12 items, four of which are filler items. Answers are given on a 5-point scale, from "strongly disagree" to "strongly agree". Higher scores indicate greater optimism, whereas lower values reflect pessimism. Scores could range from 0 to 32. More detailed information on the psychometric properties of the LOT was given in the Introduction (see Optimism and Related Constructs).

Reported coefficient alpha and test-retest reliability were .76 and .79, respectively (Scheier & Carver, 1985). The

coefficient alpha for the LOT in this study was .78 (see Appendix N).

Optimism/Pessimism Scale. The Optimism/Pessimism Scale (Dember et al., 1989) yields two independent scores, one for optimism and one for pessimism. Each subscale contains 28 items, to be answered on a 4-point scale from "strongly agree" to "strongly disagree". Scores could range from 0 to 112. Dember et al. (1989) report construct validation through factor analysis of the subscale items; they also report adequate convergent validation through correlations with related measures. Reported alpha coefficient and test-retest reliability for this measure were .87 and .75, respectively (Dember et al., 1989). The coefficient alpha for the optimism subscale for this group of participants was .85 (see Appendix O).

Neuroticism Scale of the NEO Personality Inventory (NEO-PI). The NEO-PI (Costa & McCrae, 1985) is a personality inventory which measures five major domains of personality: neuroticism, extraversion/introversion, openness to experience, agreeableness, and conscientiousness. Each domain is further divided into subscales which are interrelated, though conceptually distinct. This study employed the Neuroticism scale only. This scale includes six subscales measuring anxiety, depression, hostility, self-consciousness, impulsiveness, and vulnerability. Score totals can range between 0 to 192. Costa and McCrae (1985)

report the validation of the NEO-PI subscales through factor analysis. They also report adequate convergent validity for their inventory through correlational analyses with other established inventories, such as the Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1964).

Reported coefficient alpha and test-retest reliability for the Neuroticism subscale are .91 and .87, respectively (Costa & McCrae, 1985). In this study, the coefficient alpha for the Neuroticism subscale was .91 (see Appendix P).

Health Perceptions Questionnaire (HPQ): Current Health. The HPQ (Ware, Davies-Avery, & Donald, 1978) was developed to measure non-specific aspects of perceived general health in participants of the Health Insurance Study conducted by the Rand Corporation. It contains 32 items, each to be answered on a 5-point scale from "definitely true" to "definitely false". These 32 items form six scales: Current Health, Prior Health, Health Outlook, Resistance to Illness, Health Worry/Concern, and Sickness Orientation. Ware (1976) reported construct validation of the subscales with factor analysis; he also reported adequate convergent validation through correlational analyses with other health measures. For this present study, only the 9-item Current Health scale was used. Scores could range from 0 to 36. Reported coefficient alpha for this scale was .91, and the test-retest reliability scores ranged from .76 to .86 (Ware et al., 1978). In this study, a

coefficient alpha of .91 was found at Time 1 and .86 at Time 2 (see Appendix Q).

Brief Symptom Inventory (BSI). The BSI (Derogatis & Spencer, 1982) is essentially a brief version of the SCL-90-R (Derogatis, Rickels & Rock, 1976). It is a 53-item inventory, designed to assess psychological symptoms in both patient and nonpatient populations. Each item is rated on a five-point scale of distress, from "not at all" to "extremely". Scores can range from 0 to 212.

Derogatis and Melisaratos (1983) report convergent validation of the BSI with the MMPI scale; they also report validation of the BSI subscales through factor analysis of the items which comprise the BSI.

The BSI assesses nine primary symptom dimensions and three global indices of distress. Derogatis and Spencer (1982) indicated that the General Severity Index (GSI) is the most sensitive measure of psychological distress in respondents. The GSI is a global measure of the number and severity of psychological symptoms. It was the measure chosen for this study. Reported coefficient alpha ranged from .71 to .85., and test-retest reliability ranged from .68 and .91 (Derogatis & Spencer, 1982). In this study, coefficient alpha for the BSI, at both Times 1 and 2 was .93 (see Appendix R).

Life Satisfaction Scale (LSS). The LSS (Diener, Emmons, Larsen, & Griffin, 1985) is a five-item scale which assesses the life satisfaction component of subjective well-being. Items are to be answered on a 7-point scale, from "strongly disagree" to "strongly agree". Score totals can range from 0 to 35. Diener et al. (1985) reported construct validation of their scale with factorial analysis of the items, and convergent validation through correlational analyses with other measures of happiness. Score totals range from 0 to 30. They report coefficient alpha and test-retest reliability of .87 and .82, respectively. The coefficient alpha for this study was .84 for Time 1, and .81 for Time 2 (see Appendix S).

Ethical Considerations

Participants were advised on the Information and Consent form that all information gathered during the investigation would be kept in the strictest confidence. Their identity as participants would be protected, and any published data would appear only in group form. They were also be advised that if during the study they were identified as suffering from emotional difficulties, they would be contacted and encouraged to seek the required help. A referral to a mental health professional could be arranged, if they agreed to it. Participants were reminded that they remained free to withdraw from the study at any time if they so wished.

CHAPTER 3: RESULTS

Preliminary Analyses

Missing Data

Of the 113 subjects who participated in the study, only two did not complete the second interview. One of these women developed cancer and died within three months of the first interview. The other could not be reached to arrange for a second interview. Because of the procedures followed in collecting the data (the questionnaires were filled out either by the interviewer or in her presence), there were no missing data for the 111 women who completed both interviews.

Reliability of Measures

Measures of internal consistency (Cronbach's alpha) were obtained on all measures. As can be seen in Table 2, all measures had internal reliability levels above .75, except for the composite measure of maladaptive coping at Time 2, which had a reliability level of .59. It should be noted that this same measure at Time 1 had an alpha of .75.

Table 2
Coefficients of Internal Consistency (Cronbach's alpha) for
Measures used in the Study.

Measure	Coefficient alpha
1. Optimism (Lot)	.78
2. Optimism (Dember)	.85
3. Neuroticism	.91
4. Social Support	.81
5. Health, T1	.91
6. Health, T2	.86
7. Life Satisfaction, T1	.84
8. Life Satisfaction, T2	.81
9. Psychological Distress, T1	.93
10. Psychological Distress, T2	.93
11. Chronic Stress, T1	.86
12. Chronic Stress, T2	.84
13. Adaptive Coping, T1	.84
14. Adaptive Coping, T2	.82
15. Maladaptive Coping, T1	.75
16. Maladaptive Coping, T2	.59

Changes in Time 1 and Time 2 Measures

As shown in Table 3, there were minimal differences, if any, between measures taken on the seven DVs at Times 1 and 2. Measures at Times 1 and 2 were significantly correlated, except for the appraisal of controllability of stressors, and for the perception of stressors as challenges rather than threats or losses. A manova was performed for the seven variables, comparing Times 1 and 2 means. There was no overall effect [$F(7, 102) = .48, p > .05$]. This suggested that the longitudinal hypotheses which proposed that optimism would predict changes in the DVs over a minimum of three months were unlikely to be supported. Alternative analyses of the concurrent predictive power of optimism for the DVs were explored.

Table 3
Means, SDs, and Zero-Order Correlations between Times 1 and 2
Measures of the DVs.

Variable	Time 1		Time 2		T 1 & 2
	M	SD	M	SD	r
1.Daily Stress	29.0	18.0	29.0	17.0	.62**
2.Adaptive Coping	25.0	9.0	24.0	9.0	.43**
3.Maladaptive Coping	10.0	6.0	9.0	5.0	.43**
4.Distress	19.0	18.0	19.0	18.0	.66**
5.Life Satisfaction	24.0	7.0	24.0	6.0	.78**

Note

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

1.Revised Hassles Scale; 2.COPE subscale; 3.COPE subscale;
 4.Brief Symptom Inventory; 5.Life Satisfaction Scale.

LOT vs Optimism/Pessimism (O/P)

Table 4 shows that the two measures of optimism (LOT and O/P) were significantly correlated ($r = .61$, $p < .01$). The LOT, however, was significantly correlated with a greater number of the variables measured in the study. When both the LOT and the O/P correlated with a particular variable, the LOT showed higher correlations. For these reasons, and also because the LOT was the instrument developed by Scheier & Carver (1985) and used in most of the research that was of relevance to this study, it was decided to proceed with the analysis of the data with the LOT only. Table 4 also shows that neuroticism was also highly correlated with most relevant variables. Interestingly, the LOT correlated as highly with the measure of neuroticism, the N scale from the NEO, as with the O/P scale.

Table 4
Concurrent and Prospective Zero-Order Correlations between Life Orientation Test (LOT), Optimism/Pessimism Scale (O/P), Neuroticism (N), DVs, and covariates.

Concurrent Measures (Time 1)	LOT	O/P	N
1.LOT	1.00	.61**	-.66**
2.O/P	.61**	1.00	-.44**
3.Neuroticism	-.66**	-.44**	1.00
4.Social Support	.43**	.28**	-.48**
5.Health	.33**	.29**	-.37**
6.Daily Stress	-.23*	-.13	.35**
7.Adaptive Coping	.29**	.25**	-.25*
8.Maladaptive Coping	-.14	-.15	.32**
9.Psychological Distress	-.49**	-.13	.63**
10.Life Satisfaction	.48**	.37**	-.46**
Prospective Measures (Time 2)	LOT	O/P	N
1.Health	.21*	.11	-.20**
2.Daily Stress	-.30**	-.11	.45**
3.Adaptive Coping	.14	.15	-.08
4.Maladaptive Coping	-.12	.02	.31**
5.Psychological Distress	-.39**	-.08	.56**
6.Life Satisfaction	.46**	.33**	-.39**

Note

* p< .05 ** p< .01

Characteristics of Sample

The scores obtained by participants on the various measures revealed that, as a group, they were somewhat optimistic, perceived their health to be reasonably good, had good social support, and were not experiencing high levels of daily stress. They showed low levels of neuroticism, reported low levels of psychological distress, and were reasonably satisfied with their life.

Zero-Order Correlations among Variables

Table 5 shows the zero-order intercorrelation matrix for the variables measured in the study. A brief summary follows of the correlations which were most salient.

Table 5
Intercorrelation matrix for variables measured in this study.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1. Age	1.00																					
2. Income	.12	1.00																				
3. Optimism	.01	.04	1.00																			
4. Neuroticism	-.04	-.06	-.66*	1.00																		
5. Health, T1	-.15	-.12	.33**	-.37**	1.00																	
6. Health, T2	-.27**	.01	.21*	-.20*	.74**	1.00																
7. Life Satisfaction, T1	.19	.35**	.68**	-.46**	.34**	.78**	1.00															
8. Life Satisfaction, T2	-.01	.36**	.46**	-.39**	.32**	.32**	.78**	1.00														
9. Social Support	-.02	.05	.43**	-.48**	.26**	.17	.40**	.27**	1.00													
10. Stress, T1	-.01	-.04	-.23*	.35**	-.37**	-.33**	-.38**	-.36**	-.27**	1.00												
11. Stress, T2	-.18	-.11	-.30**	.45**	-.29**	-.26**	-.36**	-.28**	-.15	.62**	1.00											
12. Distress, T1	-.04	-.03	-.49**	.63**	-.40**	-.27**	-.48**	-.41**	-.48**	.46**	.46**	1.00										
13. Distress, T2	-.09	-.11	-.39**	.56**	-.27**	-.27**	-.39**	-.31**	-.34**	.45**	.51**	.66**	1.00									
14. Adaptive Coping, T1	-.09	.05	.29**	-.25*	.13	.13	.17	.16	.11	-.04	-.08	.01	-.04	1.00								
15. Adaptive Coping, T2	-.01	-.04	.14	-.08	.02	.04	-.02	.12	-.05	-.03	.04	.07	.05	.43**	1.00							
16. Maladaptive Coping, T1	-.19**	-.02	-.14	.32**	-.31**	-.15	-.26**	-.32**	-.04	.43**	.33**	.24*	.19*	-.00	-.15	1.00						
17. Maladaptive Coping, T2	-.18	-.04	-.12	.31**	-.19	-.19	-.18	-.19**	-.21*	.16	.25*	.21*	.30**	.03	.07	.43**	1.00					
18. Controllability	.04	.00	-.02	-.05	.09	-.03	.04	.07	-.07	-.08	-.05	-.03	-.07	.01	-.13	-.17	-.03	1.00				
19. Controllability	.06	-.06	-.02	-.04	.14	.09	-.05	-.01	-.03	.07	-.16	-.06	-.10	.15	.14	-.01	-.00	-.08	1.00			
20. Challenge, T1	-.05	-.05	-.17	.22*	-.11	-.03	-.13	-.14	-.13	.11	.01	.13	.14	-.29**	-.11	.24*	.14	-.27**	.10	1.00		
21. Challenge, T2	-.04	.19*	-.06	.14	-.33**	-.27**	-.12	-.11	-.10	.05	.12	.15	.15	-.10	-.29**	.24*	.23*	.06	-.32**	.17	1.00	

Note
* p < .05 ** p < .01

Optimism

Optimism was significantly associated with many of the variables measured in the study. Those who scored higher on the optimism scale tended to score lower on measures of neuroticism, daily stress, and psychological distress, and higher on measures of social support, perceived health, and life satisfaction. Optimism was not associated with the appraisal of stressors, in terms of their being challenges rather than threats or losses; neither was it associated with the appraisal of stressors as being controllable or uncontrollable. Optimism was associated with the coping strategies of positive reinterpretation, active coping, planning, suppression of competing responses, and humour at Time 1 but not at Time 2. The only significant correlation with coping strategy at Time 2 was a negative one with the use of drugs or alcohol. As previously mentioned, the LOT was as highly correlated with the measure of neuroticism, the N scale of the NEO-PI, as with the alternative measure of optimism, the O/P. It was correlated with the six neuroticism subscales of the NEO: Anxiety ($r = -.59$), Vulnerability ($r = -.56$) Depression ($r = -.55$), Self-Consciousness ($r = -.49$), Hostility ($r = -.41$), and Impulsiveness ($r = -.27$).

Neuroticism

Those who scored high on neuroticism tended to have lower levels of perceived health, social support, and life satisfaction. They also reported a higher level of daily stress and psychological distress, and had a greater tendency to engage in maladaptive coping strategies than the less neurotic subjects. Neuroticism was negatively correlated with positive reinterpretation, active coping and planning, and positively correlated with mental disengagement and focus/venting of emotions at Time 1. At Time 2, it was positively correlated with seeking emotional support, relying on alcohol and drugs, and focusing on and venting of emotions.

Age, financial status

Age was not significantly correlated with the DVs in this study, but was negatively correlated with maladaptive coping at Time 1, and perceived health at Time 2. Those who perceived their financial status as being adequate or more than adequate reported a higher degree of life satisfaction.

Social Support

Subjects with a high level of social support tended to be more optimistic and less neurotic than those with a lower level

of social support. They also experienced a higher level of life satisfaction, and a lower level of psychological distress.

Health

Subjects who reported a high level of perceived health were more optimistic and less neurotic, experienced lower levels of perceived daily stress and psychological distress, and higher levels of life satisfaction. A high level of perceived health at Time 1 was negatively related to maladaptive coping at Time 1 only. These variables were unrelated at Time 2.

Testing of hypotheses

Hierarchical regression was used to test each hypothesis (Cohen & Cohen, 1975). Each independent variable was added to the equation in a distinct step. Through this procedure, it was possible to determine the increase in R^2 accounted for by each variable at its point of entry in the equation.

Analysis was performed using SPSS Regression and SPSS Frequencies to evaluate statistical assumptions. Results of evaluation of assumptions led to the transformation of certain measures in order to eliminate univariate and multivariate outliers. Univariate outliers for the following measures were replaced by scores at three standard deviations from the mean: Brief Symptom Inventory, Time 1; Brief Symptom Inventory, Time 2;

N-Hostility; Perceived Stress, Time 1; Perceived Stress, Time 2; and Maladaptive Coping, Time 1. This procedure was not sufficient to normalize the following measures: Brief Symptom Inventory, Time 1; Brief Symptom Inventory, Time 2; N-Hostility; and Perceived Stress, Time 1. A square root transformation was used on these measures.

With the use of a $p < .001$ criterion for Mahalanobis distance (Tabachnick & Fidell, 1989), two multivariate outliers were found and eliminated. Therefore, the data from subjects 27 and 84 were dropped. The sample then consisted of 109 subjects. No subject had missing data.

The tables which summarize the statistical analyses show the standard beta weights, the R , adjusted R^2 , increases in R^2 (sr^2), F for sr^2 , and the corresponding degrees of freedom (df) for each step in the analysis. The first column shows the beta weight for the final equation, and the second column shows the beta weight at the point of entry for each variable. The order of entry of the variables was determined prior to the analysis, on the basis of theoretical considerations. Variables which were considered more stable or enduring were entered first, except for optimism which was entered last in order to determine its net effect on the dependent variables. In step 1, the outcome variable (DV) as measured at Time 1 was entered in order to control for its influence at Time 2. The demographic variables of age and income were entered at steps 2 and 3, respectively. The personality variable of neuroticism was entered at step 4. Social support

was entered at step 5, followed by health at step 6. Optimism, which was the object of this study, was entered at the last step.

Hypothesis 1: Prediction of Daily Stress.

As shown in Table 6, correlational analysis revealed that the variables most strongly and significantly associated with daily stress level at Time 2 were, in order of magnitude, stress level at Time 1, neuroticism, optimism, and perceived health at Time 1. Optimism accounted for 9% of the variance ($r = .30$).

To test hypothesis 1, a multiple regression analysis was conducted to determine which variables could predict daily stress over a minimum period of three months. More specifically, I wanted to know the predictive value of optimism after controlling for initial perceived stress level, age, income, neuroticism, social support, and perceived health at Time 1.

As shown in Table 6, optimism did not significantly increase R^2 when entered at the last step of the regression analysis. The first variable entered in the equation was stress at Time 1. This variable was highly correlated with daily stress at Time 2 and was a significant predictor of daily stress at Time 2. Age, which was entered at step 2, also significantly predicted daily stress at Time 2. An increase in age was associated with lower levels of daily stress at Time 2. Income, entered at step 3, did not add to the predictive power of the equation. Neuroticism, entered at step 4, was a significant predictor of daily stress at

Time 2. Those with higher levels of neuroticism experienced higher levels of daily stress at Time 2. Social support and perceived health, entered in steps 5 and 6, respectively, did not add to the prediction of daily stress at Time 2. The multiple R for the whole equation was .70, was significant at the .001 level, and had a statistical power of .99. The power level for the LOT at its point of entry in the equation was less than .10.

Table 6
Hierarchical Regression for Hypothesis 1: Prediction of Daily Stress Level
at Time 2 from Variables Measured at Time 1, Controlling for Daily Stress
Level at Time 1.

		Intercorrelations							
		1	2	3	4	5	6	7	8
1.Stress,T2		1.00							
2.Stress,T1		.62**	1.00						
3.Age		-.18	-.01	1.00					
4.Income		-.11	-.06	.12	1.00				
5.Social Support		-.15	-.27**	-.02	.05	1.00			
6.Neuroticism		.45**	.35**	-.06	-.06	-.48**	1.00		
7.Health,T1		-.29**	-.37**	-.15	-.12	.26**	-.37**	1.00	
8.Optimism		-.30**	-.23*	.01	.06	.43**	-.66**	.33**	1.00
M		29	29	72	02	46	73	23	22
SD		17	18	07	.6	09	19	09	04

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Stress, T1	.53***	.62***	.62***	.37	.38***	65.28***	1,107
2.Age	-.15*	-.17*	.64***	.40	.03*	5.28*	2,106
3.Income	-.06	-.06	.64***	.40	.00	.61	3,105
4.Neuroticism	.30**	.26***	.69***	.45	.06***	11.57***	4,104
5.Social Support	.15	.14	.70***	.46	.02	3.17	5,103
6.Health, T1	-.05	-.05	.70***	.46	.00	.39	6,102
7.Optimism	-.03	-.02	.70***	.45	.00	.07	7,101

Total equation R = .70 R² = .49; F(7,101) = 13.79***
 Adj. R² = .45

Note.

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Hypothesis 2: Prediction of Adaptive Coping.

Adaptive coping was composed of the four coping strategies of active coping, planning, positive reinterpretation, and acceptance. As shown in Table 7, correlational analysis revealed that adaptive coping at Time 2 was significantly correlated only with adaptive coping at Time 1. It was not significantly correlated with any of the other variables entered in the equation.

To test hypothesis 2, a multiple regression analysis was conducted to determine which variables could predict, over a three-month period, the use of adaptive coping. More specifically, I wanted to determine the predictive value of optimism, after controlling for initial adaptive coping, age, income, neuroticism, social support, and perceived health. Table 7 shows that the only variable which significantly predicted adaptive coping at Time 2 was adaptive coping at Time 1. The multiple R for the total equation was .45, was significant at the .001 level, and had a statistical power of .95. The statistical power for the LOT at its point of entry in the equation was less than .10.

Table 7
Hierarchical Regression for Hypothesis 2: Prediction of Adaptive Coping at Time 2 from Variables Measured at Time 1, Controlling for Adaptive Coping at Time 1.

	Intercorrelations							
	1	2	3	4	5	6	7	8
1.Adapt. Coping,T2	1.00							
2.Adapt. Coping,T1	.43**	1.00						
3.Age	-.01	-.09	1.00					
4.Income	-.04	.05	.12	1.00				
5.Social Support	-.05	.11	-.02	.05	1.00			
6.Neuroticism	-.08	-.25*	-.06	-.06	-.48**	1.00		
7.Health,T1	.02	.13	-.15	-.12	.26**	-.37**	1.00	
8.Optimism	.14	.29**	.01	.06	.43**	-.66**	.33**	1.00
M	24	25	72	02	46	73	23	22
SD	09	09	07	.6	09	19	09	04

Multiple regression analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Adapt.Coping,T1	.43***	.43***	.43***	.18	.18***	24.24***	1,107
2.Age	.03	.03	.43***	.17	.00	.09	2,106
3.Income	-.07	-.07	.44***	.17	.00	.55	3,105
4.Neuroticism	.02	.03	.44***	.16	.00	.11	4,104
5.Social Support	-.11	-.10	.45***	.16	.01	1.01	5,103
6.Health, T1	-.03	-.03	.45***	.15	.00	.07	6,102
7.Optimism	.09	.09	.45***	.15	.00	.51	7,101
Total equation	R = .45 R ² = .20 F (7, 101) = 3.67*** Adj. R ² = .15						

Note.

*p< .05 ** p< .01 *** p< .001 (two-tailed tests)

Hypothesis 3: Prediction of Maladaptive Coping

Maladaptive coping was composed of the four coping strategies of mental disengagement, behavioural disengagement, focus on/ venting of emotions, and denial. As shown in Table 8, maladaptive coping at Time 2 was most highly correlated with maladaptive coping at Time 1. It was also positively correlated with neuroticism and negatively correlated with social support.

To test hypothesis 3, a multiple regression analysis was conducted to determine which variables could predict, over a three-month period, the use of maladaptive coping strategies (defined as mental and behavioral disengagement, denial, and focus on and venting of emotions). More specifically, I wanted to determine the predictive value of optimism, after controlling for initial use of maladaptive coping, age, income, neuroticism, social support, and perceived health.

As shown in Table 8, the only variables which significantly predicted maladaptive coping at Time 2 were maladaptive coping at Time 1 and neuroticism, which was entered at step 4 of the analysis. Higher scores on neuroticism predicted higher scores on maladaptive coping. The multiple correlation for the whole equation was .50, was significant at the .001 level, and had a statistical power of .99. The statistical power for the LOT at its point of entry in the equation was less than .10.

Table 8
Hierarchical Regression for Hypothesis 3: Prediction of Maladaptive Coping at Time 2 from
Variables Measured at Time 1, Controlling for Maladaptive Coping at Time 1.

		Intercorrelations							
		1	2	3	4	5	6	7	8
1.Malad. Coping,T2	1.00								
2.Malad. Coping,T1	.43**	1.00							
3.Age	-.18	-.19*	1.00						
4.Income	-.04	-.02	.12	1.00					
5.Social Support	-.21*	-.04	-.02	.05	1.00				
6.Neuroticism	.31**	.32**	-.06	-.06	-.48**	1.00			
7.Health,T1	-.19	-.31**	-.15	-.12	.26**	-.37**	1.00		
9.Optimism	-.12	.14	.01	.06	.43**	-.66**	.33**	1.00	
M	09	10	72	02	46	73	23	22	
SD	05	06	07	.6	09	19	09	04	

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Malad.Coping,T1	.34***	.43***	.43***	.17	.18***	23.60***	1,107
2.Age	-.11	-.10	.44***	.18	.01	1.37	2,106
3.Income	-.01	-.02	.44***	.17	.00	.04	3,105
4.Neuroticism	.20	.20*	.48***	.20	.03*	4.64*	4,104
5.Social Support	-.16	-.14	.49***	.20	.01	2.00	5,103
6.Health, T1	-.03	-.01	.49***	.20	.00	.02	6,102
7.Optimism	.14	.14	.50***	.20	.01	1.45	7,101

Total equation R = .50 R² = .25 F (7, 101) = 4.85***
 Adj. R² = .20

Note.

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Hypothesis 4: Prediction of Psychological Distress

As shown in Table 9, distress level at Time 2 was most highly correlated, in order of magnitude, with distress at Time 1, neuroticism, daily stress at Time 1, optimism, social support, and perceived health. To test hypothesis 4, a multiple regression analysis was conducted to determine which variables could predict psychological distress over a three-month period. More specifically, I wanted to determine the predictive value of optimism, after controlling for initial psychological distress, age, income, neuroticism, social support, perceived health, and daily stress at Time 1.

When entered in the last step of the hierarchical regression, optimism did not significantly increase the predictability of psychological distress at Time 2. The first variable entered in the equation, distress at Time 1, was a significant predictor of distress at Time 2. Age and income, entered at steps 2 and 3, respectively, did not add predictive value. Neuroticism, entered at step 4, was a significant predictor of distress at Time 2, accounting for an additional 3% of the variance. Those with higher levels of neuroticism experienced more psychological distress at Time 2. Social support and health, entered at steps 5 and 6, respectively, did not predict distress at Time 2. Daily stress at Time 1, entered at step 7, was a significant predictor, accounting for an additional 2% of the variance. The multiple R for the total

equation was .71, was significant at the .001 level, and had a statistical power of .99. The statistical power for optimism at its point of entry in the equation was less than .10.

Table 9
Hierarchical Regression for Hypothesis 4: Prediction of Psychological Distress at Time 2 from
Variables Measured at Time 1, Controlling for Psychological Distress at Time 1.

Intercorrelations									
	1	2	3	4	5	6	7	8	9
1. Distress, T2	1.00								
2. Distress, T1	.66**	1.00							
3. Age	-.09	-.04	1.00						
4. Income	-.11	.03	.12	1.00					
5. Social Support	-.34**	-.48**	-.02	.05	1.00				
6. Neuroticism	.56**	.63**	-.06	-.06	-.48**	1.00			
7. Health, T1	-.27**	-.40**	-.15	-.12	.26**	-.37**	1.00		
8. Stress, T1	.45**	.48**	-.01	-.06	-.27**	.35**	-.37**	1.00	
9. Optimism	-.39**	-.49**	.01	.06	.43**	-.66**	.33**	-.23*	1.00
M	19	19	72	02	46	73	23	29	22
SD	18	18	07	.6	09	19	09	18	04

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj. R ²	sr ²	F	df
1. Distress, T1	.47***	.66***	.66***	.44	.44***	84.48***	1,107
2. Age	-.05	-.07	.67***	.44	.00	.87	2,106
3. Income	-.06	-.08	.67***	.44	.01	1.24	3,105
4. Neuroticism	.23*	.22*	.69***	.46	.03*	5.84*	4,104
5. Social Support	.03	.02	.69***	.46	.00	.08	5,103
6. Health, T1	.04	.00	.69***	.45	.00	.00	6,102
7. Stress, T1	.16*	.16*	.71***	.47	.02*	3.91*	7,101
8. Optimism	.01	.01	.71***	.46	.00	.01	8,100

Total equation R = .71 R² = .50 F (8, 100) = 12.55***
 Adj. R² = .46

Note.

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Hypothesis 5: Prediction of Life Satisfaction

As shown in Table 10, the following variables were correlated with life satisfaction, in order of magnitude: life satisfaction at Time 1 (accounting for 61% of the variance), optimism (21% of the variance), neuroticism, income, perceived daily stress, health, and social support. To test hypothesis 5, a multiple regression analysis was conducted to determine which variables could predict life satisfaction over a three-month period. More specifically, I wanted to determine the predictive value of optimism after controlling for initial life satisfaction, age, income, neuroticism, social support, perceived health, and daily stress at Time 1.

As shown in Table 10, optimism did not add to the prediction of life satisfaction when entered in the last step of the equation. The only variable which significantly predicted life satisfaction at Time 2 was life satisfaction at Time 1. When the influence of life satisfaction at Time 1 was statistically removed, none of the other variables entered in the equation added predictive power. The multiple R for the total equation was .81, was significant at the .001 level, and had a statistical power of .99. The statistical power for optimism at its point of entry in the equation was less than .10.

Table 10
Hierarchical Regression for Hypothesis 5: Prediction of Life Satisfaction at Time 2 from Variables Measured at Time 1, Controlling for Life Satisfaction at Time 1.

Intercorrelations									
	1	2	3	4	5	6	7	8	9
1.Life Satis.,T2	1.00								
2.Life Satis.,T1	.78**	1.00							
3.Age	-.01	.10	1.00						
4.Income	.36**	.35**	.12	1.00					
5.Social Support	.27**	.40**	-.02	.05	1.00				
6.Neuroticism	-.39**	-.46**	-.06	-.06	-.48**	1.00			
7.Health,T1	.32**	.34**	-.15	-.12	.26**	-.37**	1.00		
8.Stress,T1	-.36**	-.38**	-.01	-.06	-.27**	.35**	-.37**	1.00	
9.Optimism	.46**	.48**	.01	.06	.43**	-.66**	.33**	-.23	1.00
M	24	24	72	02	46	73	23	29	22
SD	06	07	07	.6	09	19	09	18	04

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Life Satisf.,T1	.68***	.78***	.78***	.61	.61***	170.25***	1,107
2.Age	-.09	-.09	.79***	.61	.01	2.10	2,106
3.Income	.13*	.11	.79***	.62	.01	2.92	3,105
4.Neuroticism	.01	-.05	.80***	.62	.00	.66	4,104
5.Social Support	-.10	-.08	.80***	.62	.00	1.40	5,103
6.Health, T1	.05	.07	.80***	.62	.00	1.06	6,102
7.Stress,T1	-.07	-.06	.80***	.62	.00	.84	7,101
8.Optimism	.14	.14	.81***	.63	.01	3.07	8,100

Total equation $R = .81$ $R^2 = .66$ $F(8, 100) = 23.87***$
 $Adj.R^2 = .63$

Note.

* $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

Testing of Research Questions

Hierarchical regression was used to measure the role of optimism in moderating the effect of chronic stress at Time 1 on psychological distress and life satisfaction at Time 2. The interaction variable, optimism*stress,T1, was added in the last step of the hierarchical regression analyses for hypotheses 4 and 5. Optimism was considered to have a moderating effect on stress if the increased R^2 in the last step of the regression analysis were found to be significant.

Research Question 1: Moderation of Effect of Chronic Stress at Time 1 on Psychological Distress at Time 2.

As shown in Table 11, optimism did not moderate the effects of chronic stress at Time 1 on psychological distress at Time 2.

Research Question 2: Moderation of Effect of Chronic Stress at Time 1 on Life Satisfaction at Time 2.

As shown in Table 12, optimism did not moderate the effects of chronic stress at Time 1 on life satisfaction at Time 2. The statistical power for both interactional analyses was .99. The statistical power for each interaction term as it was entered in the equation was less than .10.

Table 11
Hierarchical Regression for Research Question 1: Prediction of Psychological Distress at Time 2 from Interaction Effect between Optimism and Stress at Time 1.

		Intercorrelations									
		1	2	3	4	5	6	7	8	9	10
1.	Distress, T2	1.00									
2.	Distress, T1	.66**	1.00								
3.	Age	-.09	-.04	1.00							
4.	Income	-.11	.03	-.12	1.00						
5.	Social Support	-.34**	-.48**	-.02	.05	1.00					
6.	Neuroticism	.56**	.63**	-.06	-.06	-.48**	1.00				
7.	Health, T1	-.27**	-.40**	-.15	-.12	.26**	-.37**	1.00			
8.	Stress, T1	.45**	.48**	-.01	-.06	-.27**	.35**	-.37**	1.00		
9.	Optimism	-.39**	-.49**	.01	.06	.43**	-.66**	.33**	-.23*	1.00	
10.	Opt*Stress, T1	.28*	.15	-.04	-.02	-.00	-.06	-.18	.82**	.35	1.00
	M	24	24	72	02	46	73	23	29	22	110.9
	SD	06	07	07	.6	09	19	09	18	04	37

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1. Distress, T1	.48***	.66***	.66***	.44	.44***	84.48***	1,107
2. Age	-.06	-.07	.67***	.44	.00	.87	2,106
3. Income	-.06	-.08	.67***	.44	.01	1.24	3,105
4. Neuroticism	.23*	.22*	.69***	.46	.03*	5.84*	4,104
5. Social Support	.03	.02	.69***	.46	.00	.08	5,103
6. Health, T1	.05	.00	.69***	.45	.00	.00	6,102
7. Stress, T1	-.25	.16*	.71***	.47	.02*	3.91*	7,101
8. Optimism	-.23	.01	.71***	.46	.00	.01	8,100
9. Optimism * Stress, T1	.43	.43	.71***	.46	.00	.84	9,99

Total equation R = .71 R² = .51 F (9, 99) = 11.23***

Adj. R² = .46

Note.

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Table 12
Hierarchical Regression for Research Question 2: Prediction of Life Satisfaction at Time 2
from Interaction Effect between Optimism and Stress at Time 1

Intercorrelations										
	1	2	3	4	5	6	7	8	9	10
1.Life Satis.,T2	1.00									
2.Life Satis.,T1	.78**	1.00								
3.Age	-.01	.10	1.00							
4.Income	.36**	.35**	.12	1.00						
5.Social Support	.27**	.40**	-.02	.05	1.00					
6.Neuroticism	-.39**	-.46**	-.06	-.06	-.48**	1.00				
7.Health,T1	.32**	.34**	-.15	-.12	.26**	-.37**	1.00			
8.Stress,T1	-.36**	-.38**	-.01	-.06	-.27**	.35**	-.37**	1.00		
9.Optimism	.46**	.48**	.01	.06	.43**	-.66**	.33**	-.23*	1.00	
10.Opt*Stress,T1	-.10	-.09	.04	-.02	-.08	-.06	-.18	.82**	.35**	1.00
M	24	24	72	02	46	73	23	29	22	110.90
SD	06	07	07	.6	09	19	09	18	04	37

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Life Satisf.,T1	.68***	.78***	.78***	.61	.61***	170.25***	1,107
2.Age	-.06	-.09	.79***	.61	.01	2.10	2,106
3.Income	.13*	.11	.79***	.62	.01	2.92	3,105
4.Neuroticism	-.00	-.05	.80***	.62	.00	.66	4,104
5.Social Support	-.10	-.08	.80***	.62	.00	1.40	5,103
6.Health, T1	.03	.07	.80***	.62	.00	1.06	6,102
7.Stress,T1	.61	-.06	.80***	.62	.00	.84	7,101
8.Optimism	.55*	.14	.81***	.63	.01	3.07	8,100
9.Optimism * Stress,T1	-.72	-.72	.82***	.64	.01	3.47	9,99

Total equation R = .82 R² = .67 F (9,99) = 22.13***

Adj. R² = .64

Note.

*p< .05 **p< .01 ***p< .001 (two-tailed tests)

Cross-Sectional Tests of Hypotheses and Research Questions

In this study, optimism was not shown to be a significant net predictor of stress, coping, distress, and life satisfaction over a three-month period. As mentioned briefly earlier, this may be the result of two aspects of the study. First, three months may have been too short a time period to allow for significant changes in the DVs. It would therefore be difficult for optimism--or any other variables--to add significantly to the prediction of change in the DVs. As shown in Table 3, Time 1 and Time 2 measures of stress, distress, and life satisfaction were very highly correlated. As mentioned earlier, a manova test failed to reveal any significant differences between Times 1 and 2 measures. Secondly, optimism was highly correlated with the covariates. Statistically removing the effects of the covariates on the DVs would then result in lowering the predictive value of the independent variable.

In an attempt to circumvent the first difficulty (i.e., the lack of differentiation between Times 1 and 2 measures), a second set of analyses was conducted with Time 1 measures only. The aim of these analyses was to determine the unique predictive value of optimism over and above the contribution of the covariates. The order of entry of variables remained the same as for the first set of analyses. Time 1 measures were defined as the DVs.

Hypothesis 1: Prediction of Daily Stress

Table 6 shows that the variables significantly correlated with daily stress at Time 1 were, in order of magnitude, health, neuroticism, social support, and optimism.

Table 13 shows the results of the concurrent hierarchical multiple regression. Optimism did not significantly predict daily stress when entered at the last step of the analysis. Age and income, entered in steps 1 and 2, respectively, did not predict daily stress at Time 1. Neuroticism, entered at step 3, and perceived health, entered in step 5, significantly predicted daily stress. Social support, entered at step 4, did not predict daily stress. The overall multiple correlation for this equation was .45, was significant at the .001 level, and had a statistical power of .95. The statistical power for optimism at its point of entry in the equation was less than .10.

Hypothesis 2: Prediction of Adaptive Coping

As shown in Table 7, optimism and neuroticism were both significantly correlated with adaptive coping at Time 1. Results of the concurrent hierarchical regression analysis (see Table 14) show that the only variable which predicted adaptive coping at Time 1 was neuroticism, which was entered at step 3 of the analysis. Higher scores on neuroticism were associated with lower scores on adaptive coping. Optimism did not contribute

additional predictive power when the influence of the covariates was statistically removed. The multiple R for the regression equation was .32 was not significant, and had a statistical power of .70. The statistical power for optimism at its point of entry in the equation was less than .20.

Hypothesis 3: Prediction of maladaptive coping

As shown in Table 8, maladaptive coping at Time 1 was significantly correlated, in order of magnitude, with neuroticism, health, and age. As shown in Table 15, age, which was entered at step 1 of the equation, significantly predicted maladaptive coping. An increase in age was associated with a lower propensity to use maladaptive coping strategies. Income, entered at step 2, and social support, entered at step 4, did not add predictive power to the equation. Neuroticism, entered at step 3, significantly increased the prediction of maladaptive coping. Those scoring higher on neuroticism tended to score higher on maladaptive coping. Health perception, entered at step 5, significantly increased the prediction of maladaptive coping. Maladaptive coping was associated with a lower level of perceived health. Optimism, entered in the last step, did not add to the predictability of maladaptive coping. The multiple R for the equation was .47, was significant at the .001 level, and had a statistical power of .99. The statistical power for optimism at its point of entry in the equation was less than .10.

Hypothesis 4: Prediction of Psychological Distress

As shown in Table 9, psychological distress at Time 1 was significantly associated, in order of magnitude, with neuroticism, optimism, social support, daily stress, and health. As shown in Table 16, age and income, entered at steps 1 and 2, respectively, were not significant predictors of psychological distress. Neuroticism, entered at step 3, was significantly predictive of psychological distress. Those with higher scores on neuroticism were more likely to report a higher level of distress. Social support, health, and daily stress, entered at steps 4, 5, and 6, respectively, significantly predicted psychological distress. Thus, high levels of perceived social support and health were predictive of low scores on the measure of psychological distress, whereas high levels of perceived daily stress were predictive of high levels of psychological distress. Optimism, entered at the last step, did not add to the prediction of psychological distress. The multiple R for the equation was .72, was significant at the .001 level, and had a statistical power of .99. The statistical power for optimism at its point of entry in the equation was less than .10.

Hypothesis 5: Prediction of Life Satisfaction

As shown in Table 10, the variables significantly correlated with life satisfaction at Time 1 were, in order of magnitude,

optimism, neuroticism, social support, daily stress, income, and health. Table 17 shows that life satisfaction could be predicted by the variables entered at every step of the hierarchical regression, except for age which was entered at step 1. Income, entered at step 2, predicted life satisfaction. Higher levels of perceived financial adequacy were related to higher levels of life satisfaction. Neuroticism, entered at step 3, significantly predicted life satisfaction. Higher neuroticism scores predicted lower levels of life satisfaction. Social support, entered at step 4, significantly added predictive power to the equation. Thus, those who scored at higher levels of social support reported higher levels of life satisfaction. Health, entered at step 5, significantly predicted life satisfaction. Higher levels of health predicted greater life satisfaction. Daily stress level, entered at step 6, significantly predicted life satisfaction. Lower levels of daily stress predicted higher levels of life satisfaction. Optimism, entered at the last step, significantly predicted life satisfaction. Higher levels of optimism were associated with higher levels of life satisfaction. The multiple R for the equation was .68, was significant at the .001 level, and had a statistical power of .99. The statistical power for optimism at its point of entry in the equation was less than .20.

Research Question 1 and 2: Moderation of the Effects of Stress on Psychological Distress and Life Satisfaction.

As shown in Tables 18 and 19, optimism did not moderate the effect of stress on psychological distress or on life satisfaction. The statistical power for the full equation of both interactional analyses was .99. The statistical power for each interaction term as it entered the equation was less than .10.

Table 13
Concurrent Hierarchical Regression for Hypothesis 1: Prediction of Daily Stress Level at Time 1 from Variables Measured at Time 1.

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	-.03	-.01	.01	-.01	.00	.00	1,107
2.Income	-.08	-.06	.06	-.02	.00	.35	2,106
3.Neuroticism	.22	.34***	.35**	.10	.12***	14.09***	3,105
4.Social Support	-.11	-.13	.37**	.10	.01	1.50	4,104
5.Health, T1	-.30**	-.29**	.45***	.16	.07**	8.94**	5,103
6.Optimism	.06	.06	.45***	.16	.00	.28	6,102

Total equation R = .45 R² = .21; F(6,102) = 4.39***
 Adj.R² = .16

Note

*p< .05 **p< .01 ***p< .001 (two-tailed tests)

Table 14
Concurrent Hierarchical Regression for Hypothesis 2: Prediction of Adaptive Coping at Time 1 from Variables Measured at Time 1.

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	-.11	-.09	.09	-.00	.01	.88	1,107
2.Income	.04	.06	.11	-.01	.00	.39	2,106
3.Neuroticism	-.13	-.25**	.27*	.05	.06**	6.99**	3,105
4.Social Support	-.06	-.02	.27	.04	.00	.05	4,104
5.Health, T1	.01	.03	.27	.03	.00	.08	5,103
6.Optimism	.22	.22	.32	.05	.03	3.07	6,102

Total equation R = .32 R² = .10 F (6, 102) = 1.93
 Adj. R² = .05

Note.

*p< .05 **p< .01 ***p< .001 (two-tailed tests)

Table 15
Concurrent Hierarchical Regression for Hypothesis 3: Prediction of Maladaptive Coping at Time 1 from Variables Measured at Time 1.

Multiple Regression Analysis							
Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	-.21*	-.19*	.19*	.03	.04*	4.18*	1,107
2.Income	-.03	.00	.19	.02	.00	.00	2,106
3.Neuroticism	.34*	.31***	.36**	.11	.09***	11.37***	3,105
4.Social Support	.14	.13	.38**	.11	.01	1.61	4,104
5.Health, T1	-.29**	-.28**	.46***	.17	.06**	8.37**	5,103
6.Optimism	.13	.13	.47***	.17	.01	1.14	6,102
Total equation	R = .47 R ² = .22 F (6, 102) = 4.74*** Adj. R ² = .17						

Note.

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Table 16
Concurrent Hierarchical Regression for Hypothesis 4: Prediction of Psychological Distress at Time 1 from Variables Measured at Time 1.

Multiple Regression Analysis							
Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	-.04	-.04	.04	-.01	.00	.17	1,107
2.Income	.01	-.03	.05	-.02	.00	.09	2,106
3.Neuroticism	.37***	.63***	.63***	.38	.40***	69.14***	3,105
4.Social Support	-.18*	-.24**	.66***	.42	.04**	7.91**	4,104
5.Health, T1	-.11	-.19*	.69***	.44	.03*	5.52*	5,103
6.Stress, T1	.24**	.24**	.72***	.49	.04**	9.44**	6,102
7.Optimism	-.07	-.07	.72***	.48	.00	.61	7,101
Total equation	R = .72 R ² = .52 F (7, 101) = 15.46*** Adj. R ² = .48						

Note

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Table 17
Concurrent Hierarchical Regression for Hypothesis 5: Prediction of Life Satisfaction at Time 1 from Variables Measured at Time 1.

Multiple Regression Analysis							
Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	.08	.10	.10	.00	.01	1.09	1,107
2.Income	.32***	.34***	.35***	.11	.11***	13.85***	2,106
3.Neuroticism	-.08	-.44***	.56***	.30	.19***	29.47***	3,105
4.Social Support	.16	.23**	.60***	.33	.04**	6.79**	4,104
5.Health, T1	.18*	.25**	.64***	.38	.05**	9.18**	5,103
6.Stress,T1	-.17*	-.16*	.66***	.40	.02*	3.78*	6,102
7.Optimism	.23*	.23*	.68***	.42	.03*	5.56*	7,101
Total equation	R = .68 R ² = .46 F (7, 101) = 12.37*** Adj.R ² = .42						

Note

p < .05 **p < .01 ***p < .001 (two-tailed tests)

Table 18
Concurrent Hierarchical Regression for Research Question 1: Prediction of Psychological Distress at Time 1 from Interaction Effect between Optimism and Stress at Time 1

Multiple Regression Analysis							
Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	-.02	-.04	.04	-.01	.00	.17	1,107
2.Income	.00	-.03	.05	-.01	.00	.09	2,106
3.Neuroticism	.36**	.63***	.63***	.38	.40***	69.14***	3,105
4.Social Support	-.18*	-.24**	.66***	.42	.04**	7.91**	4,104
5.Health, T1	-.12	-.19*	.69***	.44	.03*	5.52*	5,103
6.Stress,T1	.76	.24**	.72***	.49	.04**	9.44**	6,102
7.Optimism	.23	-.07	.72***	.48	.00	.61	7,101
8.Optimism*Stress,T	-.55	-.55	.72***	.49	.01	1.41	8,100
Total equation	R = .72 R ² = .52 F (8, 100) = 13.76*** Adj.R ² = .49						

Note.

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

Table 19
 Concurrent Hierarchical Regression for Research Question 2: Prediction of Life Satisfaction
 at Time 1 from Interaction Effect between Optimism and Stress at Time 1

Multiple Regression Analysis

Step predictor	Beta	Beta	R	Adj.R ²	sr ²	F	df
1.Age	.08	.10	.10	.00	.01	1.09	1,107
2.Income	.32***	.34***	.35***	.11	.11***	13.85	2,106
3.Neuroticism	-.08	-.44***	.56***	.30	.19***	29.47***	3,105
4.Social Support	.16	.23**	.60***	.33	.04**	6.79**	4,104
5.Health, T1	.18*	.25**	.64***	.38	.05**	9.18**	5,103
6.Stress, T1	-.27	-.16*	.66***	.40	.02*	3.78*	6,102
7.Optimism	.18	.23*	.68***	.42	.03*	5.56*	7,101
8.Optimism * Stress, T1	.10	.10	.68***	.42	.00	.04	8,100

Total equation R = .68 R² = .46 F (8, 100) = 10.72***
 Adj. R² = .42

Note

*p < .05 **p < .01 ***p < .001 (two-tailed tests)

CHAPTER 4: DISCUSSION

The purpose of this research was to establish the predictive value of the construct of dispositional optimism, as measured by the LOT, vis-à-vis daily stress, coping style (adaptive and maladaptive), psychological distress, and life satisfaction in a group of older women. Results confirmed the predictions that optimism was significantly related to daily stress level, adaptive coping (for concurrent measures only), psychological distress, and life satisfaction. It was not, however, related to maladaptive coping. Neuroticism was more highly correlated with these criterion variables, except for adaptive coping and life satisfaction, which were more highly correlated with optimism. Neuroticism was also significantly correlated with maladaptive coping.

Hierarchical analyses revealed that optimism lost its predictive power when the influence of the covariates (initial measures, age, perceived financial status, neuroticism, social support, and health) was statistically removed. The only exception was found for the prediction of life satisfaction with concurrent measures. Optimism still predicted life satisfaction (added 3% to the predicted variance) after the statistical removal of the influence of all concurrent covariates.

Discussion of these results will begin with a focus on the findings obtained from prospective and concurrent analyses for each hypothesis and research question. This will be followed by a discussion of the overall contribution of this study to the understanding of well-being in older women. Results will also be reviewed for their contribution to the understanding of the construct of optimism as elaborated by Scheier and Carver. Finally, a summary of the limitations of this study will be presented, with a discussion of implications and directions for future research in this area.

Hypothesis 1.

Although a significant correlation was found in the expected direction between optimism and daily stress, the variance accounted for by this relation was subsumed by the variance contributed by the other variables. Results, therefore, did not confirm the proposed hypothesis that optimism would predict level of stress over and above the influence of the covariates. The significant predictors of stress at Time 2 were initial stress level and neuroticism.

These results do not actually contradict those reported in the literature. They highlight, however, the importance of controlling for related variables in determining the relation of optimism with particular criterion variables. Blankstein et al. (1991) reported a significant correlation between the LOT and

perceived stress in a group of college men and women. They did not, however, partial out the effect of neuroticism or other related variables on the dependent variable. Neither were they able to remove effects of initial stress level because theirs was a concurrent design. Hooker et al. (1992) found the LOT to be significantly correlated with stress in a group of 51 spouse caregivers. Neuroticism, however, was even more highly correlated with perceived daily stress. Perceived health was also significantly correlated. Again, these investigators did not attempt to separate out the unique contribution of optimism on daily stress from the contributions of other variables. A study from the Normative Aging Study (NAS) with over 1,000 men (Mroczek et al., 1993) produced results that are similar to the ones obtained in this study. They reported a significant correlation between the LOT and daily hassles. When the effects of neuroticism, as measured by the short form of the Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1968), were statistically removed, however, the correlation no longer existed. These results support an earlier finding with the NAS (Aldwin et al., 1989) that emotionality (i.e., neuroticism) was a significant predictor of life events and perceived hassles over a ten-year period. In summary, then, the results support the prediction that optimism is related to the perception of stress over a three-month period. Optimism does not, however, add unique value to the prediction of perceived stress over and above the effects of initial measures and neuroticism.

Concurrent data.

Optimism was again significantly correlated with stress level at Time 1, although this correlation was lower than that found at Time 2. Optimism again failed to predict stress level when the effects of age, perceived financial status, neuroticism, social support, and health were statistically removed. It is noteworthy that although perceived health has been shown to be correlated with neuroticism (Costa & McCrae, 1980a, 1980b; Watson & Pennebaker, 1989), it added significant predictive power in the concurrent analysis even after the effect of neuroticism was removed.

In summary, then, neuroticism appears to be a robust predictor of stress in both prospective and concurrent analyses. This finding lends credence to the conclusion arrived at by Smith et al. (1989) that optimism as measured by the LOT may be confounded with neuroticism in the prediction of particular criterion variables, such as stress. It is of significance that the results of this study are congruent with theirs although I studied a different population (older women as compared to undergraduate students), and chose the N scale of the NEO-PI as our measure of neuroticism (in contrast to their choice of the A-Trait and TMAS measures).

Hypothesis 2.

Optimism was not significantly associated with adaptive coping at Time 2, nor did it predict adaptive coping at Time 2. The only significant predictor of adaptive coping at Time 2 was adaptive coping at Time 1. For this sample of subjects, then, it appears that the stable aspects of adaptive coping were not related to the dispositional factors measured in the study: optimism and neuroticism. As Folkman, Lazarus, Gruen, and DeLongis (1986) and Lazarus and Folkman (1980) concluded from their research, contextual and process variables may have been more important determinants of how subjects coped with stressors and may have accounted for the predictive power of adaptive coping at Time 1 for adaptive coping at Time 2.

Concurrent data.

Analysis of data on concurrent measures revealed that both dispositional measures, optimism and neuroticism, were significantly correlated with adaptive coping at Time 1 (see Table 7). Optimism, however, did not retain its predictive power when the influence of other variables was statistically removed in the hierarchical regression analysis. These findings point to the changeability of coping responses and to the overlap, in this group of subjects, between optimism and neuroticism.

Additional correlational analyses.

Additional correlational analyses were conducted on relevant Times 1 and 2 variables and the four coping strategies which

composed the "adaptive coping" category: positive reinterpretation, active coping, planning, and acceptance. Meaningful--but variable-- correlational patterns were found. Positive reinterpretation, active coping, and planning were positively associated with optimism and negatively associated with neuroticism at Time 1 only. They were positively associated with the perception of challenges at both Times 1 and 2. Active coping and planning were positively related to the perception of controllability over stressors at Time 2 only. Acceptance was not related to most of the relevant variables measured, but was positively associated with age and with perception of uncontrollability of stressors at Time 2 only.

In summary, then, the most striking finding on adaptive coping as it relates to the variables in this study is the variability in the relations among measures. This strongly supports Folkman and Lazarus's (1985) contention that coping with stressful encounters should be viewed as a dynamic, evolving process that is modified with the passage of time and the ever changing flow of contextual factors. It also strongly supports their conclusion that repeated measures should be taken in a variety of situations and at various times if patterns of coping are to be detected. In this study, differences in the nature of stressors may have obscured the role of dispositional factors in determining coping style.

Most previous research linking optimism and adaptive coping (Carver et al., 1989; Fontaine et al., 1993; Scheier et al.,

1986) used cross-sectional data and failed to control for the influence of related variables, such as neuroticism. An exception to this was the study by Carver et al. (1993), in which they used a repeated measures design to study the effect of optimism on coping with early-stage breast cancer. A pattern of adaptive coping strategies did emerge for optimists, but the use of these strategies differed at each stage of coping with this very specific stressor. It is evident that the relations among optimism and adaptive coping styles can only be delineated by taking several measures over a reasonable span of time.

Variability among coping measures in this study may have also been related to the broader methodological issues affecting research on stress and coping. More specifically, there has been some concern regarding the validity of coping questionnaires used in this area of research (Ptacek, Smith, Espe, & Raffety, 1994; Stone, Greenberg, Kennedy-Moore, & Newman, 1991). Ptacek et al. (1994) conducted a study with college students in which they compared their daily reports of coping with a current stressor (exams) with later reports (five days later) of how they had coped with that stressor. They found that the correlation between proximal and retrospective measures accounted for an average of only 26% of the variance in reported coping styles. These results are surprising, given that the retrospective period was only five days, and that the subjects were relatively young undergraduates who had been instructed to monitor their coping on a daily basis. Most research on coping deals with a much longer

retrospective period (in this study, a 3-month interval) with subjects who have not previously been asked to attend to their coping style. Ptacek et al. (1994) interpret their results as a function of memory decay due to the passage of time. If their interpretation is correct, this issue would be of even greater relevance to older subjects, such as those tested in this study.

Stone et al. (1991) have also conducted research addressing methodological difficulties associated with the use of coping questionnaires, such as the one used in this study. They found significant differences in how participants interpreted three different aspects of these scales: the relevance of certain items for coping with specific stressors, the determination of which stage of the coping process was being measured, and the meaning given to questions which ask about the extent to which the respondent had used a particular coping strategy. All three points apply to the COPE, which was used in this study. For example, certain items in the COPE, such as "I took direct action to get around the problem" may not apply to a stressor such as the death of one's spouse. It becomes difficult, then, to compare COPE scores from various respondents when the nature or source of their stressors differ and certain items are not applicable. The same difficulty exists with regard to the particular stage of coping which respondents had in mind when they answered the questions on the COPE. A woman, for example, whose most important recent stressor was having an argument with her son, may have coped very differently during the argument, as

compared to one hour or one week later. Again, it is difficult to compare coping styles between subjects or groups without controlling for the stage of the coping process. Finally, as Stone et al. (1991) point out, scores on questionnaires such as the COPE are difficult to interpret because of the ambiguity built into the directions which ask about the extent to which the respondents engaged in a particular coping strategy. This may be interpreted as the frequency with which they used the strategy, the duration of their use of the strategy, or the benefits which they may or may not have derived from the strategy. It is clear that future studies in the area of stress and coping must address these methodological limitations.

In summary, then, there was no evidence in the current study that optimism was a predictor of adaptive coping in this population. Adaptive coping at Time 1 was found to be the only significant predictor of adaptive coping at Time 2. Possible explanations may be that contextual and process factors may overshadow the contribution of dispositional variables in predicting coping. Also, more global methodological limitations (especially measurement error) related to research in this area may explain the variability in the measures obtained. Finally, even when optimism was found to be correlated with adaptive coping (in the concurrent analyses), it was subsumed under the predictive power of neuroticism. This again points to the need to more clearly define the relation between optimism and neuroticism.

Hypothesis 3.

Optimism was not significantly correlated with maladaptive coping at Time 2, and did not predict maladaptive coping at Time 2. Although neuroticism and social support were significantly correlated with maladaptive coping at Time 2, their predictive power was eliminated when the influence of maladaptive coping at Time 1 was statistically removed. The only predictor of maladaptive coping at Time 2 was maladaptive coping at Time 1.

Concurrent data.

Analysis of concurrent measures revealed significant correlations among measures of maladaptive coping at Time 1, age, neuroticism, and health (see Table 8). Again, optimism was not related to maladaptive coping. Regression analysis showed that neuroticism and perceived health were the only predictors of maladaptive coping at Time 1.

Additional correlational analyses.

Additional correlational analyses were conducted in order to determine the patterns of relations among the relevant variables measured in this study, the composite measure I called "maladaptive coping", and the four subscales which composed it: mental disengagement, focus on and venting of emotions, behavioral disengagement, and denial. As found in the analyses of adaptive coping, patterns of intercorrelations were quite varied between Times 1 and 2. Maladaptive coping was negatively related to life satisfaction, and positively related to daily

stress, psychological distress, and the perception of stressors as threats or losses at both Times 1 and 2. Those who relied on maladaptive coping strategies tended to experience higher levels of stress and psychological distress, and lower levels of life satisfaction. They also tended to interpret their most important current stressors as threats and losses rather than challenges. Maladaptive coping was associated with lower perceived health and lower age at Time 1, and with lower social support at Time 2.

Closer analysis revealed that most of these correlations could be accounted for by only two of the subscales which composed the maladaptive coping measure: mental disengagement and focus on and venting of emotions. The other two subscales, behavioral disengagement and denial, were not meaningfully related to these variables. In other words, only two of the strategies were truly "maladaptive" according to the a priori definition used in this study.

In summary, then, optimism was not related to maladaptive coping either at Time 1 or at Time 2; neither was it related to any of the four subscales which composed the measure of maladaptive coping. These findings are quite unexpected, given the previous research linking optimism negatively with disengagement (mental and behavioral), focus on and venting of emotions, and denial (Aspinwall & Taylor, 1992; Carver et al., 1989, 1993; Fontaine et al., 1993; Scheier et al., 1986, 1989). For this sample of older women, the variables which predicted maladaptive coping at Time 1 were neuroticism and health. At

Time 2, the only predictor of maladaptive coping was previous maladaptive coping. This latter finding, which parallels the relation between adaptive coping at Times 1 and 2, may be due to the fact that participants were by and large trying to cope in the same way with the same stressors at both Times 1 and 2. This explanation is questionable, however, because of the lack of correlation between appraised controllability of stressors at Times 1 and 2 and perception of stressors as challenges (rather than threats or losses) at Times 1 and 2.

As mentioned previously, a repeated-measures design which would include measures of contextual and process variables would have been more likely to uncover relations between maladaptive coping and other variables. The methodological issues raised earlier with regard to retrospective recall of coping and the ambiguities built into most coping questionnaires also apply to these findings.

Hypothesis 4.

As expected, optimism was significantly correlated with psychological distress at Time 2, although neuroticism showed an even higher degree of correlation (see Table 9). Hierarchical regression analysis revealed that the significant predictors of distress at Time 2 were distress at Time 1 and neuroticism. When the influence of covariate variables was statistically removed, optimism lost its predictive power for the DV.

Concurrent data.

Analysis of concurrent data also showed a significant correlation between optimism and distress at Time 1, although again, neuroticism was more highly correlated with distress. The hierarchical regression analysis revealed predictive power for all covariate variables. When the influence of these covariates was statistically removed, optimism again lost all predictive power.

In summary, then, these findings challenge Scheier and Carver's (1985, 1987, 1992) conclusion that optimism, as measured by the LOT, is a predictor of psychological adaptation, and lend support to Smith et al.'s (1989) cautionary comments regarding the overlap between the LOT and measures of neuroticism. As previously discussed, they had found that the predictive value of optimism for physical symptom reports at Time 2 disappeared when they statistically controlled for the influence of neuroticism. Mroczek et al. (1993) obtained similar results in their concurrent measures with a group of older male subjects. They found that controlling for neuroticism, as measured by the short form of the Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1968) greatly reduced the predictive power of the LOT for psychological distress. They measured distress with the Symptom Distress Checklist (SCL-90; Derogatis, 1983), the original inventory from which the current study's measure for distress was developed. They concluded that neuroticism and optimism overlap, but not completely because optimism still

retained some degree of predictive power. In this study, I not only controlled for neuroticism but also for Time 1 effects and for the effects of other relevant variables, such as social support, stress, and health. The effects of optimism could be subsumed under these other variables.

These results challenge Scheier and Carver's statement that "though the data is somewhat mixed, we see no compelling reason at this point to attribute the effects of optimism to alternative constructs" (Scheier & Carver, 1992, p. 218). There is a need to further validate the construct of optimism. More specifically, its relation to neuroticism needs to be clarified.

Hypothesis 5.

The variable which most highly correlated with life satisfaction at Time 2 was life satisfaction at Time 1, followed by optimism, neuroticism, stress, income, health, and social support. It is noteworthy that optimism showed a higher correlation with this DV than neuroticism did. Hierarchical regression analysis showed that when the influence of life satisfaction at Time 1 was statistically removed, not one of the other variables predicted life satisfaction. Thus, happiness seems to be the best predictor of happiness: "Happy are those who are happy" (Stones & Kozma, 1986).

Concurrent data.

Analysis of concurrent data revealed patterns of correlations similar to those found with prospective data. Again, optimism was more strongly related to the DV than neuroticism was. Hierarchical regression analysis revealed that all of the variables significantly predicted life satisfaction, including optimism which was entered in the last step of the analysis. Although optimism added only 3% to the prediction of the DV, this finding is important because it demonstrates that optimism cannot be totally subsumed under other variables, such as neuroticism.

These results on concurrent data support previous findings linking optimism and life satisfaction (Aspinwall & Taylor, 1992; Fitzgerald et al., 1993; Scheier & Carver, 1989; Sweetman, Munz, & Wheeler, 1993). The unique contribution of the present research, however, was to demonstrate this association for concurrent measures with a group of older women, even after statistically controlling for such variables as neuroticism, perceived health, perceived financial status, social support, and age. The studies cited did not include the extensive statistical controls that this study did.

In summary, then, optimism showed a stronger association with life satisfaction than did neuroticism. The reverse was true for psychological distress: neuroticism was more highly related to that variable than optimism was. This finding is congruent with the research linking distress to neuroticism, and

life satisfaction with the propensity to experience positive emotions (Costa & McCrae, 1980a, 1980b, 1984, 1985; George, 1981; Kozma et al., 1991; Stones & Kozma, 1989). This research suggests that life satisfaction and psychological distress are independent constructs, although both are indicative of psychological adjustment. Interestingly, life satisfaction has been associated with the personality trait of extraversion. Recent research has found evidence for relations among optimism, neuroticism, and extraversion. More specifically, some studies suggest that the LOT, which was meant to assess optimism as a bipolar factor, may be better viewed as measuring two separate factors: pessimism, primarily associated with neuroticism, and optimism, primarily associated with extraversion (Marshall et al., 1992; Mook, Kleijn, & Ploeg, 1992; Williams, 1992).

In their 1985 article, Scheier and Carver argue that although there is some statistical justification for using the two halves of the LOT separately, it may be most reasonable to treat the scale as unidimensional for most purposes. They have used the LOT as a unidimensional measure, as have the researchers whose work was reviewed in the introduction. Further research is required to elucidate the issue of the bipolarity or two-dimensionality of the LOT. One study (Mroczek et al., 1993) has attempted to address this issue by measuring the predictive value of the LOT as a bipolar and as a two-dimensional measure for stress, emotional distress, and illness severity in a group of over 1,000 men in their 50s and 60s. Mroczek et al. conclude

from their results that the LOT is a two-dimensional measure which assesses the separate constructs of optimism and pessimism.

Appraisal of Stressors

Additional statistical analyses were conducted to determine the relation between optimism and the appraisal of the reported stressors. More specifically, I wanted to determine whether optimists perceived their most recent stressors as challenges rather than threats or losses, and whether they perceived them as controllable rather than uncontrollable. Zero-order correlational analyses and hierarchical regression analyses revealed that optimism and appraisal of stressors were unrelated. Contextual variables, such as the nature of the stressor (e.g., personal illness or the death of a family member) and process variables (e.g., various stages of the coping process) may have been more important determinants of appraisal. These factors, however, were not measured in this study. Interestingly, there were significant although low correlations among measures of adaptive coping, appraisal of challenges, appraisal of controllability, and anxiety. There was also a significant correlation between neuroticism and the perception of stressors as threats or losses (rather than challenges) at Time 1 only.

Summary of Major Findings

Unless otherwise specified, comments in this section refer to both Time 1 (concurrent) and Time 2 (prospective) measures.

Zero-order correlations. For this sample of older female subjects, the LOT was found to be as highly correlated with the neuroticism subscale of the NEO-PI as with an alternative measure of optimism: the Optimism subscale of the Optimism/Pessimism Scale (Dember et al., 1989). This finding is congruent with the one reported by Smith et al. (1989), who used different measures, with a much younger population. This raises the possibility that optimism, as measured by the LOT, may largely be a facet of neuroticism, and that it may be more parsimonious to study neuroticism, which is a broader and more highly researched construct than optimism. Recent studies have addressed this issue with different populations, including college students, navy recruits, older women and men, heart surgery patients, and caregivers. Results so far are inconclusive. They seem to suggest that optimism strongly overlaps with neuroticism, although in some cases it remains sufficiently differentiated from it to add predictive value to varying degrees, depending upon the criterion variables selected, and, at times, the gender of the subjects (Fitzgerald, Tennen, Affleck, & Pransky, 1993; Hooker, Monahan, Shifren, & Hutchinson, 1992; Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992; Mroczek, Spiro III, Aldwin, &

Bossé, 1993; Plomin et al., 1992; Robbins, Spence, & Clark, 1991). Certainly, as Scheier & Carver (1993) note, the relation between these two variables needs to be further clarified.

Expected correlations among optimism, daily stress, psychological distress, life satisfaction, and adaptive coping (Time 1 only) were confirmed. However, I did not find the expected correlations among optimism, adaptive coping (Time 2), and maladaptive coping. Neuroticism, on the other hand, correlated with maladaptive coping at both Times 1 and 2, and correlated with psychological distress more highly than optimism did.

Neuroticism correlated more highly with most DVs than optimism did, except for life satisfaction and adaptive coping (Time 1 only). There appear to be two trends emerging from the data: One linking optimism, adaptive coping, and life satisfaction, the other linking neuroticism, maladaptive coping, and psychological distress.

Prospective and concurrent hypotheses. Although optimism correlated with most of the DVs, it did not add to the prediction of any of the Time 2 DVs when the influence of Time 1 measures and the covariates was statistically removed. The two most constant predictors of the DVs in the prospective analyses were initial measures at Time 1 and neuroticism. For concurrent analyses, all covariates (age, income, social support, neuroticism, health, and stress) contributed at various times to

the prediction of the DVs, eliminating the predictive value of optimism, except in the case of life satisfaction. This finding, that optimism could still add 3% to the prediction of concurrent life satisfaction even after removing the influence of several covariates, shows that the LOT cannot be completely subsumed by the seemingly more robust construct of neuroticism. As stated earlier, more research is required to distinguish optimism from other factors, such as neuroticism or extraversion.

Coping. The results on the coping measures were variable. Some of the subscales which I had included in the composite measures of adaptive and maladaptive coping were not relevant. More specifically, "acceptance" as an adaptive coping strategy was not related to the relevant variables. For this group of subjects, then, we may conclude that adaptive coping consisted of positive reinterpretation, active coping, and planning. Maladaptive coping, on the other hand, was best defined as mental disengagement and focus on and venting of emotions. Behavioral disengagement and denial seemed irrelevant.

Correlations between adaptive and maladaptive coping styles and other measured variables were quite variable. Adaptive coping, for example, was correlated with optimism and neuroticism at Time 1 only. Prospective hierarchical regression analyses revealed that the only predictor of adaptive coping at Time 2 was adaptive coping at Time 1. For maladaptive coping, neuroticism added 3% to the prediction of R^2 at Time 2 (maladaptive coping at

Time 1 contributed 18% to the prediction of variance). This research was not able to identify stable patterns of coping. Repeated measures of contextual variables (i.e., type and importance of stressor) and process variables (i.e., stage of coping process), in addition to the dispositional variables of optimism and neuroticism, may have helped to delineate stable patterns in coping style.

Stress, Coping, and Adaptation in Later Life.

What can we conclude about perceived stress, coping, and adaptation in later years? According to the current findings, the best predictors of daily stress, coping, and adaptation are previous patterns of daily stress, coping, and adaptation. However, one important caveat must be added to this conclusion. The prospective design was over a short period of three months. This time period may have been too short (particularly for an older population), and change in the DVs too slight, to detect whether optimism-- or the covariates--could predict change in the DVs.

The next strongest predictor of coping and adaptation in later years was neuroticism. Of the concurrent measures, age, perceived financial status, social support, neuroticism, health, and daily stress all contributed at various times and to varying degrees to the prediction of coping and adaptation. The apparent links among neuroticism, maladaptive coping, and psychological

distress, and among optimism, adaptive coping, and life satisfaction, leads to the speculation that optimism as measured by the LOT might be related to two independent factors: aspects of extraversion (positive affectivity) and neuroticism (negative affectivity). As already mentioned, recently published research provides evidence in support of this speculation (Marshall et al., 1992; Mook, Kleijn, & Ploeg, 1992; Williams, 1992).

Strengths and Limitations of this Study

This study was an attempt to apply to an older female population findings from prior research linking dispositional optimism with adaptive coping style and greater adjustment. One of the strengths of this study was that it followed a prospective design, which allowed for the statistical control of initial measures of the DVs (although one may question whether three months was a sufficiently long interval). Also, variables which had previously been related to the DVs (e.g., neuroticism, social support, and health) were used as covariates in hierarchical regression analyses in order to sift out the unique, net predictive value of dispositional optimism. This was the first study in the area to control for so many related factors in order to assess the unique contribution of the LOT to the prediction of coping and adaptation. The sample was a relatively large one, consisting of 109 women who were all interviewed twice. Finally, the measures used were not abbreviated ones. This led to longer

interviews than those usually reported in the literature, but participants were given the opportunity to take breaks as required and they appeared to enjoy the opportunity to talk with the investigators about how they were coping with their current concerns and adjusting to their life circumstances.

This study has certain limitations. Because of criteria for the selection and recruitment of participants, men were excluded from the study, as were subjects who were suffering from serious impairments (e.g., an illness requiring institutionalized living). The results, therefore, are applicable only to healthy and autonomous women who were interested enough to volunteer for this study.

In studying stress and coping, I did not control for the type of stressors which participants chose to focus on in reporting their coping strategies. There was quite a divergence among interviewees in terms of the type and the importance of the stressors they reported. Some talked about serious life events, such as the recent death of their husband, others talked about more minor events, such as having to return an item they had purchased at a store. Some reported different stressors at Times 1 and 2, whereas others were still dealing with the same stressor at Time 2. Another limitation in this study was that I did not attempt to control for the stage in the coping process which participants had in mind when they answered questions about how they coped with their particular stressor. Carver et al. (1993) have shown that coping, being a process, can vary from stage to

stage. Finally, this research is not exempt from the general criticisms levelled at research on stress and coping by Ptacek et al. (1994) and Stone et al. (1991). Because questions on coping referred to a past event, distortions may have occurred between what participants reported and the actual coping strategies they had used at various stages of the coping process. Also, the COPE contained items which may have been irrelevant to some participants (e.g., "I put my trust in God"), and the requirement to indicate the "extent" to which they relied on a particular strategy may have been ambiguous. Different results may have been obtained if I had controlled for type of stressor and had measured coping as an ongoing process. For example, I might have selected participants on the basis of a major stressor in their lives (such as moving into a retirement home, being diagnosed with a serious illness, or suffering the loss of a family member); also, I might have inquired about how they were currently coping with the event. These procedures might have been conducive to detecting differences in patterns of appraisal and coping, without the confounding effects of differing contextual, process, and memory factors.

A final limitation in this study concerns the confounding in some of the measures of manifestations of normal aging with symptoms of ill health or of somatization. More specifically, a few items from the measure of psychological distress and one from the measure of perceived health could have been deleted on this basis. As an alternative way of dealing with this difficulty, I

attempted to distinguish, during the interviews, between answers that were due to emotional reasons and those that were simply related to aging.

Implications for Future Studies.

As discussed earlier, there is a need for research designs that allow for the measurement of stress perception and coping strategies without the distortions introduced by retrospective recall. Repeated measures with an emphasis on current processes of perceptions and coping could yield more accurate data. Allowing subjects to describe their coping strategies without having to fit themselves into pre-designed coping questionnaires may also yield more precise information about how they deal with stressors in their lives.

Future research in the area of optimism should most importantly aim to elucidate the nature of dispositional optimism and establish its relation to other measures, particularly neuroticism and extraversion. As Fontaine et al. (1993) noted, it is important to elucidate the nature of new personality constructs and to disentangle their predictive overlap from that of related personality variables, such as the Big Five, in order to avoid redundancy. In the case of optimism and pessimism, we need to determine whether they are best conceptualized as bipolar or independent constructs. We also need to clarify their relationship with the larger constructs of neuroticism and

extraversion. Are optimism and pessimism simply facets of neuroticism and extraversion? If so, to which dimensions of these larger constructs do they relate? Do they have explanatory power over and above their relation to these larger constructs? These questions need to be examined with varying populations of different gender and age groups. In 1994, Scheier, Carver, and Bridges published a study in which they attempted to clarify the nature of the relation between the LOT and neuroticism. As mentioned in the Introduction, they reported that the LOT added unique predictive power for depression and for certain coping strategies even after the statistical removal of the effects of neuroticism. Their study, however, may have been somewhat limited by their choice of measures. Their measure of neuroticism, for example, differed from the NEO which was used in this study and which included a subscale of depression. Had this measure been used in their study, they may not have found that the LOT added unique predictive value for depression. Also, they used the dispositional version of the COPE whereas the situational version was used in this study. These two versions of the COPE may actually be measuring different constructs. Again, their results may have been more similar to the ones found in this study, had they used the situational version.

The question remains: Do the constructs of optimism and pessimism add significant information over and above other personality factors, such as neuroticism or extraversion--or, as much research seems to suggest, are they largely redundant with

the "Big Five"? Further research is required to answer this question in a more definitive way.

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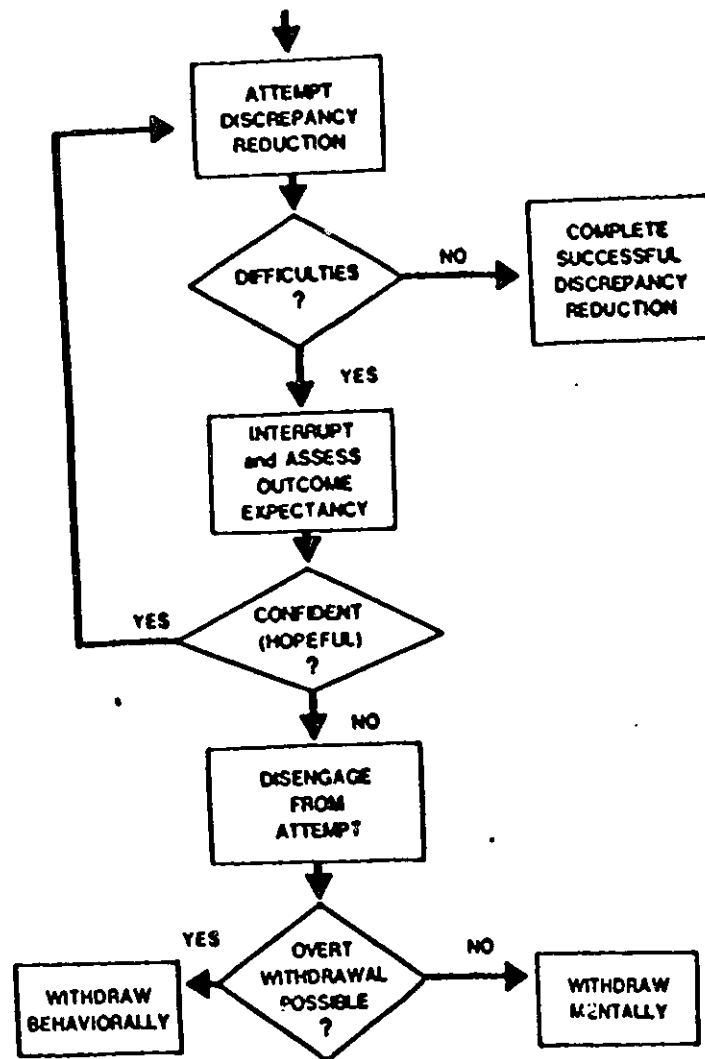
Williams, D. G. (1992). Dispositional optimism, neuroticism, and extraversion. Personality and Individual Differences, 4, 475-477.

Zuckerman, M. (1960). The development of an Affect Adjective Check List for the measurement of anxiety. Journal of Consulting Psychology, 24, 457-462.

Appendix A

Control Theory of Behavioural Self-Regulation.

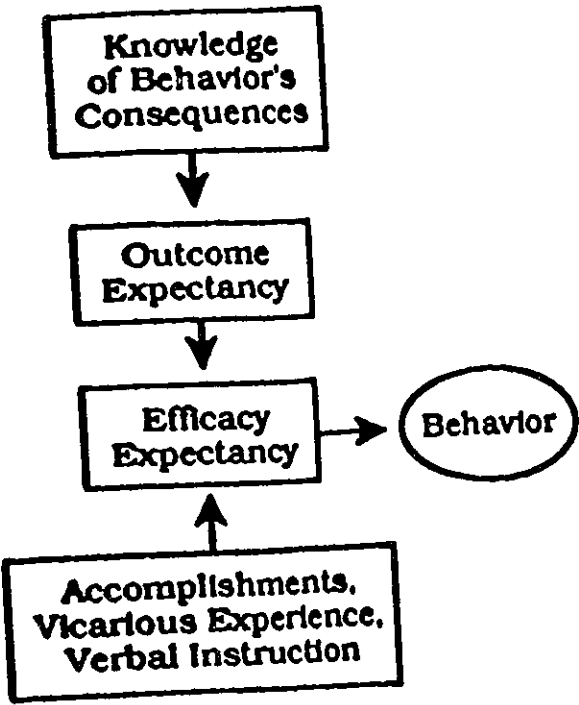
Desired Goal/Reality Discrepant



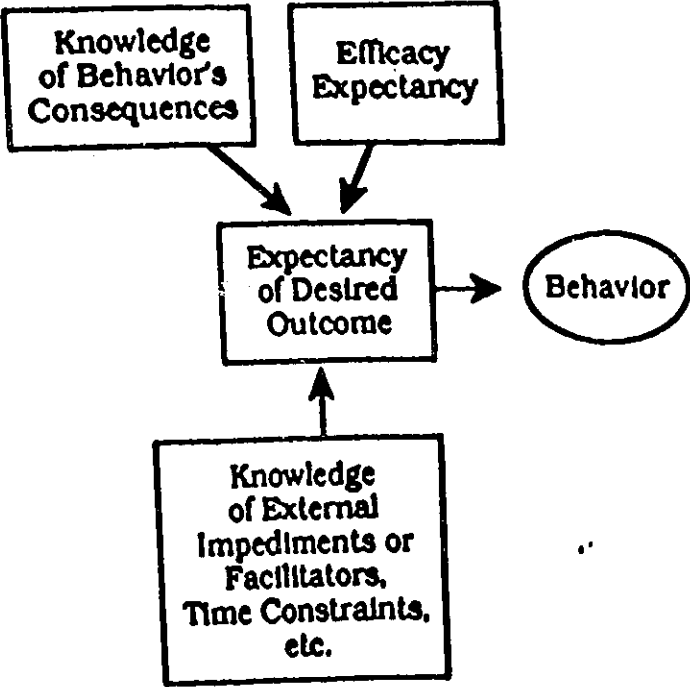
(from Carver & Scheier, 1986, p. 15)

Appendix B

Comparison of Bandura's Theory of Self-Efficacy and Scheier & Carver's Control Theory.



Bandura



Carver/Scheier

(from Carver & Scheier, 1994, p. 195)

Appendix C

Standardized Telephone Screening of Potential Participants.

Thank you for calling. As mentioned in my ad/poster/letter, I am a PhD student in Clinical Psychology at the University of Ottawa, and am conducting a research study on the factors associated with life satisfaction in women over the age of 60 years. Are you over the age of 60?

Yes_____No_____

If No, thank caller and say goodbye.

I would like to tell you about the project and what is involved. Is this a good time? It should take about ten minutes.

Yes_____No_____

If No, arrange for a better time.

Phone_____Time_____

This study has been approved by the Ethics Committee of the University of Ottawa and is supervised by Dr. Philippe Cappeliez, a registered psychologist and professor at the University of Ottawa. Participation in this project involves taking part in two interviews in your own home or, if you prefer, in another location, such as the Seniors' Centre of the University of Ottawa. The interviews, which will be scheduled at a three-month interval, consist of answering questions about how you generally cope with stress in your life, and how you are feeling physically and psychologically. The first interview will require

approximately three and a half hours and the second one, approximately one and a half hour.

I would like to mention that if you decide to participate in the study, you will remain free to withdraw at any time, should you desire to do so. Also, if you find that you would rather not discuss certain topics, simply advise the investigator who will then move on to the next topic.

Are you still interested in taking part in this project?

Yes_____No_____

If No, thank the person for her time

If Yes, arrange for the first interview

Name_____Date_____

Telephone_____Location_____

Thank you very much for your interest and participation. I am looking forward to meeting you. Goodbye.

Appendix D

**Standardized Script for Initial Telephone Contact with Residence
or Organization Coordinator.**

My name is Anne Boland and I am a Clinical Psychology student at the University of Ottawa. I am conducting research, under the supervision of Dr. Philippe Cappeliez, on the factors associated with well-being in women over the age of 60 years.

I would like to send a letter to the women residents in your building/to members of your organization to explain this research to them and to invite them to participate in it. I would also like to get permission to put up a poster in your building issuing the same invitation to them. Would it be possible to meet with you to discuss this further?

Yes_____No_____

If Yes, arrange for an appointment.

Name_____Date_____

Telephone_____Address_____

If No, inquire as to how and when letters could be distributed to the women residents, and a poster put up in the building.

Thank you very much for your cooperation. I am looking forward to meeting you (if applicable).

Appendix E**Information Poster.**

TO: ALL WOMEN RESIDENTS/GROUP MEMBERS
60 YEARS OF AGE OR OLDER

You are

INVITED

to participate

in a study

conducted by the

Department of Psychology

of the University of Ottawa

under the supervision of

Dr. Philippe Cappeliez, on

WELL-BEING AND COPING WITH STRESS

IN LATER LIFE.

Your participation would be

greatly appreciated and would

consist of taking part in 2

interviews in your home

or in another convenient location.

ALL INFORMATION WILL BE KEPT

IN THE STRICTEST CONFIDENCE.

If you would like to participate,

please contact Anne Boland at

236-8120 or leave a message.

Thank youAnne Boland

Appendix F**Letter of Invitation to Potential Participants.**

Dear Resident/Group Member:

I am writing to invite you to participate in my study on the factors associated with life satisfaction or well-being in women over the age of 60 years. My research is conducted under Dr. Philippe Cappeliez, professor of Psychology at the University of Ottawa.

As you know, our population is aging. Statistics Canada is predicting that by the year 2,031, the number of women over the age of 60 will be three times higher than it is today. Given this trend, it is important to know the factors that are associated with well-being in later years. An understanding of these factors can help guide the development of preventive or intervention programs designed to increase life satisfaction in later life. More specifically, I am looking at how women over the age of 60 years are coping with the stressors in their lives and at how this affects their general health and well-being.

If you agree to participate, your involvement will consist of taking part in two interviews, three months apart, in your own home or if you prefer, in another available location. The first interview will require approximately three and a half hours and the second interview, one and a half hour. You will be asked questions pertaining to how you are coping with the stressors in your life and how you are generally feeling physically and emotionally.

All information gathered during the study will be kept in the strictest confidence. Your identity as a participant will be protected and any published data will be only in group form. You will remain free to withdraw from the study at any time should you wish to do so.

If you would like to participate, please contact me at 236-8120 or leave a message on the answering machine. I look forward to hearing from you.

Sincerely yours,

Anne Boland

Appendix G**Information and Consent Form.**

Research with human subjects requires the written consent of participants. This requirement does not in any way imply that the research involves a risk for the participants. In due respect to the persons involved, the University of Ottawa and the granting agencies have made this agreement obligatory. I will be given a copy of this Information and Consent Form.

If I agree to participate in this study, my involvement will consist of taking part in two interviews, three months apart, in my own home or in another available location. The first interview will require approximately three and a half hours and the second interview, one and a half hour. I will be asked questions pertaining to how I am coping with the stressors in my life, and how I am generally feeling physically and emotionally. At no time will I be pressured to talk about issues that may create discomfort for me. If I do not wish to discuss a particular issue, I will indicate that to the interviewer who will simply move on to the next topic. I will remain free to withdraw from the study at any time if I wish to do so.

I understand that the contents of this information will be used for research purposes only, that my identity as a participant will be protected and remain confidential, and that published data will be only in group form. I also understand that should the presence of some emotional difficulty surface

during the interview, the investigator will advise me of this, and suggest a referral.

I,....., have been asked to participate in this study on stress, coping, and well-being. The study is conducted by Anne Boland (Tel.: 236-8120), under the supervision of Dr. Philippe Cappeliez, Ph.D. (Tel.: 564-9460), professor of Psychology at the University of Ottawa.

I wish to participate:_____

I do not wish to participate:_____

Signed: _____

Date: _____

Researcher:_____

Witness: _____

Supervisor:_____

Optional: I wish to receive a summary of the findings of this study upon its completion at the following address:

Appendix H

Measures Administered.

Variables	Measures
1. Optimism	1. LOT Optimism/Pessimism Scale (O/P)
2. Perceived chronic stress level	2. Revised Hassles Scale (Adapted)
3. Neuroticism	3. NEO-PI
4. Perceived health	4. Health Perceptions Questionnaire/Current Health (HPQ)
5. Coping	5. COPE
6. Perceived social support	6. Provision of Social Support (PSR)
7. Psychological distress	7. Brief Symptom Inventory (BSI)
8. Perceived life satisfaction	8. Life Satisfaction Scale (LSS)

Appendix I

Measures Administered at Times 1 and 2.

Time 1	Time 2
1. Personal Information	
2. LOT	
3. Optimism/Pessimism Scale	
4. NEO-PI	
5. Provision of Social Relations	
6. Revised Hassles Scale	6. Revised Hassles Scale
7. COPE	7. COPE
8. Current Health	8. Current Health
9. Brief Symptom Inventory	9. Brief Symptom Inventory
10. Life Satisfaction Scale	10. Life Satisfaction Scale

Appendix J**Personal Information.**

Name: _____ Date: _____

Please put a check mark or complete as required.

1. Date of birth _____

2. Marital Status

1. Married _____

2. Widow/Widower _____

3. Single _____

4. Divorced _____

5. Separated _____

3. Education

1. Elementary (1 to 8) _____

2. High School (9 to 12) _____

3. Technical or college _____

4. University _____

5. None _____

4. Employment

1. Retired _____

2. Full time _____

3. Part time _____

4. Unemployed _____

5. Housework _____

6. Volunteer _____

5. Total annual income (optional)

- | | |
|---------------------|----------------------|
| 1. less than 10,000 | 7. 25,000 to 28,000 |
| 2. 10,000 to 13,000 | 8. 28,000 to 31,000 |
| 3. 13,000 to 16,000 | 9. 31,000 to 34,000 |
| 4. 16,000 to 19,000 | 10. 34,000 to 37,000 |
| 5. 19,000 to 22,000 | 11. 37,000 to 40,000 |
| 6. 22,000 to 25,000 | 12. Over 40,000 |

Value of total assets (property owned, investments, savings, and other): _____

How would you rate your financial situation?

0-----10

not adequate more than adequate

6. Type of residence: owner____ tenant____

- | | |
|--------------|-------|
| 1. House | _____ |
| 2. Apartment | _____ |
| 3. Room | _____ |
| 4. Other | _____ |

7. Whom do you live with?

- | | |
|----------------------|-------|
| 1. Alone | _____ |
| 2. Spouse | _____ |
| 3. Brothers, sisters | _____ |
| 4. Children | _____ |
| 5. Friends | _____ |
| 6. Other | _____ |

Appendix K**Provision of Social Relations.**

Instructions: We would like to know something about your relationships with other people. For each of the statements below, please circle the number of the category that best describes you.

1. Very much like me.
2. Much like me.
3. Somewhat like me.
4. Not very much like me.
5. Not at all like me.

- | | | | | | |
|--|---|---|---|---|---|
| a) When I'm with my friends I feel completely able to relax and be myself. | 5 | 4 | 3 | 2 | 1 |
| b) I share the same approach to life that most of my family and friends do. | 5 | 4 | 3 | 2 | 1 |
| c) People who know me trust me and respect me. | 5 | 4 | 3 | 2 | 1 |
| d) No matter what happens, I know that my family will always be there for me should I need them. | 5 | 4 | 3 | 2 | 1 |
| e) When I want to go out to do things I know that many of my friends would enjoy these things with me. | 5 | 4 | 3 | 2 | 1 |
| f) I have at least one person that I could tell anything to. | 5 | 4 | 3 | 2 | 1 |
| g) Sometimes I'm not sure if I can completely | | | | | |

rely on my family and friends.	5	4	3	2	1
h) People close to me let me know they think I'm a worthwhile person.	5	4	3	2	1
i) I feel very close to some of my friends.	5	4	3	2	1
j) People in my family have confidence in me.	5	4	3	2	1
k) There are some problems that I can't share with anyone.	5	4	3	2	1
l) People close to me provide help in finding solutions to my problems.	5	4	3	2	1
m) My friends would take the time to talk over my problems, should I ever want to.	5	4	3	2	1
n) I know my family will always stand by me.	5	4	3	2	1
o) Even when I am with friends I feel alone.	5	4	3	2	1

Appendix L**Revised Hassles Scale**

(Adapted for older population).

HASSLES are irritants-- things that annoy or bother you; they can make you upset or angry. Some hassles occur on a fairly regular basis and others are relatively rare. Some have only a slight effect. Others have a strong effect. This questionnaire lists things that can be hassles in day-to-day life.

DIRECTION: Please think about how much of a hassle each item was for you in this past week, and indicate how much of a hassle the item was by circling the appropriate number.

0 = None or not applicable

1 = Somewhat

2 = Quite a bit

3 = A great deal

How much of a hassle was this item for you today?

01. Your child/ren	0	1	2	3
02. Your parents or parents-in-law	0	1	2	3
03. Other relative(s)	0	1	2	3
04. Your spouse	0	1	2	3
05. Time spent with the family	0	1	2	3
06. Health or well-being of a family member	0	1	2	3
7. Sex	0	1	2	3
08. Intimacy	0	1	2	3
09. Family-related obligations	0	1	2	3
10. Your friend(s)	0	1	2	3
11. Enough money for necessities (eg., food, clothing, housing, health care,taxes,insurance)	0	1	2	3
12. Enough money for emergencies	0	1	2	3
13. Enough money for extras (e.g. entertainment, recreation, vacations)	0	1	2	3
14. Financial care for someone who doesn't live with you)	0	1	2	3
15. Investments	0	1	2	3
16. Your smoking	0	1	2	3
17. Your drinking	0	1	2	3
18. Mood-altering drugs	0	1	2	3
19. Your physical appearance	0	1	2	3
20. Exercise(s)	0	1	2	3
21. Your medical care	0	1	2	3
22. Your health	0	1	2	3
23. Your physical abilities	0	1	2	3
24. The weather	0	1	2	3
25. News events	0	1	2	3
26. Your environment (e.g. quality of air, noise level, greenery)	0	1	2	3

27. Political or social issues	0	1	2	3
28. Your neighbourhood (e.g. neighbours, setting)	0	1	2	3
29. Conserving (gas, electricity, water, gasoline, etc.)	0	1	2	3
30. Pets	0	1	2	3
31. Cooking	0	1	2	3
32. Housework	0	1	2	3
33. Home repairs	0	1	2	3
34. Yardwork	0	1	2	3
35. Car maintenance	0	1	2	3
36. Taking care of paperwork (e.g. paying bills, filling out forms)	0	1	2	3
37. Home entertainment (e.g. TV, music, reading)	0	1	2	3
38. Amount of free time	0	1	2	3
39. Recreation and entertainment outside the home (movies, sports, eating out, walking)	0	1	2	3
40. Eating (at home)	0	1	2	3
41. Church or community organizations	0	1	2	3
42. Legal matters	0	1	2	3
43. Being organized	0	1	2	3
44. Social commitment(s)	0	1	2	3

Appendix M

COPE.

We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to deal with stress. We would like for you to recall and think about the most stressful event or hassle you have experienced in the past three months. This event can be related to the hassles we just discussed, or it can be something completely different. Describe the event in your own words.

Was the situation one you could change, or was it one you had to accept? _____

Would you classify this event as:

1. A **challenge** (an opportunity which you had the potential to master?)
2. A **threat** (a potential future danger or harm, or a worry about how things would turn out?)
3. A source of **loss** or **harm** (a loss or hurt that has already occurred?)

Now think about the situation you have just described, and how you reacted to it, then indicate the extent to which you did whatever each following statement says.

1. I **didn't** do this **at all**
2. I did this **a little bit**
3. I did this **a medium amount**
4. I did this **a lot**

- | | | | | |
|--|---|---|---|---|
| 1. I tried to grow as a person as a result of the experience. | 1 | 2 | 3 | 4 |
| 2. I turned to work or other substitute activities to take my mind off things. | 1 | 2 | 3 | 4 |
| 3. I got upset and let my emotions out. | 1 | 2 | 3 | 4 |
| 4. I tried to get advice from someone about what to do. | 1 | 2 | 3 | 4 |
| 5. I concentrated my efforts on doing something about it. | 1 | 2 | 3 | 4 |
| 6. I said to myself "this isn't real." | 1 | 2 | 3 | 4 |
| 7. I put my trust in God. | 1 | 2 | 3 | 4 |
| 8. I laughed about the situation. | 1 | 2 | 3 | 4 |
| 9. I admitted to myself that I couldn't deal with it, and quit trying. | 1 | 2 | 3 | 4 |
| 10. I restrained myself from doing anything too quickly. | 1 | 2 | 3 | 4 |
| 11. I discussed my feelings with someone. | 1 | 2 | 3 | 4 |
| 12. I used alcohol or drugs to make myself feel better. | 1 | 2 | 3 | 4 |
| 13. I got used to the idea that it happened. | 1 | 2 | 3 | 4 |
| 14. I talked to someone to find out more about the situation. | 1 | 2 | 3 | 4 |
| 15. I kept myself from getting distracted by other thoughts or activities. | 1 | 2 | 3 | 4 |
| 16. I daydreamed about things other than this. | 1 | 2 | 3 | 4 |
| 17. I got upset and was really aware of it. | 1 | 2 | 3 | 4 |
| 18. I sought God's help. | 1 | 2 | 3 | 4 |

- | | | | | |
|---|---|---|---|---|
| 19. I made a plan of action. | 1 | 2 | 3 | 4 |
| 20. I made jokes about it. | 1 | 2 | 3 | 4 |
| 21. I accepted that this had happened and that
it couldn't be changed. | 1 | 2 | 3 | 4 |
| 22. I held off doing anything about it until
the situation permitted. | 1 | 2 | 3 | 4 |
| 23. I tried to get emotional support from
friends or relatives. | 1 | 2 | 3 | 4 |
| 24. I just gave up trying to reach my goal. | 1 | 2 | 3 | 4 |
| 25. I took additional action to try to get
rid of the problem. | 1 | 2 | 3 | 4 |
| 26. I tried to lose myself for a while by
drinking alcohol or taking drugs. | 1 | 2 | 3 | 4 |
| 27. I refused to believe that it had happened. | 1 | 2 | 3 | 4 |
| 28. I let my feelings out. | 1 | 2 | 3 | 4 |
| 29. I tried to see it in a different light,
to make it seem more positive. | 1 | 2 | 3 | 4 |
| 30. I talked to someone who could do something
concrete about the problem. | 1 | 2 | 3 | 4 |
| 31. I slept more than usual. | 1 | 2 | 3 | 4 |
| 32. I tried to come up with a strategy about
what to do. | 1 | 2 | 3 | 4 |
| 33. I focussed on dealing with this problem, and
if necessary let other things slide a little. | 1 | 2 | 3 | 4 |
| 34. I got sympathy and understanding from someone. | 1 | 2 | 3 | 4 |
| 35. I drank alcohol or took drugs, in order to
think about it less. | 1 | 2 | 3 | 4 |
| 36. I kidded around about it. | 1 | 2 | 3 | 4 |
| 37. I gave up the attempt to get what I wanted. | 1 | 2 | 3 | 4 |
| 38. I looked for something good in what was
happening. | 1 | 2 | 3 | 4 |
| 39. I thought about how I might best handle the
problem. | 1 | 2 | 3 | 4 |
| 40. I pretended that it hadn't happened. | 1 | 2 | 3 | 4 |
| 41. I made sure not to make matters worse | 1 | 2 | 3 | 4 |

- by acting too soon.
42. I tried hard to prevent other things from interfering with my efforts at dealing with this. 1 2 3 4
43. I went to movies or watched TV, to think about it less. 1 2 3 4
44. I accepted the reality of the fact that it had happened. 1 2 3 4
45. I asked people who had had similar experiences what they did. 1 2 3 4
46. I felt a lot of emotional distress and I found myself expressing those feelings a lot. 1 2 3 4
47. I took direct action to get around the problem. 1 2 3 4
48. I tried to find comfort in my religion. 1 2 3 4
49. I forced myself to wait for the right time to do something. 1 2 3 4
50. I made fun of the situation. 1 2 3 4
51. I reduced the amount of effort I was putting into solving the problem. 1 2 3 4
52. I talked to someone about how I felt. 1 2 3 4
53. I used alcohol or drugs to help me get through it. 1 2 3 4
54. I learned to live with it. 1 2 3 4
55. I put aside other activities in order to concentrate on this. 1 2 3 4
56. I thought about what steps to take. 1 2 3 4
57. I acted as though it hadn't even happened. 1 2 3 4
58. I did what had to be done, one step at a time. 1 2 3 4
59. I learned something from the experience. 1 2 3 4
60. I prayed more than usual. 1 2 3 4

Appendix N**LOT.**

This questionnaire consists of 12 statements. Indicate the extent to which you agree with each statement, by placing a check mark at the appropriate place. There are no "right" or "wrong" answers. Please be as honest and accurate as you can and try not to let your answers to one question influence your answers to other questions.

Answer "SD" if the statement is definitely false or if you **strongly disagree** with it.

Answer "D" if the statement is rather false or if you **disagree** with it.

Answer "N" if the statement is almost as true as it is false, or if you cannot decide, or are **neutral** with regards to this question.

Answer "A" if the statement is rather true or if you **agree** with it.

Answer "SA" if the statement is definitely true or if you **strongly agree** with it.

- | | |
|--|--------------------|
| 1. In uncertain times, I usually expect the best. | SD D N A SA |
| 2. It's easy for me to relax. | SD D N A SA |
| 3. If something can go wrong for me, it will | DS D N A SA |
| 4. I always look on the bright side of things. | SD D N A SA |
| 5. I am always optimistic about the future. | SD D N A SA |
| 6. I enjoy my friends a lot. | SD D N A SA |
| 7. It's important for me to keep busy. | SD D N A SA |
| 8. I hardly ever expect things to go my way. | SD D N A SA |
| 9. Things never work out the way I want them to. | SD D N A SA |
| 10. I don't get upset too easily. | SD D N A SA |
| 11. I'm a believer in the idea that "every | SD D N A SA |
| cloud has a silver lining". | SD D N A SA |
| 12. I rarely count on good things happening to me. | SD D N A SA |

Appendix 0

Optimism/Pessimism Scale.

Instructions: The 56 statements printed below represent individual differences in viewpoint. Using the scale shown below, please respond with your own point of view to all the statements. Do not spend a lot of time thinking about each one; just indicate your first impression. Remember, respond to these statements according to how you feel about them right now.

1. Strongly Agree
2. Agree
3. Disagree
4. Strongly Disagree

- | | | | | |
|---|---|---|---|---|
| 1. I like people I get to know. | 1 | 2 | 3 | 4 |
| 2. It is best not to set your hopes too high since you will probably be disappointed. | 1 | 2 | 3 | 4 |
| 3. There is so much to be done and so little time to do it in. | 1 | 2 | 3 | 4 |
| 4. I have a tendency to make mountains out of molehills. | 1 | 2 | 3 | 4 |
| 5. Rarely do I expect good things to happen. | 1 | 2 | 3 | 4 |
| 6. Everything changes so quickly these days that I often have trouble deciding which are the right rules to follow. | 1 | 2 | 3 | 4 |
| 7. All in all the world is a good place. | 1 | 2 | 3 | 4 |
| 8. When it comes to my future plans and ambitions in life, I expect more to go wrong than right. | 1 | 2 | 3 | 4 |
| 9. My hardest battles are with myself. | 1 | 2 | 3 | 4 |
| 10. I believe there is not much hope for the human race. | 1 | 2 | 3 | 4 |
| 11. It does not take me long to shake off a bad mood. | 1 | 2 | 3 | 4 |

- | | | | | |
|---|---|---|---|---|
| 12. If you hope and wish for something long and hard enough, you will eventually get it. | 1 | 2 | 3 | 4 |
| 13. People get ahead by using "pull" and not because of what they know. | 1 | 2 | 3 | 4 |
| 14. Even when things in my life are going okay, I expect them to get worse soon. | 1 | 2 | 3 | 4 |
| 15. With enough faith, you can do almost anything. | 1 | 2 | 3 | 4 |
| 16. I enjoy myself most when I am alone, away from other people. | 1 | 2 | 3 | 4 |
| 17. When I undertake something new, I expect to succeed. | 1 | 2 | 3 | 4 |
| 18. Honesty is the best policy in all cases. | 1 | 2 | 3 | 4 |
| 19. I generally look at the brighter side of life. | 1 | 2 | 3 | 4 |
| 20. If I make a decision on my own, I can pretty much count on the fact that it will turn out to be a poor one. | 1 | 2 | 3 | 4 |
| 21. I generally make light of my problems. | 1 | 2 | 3 | 4 |
| 22. It is always a good thing to be frank. | 1 | 2 | 3 | 4 |
| 23. Where there's a will, there's a way. | 1 | 2 | 3 | 4 |
| 24. I have a tendency to blow up problems so they seem worse than they really are. | 1 | 2 | 3 | 4 |
| 25. All in all, it is better to be humble and honest than important and dishonest. | 1 | 2 | 3 | 4 |
| 26. As time goes on, things will most likely get worse. | 1 | 2 | 3 | 4 |
| 27. It is the slow, steady worker who usually accomplishes the most in the end. | 1 | 2 | 3 | 4 |
| 28. When I go to a party I expect to have fun. | 1 | 2 | 3 | 4 |
| 29. Times are getting better. | 1 | 2 | 3 | 4 |
| 30. Everyone should have an equal chance and an equal say. | 1 | 2 | 3 | 4 |
| 31. Better to expect defeat: then it doesn't hit so hard when it comes. | 1 | 2 | 3 | 4 |
| 32. It is wise to flatter important people. | 1 | 2 | 3 | 4 |
| 33. I expect to achieve most of the things I want | | | | |

- | | | | | |
|---|---|---|---|---|
| in life. | 1 | 2 | 3 | 4 |
| 34. It seems the cards of life are stacked against me. | 1 | 2 | 3 | 4 |
| 35. What is lacking in the world today is the old kind of friendship that lasted for a lifetime. | 1 | 2 | 3 | 4 |
| 36. When the weatherman predicts 50% chance of rain, you might just as well count on seeing rain. | 1 | 2 | 3 | 4 |
| 37. Before an interview, I am usually confident that things will go well. | 1 | 2 | 3 | 4 |
| 38. Sometimes I feel down, but I bounce right back again. | 1 | 2 | 3 | 4 |
| 39. The future seems too uncertain for people to make serious plans. | 1 | 2 | 3 | 4 |
| 40. When I have undertaken a task, I find it difficult to set it aside even for a short time. | 1 | 2 | 3 | 4 |
| 41. Tenderness is more important than love. | 1 | 2 | 3 | 4 |
| 42. When gambling, I expect to lose. | 1 | 2 | 3 | 4 |
| 43. Anybody who is willing to work hard has a good chance for success. | 1 | 2 | 3 | 4 |
| 44. The future looks very dismal. | 1 | 2 | 3 | 4 |
| 45. If I had to choose between happiness and greatness, I'd choose greatness. | 1 | 2 | 3 | 4 |
| 46. Minor setbacks are something I usually ignore. | 1 | 2 | 3 | 4 |
| 47. In general, things turn out all right in the end. | 1 | 2 | 3 | 4 |
| 48. It is better to be a dead hero than a live coward. | 1 | 2 | 3 | 4 |
| 49. Give me 50/50 odds and I will choose the wrong answer every time. | 1 | 2 | 3 | 4 |
| 50. It is hard to get ahead without cutting corners here and there. | 1 | 2 | 3 | 4 |
| 51. If I were in competition and contestants were narrowed down to myself and one other person, I would expect to be runner up. | 1 | 2 | 3 | 4 |
| 52. April showers bring May flowers. | 1 | 2 | 3 | 4 |

- | | | | | |
|--|---|---|---|---|
| 53. I can be comfortable with nearly all kinds | 1 | 2 | 3 | 4 |
| of people. | 1 | 2 | 3 | 4 |
| 54. The worst defeats come after the best victories. | 1 | 2 | 3 | 4 |
| 55. In the history of the human race there have | | | | |
| probably been just a handful of really great | | | | |
| thinkers. | 1 | 2 | 3 | 4 |
| 56. Every cloud has a silver lining. | 1 | 2 | 3 | 4 |

Appendix P**NEUROTICISM SCALE OF NEO-PI.**

This questionnaire consists of 48 statements. Indicate the extent to which you agree with each statement, by placing a check mark at the appropriate place. There are no "right" or "wrong" answers. Please be as honest and accurate as you can and try not to let your answers to one question influence your answers to other questions.

Answer "SD" if the statement is definitely false or if you **strongly disagree** with it.

Answer "D" if the statement is rather false or if you **disagree** with it.

Answer "N" if the statement is almost as true as it is false, or if you cannot decide, or are **neutral** with regards to this question.

Answer "A" if the statement is rather true or if you **agree** with it.

Answer "SA" if the statement is definitely true or if you **strongly agree** with it.

- | | |
|--|--------------------|
| 1. I often feel tense and jittery. | SD D N A SA |
| 2. I'm an even-tempered person. | SD D N A SA |
| 3. Sometimes I feel completely worthless. | SD D N A SA |
| 4. I rarely feel fearful or anxious. | SD D N A SA |
| 5. I often get angry at the way people treat me. | SD D N A SA |
| 6. I have sometimes experienced a deep sense of guilt or sinfulness. | SD D N A SA |
| 7. I am easily frightened. | SD D N A SA |
| 8. I am not considered a touchy or temperamental person. | SD D N A SA |
| 9. I tend to blame myself when anything goes wrong. | SD D N A SA |
| 10. I am not a worrier. | SD D N A SA |

- | | |
|--|--------------------|
| 11. I am known as hot-blooded and quick-tempered. | SD D N A SA |
| 12. I have a low opinion of myself. | SD D N A SA |
| 13. I often worry about things that might go wrong. | SD D N A SA |
| 14. It takes a lot to get me mad. | SD D N A SA |
| 15. Sometimes things look pretty bleak
and hopeless to me. | SD D N A SA |
| 16. Frightening thoughts sometimes come
into my head. | SD D N A SA |
| 17. I often get disgusted with people I have
to deal with. | SD D N A SA |
| 18. I rarely feel lonely or blue. | SD D N A SA |
| 19. I'm seldom apprehensive about the future. | SD D N A SA |
| 20. People I work or associate with find me
easy to get along with. | SD D N A SA |
| 21. Too often, when things go wrong,
I get discouraged and feel like giving up. | SD D N A SA |
| 22. I have fewer fears than most people. | SD D N A SA |
| 23. There are some people I really hate. | SD D N A SA |
| 24. I am seldom sad or depressed. | SD D N A SA |
| 25. I seldom feel self-conscious when I'm
with people. | SD D N A SA |
| 26. I have trouble resisting my cravings. | SD D N A SA |
| 27. I feel I am capable of coping with most
of my problems. | SD D N A SA |
| 28. In dealing with other people, I always dread
making a social blunder. | SD D N A SA |
| 29. I rarely over-indulge in anything. | SD D N A SA |
| 30. I often feel helpless and want someone else
to solve my problems. | SD D N A SA |
| 31. It doesn't embarrass me too much if people
ridicule and tease me. | SD D N A SA |
| 32. When I am having my favorite foods, I tend
to eat too much. | SD D N A SA |
| 33. I keep a cool head in emergencies. | SD D N A SA |
| 34. At times I have been so ashamed I just | |

- wanted to hide. SD D N A SA
35. I have little difficulty resisting temptation. SD D N A SA
36. When I'm under a great deal of stress, sometimes
I feel like I'm going to pieces. SD D N A SA
37. I often feel inferior to others. **SD D N A SA**
38. I sometimes eat myself sick. SD D N A SA
39. I can handle myself pretty well in a crisis. SD D N A SA
40. I feel comfortable in the presence of my boss or
other authorities. SD D N A SA
41. I am always able to keep my feelings under
control. SD D N A SA
42. It's often hard for me to make up my mind. SD D N A SA
43. If I have said or done the wrong thing to
someone, I can hardly bear to face them again. SD D N A SA
44. Sometimes I do things on impulse that I regret. SD D N A SA
45. When everything seems to be going wrong, I can
still make good decisions. SD D N A SA
46. When people I know do foolish things, I get
embarrassed for them. SD D N A SA
47. I seldom give in to my impulses. SD D N A SA
48. I'm pretty stable emotionally. SD D N A SA

Appendix Q

**Health Perceptions Questionnaire:
Current Health Perceptions.**

Please read each of the following statements, and then circle one of the numbers on each line to indicate whether the statement is true or false for you.

There are no right or wrong answers.

If a statement is **definitely true** for you, circle 5.

If it is **mostly true** for you, circle 4.

If you **don't know** whether it is true or false, circle 3.

If it is **mostly false** for you, circle 2.

If it is **definitely false** for you, circle 1.

Some of the statements may look or seem like others, but each statement is different, and should be rated by itself.

- | | | | | | |
|---|---|---|---|---|---|
| A. According to the doctors I've seen, my health is now excellent | 5 | 4 | 3 | 2 | 1 |
| B. I feel better now than I ever have before | 5 | 4 | 3 | 2 | 1 |
| C. I am somewhat ill | 5 | 4 | 3 | 2 | 1 |
| D. I'm not as healthy now as I used to be | 5 | 4 | 3 | 2 | 1 |
| E. I'm as healthy as anybody I know | 5 | 4 | 3 | 2 | 1 |
| F. My health is excellent | 5 | 4 | 3 | 2 | 1 |
| G. I have been feeling bad lately | 5 | 4 | 3 | 2 | 1 |
| H. Doctors say that I am now in poor health | 5 | 4 | 3 | 2 | 1 |
| I. I feel about as good now as I ever have | 5 | 4 | 3 | 2 | 1 |

Appendix R**Brief Symptom Inventory.**

INSTRUCTIONS. Below is a list of problems and complaints that people sometimes have. Please read each one carefully. After you have done so, please fill in one of the numbered circles to the right that best describes HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST WEEK INCLUDING TODAY. Mark only one numbered circle for each problem and do not skip any items. If you change your mind, erase your first mark carefully.

NOT AT ALL : 0
 A LITTLE BIT : 1
 MODERATELY : 2
 QUITE A BIT : 3
 EXTREMELY : 4

HOW MUCH WERE YOU DISTRESSED BY:

- | | |
|--|-----------|
| 1. Nervousness or shakiness inside | 0 1 2 3 4 |
| 2. Faintness or dizziness | 0 1 2 3 4 |
| 3. The idea that someone else can control your thoughts | 0 1 2 3 4 |
| 4. Feeling others are to blame for most of your troubles | 0 1 2 3 4 |
| 5. Trouble remembering things | 0 1 2 3 4 |
| 6. Feeling easily annoyed or irritated | 0 1 2 3 4 |
| 7. Pains in heart or chest | 0 1 2 3 4 |

- | | |
|---|-----------|
| 8. Feeling afraid in open spaces | 0 1 2 3 4 |
| 9. Thoughts of ending your life | 0 1 2 3 4 |
| 10. Feeling that most people cannot be trusted | 0 1 2 3 4 |
| 11. Poor appetite | 0 1 2 3 4 |
| 12. Suddenly scared for no reason | 0 1 2 3 4 |
| 13. Temper outbursts that you could not control | 0 1 2 3 4 |
| 14. Feeling lonely even when you are with people | 0 1 2 3 4 |
| 15. Feeling blocked in getting things done | 0 1 2 3 4 |
| 16. Feeling lonely | 0 1 2 3 4 |
| 17. Feeling blue | 0 1 2 3 4 |
| 18. Feeling no interest in things | 0 1 2 3 4 |
| 19. Feeling fearful | 0 1 2 3 4 |
| 20. Your feelings being easily hurt | 0 1 2 3 4 |
| 21. Feeling that people are unfriendly or dislike you | 0 1 2 3 4 |
| 22. Feeling inferior to others | 0 1 2 3 4 |
| 23. Nausea or upset stomach | 0 1 2 3 4 |
| 24. Feeling that you are watched or talked about by
others | 0 1 2 3 4 |
| 25. Trouble falling asleep | 0 1 2 3 4 |
| 26. Having to check and double check what you do | 0 1 2 3 4 |
| 27. Difficulty making decisions | 0 1 2 3 4 |
| 28. Feeling afraid to travel on buses, subways or
trains | 0 1 2 3 4 |
| 29. Trouble getting your breath | 0 1 2 3 4 |
| 30. Hot or cold spells | 0 1 2 3 4 |
| 31. Having to avoid certain things, places, | 0 1 2 3 4 |

- or activities because they frighten you
- | | | | | | |
|---|---|---|---|---|---|
| 32. Your mind going blank | 0 | 1 | 2 | 3 | 4 |
| 33. Numbness or tingling in part of your body | 0 | 1 | 2 | 3 | 4 |
| 34. The idea that you should be punished for your sins | 0 | 1 | 2 | 3 | 4 |
| 35. Feeling hopeless about the future | 0 | 1 | 2 | 3 | 4 |
| 36. Trouble concentrating | 0 | 1 | 2 | 3 | 4 |
| 37. Feeling weak in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 38. Feeling tense or keyed up | 0 | 1 | 2 | 3 | 4 |
| 39. Thoughts of death or dying | 0 | 1 | 2 | 3 | 4 |
| 40. Having urges to beat, injure, or harm somebody | 0 | 1 | 2 | 3 | 4 |
| 41. Having urges to break or smash things | 0 | 1 | 2 | 3 | 4 |
| 42. Feeling very self-conscious with others | 0 | 1 | 2 | 3 | 4 |
| 43. Feeling uneasy in crowds | 0 | 1 | 2 | 3 | 4 |
| 44. Never feeling close to another person | 0 | 1 | 2 | 3 | 4 |
| 45. Spells of terror or panic | 0 | 1 | 2 | 3 | 4 |
| 46. Getting into frequent arguments | 0 | 1 | 2 | 3 | 4 |
| 47. Feeling nervous when you are left alone | 0 | 1 | 2 | 3 | 4 |
| 48. Others not giving you proper credit for
your achievements | 0 | 1 | 2 | 3 | 4 |
| 49. Feeling so restless you couldn't sit still | 0 | 1 | 2 | 3 | 4 |
| 50. Feelings of worthlessness | 0 | 1 | 2 | 3 | 4 |
| 51. Feeling that people will take advantage
of you if you let them | 0 | 1 | 2 | 3 | 4 |
| 52. Feelings of guilt | 0 | 1 | 2 | 3 | 4 |
| 53. The idea that something is wrong with
your mind | 0 | 1 | 2 | 3 | 4 |

Appendix S**Life Satisfaction Scale.**

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement by placing the appropriate number to the right of the item. Please be open and honest in your responding.

1. Strongly Disagree
2. Disagree
3. Slightly Disagree
4. Neither Agree nor Disagree
5. Slightly Agree
6. agree
7. Strongly Agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.