Leisure and Stress-Coping: Reconceptualizations and Analyses

by

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ABSTRACT

The present research examined different ways and numerous processes by which leisure helps people cope with stress to maintain or enhance their health/wellbeing from a longitudinal perspective. In particular, the research focused on (1) the reconceptualization and examination of leisure stress-coping dimensions, (2) the development and test of various models of leisure and health, (3) the analyses of the effects of gender on the relationships between stress, leisure, and health, and (4) the examination of stress-coping processes within individuals across various circumstances over time from the disaggregated perspective. Two preliminary studies were conducted to construct the Leisure Stress-Coping Scales, examine the scales' reliability and validity, and develop and refine a repeated stress-coping assessment design for the main study. The objective of the main study was to examine the effects of leisure and general stress-coping strategies on how people manage major life events and weekly hassles. First, participants responded to a set of dispositional measures and health and wellbeing measures. Secondly, they recalled the most stressful major life event that they had experienced in the past year, and described how they coped with the event. Thirdly, the participants monitored the most stressful event that they had experienced during the preceding weeks, and described how they coped with each event. Weekday events were recorded on Thursdays, and weekend events on Sundays. After the completion of the two-week session, the participants responded to the set of health and well-being measures. The comparisons of different measurement models supported the idea of *hierarchical dimensions* of leisure-stress coping in which the various sub-dimensions of leisure coping *beliefs* and *strategies* are identified at three levels of specificity. Only limited evidence for the *buffer hypothesis* was found. Leisure empowerment, friendship, and palliative coping acted as a buffer against the negative impact of weekly stress to maintain mental or physical health. Furthermore, this research identified a number of processes by which leisure influences the relationship between stress and health/wellbeing. Leisure empowerment and friendship directly contributed to the reduction of mental illness and the enhancement of psychological wellbeing. Also, leisure friendship indirectly reduced mental illness and promoted psychological wellbeing through its suppression effects on weekly stress. The three types of leisure coping strategies (i.e., leisure companionship, palliative coping, and mood enhancement) had different mediating effects on the stress-health/wellbeing relationship according to the types of stressful events experienced (e.g., academic stress and interpersonal stress). Other mediators of the stress-health/wellbeing relationship included event appraisal, coping effectiveness, and emotions. The analyses of gender differences suggested that both biological sex and gender role orientation played a role in affecting the stress-health relationship. Overall, the amount of variance explained appeared to be greater for the effects of gender role orientation than for the effects of biological sex. Interestingly, *gender identity reversal* (the demonstration of masculinity by women and femininity by men) was associated with better coping outcomes and health/wellbeing. The research also provided evidence that a match between the demands of stressors and coping functions led to positive coping outcomes and health/wellbeing (i.e., the idea of optimal matching). Finally, the within-individual analyses suggested that the effectiveness of the specific types of coping strategies and these consequences for coping outcomes and emotions varied according to the different types of stressful events or different appraisals of these events. Of the various models of leisure and health/wellbeing tested, stronger evidence was found for the alternative models (i.e., the direct and indirect effect models, the process or mediating models, and the optimal matching models) than for the buffer models. There appeared to be some consistent findings across the different analytic approaches taken in this research: (1) the ways in which leisure helps people cope with stress are multifaceted; (2) the processes by which leisure influences the stress-health/wellbeing relationship are complex; (3) the stress-health/wellbeing relationship differs according to the types of stressful events, appraisal of the events, and the types of health/wellbeing measures; and (4) both individual characteristics and social factors influence the stress-health/wellbeing relationship. Despite these consistent findings across the various approaches, each provided unique insights into leisure stress-coping as well. The theoretical and practical implications of this research are discussed.

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Introduction

We are bombarded by stressful events in every aspect of our lives. Although stressful life events may provide positive consequences, people continue to struggle with managing daily hassles, chronic life problems, life transitions, and life crises which can be sources of stress (e.g., Avison & Gotlib, 1994; Goldberger & Breznitz, 1993). It is estimated that sixty percent of visits to doctors are triggered by stress-related symptoms (Sachs, 1991). In the Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised, there is a distinct diagnostic category of stress-related disorders, that specifies that stress exacerbates or initiates the onset of certain illnesses which include, but are not limited to, "tension headache, migraine headache, neurodermatitis, rheumatoid arthritis, asthma, regional enteritis, and ulcerative colitis" (Brantley & Jones, 1993, p. 17). Even for patients with organic medical disorders, functional health status is strongly affected by psychosocial distress (Sobel, 1995). Sachs (1991, p. 62) stated that "stress is now known to be a major contributor, either directly or indirectly, to coronary heart disease, cancer, lung illness, and accidental injuries and suicide — five of the leading causes of death in the United States."

The important role of psychosocial factors in influencing illness, longevity, and health has been demonstrated widely. For example, in an archival prospective cohort study, Friedman, Tucker, Schwartz, Tomlinson-Keasey, Martin, Wingard, and Criqui (1995) examined longevity and the causes of death in Terman's (Terman & Oden, 1947) sample of gifted children; about half of the sample is now dead. Using survival analyses, they found that premature mortality is predicted by a function of psychosocial factors such as childhood personality, adult life adjustment, and health-related behaviors. Taylor (1990) pointed out that researchers in behavioral medicine and health psychology have increasingly realized that biological, psychological, and social factors play important roles in every aspect of people's health. Also, the importance of quality of life studies in behavioral medicine and health care systems has grown (Dimsdale & Baum, 1995; Walker & Rosser, 1988). Apparently, people's lifestyles, including their leisure styles, seem to influence their health status, quality of life, and well-being (Ewart, 1991; Iso-Ahola, 1994; Sobel, 1995).

It is commonly acknowledged that it is not just stress per se, but also how individuals cope with stressors or challenges, that influences physical and psychological health (Zeidner & Endler, 1996). Coping is a central concept for theory and research on adaptation, health, and well-being (Lazarus, 1993). How people cope with these stressful events seems to determine how people survive in their lives.

This survival value of coping resources and strategies is not only biologically programmed in individuals, but also developed by their early socialization experiences, major life transitions, personality dispositions, social and cultural contexts, and life events experienced by the individuals (e.g., Friedman et al., 1995; Moos & Schaefer, 1993).

Among various types of coping resources and strategies, leisure researchers have proposed that leisure can be an important means of helping people cope with stress and maintain or improve their health. Recently, both theoretical developments and empirical examination have lent support to this view (e.g., Caltabiano, 1994, 1995; Coleman, 1993; Coleman & Iso-Ahola, 1993; Driver, Tinsley, & Manfredo, 1991; Iso-Ahola, 1997; Iso-Ahola & Park, 1996; Hull & Michael, 1995). Leisure research on stress, coping, and health is one of the most relevant topics in the leisure studies field because: (1) the maintenance and improvement of health is essential for individuals to survive, function well, and maximize the quality of their lives; (2) stress-coping is an inevitable issue that people must deal with to maintain their health; (3) leisure has the potential to play an important role in helping people cope with stress and enhance their health and well-being; (4) the understanding of how leisure assists people in coping with stress has both theoretical significance (e.g., the understanding of leisure behavior and experience) and practical significance (e.g., the improvement of leisure service delivery systems); and (5) the provision of reliable and valid evidence to justify that leisure participation, in fact, promotes people's health and well-being is important to convince policy makers and public constituencies that leisure practitioners play an important role in society to help people improve the quality of their lives.

Some empirical studies of the relationships between leisure, stress, and health have found buffering or moderating effects of self-chosen pleasurable activities (Reich & Zautra, 1981), satisfying leisure activities and exercise (Wheeler & Frank, 1988), solace seeking (i.e., engaging in enjoyable activities or spending time with others; Rohde, Lewinsohn, Tilson, & Seeley, 1990), physical fitness (Brown, 1991), perceived leisure freedom disposition (Coleman, 1993), and leisure companionship and friendship (Iso-Ahola & Park, 1996). Similarly, several researchers have found that discretionary activities or contacts are more important buffers against stress than less discretionary activities or contacts (Bolger & Eckenrode, 1991; Moen, Dempster-McClain, & Williams, 1989; Rook, 1987). The stress-reducing capacity of various types of leisure participation (Caltabiano, 1994, 1995), recreation experience (Driver et al., 1991), and nature-based recreation (Hull & Michael, 1995) has been examined as well. The potential of leisure as a means of coping with stress has been increasingly recognized not only by leisure researchers (see Coleman & Iso-Ahola, 1993; Mannell & Kleiber, 1997), but also by non-leisure researchers (e.g., Rook, 1987, 1990).

Research on Leisure, Stress-Coping, and Health

Various perspectives have been adopted in research on leisure and health. For example, the direct effect hypothesis assumes that leisure can enhance people's health regardless of stress levels, such as the direct effect of perceived freedom and intrinsic motivation on leisure (e.g., Neulinger, 1982; Weissinger & Iso-Ahola, 1984). Tinsley and Tinsley (1986) discussed that satisfaction of people's psychological needs through their leisure experiences influences health and human growth. Also, leisure's role in stress reduction, mood enhancement, or escape from everyday life has been examined (e.g., Caltabiano, 1994; Driver et al., 1991; Driver & Tocher, 1975; Hull & Michael, 1995; Iso-Ahola, 1989; Ulrich, Dimberg, & Driver, 1991). Other areas of study include an examination of the effect of physically active leisure on health (e.g., Brown, 1991; Roberts, Lamb, Dench, & Brodie, 1989; Wankel & Berger, 1991) and the negative impact of leisure participation on high-risk health behaviors and health (e.g., Caldwell & Smith, 1995; Weissinger, 1995).

Among several approaches to studying leisure and health, the recent focus has been on a "buffering" role of leisure to counteract against negative effects of stress on physical and mental health. Based on social psychological research on stress-coping, Coleman and Iso-Ahola (1993) postulated that leisure-generated social support and a leisure-generated self-determination disposition buffer against stress to maintain people's health (Figure 1). In their model, social support is conceptualized as individuals' general perceptions that they are cared for by significant others and that adequate support would be available when they needed it, while a self-determination disposition refers to people's general beliefs or orientations that their actions are mainly self-determined, freely chosen, or autonomous. Their theoretical framework seems consistent with the accumulated evidence that leisure is social in nature (e.g., Crandall, 1979; Kelly, 1983; Larson, Mannell, & Zuzanek, 1986; Orthner, 1975; Rapoport & Rapoport, 1975; Samdahl & Kleiber, 1988) and that perceived freedom, a sense of control, or self-determination is an essential ingredient of leisure (e.g., Gunter, 1987; Iso-Ahola, 1979; Mannell & Kleiber, 1997; Shaw, 1985). What makes Coleman and Iso-Ahola's framework unique is that leisure-generated coping mechanisms are assumed to provide health benefits only when people encounter stressful events (Figure 2). When stress level is low, the leisure-generated coping mechanisms are assumed not to operate. Specifically, high leisure-generated social support and self-determination disposition protect against illness when stress increases, while low social support and self-determination fail to do so. More recently, Iso-Ahola (1994, 1997) has argued that an active leisure style, as opposed to a passive or sedentary leisure style, acts as a buffer against stress to maintain physical and mental health. This stress-buffer model seems also consistent with the contention that leisure can help people cope with

stressors associated with, for example, (a) work or employment (e.g., Kabanoff, 1980; Mannell & Iso-Ahola, 1985; Zuzanek & Mannell, 1983); (b) unemployment (e.g., Haworth & Ducker, 1991; Winefield, Tiggemann, Winefield, & Goldney, 1993), (c) social role (e.g., Henderson, Bialeschki, Shaw, & Freysinger, 1996), and (d) significant changes across the life span or course (e.g., Iso-Ahola, Jackson, & Dunn, 1994; Kelly, Steinkamp, & Kelly, 1986).

In empirical studies of their model, first, Coleman (1993) found that the set of leisure dispositions, particularly perceived leisure freedom disposition (i.e., "a disposition towards freedom of choice in leisure and the extent to which people tend to participate in freely chosen leisure pursuits," p. 354), buffered against stress. Contrary to the hypotheses, the buffering effect of social support was not found. The study suggested the complexity of social support mechanisms in which both benefits and costs may be involved in the relationship between leisure-generated social support and stress. The complex nature of social leisure was also suggested by Caltabiano's (1995) research. She reported that a high level of social leisure exacerbated, rather than reduced, the effects of stressors on illness symptoms. Caltabiano explained that "leisure activities themselves may involve an element of stress" (p. 45).

More recently, Iso-Ahola and Park (1996) found that leisure companionship (shared leisure activities engaged in primarily for the sake of enjoyment) buffered the effect of life stress on mental illness (depression) symptoms, whereas leisure friendship (friendly feelings gained through leisure participation) did the same for physical illness symptoms. They did not find the moderating effect of the self-determination disposition, however. The different buffering effects found in their study underscore the importance of considering the different components of social support and health measures. Iso-Ahola and Park attributed the difference in findings in the Coleman (1993) study and their study to the characteristics of their samples. They argued that Coleman's respondents were members of the general public who valued a sense of freedom in leisure, whereas Iso-Ahola and Park's participants were drawn from Taekwondo practitioners who already exercised freedom in leisure, thus search for other factors such as social factors to handle stress. However, these inconsistent findings may have also resulted because of limitations of the conventional buffer model itself — a model which has been recently criticized by social psychologists — and/or because of their conceptualization of ways in which leisure helps people cope with stress.

Statement of Problem: Beyond the Buffer Hypothesis

The stress-buffer hypothesis has been a dominant perspective in research on stress-coping and health in the fields of social psychology (e.g., Cassel, 1976; Cobb, 1976; Cohen & Wills, 1985; Kessler & McLeaod, 1985; Kobasa, 1979) and leisure studies (e.g., Caltabiano, 1994, 1995; Coleman, 1993;

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Coleman & Iso-Ahola, 1993; Iso-Ahola, 1994, 1997; Iso-Ahola & Park, 1996), and has contributed to an understanding of the conditions in which coping resources help people manage stress to maintain health. However, many social psychologists have recently criticized the conventional buffer model (e.g., Barrera, 1988; Cutrona & Russell, 1990; Hobfall & Vaux, 1993; Lin, 1986; Sarason, Pierce, & Sarason, 1990; Wheaton, 1985). Empirical evidence for the buffer model has been seen as supportive (e.g., Gottlieb, 1981; House, 1981), unsupportive (e.g., Heller & Swindle, 1983; Lin, 1986), or mixed (e.g., Cohen & Wills, 1985; Kessler & McLeod, 1985; Mitchell, Billings, & Moos, 1982; Smith et al., 1994; Vaux, 1988).

Major criticisms of the conventional buffering model include:

(1) the typical approach of dichotomizing events as stressful or non-stressful is insufficient to explain the effects of different types or demands of life events and social contexts (i.e., differences in the quality of stressors should be recognized rather than the simple dichotomy of high vs. low stress level; Cutrona & Russell, 1990; Sarason, Pierce, & Sarason, 1990);

(2) the buffer model provides only static explanation and pays little attention to the dynamic processes in which coping resources and mediating variables (e.g., appraisals of events) influence stress-health relationships (e.g., Eckenrode & Wethington, 1990; Lin, 1986);

(3) since the major dependent variable of the buffer model has been absence of illness, the buffer model only considers the effects of negative life events on pathological outcomes (i.e., illness symptoms) and ignores the effects of both positive and negative life events on human functioning and well-being; that is, health should be conceptualized as more than just the absence of illness (e.g., Antonovsky, 1987; Barrera, 1988).

(4) the buffer model's assumption that stressors and coping resources are independent contradicts reality (i.e., associations between stressors and coping resources are evident; Barrera, 1988; Thoits, 1982);

(5) buffering effects appear limited to certain types of coping resources, to only some groups of individuals, and to only some indicators of health or distress (i.e., the conventional buffer model is not generalizable; Barrera, 1988; Hobfoll & Vaux, 1993); and

(6) the buffer model's assumption that there is a linear relationship between stress-coping and health may not be appropriate (i.e., curvilinearity and ceiling or floor effects must be considered; Barrera, 1988; Veiel, 1992).

Because of these limitations, Hobfoll and Vaux (1993, p. 694) concluded that "the general buffer model may have outlived its usefulness." With respect to leisure, it seems important to develop alternative models of leisure and stress-coping. Another important research task involves the

identification of different ways in which leisure helps people cope with stress in their everyday lives, as well as the underlying mechanisms. In Coleman and Iso-Ahola's (1993) model, there are only two functions of leisure in its role as a buffer against stress: leisure provides opportunities to develop and maintain a self-determination disposition and social support systems and feelings. Although these two functions appear to be central to leisure's stress-resistant role (Coleman, 1993; Iso-Ahola & Park, 1996), it is also important to explore other ways in which leisure contributes to stress-coping. In stress-coping research, an examination of the multidimensional nature of coping resources has contributed to an understanding of different ways in which coping strategies help people manage stress across various life circumstances (e.g., Amirkhan, 1990; Carver, Scheier, & Weintraub, 1989; Endler & Parker, 1990; Folkman & Lazarus, 1988).

Social psychological stress-coping research has mostly used *between-individual* and *aggregated* analyses (see Lazarus, 1990, 1993; Mattlin, Wethington, & Kessler, 1990). In between-individual analyses, the unit of analysis is a *group* of individuals. In *within-individual* analyses, the unit of analysis is a *single* individual. For example, cross-sectional data are analyzed at between-individual level because only between-participant variance is available in this type of data. Within-participant variance is not available in the cross-sectional data since participants' responses are obtained only once. In contrast, a time-series design allows researchers to monitor each participant's responses repeatedly. Thus, within-participant variance is available to examine changes or stabilities of the responses for each individual in the time series design.

In aggregated analyses, concepts are *not* decomposed into subcomponents to examine the relationships between the concepts. Often, summative indices are created in aggregated analyses. In contrast, *disaggregated* analyses involve a decomposition of key constructs into subcomponents, and researchers examine relationships between the subcomponents, not between the constructs (e.g., Kessler & Magee, 1994). In other words, aggregated analyses are carried out at the construct level, and disaggregated analyses at the subcomponent level. The construct level represents a higher order of a hierarchical measurement model than the subcomponent level from the perspective of structural equation modeling (SEM). That is, the construct level is more general than the subcomponent level. For example, Mattlin et al. (1990) used both aggregated and disaggregated analyses to examine the relationships between stressful events, coping, and mental health. In the disaggregated analyses, they decomposed the events into several subcomponents based on either the severity of stressors or the types of stressors. In contrast, in the aggregated analyses, these decompositions were not carried out to examine the relationships between stress-coping and mental health.

Both between-individual and aggregated approaches are useful to explain general relationships across individuals. However, between-individual analyses in interpreting time-series data are unable to deal with challenges associated with repeated measures such as nonindependence of observations because between-individual analyses assume independence of observations (West & Hepworth, 1991). For instance, in time-series data, one individual may consistently report high scores of positive emotion, whereas another individual may consistently report low scores of the same measure. In such a case, within-individual analyses are required to perform proper corrections (e.g., removing between-individual variance to retain only within-individual variance by including dummy variables, one for each participant except for the last, in a regression model before entering the independent variables; the least squares with dummy-variables regression; Stone, Kennedy-Moore, & Neale, 1995). Recently, social psychologists have started to examine temporal phenomena such as daily experiences across various stressful circumstances over time from within-individual perspectives (e.g., Bolger & Schilling, 1991; Larsen & Kasimatis, 1991; Stone et al., 1995).

At the same time, aggregated analyses have the limitation of concealing the effects of different subcomponents of concepts. In order to overcome this limitation, the disaggregated perspective has been adopted in several studies (e.g., Kessler & Magee, 1994; Mattlin et al, 1990). These studies have shown that both within-individual and disaggregated perspectives seem useful to examine the effects of unique individual characteristics, contextual differences, and different components of concepts. The use of both perspectives may help increase understanding of the relationships between leisure, stress-coping, and health/well-being. For example, various types of stressful life events (e.g., interpersonal problems, role changes) may differently influence distinct components of leisure stress-coping strategies (e.g., social support, palliative coping). Disaggregated perspectives are useful to examine these types of relationships. Also, within-individual analyses are helpful for handling the challenges associated with repeated assessment designs which have a variety of methodological advantages such as increased reliability of measures, reduced recall errors, and improved causal inferences compared to cross-sectional designs (West & Hepworth, 1991).

Finally, a more inclusive approach to research on leisure and health or well-being has been advocated (e.g., Barnett, 1993; Baum & Grunberg, 1991; Gore & Colten, 1991; Thoits, 1991). Among various social and cultural variables (e.g., class, age, race) that need to be considered, the influence of gender on the relationship between leisure and health has been overlooked (Henderson, Bialeschki, Shaw, & Freysinger, 1996). Recent research on gender and stress-coping (e.g., Barnett, 1993; Baum & Grunberg, 1991; Gore & Colten, 1991; Thoits, 1991; Turner & Roszell, 1994) has suggested that it is

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important to pay attention to both social and cultural contexts (e.g., socialization processes, social roles, social support networks) and intrapersonal characteristics (e.g., gender role orientations, self-concept, self-efficacy, self-identity). These factors need to be taken into account for research on the relationships between gender, leisure, and health.

Purpose

Attempting to overcome the criticisms of the buffer model and the limitations of the aggregated and between-individual approaches to the stress-coping and health relationships, the present research incorporated several recently developed alternative approaches to stress-coping research. The research focused on (1) the reconceptualization and examination of leisure stress-coping dimensions, (2) the development and test of various models of leisure and health/well-being, (3) the examination of stress-coping processes within individuals across various circumstances over time from the disaggregated perspective, and (4) the analyses of gender's effect on stress-leisure-health/wellbeing relationships.

Reconceptualization of Leisure Stress-Coping Dimensions

The first purpose of this research was to reconceptualize the ways in which leisure helps people cope with stress (i.e., dimensions of stress-coping). As well as Coleman and Iso-Ahola's (1993) proposed dimensions (i.e., a self-determination disposition and social support), the integration of stress-coping research and leisure research seems to suggest several additional dimensions. To effectively identify and classify these dimensions of leisure stress-coping, this research proposed the idea of *hierarchical dimensions of leisure stress-coping* in which different types of leisure stress-coping are described at three levels of specificity (Figure 3).

First, at the most general level (Level 1), *leisure coping beliefs* are distinguished from *leisure coping strategies*. Leisure coping beliefs refer to people's beliefs that leisure provides stress-coping benefits. These beliefs are gradually developed and maintained through the socialization process and constitute relatively stable psychological dispositions. Leisure coping strategies, however, are actual stress-coping strategies available through involvements in leisure. In some cases, people intentionally choose their leisure involvements to cope with stress. At other times, people may find that what they do in their leisure has helped them manage stress even though they chose to participate for other reasons. Leisure coping strategies are more situation-specific than leisure coping beliefs, and are assumed to vary depending on specific life circumstances.

At the next level of the hierarchy (Level 2), dimensions of the above two concepts are specified to distinguish among various types of coping. Dimensions of leisure coping beliefs include *leisure coping dispositions* and *leisure friendships*. Leisure coping dispositions refer to people's beliefs that leisure

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develops personal dispositions to effectively cope with stress. Leisure friendships refer to people's beliefs that their friendships developed through leisure provide them with social support (Iso-Ahola & Park, 1996).

Dimensions or types of leisure coping strategies include *leisure companionship, leisure palliative coping*, and *leisure mood enhancement*. Through leisure companionship, leisure provides discretionary and enjoyable shared experiences as a form of social support (Iso-Ahola & Park, 1996). Leisure palliative coping is an escape-oriented coping strategy. Leisure keeps our minds and bodies busy. and we temporarily escape from stressful events through leisure. A temporal break through leisure, such as a coffee break or vacation, may allow us to regroup to better handle problems (Caldwell & Smith, 1995; Driver et al., 1991; Iso-Ahola & Crowley, 1991; Mannell & Kleiber, 1997; Sharp & Mannell, 1996; Weissinger, 1995). The enhancement of positive mood or the reduction of negative mood through leisure is another dimension. Hull and his associates (Hull, 1990; Hull & Michael, 1995) have suggested that certain types of leisure (e.g., nature-based recreation) may have a stress-reducing potential, as well as enhance positive mood or reduce negative mood. Links between stress-coping and mood have been demonstrated in coping research (e.g., Lazarus, 1991; Stone, Kennedy-Moore, & Neale, 1995).

Furthermore, at the most specific level (Level 3), leisure coping dispositions consist of two subdimensions: a *self-determination disposition* and *empowerment*. A self-determination disposition refers to people's beliefs that their leisure behavior is freely chosen and under their control (Coleman & Iso-Ahola, 1993). Empowerment refers to the extent to which people feel that they are entitled to leisure and that leisure provides them with the opportunity for self-expression. Empowerment provides resources not only to challenge constraints in life, but also to develop a valued sense of self (Freysinger & Flannery, 1992; Henderson & Bialeschki, 1991; Samdahl, 1988; Shaw, 1994). Some of the coping resources discussed in the stress and coping research literature seem to support the idea that empowerment-related concepts are important elements of coping styles (e.g., Antonovsky, 1990; Rosenbaum, 1990; Scheier & Carver, 1987). The distinction between the self-determination disposition and empowerment lies in the different emphasis of each concept. The self-determination disposition reflects freely chosen actions associated with a sense of control and intrinsic motivation; whereas, empowerment is derived from a sense of entitlement, self-expression, and challenge or resistance against the demands or constraints in life which help individuals foster a valued sense of self.

Also, at the same level (Level 3), leisure friendship has four sub-components (Pierce, Sarason, & Sarason, 1996; Vaux, 1992; Veiel & Baumann, 1992). These sub-components include: (a) *emotional*

support, (b) *esteem support,* (c) *tangible aid,* and (d) *informational support* which represent different functions of social support.

In summary, this conceptual model of leisure stress-coping consists of different dimensions at different hierarchical levels. Higher levels represent more general ideas, whereas lower levels represent more specific ideas. This model is hierarchical in the sense that there are a number of sub-dimensions within the leisure *beliefs* and *strategies* dimensions. Based on this conceptual model, the two measurement scales of leisure stress-coping (i.e., the Leisure Coping Belief Scale and the Leisure Coping Strategy Scale) were developed, the reliability and validity of the scales were examined, and these scales were used to analyze the relationships between leisure stress-coping and health/wellbeing.

Development and Test of Models of Leisure and Health/Well-Being

The next important question is: "How does leisure influence stress-health/wellbeing relationships?" The present research examined the potential multiple roles of leisure in these relationships, including direct effects, indirect effects, buffer effects, and mediating effects.

Direct effect model. A *direct effect model* (Figure 4) assumes that leisure coping beliefs directly promotes health/wellbeing regardless of stress levels. It was proposed that the dimensions of the leisure coping beliefs (dispositional factors) might have direct effects on health/wellbeing because these relatively stable beliefs or dispositions seem to have more enduring effects on health/wellbeing than leisure coping strategies which are more situation-specific and transient in nature.

Indirect effect model. Next, an *indirect effect model* (Figure 5) assumes that leisure coping beliefs indirectly influence health/wellbeing through their suppression effects on stress levels. That is, having strong leisure coping beliefs might help people lower stress levels and, consequently, lead to better health/wellbeing. Those individuals with strong leisure coping beliefs may perceive stressful events as challenges or opportunities for growth rather than as just problems, compared to those individuals with weak leisure coping beliefs who may perceive stressful events in a more negative way. This difference in the perception or interpretation of events may influence the stress levels experienced. Both direct and indirect effect models were tested with structural equation modeling (SEM).

Buffer model. As explained previously, a *buffer model* assumes that leisure protects people from the negative impact of stress to maintain or enhance good health/wellbeing (Coleman & Iso-Ahola, 1993). When stress levels are low, leisure coping resources have no impact on health/wellbeing. However, when stress levels are high, those individuals with strong leisure coping beliefs or who utilize leisure coping strategies may be able to maintain good health/wellbeing, compared to those individuals with weak leisure coping beliefs or who do not use leisure coping strategies. The latter individuals are

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likely to be more vulnerable to health problems under stressful conditions. A series of hierarchical regression analyses were conducted to test the buffer models, and plots of the interaction effects between stress and leisure coping assisted in interpreting whether or not various buffer models were supported.

Process or mediating model. A *process model* assumes that leisure coping strategies play a mediating role in the relationship between stress and health/wellbeing (Figure 6). According to the process model, the effect of stress on health/wellbeing is not direct, but is mediated by several cognitive and behavioral factors, including event appraisal, coping strategies, coping outcomes, and emotions. This idea is consistent with recent developments in the stress-coping literature which advocate process-oriented perspectives (e.g., Barrera, 1986; Cutrona & Russell, 1990; Folkman, 1992; Hobfoll & Vaux, 1993; Lazarus, 1993; Lin, 1986; Pearlin, 1991; Stone, Kennedy-Moore, & Neale, 1995; Thoits, 1986; Vaux, 1988; Wheaton, 1985, 1994). First, the findings by many researchers (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus, 1993; Stone et al., 1995) have supported the important role of appraisal (i.e., how people perceive and interpret stressful encounters) in mediating stress-health relationships. These researchers have demonstrated that the major factors associated with event appraisal include (a) relevance or importance of an event, (b) undesirability of an event, (c) controllability of an event, (d) self-esteem, (e) helplessness, (f) optimism or challenge, (g) self-efficacy, (h) self-identity, (i) a sense of loss or threat, (j) self-blame or blame for others, etc. These constructs were operationalized in this research.

Secondly, a number of researchers have proposed or shown that coping strategies mediate the effects of stressors on health (Barrera, 1986; Billings & Moos, 1981; Eckenrode & Wethington, 1990; Lin, 1986; Wheaton, 1994; Vaux, 1988). The experience or appraisal of stressors triggers the use of coping strategies which, consequently, are likely to have an impact on health/wellbeing. It was assumed that leisure coping *strategies*, which are process-oriented and situation-specific in nature, might mediate the effects of stressors on health/wellbeing in the process model rather than leisure coping *beliefs*, which represent more stable personality dispositions.

Both leisure-specific and general coping strategies are included in the model in order to compare the effects of the two types of coping strategies in stress-health relationships. There is likely a relationship between general and leisure-specific coping strategies. For example, those individuals who maintain high general social support are likely to also maintain high leisure-related social support. However, general and leisure specific coping strategies do not seem to be completely identical. For instance, palliative coping through leisure may have unique characteristics compared to palliative coping not directly associated with leisure. Escape is a common strategy for general and leisure-specific

palliative coping. But, escape-oriented palliative coping used in non-leisure settings (e.g., work, family) can be cognitive (e.g., not thinking about a problem), whereas escape-oriented palliative coping used in leisure settings can be behavioral (e.g., taking a vacation). Also, general and leisure-specific coping strategies may have different consequences for health/well-being (e.g., more positive effects of leisure-specific palliative coping than of general palliative coping on emotions). Thus, it is interesting to examine the extent to which general and leisure-specific coping strategies are distinct, whether a relationship exists between the two types of coping strategies, and if they have different effects on stress-coping processes. It was proposed that the leisure-specific coping strategies both influenced, and were influenced by, general coping strategies (i.e., these strategies were reciprocally related).

However, it seems unlikely that coping strategies directly influence health or well-being. It has been demonstrated that coping outcomes and emotions mediate the effects of coping strategies on health or wellbeing (e.g., Costa, Somerfield, & McCrae, 1996; Folkman et al., 1986; Lazarus, 1991; Lepore & Evans, 1996; Zautra & Wrabetz, 1991). In this research, coping outcomes represented the extent to which people felt that their coping strategies were effective, they were satisfied with coping outcomes, and their stress levels were reduced. Emotions were classified into four groups: *threat emotions* (being worried, fearful, and anxious), *harm emotions* (being angry, sad, disappointed, guilty, and disgusted), *benefit emotions* (being exhilarated, pleased, happy, and relieved), and *challenge emotions* (being confident, hopeful, and eager) because these types of emotions have been shown to uniquely influence stress-health relationships (Folkman & Lazarus, 1988; Lazarus, 1991).

Finally, health and wellbeing indicators represent physical health, mental health, and psychological well-being. Distinctions among various health and well-being measures have been discussed extensively (Lazarus, 1991; Lepore & Evans, 1996; Zeidner & Saklofske, 1996). Because of the criticism of the conventional buffer model which has heavily relied on a pathological orientation (i.e., absence of illness as a health indicator), the construct of psychological well-being, as well as illness symptom measures, were used in the present study. According to Antonovsky (1987), researchers need to focus more on explaining why and how individuals move toward the positive end of health-illness continuum. In Figures 4 to 6, physical health, mental health, and psychological well-being are combined as outcome variables simply for the purpose of illustration. In fact, these health/wellbeing variables were treated independently in the analyses.

Also, in response to the criticism of the buffer model in which events are often dichotomized simply into stressful vs. nonstressful conditions (i.e., less attention to the quality of stressors), the multidimensionality of stressors was considered when examining the process models (Lazarus, 1990;

Pearlin, 1991; Wheaton, 1994). Stressors were classified into several groups, such as academic problems, interpersonal problems, competence problems other than academic, cognitive problems, and environmental problems, according to participants' descriptions of events. The severity or seriousness of these stressful events was also taken into account.

Optimal matching model. A growing number of researchers have discussed the development of a *optimal matching model* of stress-coping (e.g., Cohen & McKay, 1984; Cutrona, 1990; Hobfoll & Vaux, 1993; Thoits, 1986; Vaux, 1988). The basic tenet of the optimal matching model is that coping strategies are effective in managing stressors only when the demands of stressors match with the specific functions of coping strategies. Cutrona and Russell's (1990) review of over 40 studies which examined the associations between the specific components of social support and different aspects of stress is particularly note-worthy. They found that about two-thirds of the studies reviewed supported the optimal matching model. For instance, for uncontrollable events, emotional support plus the support function that was matched with the specific domain (e.g., financial assistance for financial strain) predicted positive outcomes. For controllable events, on the other hand, they reported that instrumental support and esteem support were associated with positive outcomes. In the optimal matching model, a match between the demands of stressors and the functions of coping (either leisure coping or general coping) was hypothesized to result in better health or well-being.

Within Individual and Disaggregated Approaches

The development of the models of leisure and health discussed so far has simply focused on describing the general relationships between leisure and health/well-being at the between-individual level from the aggregated perspective, (although the test of the optimal matching models can be seen as a disaggregated approach). As suggested earlier, within-individual analyses from a disaggregated perspective are suitable for examining the effects of unique individual characteristics, contextual differences, and different components of concepts (e.g., Folkman et al., 1988; Mattlin et al., 1990; Stone et al., 1995).

Coping researchers (e.g., Endler, Parker, & Summerfeldt, 1993; Lazarus, 1990, 1993; Holahan, Moos, & Schaefer, 1996) generally agree that a process-oriented transactional approach is the most useful theoretical framework to achieve the above research goals. Specifically, Lazarus' (1990, 1995) *transactional, process, contextual, and meaning-centered approach* to stress-coping research was adopted. The main assumptions of his approach are: (1) Stress-coping reflects on-going transactional relationships between personal characteristics and environmental contexts. Transaction means that "person-environment relationships transcend the separate interacting variables of person and

environment, and are constantly subject to change" (Lazarus, 1995, p.5); (2) Stress-coping is not explained simply by input-output analysis, but reflects "a multivariate process involving inputs, outputs, and the mediating activities of appraisal and coping; there is constant feedback from ongoing events, based on changes in the person-environment relationship, how it is coped with and, therefore, appraised" (Lazarus, 1990, p. 4).

In order to examine changing stress-coping processes which are influenced by the transactions between persons and contexts over time, Lazarus (1990, p. 4) has argued that researchers need to (1) measure mediating variables "in each distinct context repeatedly from moment to moment or encounter to encounter," and (2) recognize the recursive nature of relationships (e.g., antecedents $\Rightarrow$ mediators $\Rightarrow$ outcomes $\Rightarrow$ antecedents ...). Repeated assessments which allow intrapersonal analyses (i.e., within-individual analyses) are required to achieve these goals. Methodologically, time-series analyses need to be used to examine temporal data obtained repeatedly from the same individuals across various circumstances (Larsen, 1987; West & Hepworth, 1991). Recently, the utility of the time-series analyses in examining daily experiences has been demonstrated in stress-coping research (e.g., Bolger & Schilling, 1991; Larsen & Kasimatis, 1991; Porter & Stone, 1996).

For example, in Stone et al.'s (1995) study, participants completed a coping questionnaire which included a daily event checklist, appraisal and mood assessment, and daily questions about physical health for several weeks. The participants responded to the daily questionnaire with respect to each day's most stressful experience. "To remove the potentially confounding effects of differential reporting levels by participants, all between-subject variance is removed from both independent and dependent variables prior to exploration of within-subject associations... In essence, this is accomplished by creating a set of dummy-coded variables, one for each participant except the last, and entering these variables into the regression before any predictors are entered" (Stone et al., 1995, p. 344). In this way, only within-participant variability is retained. Also, since it is likely that mood on one day is associated with mood on the prior day (i.e., autocorrelation), a term for removing the effects of the prior day's mood was included to predict mood on the specific day. Their within-participant analyses suggested that catharsis and social support (as coping strategies) were associated with increased negative mood, while distraction, acceptance, and relaxation were associated with increased positive mood. Their explanation of the negative effects of catharsis and social support on mood was that "coping immediately with a problem may not have instantaneous beneficial effects, but rather may increase distress before leading, perhaps, to a later resolution of the problem" (p. 348). The importance of paying attention to coping as an on-going process was demonstrated by their study.

In interpreting their findings on the differences between within-individual analyses and between-individual analyses, Bolger and Schilling (1991) argued that "the between-person results are inflated and distorted because of omitted between-person factors (such as poor living conditions) that are correlated both with individual differences in stressor exposure and with individual differences in distress" (pp. 380-381). They also suggested that "this problem is equivalent to the 'ecological fallacy' of assuming that correlations between variables defined at aggregated levels such as states or countries (e.g., between unemployment and crime rates) give us accurate estimates of correlations at the individual level... Often there is the temptation to draw conclusions about within-person relationships even when data are measured at the between-person level only" (p. 381). Their suggestions highlight the important distinction between between-person and within-person analyses. In the special edition of the Journal of Personality — Personality and daily experience: The promise and the challenge — West and Hepworth (1991) provided useful methodological guidelines for the study of temporal data such as daily experiences from the within-individual perspective.

Gender, Leisure, and Health

The effect of gender on the relationships between stress, leisure, and health/wellbeing has been overlooked. It has been shown that as well as biological and physiological differences between women and men, differences in socialization experiences, social norms or roles (e.g., gender role orientation), the types of stressors that people encounter, stress appraisals, stress responses, and coping styles influence women's and men's health (Barnett, 1993; Baum & Grunberg, 1991; Eckenrode & Gore, 1990). At the same time, the utility of process-oriented approaches to research on gender and health has been demonstrated (e.g., Eisler & Blalock, 1991; Gore & Colten, 1991; Turner & Roszell, 1994).

Of a number of factors which impact on gender-leisure-health relationships, the present research examined the extent to which, and how, biological sex and gender role orientation (i.e., individuals' feminine or masculine characteristics) influence the processes underlying stress-coping and health/wellbeing. As well as the independent effects of both factors on these processes, the research examined how biological sex and gender role orientation interact with each other to affect the leisure-health relationship. Specifically, by combining the two factors, this research classified the participants into four groups (i.e., feminine women, masculine women, feminine men, and masculine men), and examined the differences in their stress-coping processes through leisure pursuits. From the process perspective, research suggests that these four groups may differ in their event appraisals, use of coping strategies, coping effectiveness, emotion response to stress, and health/wellbeing. The differences in these process factors seem to help explain the nature of gender-leisure-health relationships. Researchers such

as Barnett (1993), Baum and Grunberg (1991), and Hirschman (1984) have shown the usefulness of examining the interaction effects of biological sex and gender role orientation for understanding the influence of gender.

<u>Research Questions</u>

In an attempt to contribute to a better understanding of the different ways in which leisure helps people cope with stress in their lives, this research addressed the following research questions:

(1) Is the reconceptualization of the leisure stress-coping dimensions proposed in this research (i.e.. the hierarchical dimensions of leisure stress-coping) supported?

(2) Which models of leisure and health are most effective in explaining the relationship between leisure stress-coping and health/wellbeing (direct effect, indirect effect, buffer. process. or optimal matching models)? More generally, how does leisure influence the stress-health relationship?

(3) How is leisure stress-coping related to general stress-coping and health/wellbeing?

(4) How do repeated assessment analyses from the within-individual and disaggregated perspectives explain the relationships between leisure stress-coping, coping outcomes. and emotions at the intrapersonal and subcomponent level?

(5) How do biological sex and gender role orientation influence the relationship between leisure stress-coping and health/wellbeing? What are the implications of gender differences?

Question 1 involved the construction. testing, and refinement of the Leisure Stress-Coping Scales, and these issues were examined in the first preliminary study and the main study. The preliminary study focused on exploratory analyses of the measurement scales and the main study on confirmatory analyses of the scales. The objective of the second preliminary study was to develop and refine a repeated stress-coping assessment design for the main study.

The main study was designed to examine the influences of leisure and general stress-coping strategies on how people deal with (a) major stressful events and (b) weekly hassles. First. participants recollected the most stressful major life event that they had experienced in the past year, and described how they coped with the event. They responded to life event measures, coping measures, emotion measures, and health and wellbeing measures, as well as to a set of dispositional measures (i.e., the measures of leisure coping beliefs, social support network, and gender role orientation). Secondly, the participants monitored the most stressful event that they had experienced during the preceding weeks, and described how they coped with each event. They reported the types of events, appraisal of the events, coping strategies, leisure participation patterns, and emotions for two weeks. Weekday events were

recorded on Thursdays, and weekend events on Sundays. After the completion of the two-week session, the participants responded to a set of health and well-being measures.

These two sets of assessments in the main study (i.e., the assessment of coping responses to major life events and the repeated assessments of coping responses to weekly hassles) allowed the examination of Questions 1, 2, 3, and 5. The second part of the main study (i.e., the two-week session) also allowed the examination of Question 4.

Chapter 2

REVIEW OF LITERATURE

This chapter reviews literature relevant to the present research. Topics that are covered in this literature review include (a) stress-coping research, (b) social support, (c) dispositional coping resources, (d) mediators of stress-coping processes, (e) gender and stress-coping, and (f) leisure stress-coping dimensions.

Stress and Coping Research

Historical overview of stress and coping research. First, the historical development of the stress and coping research is traced briefly. The development of stress research and coping research is discussed separately, because the two areas of study have been relatively independent until recently (cf., Avison & Gotlib, 1994; Parker & Endler, 1996).

In a historical overview of stress research, Lazarus (1993a) cited Hinkle's (1973) interpretation that stress had achieved technical importance in the 17th century in the work of a physicist-biologist, Hooke who was concerned with how man-made structures such as bridges should be constructed to support heavy loads: Hooke considered stress as the area over which the heavy loads impinged. Although this engineering usage of stress has changed through the transition from physics to other disciplines, Hooke's analysis affected stress models of physiology, psychology, and sociology in early 20th century; furthermore, "the idea of stress as an external load or demand on a biological, social, or psychological system" has survived in the modern era as well (Lazarus, 1993a, p. 2).

This engineering analysis of stress underlay Holmes and Rahe's (1967) Schedule of Recent Experiences, which opened up life-events approaches to stress measurement that have dominated research on stress and heath for many years (Lazarus, 1990). The construction of life-events instruments is based on two general premises: (a) life changes require adjustment and (b) degree of stress quantifies the impact of life events (Vossel, 1987). Despite the enormous popularity of the life-events instruments in stress research, the life-events approaches have been criticized as having both conceptual and methodological pitfalls such as paying little attention to chronic stress and everyday hassles and to individuals' perceptions of events (e.g., Brown & Harris, 1989; Lazarus & Folkman, 1984; Monroe & McQuaid, 1994; McLean & Link, 1994; Wheaton, 1994).

Following the considerable interest in the response to combat-related stress during the war periods, it became recognized that ordinary life conditions could produce stress which can be a cause of distress and dysfunction (Lazarus, 1993a). In response to early dependence on behavioristic stimulus-response (S-R) models, researchers such as Lazarus and Eriksen (1952) pointed out that individual

differences in motivational and cognitive factors mediate a stress-reaction relationship. The shift to stimulus-organism-response (S-O-R) models was later called the cognitive revolution of psychology.

The cognitive movement which widely influenced North American psychology in the 1970s views the concept of appraisal as central: appraisal is the process that mediates, or "actively negotiates," between "the demands, constraints, and resources of the environment," on the one hand, and "the goal hierarchy and personal beliefs of the individual," on the other (Lazarus, 1993a, p. 6). Following this movement, stress researchers started to conceptualize appraisal as the cognitive mediator of stress reactions (Lazarus, 1993a). Lazarus and Folkman (1984) theorized that there are two types of appraisal central to the stress reactions: (1) *primary appraisal* is concerned with what is at stake or important for people's well-being in a stressful encounter (goal-directed or motivation-oriented appraisal), and (2) *secondary appraisal* is concerned with how people think the encounter can be managed (future-oriented appraisal). The centrality of appraisal has strongly influenced the recent advancement of stress research.

In an overview of coping theory and research, Lazarus (1993b, p. 234) suggested that the concept of coping and its research were formally established during the 1960s and 1970s, "along with the burgeoning interest in stress." He pointed out that if we interpret coping as "a generic concept that includes ego-defenses, which deal with threats to one's psychological integrity, then the psychoanalytic interest in defense was clearly its forerunner. The earliest psychoanalytic interest in defense centered its role in psychopathology as a characteristic style for managing threat. A powerful psychoanalytic concept, which greatly influenced personality and clinical psychology, was that each form of psychopathology [e.g., hysterical neuroses] was associated with a particular defensive style [e.g., repression]" (Lazarus, 1993b, p. 234). Research by Menninger (1954), and more recently, by Haan (1993) and Vaillant (1986), adopted a hierarchical approach to coping according to the developmental psychoanalytic concept in which some styles of defenses are assumed to be more healthy or less regressed than others (Lazarus, 1993b).

In the early 1970s, a new perspective which focuses on stress resistance began to emerge (Holahan & Moos, 1994). The stress resistance perspective postulates that personal and contextual resources and adaptive coping strategies can assist people in managing stressful encounters (e.g., Antonovsky, 1987; Coyne & Downey, 1991; Eckenrode, 1991; Kessler, Price, & Wortman, 1985). As an initial exemplar of stress resistance paradigm, in the late 1970s, the hierarchical approach to coping, with its emphasis on trait and style, was questioned in preference of a contrasting approach, which regards coping as a process (Lazarus, 1981). From the process approach, "coping is defined as ongoing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or

exceeding the resources of a person." and coping is considered to change across contexts over time (Lazarus, 1993b, p. 237). Similar to a stress process, how an individual appraises and reappraises a stressful encounter plays a major role in a coping process (e.g., DeLongis, Folkman, & Lazarus, 1988; Folkman & Lazarus, 1988).

In the 1990s, researchers are more concerned than ever before with the relationships between psychosocial stressors, coping resources and strategies, and physical and psychological functioning (Endler, Parker, & Summerfeldt, 1993). Although classical coping-related studies focused on unconscious processes (e.g., defense mechanisms; Freud, 1933), recent research has paid attention to conscious processes or reactions to stressful encounters (e.g., Moos & Schaefer, 1993; Stone, Kennedy-Moore, & Neale, 1995). However, Lazarus' (1991) recent work underscores that rationale, deliberate, or conscious coping processes may exist side by side with irrational, automatic, or unconscious coping processes. In contrast to the early emphasis on pathological factors such as people's vulnerabilities to stressful life events, recent stress and coping research has evolved to increasingly emphasize individuals' resilience, adaptive capacity, resistance resources, constructive actions, and personal growth in the face of stressful encounters (Aldwin, 1994; Holahan & Moos, 1994; Lazarus, 1993c; Parker & Endler, 1996).

Conceptualization of stress. Now, some of the major approaches to the conceptualization of stress are discussed. In the medical science, stress is considered as a set of physiological and psychological reactions to noxious agents; for example, Selye (1956/1976) defined stressor as the agent and stress as the reaction. In the sociological tradition, stress is denoted as the disturbing agent (e.g., social disequilibrium; Smelser, 1963), and strain as the collective reaction (Pearlin & Schooler, 1978). Regardless of these different uses, Lazarus (1993a) suggested that there are four fundamental meanings of stress: (1) an external or internal agent, (2) an evaluation or appraisal of a stressful encounter, (3) coping processes operated by the mind and body to handle stressful demands, and (4) the stress reaction of the mind and body.

The relationship between physiological stress and psychological stress needs to be acknowledged. Both physiological stress and psychological stress can be explained by homeostatic concepts which suggest that the two types of stress reflect a deviation from a normal equilibrium state (Cannon, 1939). For example, Selye's (1936) General Adaptation Syndrome (GAS) explained the stress-reaction of body's defense mechanism that can be interpreted as "the physiological analogue of the psychological concept of coping;" at the same time, the GAS was considered also to be produced by psychological stressors (Lazarus, 1993a, p. 4). Despite the important overlaps between the two, psychological stress

and physiological stress represent different levels of analysis (Lazarus, 1966; Lazarus & Folkman, 1984). Although physiological stress is an important concept, the present study focused only on psychological stress.

According to Lazarus (1993a), two influential developments of stress concepts in the 1960s and 1970s must be recognized. One is Selye's (1974) distinction between eustress and distress. Eustress is a "good" stress which is associated with positive emotions and healthy states; while distress is a "bad" stress which is associated with negative emotions and unhealthy states. Another development was Lazarus' (1966) distinction among three kinds of stress appraisals, namely, harm, threat, and challenge. Harm is psychological damage or loss which has been done already, whereas threat is anticipated harm which has not yet been taken place but is imminent. Challenge is experienced when individuals feel confident in overcoming difficult demands. These two developments underlie the importance of acknowledging the multidimensional nature of stress.

The multidimensionality of stress is further elaborated in Wheaton's (1994) systematic discussion of "stress universe." Wheaton suggested that there are two major areas of ambiguity surrounding the word, stress: one relates to the stages of a stress process, the other to the content of stressors. His main points are summarized as follows. First, to clarify the ambiguity in terms of the stages of a stress process, stressors (the stimulus problem) should be distinguished from stress ("the processing state of the organism") and distress (the behavioral response). Second, the context of stressors can be classified into (a) chronic stress, (b) daily hassles, (c) macrostressors, (d) nonevents, (e) traumas, and (f) stage of life issues. Chronic stress is derived from role strains (e.g., role demands and conflict; Pearlin, 1983) and ongoing life difficulties (e.g., a partner's chronic health problem; Brown & Harris, 1978). Daily hassles refer to "irritating, frustrating, distressing demands that ... characterize everyday transactions with the environment" (Kanner, Coyne, Schaefer, & Lazarus, 1981, p. 3). Macrostressors represent system stressors that occur at the macro level (e.g., recessions). Nonevents are seen as something desirable or anticipated that do not occur when its occurrence is normative for individuals in a particular group (e.g., Gersten, Langner, Eisenberg, & Orzeck, 1974). Traumas are overwhelming stressors whose impacts are extremely serious such as war stress, natural disasters, and nuclear accidents (see Mikulincer & Florian, 1996). Finally, there are stressors uniquely associated with stages of life issues.

Wheaton (1994) further explained that it is useful to identify underlying dimensions that distinguish the above six classifications of stressors. These dimensions include (a) a continuity-discreteness dimension, (b) a macro-micro dimension, (c) a life-course dimension, and (d) a dimension of

imputed seriousness. The six types of stressors can be placed at some point on each of these dimensions. For example, on the continuity-discreteness dimension, chronic stressors are located at the most continuous end of the dimension, whereas sudden traumas at the most discrete end of the dimension.

Regardless of different approaches to stress research, most researchers generally agree that stress is experienced when perceived demands tax or exceed a person's perceived coping resources and capabilities (e.g., Bandura, Cioffi, Taylor, & Brouillard, 1988; Lazarus, 1990). Since stress is better considered as a process than as a discrete state (Aldwin, 1994; Avison & Gotlib, 1994; Wheaton, 1994), it is desirable to conceptualize that the unit of analysis is an on-going transaction or encounter, which is appraised by the person (Lazarus, 1990). Lazarus (1990) described how stress as a process influences an individual as follows. When a transaction or encounter is appraised as stressful, coping processes are brought into operation in order to deal with a troubled person-environment relationship. These coping processes affect a person's subsequent appraisal which influences the nature and intensity of the stress reaction. The person also reappraises the stress reaction, hence initiates new coping processes. Thus, coping processes are regarded as on-going systems in which appraisals and reappraisals play a major role.

It is important to note that "transaction implies that stress is neither in the environmental input nor in the person, but reflects the conjunction of a person ... with an environment" (Lazarus, 1990, p. 3). In other words, "transaction means that person-environment relationships transcend the separate interacting variables of person and environment, and are constantly subject to change" (Lazarus, 1995, p. 5). Thus, Lazarus (1990, p. 4) emphasized that "stress is a multivariate process involving inputs, outputs, and the mediating activities of appraisal and coping; there is constant feedback from ongoing events, based on changes in the person-environment relationship, how it is coped with and, therefore, appraised. This view abandons a simple input-output analysis and becomes a fluid systems analysis involving a host of variables that influence each other in time and across the changing contexts of adaptation." Lazarus' transactional and interactional perspective is consistent with Bandura's (1986; 1989) model of triadic reciprocal causation which advocates that the nature and function of human agency are explained by interacting and reciprocal operations of personal factors and environmental contexts. As stated in Chapter 1, this research adopted Lazarus' transactional and interactional perspective to conceptualize stress-coping processes.

According to Lazarus (1990, p. 7), "markers of the stress process" are obtained from at least three kinds of data: (1) "the content of daily stressful encounters, as appraised by the individual," (2) "the subjective intensity of each stressful reaction," and (3) "the fluctuations in content and intensity of stress

reactions over time." From a contextual perspective. Pearlin (1991) pointed out that stressors vary with the meanings uniquely attached to a specific context for a particular person at a specific time. He focused on two "meaning-shaping factors:" one relates to values and another to the contexts of experiences. First, individuals are likely to experience severe stressors in highly valued areas of their lives or areas in which they pertain her/his self-identity. Second, the extent to which an encounter constitutes a stressor, and the quality of one's experience of this stressor may change dependent on a specific context across a time frame. Pearlin (1991) also distinguished between a "primary stressor" and a "secondary stressor," and between direct and indirect effects of coping. For example, divorce as a primary stressor may lead to decreased economic resources, disrupted social relationships, and increased responsibilities for young children as secondary stressors. In this example, not only may coping influence the psychological distress of a divorced person directly, but coping may also influence it indirectly through changes in the nature of the secondary stressors.

Emotion as a broader and richer concept of stress. In discussing the future development of stress research, Lazarus (1990, p. 12) argued that "stress is a part of a much broader and richer rubric, emotion." Stress has been mainly studied as an unidimensional concept (i.e., low vs. high level of stress) or as a concept with a small number of dimensions (i.e., harm, threat, or challenge), whereas various emotions experienced in adaptational encounters can provide richer information about how an individual copes with the encounters. Also, Costa, Somerfield, and McCrae (1996) and Lazarus (1991) suggested that it is important to reconceptualize stress-coping as an integral part of adaptation in which emotional regulation and problem-solving play a central role. According to Lazarus' (1991) *cognitive-motivational-relational theory* of emotion and adaptation, an emotional reaction (e.g., anger, anxiety, guilt, shame, envy, disgust, relief, and love) is conceptualized to reflect a person's cognitive functions (knowledge and appraisals of an encounter or context), motivational bases (important motives, values, or goals), and relational meanings (meanings derived from the person-environment relationship). "What gives this multiplicity of emotions great analytic power is that each emotion arises from a different plot or story about the relationships between a person and the environment," on the basis of motivational, cognitive, and relational processes (Lazarus, 1993a, p. 12).

The cognitive-motivational-relational theory postulates that each emotion is conceptualized at two related but different levels: molar and molecular (Lazarus, 1991). First, at the molar level, "person-environment relationships come together with personal meanings and the appraisal process in the concept of *core relational themes*" (Lazarus, 1991, p. 121). A core relational theme refers to "a person's sense of the harms and benefits in a particular person-environment relationship" (Lazarus, 1993a, p. 13). For

example, the core relational theme of anger is "a demeaning offense against me and mine." while the core relational theme of anxiety is "facing uncertain, existential threat" (Lazarus, 1991, p. 122). Let us assume that two close friends, Nancy and Tiffany, argue. For Nancy, the argument's relational meaning may be that her self-esteem is demeaned. For Tiffany, on the other hand, the argument's relational meaning may be that her relationship with Nancy is threatened. The emotion experienced by Nancy is anger, while the emotion experienced by Tiffany is anxiety in this example. A single encounter may be experienced differently by two or more individuals due to the differences in their emotional meanings characterized by different relational themes.

Secondly, at the molecular level, separate appraisal components can be identified. Primary appraisal components consist of motivational or goal-directed factors including (1) goal relevance (the extent to which an encounter is relevant to personal goals); (2) goal congruence or incongruence (the extent to which the demands of an encounter are consistent or inconsistent with personal goals); and (3) type of ego-involvement (diverse aspects of ego-identity or personal commitments including self- and social-esteem, moral values, ego-ideals, meanings and ideas, other persons' and their own well-being, and life goals). Goal incongruent emotions are called negative emotions (e.g., anger, anxiety, guilt), whereas goal congruent emotions are called positive emotions (e.g., happiness, pride, relief).

Next, secondary appraisal components consist of factors which influence the selection of coping options including (1) blame or credit (that derives from the knowledge of who is responsible or accountable for frustration); (2) coping potential (that concerns with whether or how an individual can manage the demands of an encounter); and (3) future expectancy (that concerns with whether things can be changed psychologically for the better or worse).

In an example of anger, regarding primary appraisal, there are goal relevance and goal incongruence, and the type of ego-involvement is to preserve or enhance self- or social-esteem. In the same example, regarding secondary appraisal, "if there is blame, which derives from the knowledge that someone is accountable for the harmful actions, and they could have been controlled, then anger occurs. If the blame is to another [person], the anger is directed externally; if to oneself, the anger is directed internally" (Lazarus, 1991, p. 226). In this way, each emotion is explained by each of the appraisal components in details.

Lazarus (1991) further explained that the two levels of conceptualizing the meaning of an emotion are complementary; one is molar and synthetic, the other is molecular and analytic. Although it is possible to decompose a molar relational meaning into separate, molecular appraisal components, "a relational meaning results from a higher or more synthetic level of analysis. At that level the separate

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variables are lost in favor of a new relational concept" (Lazarus, 1993a, p. 13). Lazarus (1990, p.12) concluded that "I can think of no other concept in psychology that is as richly revealing of the way an individual relates to the physical and social environment, and to life itself, as the emotions... For this reason, research on how emotions affect health outcomes can tell us much more than research on stress and health outcomes."

Conceptualization of coping. Coping researchers generally agree that there are two major functions of coping: problem-focused and emotion-focused (e.g., Lazarus & Folkman, 1984; Parker & Endler, 1996). Problem-focused coping functions to change a troubled person-environment relationship by directly acting on the environment or oneself. In contrast, emotion-focused coping operates to change either (a) commitment patterns (e.g., one avoids thinking about a threat) or (b) the meaning or interpretation of what is happening, which may mitigate the stress, although the actual reality of the relationship is not be changed. The latter involves a less threatening or more benign reappraisal, such as denial and distancing (Lazarus, 1993b). Western values tend to favor taking direct action against problems rather than reappraising the relational meaning (Lazarus, 1993b). However, there is ample evidence that emotion-focused coping can be more effective than problem-focused coping under certain conditions, for example, when a stressful encounter is less changeable and/or uncontrollable (e.g., Bolger, 1990; Folkman & Lazarus, 1988; Mattlin, Wethington, & Kessler, 1990).

Of various coping instruments developed (e.g., Amirkham, 1990; Endler & Parker, 1990; Folkman & Lazarus, 1988; McCrae, 1984), the Coping Orientation for Problem Experiences (COPE) Inventory (Carver, Scheier, & Weintraub, 1989) is a theoretically based multidimensional coping instrument. The COPE Inventory consists of 14 types of general coping strategies: (1) active coping, (2) planning, (3) suppression of competing activities, (4) restraint coping, (5) seeking social support for instrumental reasons, (6) seeking social support for emotional reasons, (7) positive reinterpretation and growth, (8) acceptance, (9) turning to religion, (10) focus on and venting of emotions, (11) denial, (12) behavioral disengagement, (13) mental disengagement, and (14) alcohol-drug disengagement. The effectiveness of a certain coping strategy depends on complex transactions among the type of a specific stressful encounter, personal factors, environmental contexts, and outcome variables examined (e.g., somatic health, subjective well-being, or social functioning) (Lazarus, 1993a, 1993b).

With regard to research designs, Lazarus (1990, p. 4) indicated that in a process-oriented transactional and interactional analysis, the question researchers need to ask is "how we can capture the changing person-environment relationship." That is, we must measure an individual's appraisal and coping repeatedly as the person-environment relationship changes across a variety of encounters over

time. Thus, in this analysis, an intraindividual (i.e., within-individual) research design, in which the same individual is examined across a variety of contexts over time, is required in conjunction with an interindividual (i.e., between-individual) design, in which scores from a group of individuals are used to examine coping effects (e.g., Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Parker & Endler, 1996). To achieve this objective, repeated assessments of coping processes are needed (e.g., Porter & Stone, 1996). This approach enables researchers to examine both changes and stabilities in the way a person copes with different stressful encounters over time (Krohne, 1996; Lazarus, 1993b; Stone & Shiffman, 1992).

Criteria for assessing coping outcomes should be appropriately chosen according to the research questions and purposes asked. Coping effectiveness can be judged by salient criteria as follows (Meneghan, 1982; Pearlin & Schooler, 1978; Taylor, 1986; Zeidner & Saklofske, 1996): (1) alleviation or resolution of the conflict or stressful situation, (2) reduction of physiological and biochemical reactions, (3) reduction of psychological distress, (4) normative social functioning, (5) return to prestress activities, (6) maintenance of well-being, (7) maintenance of positive self-esteem, and (8) level of perceived coping effectiveness.

A review of research on adaptive coping has pointed out major generalizations as follows (Lazarus, 1993a, 1993b; Zeidner & Saklofske, 1996): (1) an individual uses a variety of coping strategies in a stressful encounter, for example, a person may use one strategy but change to other strategies according to feedback about its consequences; (2) some coping strategies are more consistent or stable across stressful encounters than other strategies, for example, it has been found that positive reappraisal is relatively consistent and depends substantially on personality, whereas seeking social support is very inconsistent and depends substantially on social contexts; (3) coping changes across in a certain stressful encounter over time, thus, lumping the stages of a coping process together leads to a false illustration of the coping process; (4) coping plays a mediating function in an emotional outcome, that is, emotion changes as a result of coping (e.g., Bolger, 1990; Folkman & Lazarus, 1988); (5) a good fit between the demands of a stressful encounter and the functions of coping strategies tends to result in favorable consequences (i.e., the matching hypothesis; e.g., a loss of self-esteem matches with esteem social support; Cutrona & Russell, 1990; Hobfoll & Vaux, 1993); (6) coping effectiveness can be increased by a large repertoire of coping resources, and flexible and creative uses of these resources; (6) a particular coping strategy may differently influence various types of outcomes; and (7) the effectiveness of a certain coping strategy may differ according to the type of stressors (e.g., chronic or acute stressors), as well as to the stages of a stressful encounter.

Moreover, we must recognize that stress-coping may result either in beneficial consequences or in detrimental consequences. Lepore and Evans (1996) summarized various types of benefits and costs of stress-coping. Benefits of stress-coping include (1) resiliency (i.e., mastery experiences with stressful encounters improve a person's effectiveness and toughness in managing stressors), (2) resource mobilization (successful coping mobilizes social support networks and/or enhances self-concept and self-confidence), and (3) reappraisal (positive reappraisal of a stressor may result in a decrease of perceived threat of the stressor and/or an increase of perceived coping capacity). In contrast, costs of stress-coping include (1) stereotypic coping (indiscriminate use of coping resources or strategies may lead to a mismatch between the demands of stressors and coping strategies, which consequently amplifies the negative effects of the stressors); (2) behavioral constraints (coping may be constrained due to the presence of multiple stressors which requires competing coping responses); (3) residual arousal and fatigue (coping with stressors may increase arousal and fatigue which reduce capacity to effectively manage other stressors); (4) resource depletion (depletion of social, material, and psychological coping resources as a result of stress-coping may increase the negative effects of other stressors); (5) helplessness (unsuccessful stress-coping may increase people's helpless feelings); and (6) reappraisal (negative reappraisal of a stressor may result in an increase in perceived threat of the stressor and/or a decrease of perceived coping capacity). Costs and benefits of stress-coping can be considered as the opposite sides of the same coin; both must be paid attention to in coping research.

This discussion concludes a general overview of the stress and coping research, and some theoretical and methodological concepts central to this research. Now, the following discussion focuses on specific stress-coping resources. Two of the major types of stress-coping resources, discussed in literature, have been social support and dispositional resources (e.g., Aldwin, 1994; Avison & Gotlib, 1994; Goldberger & Breznitz, 1993; Zeidner & Endler, 1996). Similarly, leisure researchers have recently recognized the importance of these two types of coping resources (e.g., Coleman & Iso-Ahola, 1993).

Social Support

Conceptualization of social support. It has been shown that social support is an important stress-coping resource (cf., Duck, 1990; Eckenrode, 1991; Sarason, Sarason, & Pierce, 1990; Vaux, 1988). Regardless of the differences in the conceptualizations, researchers generally agree that social support is a multidimensional concept (e.g., Caplan, 1974; Cobb, 1976; Cohen & McKay, 1984; House, 1981; Pierce, Sarason, & Sarason, 1996; Thoits, 1982; Veiel & Baumann, 1992; Weiss, 1974). For example, Barrera (1986) suggested that social support can be organized into three broad categories: (1) social

embeddedness (the connections or social networks that individuals have with their significant others). (2) perceived social support (individuals' perceptions that adequate support would be available when needed). (3) enacted support (others' actual actions to assist a focal individual). Similarly. Vaux (1988. 1992) identified social support as a metaconstruct which consists of (1) support network resources (similar to social embeddedness). (2) supportive behavior (similar to enacted support). and (3) support appraisals (similar to perceived social support). More recently. Pierce, Sarason. and Sarason (1996) provided three categorizations: (1) perceived social support. (2) supportive relationships (relationship-specific perceived social support: e.g.. a relationship with a mother. father. spouse. partner. or friend). and (3) supportive networks (similar to social embeddedness).

Although different researchers use different terms. there seem to be some consistencies in terms of the classifications of social support. At the macro or larger social level. we must consider supportive network resources (or social embeddedness). In contrast. at the micro or dyadic relationship level. supportive relationships (e.g.. wife-husband. partners. child-mother. child-father. friends) must be considered. In addition. we must distinguish between the actual reception of supportive actions (enacted support or received support) and individuals' perceptions of available social support (perceived support). It has been shown that these differences influence the nature and processes of stress-health relationships (e.g.. Bolger & Eckenrode. 1991: Smith. Fernengel. Holcroft. Gerald. & Marien. 1994: Wethington & Kessler. 1986).

Accordingly. each of these general classifications has basic features or properties. First. supportive network resources (or social embeddedness) can be assessed by (a) particular modes or functions of support (e.g.. emotional. practical): (b) structures of support (e.g.. size. density): (c) composition (e.g.. relationship types. gender. age): and (d) relationship quality (closeness. reciprocity. complexity) (Vaux. 1992). Second. supportive relationships can be measured by (a) relationship-specific perceptions of available support (support): (b) perceptions of interpersonal conflict (conflict): and (c) perceived depth of specific relationships (depth) (Pierce, Sarason, & Sarason, 1991). Third. enacted or received social support can be assessed by (a) particular modes or functions of support (e.g.. emotional. practical); (b) sources of support (e.g.. family, friends); and (c) quality of support (e.g., frequency, effectiveness) (Vaux, 1992). Finally, perceived social support is measured by (a) functions (e.g., emotional. informational); (b) sources of support (e.g., family, friends); and (c) quality of support (e.g.. satisfaction, effectiveness). The importance of identifying the multiple dimensions of social support has been highlighted by the lack of sensitivity of a general or aggregated social support measure in assessing

the differential impacts of various aspects of social support on stress outcomes (e.g., Cohen, 1992; Cutrona & Russell, 1990; Pierce, Sarason, & Sarason, 1996).

Beyond the buffering hypothesis. According to the buffering hypothesis, social support moderates or buffers against the detrimental effects of stressful events on people's health when stress levels are high; beneficial effects of social support are assumed not to be evident when stress levels are low (Cobb, 1976; Cassel, 1976). This buffering hypothesis has been the most dominant approach to coping research including social support research; however, many recent researchers have criticized the conventional buffering model (e.g., Barrera, 1988; Hobfall & Vaux, 1993; Lin, 1986; Wheaton, 1985). Empirical evidence for the model has been seen as supportive (Gottlieb, 1981; House, 1981), unsupportive (Heller & Swindle, 1983; Lin, 1986), or mixed (Cohen & Wills, 1985; Kessler & McLeod, 1985; Mitchell, Billings, & Moos, 1982; Smith et al., 1994; Vaux, 1988). Major criticisms of the conventional buffering model has been pointed out in Chapter 1.

There have been some attempts to overcome these criticisms. Barrera (1986), Lin (1986), Vaux (1988), and Wheaton (1985) have discussed other models of stress and support. For example, in contrast to the conventional buffer model which assumes the independence of stressors and support, an alternative model, termed "mobilization" (Barrera, 1986; Figure 7), "counteractive" (Lin, 1986), or "suppressor" (Wheaton, 1985), suggests that as well as stressors' positive effects on distress, the stressors positively influence social support, which in turn, diminishes distress. This alternative model assumes that social support mediates, not moderates, the effects of stressors on distress. This model is consistent with resource activation notions discussed, for example, by Billings and Moos (1981) and Eckenrode and Wethington (1990). Aneshensel and Frerichs (1982) provided evidence for the model.

Similar to this alternative model, the "support deterioration model" (Barrera, 1986; Dean & Ensel, 1982; Figure 8) assumes that social support mediates the effects of stressors on distress. However, in the support deterioration model, stressors lead to the deterioration of social support which links to the development of distress. Possible mechanisms in this model may be that stressful events disrupt the structure of social relationships, and that people who have experienced stressful events avoid social contacts (Barrera, 1988; Wortman & Lehman, 1985). In their extensive panel data from the Albany Area Health Survey, Lin, Dean, and Ensel (1986) found evidence for this model.

Another alternative model, termed "stress prevention" (Barrera, 1986; Figure 9), "suppressant" (Lin, 1986), or "stress-deterrent" (Wheaton, 1985), suggests that in addition to social support's negative effect on distress, the social support (a) prevents the occurrence of stressors or (b) helps people appraise stressors in a less traumatic or threatening way. In this model, stressors mediate the effect of social

support on distress. Dignam, Barrera, and West (1986), Lin (1986), and Lin, Dean, and Ensel (1986) found evidence for this model. Since multiple paths may exist among social support, stressors, and distress, it is worthwhile to explore the applicability of the alternative models. It seems important to consider that (1) other personal resources (e.g., hardiness) and mediators (e.g., self-efficacy) may play a role in the relationships between social support, stress, and health; (2) different components of social support may differently influence the relationships; (3) the effects of both positive and negative life events on both positive and negative outcomes of health need to be taken into consideration; and (4) these alternative models are not necessarily mutually exclusive and may coexist (Barrera, 1988; Hobfoll & Vaux, 1993).

Finally, a growing number of researchers have addressed the importance of a specificity or optimal matching model of social support (e.g., Cohen & McKay, 1984; Cutrona, 1990; Thoits, 1986; Vaux, 1988). The basic assumption of the specificity or optimal matching model is that social support is effective in managing stressors only when the demands of the stressors match with the specific functions of social support (Figure 10). A comprehensive and systematic approach in testing the optimal matching model has been developed by Cutrona and her associates (Cutrona, 1990; Cutrona & Russell, 1990). Cutrona and Russell's (1990) study is particularly note-worthy. First, they based the construction of social support-dimensions on five major theoretical models of social support (Cobb, 1979; Cohen, Mermelstein, Kamarck, & Hoberman, 1985; Kahn, 1979; Schaefer, Coyne, & Lazarus, 1981; Weiss, 1974) and empirical support for each component of the models (e.g., Cutrona & Russell, 1987). They derived five basic dimensions of perceived social support including (1) social integration or network support (individuals' perceptions of their social ties or circles); (2) emotional support (individuals' perceptions that they are cared for by significant others); (3) esteem support (the bolstering of individuals' self-esteem and a sense of competence); (4) tangible aid (instrumental support; e.g., financial and physical support); and (5) informational support (the provision of advice or information to solve problems).

Also, based on both theoretical assumptions and empirical evidence, Cutrona and Russell (1990) considered stress as a multidimensional concept reflecting (a) the desirability of events, (b) the controllability of events, (c) the duration of effects, (d) the content of events (e.g., experience of social loss), and (e) life domains (e.g., assets, relationships, achievement, and social roles). In their review of over 40 studies which examined the associations between the specific components of social support and different aspects of stress, Cutrona and Russell (1990) found considerable support; about two-thirds of the studies reviewed supported for the optimal matching model. For example, for uncontrollable events,

emotional support plus the support component that is matched with the specific domain (e.g., financial assistance for financial strain) predicted positive outcomes. For controllable events, there was a tendency for instrumental support and esteem support to be associated with positive outcomes.

Overall, they observed that for some events, specific types of social support can help people achieve optimal adjustment; but that for other events, no single function of social support is optimal, that is, a wider range of social support components are necessary for adjustment. For example, unemployment as a stressor is likely to influence a variety of life domains thus requires a variety of support functions. Consequently, it is assumed that individuals who are rich in personal and social resources have an advantage since they are able to select, adjust, or modify the resources which meet the demands of specific events (e.g., Hobfoll & Vaux, 1993). On the other hand, certain resources may be more robust than other resources; for example, emotional support may be a critical resource, since a wide array of events are associated with a loss of self-esteem and a sense of mastery which can be compensated by emotional support (e.g., Hobfoll, 1988; Thoits, 1986; Vaux, 1988). An examination of the specificity or optimal-matching model seems very useful in research on leisure, stress, and coping.

Other attempts to overcome the weaknesses of the buffer model have focused on the improvement of theoretical frameworks. For example, Sarason, Pierce, and Sarason (1990a) developed a triadic hypothesis of social support to provide a framework to study the effects of perceived social support on stress-health relationship. According to the triadic hypothesis, perceived social support is a product of the dynamic interactions among (1) situational context (the type of situation at which supportive behaviors are directed), (2) intrapersonal context (motivations and expectations of providers and recipients), and (3) interpersonal context (the nature of relationships where supportive exchanges occur). The focus of this framework is not only on the important link between supportive transactions and personal and social meanings derived from these transactions, but also on the dynamic reciprocity between support providers, support recipients, and social contexts (Sarason, Sarason, & Pierce, 1992).

Each of the three contexts has unique features. For example, in the intrapersonal context, Sarason, Pierce, and Sarason (1990b) distinguished between a sense of support and a sense of acceptance. They pointed out that the sense of support refers to expectations and attributions about the availability and supportiveness of individuals' social networks, whereas the sense of acceptance refers to the individuals' beliefs that they are loved, cared for, and unconditionally accepted by their significant others. These concepts are derived from the attachment theory which posits that people's histories of social interactions in a variety of circumstances, particularly, their early intimate relationships, influence the development of their senses of support and acceptance (Sarason et al., 1990b).

Another important theoretical framework was developed by Hobfoll (1988). His "conservation of resources" (COR) theory is based on "the motivational tenet that people strive to obtain, retain, and protect what they value" (Hobfall & Vaux, 1993, p. 688). Hobfall argued that the COR theory has a number of axioms: (a) people as active agency use their personal and social resources to offset a loss of other resources or to enhance a gain of resources; (b) personal and social resources are two important aspects of people's identities; and (c) dynamic transactions between personal and social resources occur in an ecological context. The COR theory can be applied to both dispositional resources and social support which help people manage demands and achieve goals (Hobfoll, 1988; Hobfall & Vaux, 1993).

In summary, research on social support, stress, and health has demonstrated the complexity of the relationships. We must adopt theoretical frameworks which explain dynamic transactions between personal characteristics and social factors in life contexts. Also, we must recognize the multidimensionality of the concepts involved in these transactions. Although the buffer model has been the dominant approach, we should be critical and identify the limitations of the model, and should move beyond its conventional use. Several alternative models discussed in this section can be important alternatives for understanding more about when, how, and why social support influences stress-health relationships. The issues discussed in this section can be useful for research on leisure, stress, and health. Coleman and Iso-Ahola's (1993) model of leisure and health, in which leisure-generated social support is one of the two major stress-resistant factors, has been influential. However, as suggested in Chapter 1, their model seems unable to explain dynamic transactions or processes of how leisure-generated social support helps people cope with stress. Also, a more detailed conceptualization of leisure-generated social support is needed to understand these relationships, although recent studies (e.g., Iso-Ahola & Park, 1996) have started tackling this issue.

Dispositional Coping Resources

Another important set of stress-resistant resources discussed in the literature is individuals' dispositional resources. Major dispositional resources which have been shown to be stress-resistant include hardiness (Kobasa, 1979), locus of control (Rotter, 1966), learned resourcefulness (Rosenbaum, 1980), sense of coherence (Antonovsky, 1979), optimism (Scheier & Carver, 1987), and constructive thinking (Epstein & Meier, 1989). These are personality constructs which serve as antecedent variables that are assumed to influence appraisal and coping processes and hence affect the outcomes of adaptational encounters. Regardless of the differences in the definitions and theoretical assumptions of each construct, the above constructs reflect people's general beliefs about themselves and world

(Lazarus. 1991). This section briefly reviews each of these constructs which seem to help us understand some aspects of leisure-generated coping resources.

Hardiness. Kobasa (1979; Kobasa, Maddi, & Kahn, 1982) introduced the construct of hardiness which consists of three interrelated elements — control, commitment, and challenge — that function as a resistant resource in a stressful encounter. Hardy individuals are assumed to have control over their life experiences, are committed to their meaningful life activities, and view demands and changes in their lives as challenges and opportunities for growth.

The question of why and how hardiness buffers against stress has been examined by monitoring appraisal and coping processes. It has been suggested that hardiness influences two appraisal factors: hardy individuals perceive stressful events as less threatening, and positively evaluate their abilities to cope (Florian, Mikulincer, & Taubman, 1996; Kobasa, 1982; Rhodewalt & Zone, 1989; Wieber, 1991). Also, hardiness has been shown to influence the choice of coping strategies. Hardy individuals are likely to use more problem-focused coping and less emotion-focused coping strategies, and to use active, transformational coping, in which people transform stressful situations into more benign experiences (Kobasa, 1982; Westman, 1990; Williams, Wiebe, & Smith, 1992). Hardy individuals' active recruitment of social support has been considered another advantage (e.g., Blaney & Ganellen, 1990; Orr & Westman, 1990).

However, there have been criticisms about the hardiness construct: (a) the theoretical basis of hardiness as a three-component constellation has been questioned, specifically, the challenge component often displays conceptual and measurement problems (Hull, Van-Treuren, & Virnelli, 1987); (b) hardiness may not function as a stress-buffer (Blaney & Ganellen, 1990; Carver, 1989), or it may even increase negative outcomes (Manning, Williams, & Wolfe, 1988); and (c) lack of hardiness may be identified as one aspect of neuroticism or mental distress, not as a personality disposition (Funk, 1992; Rhodewalt & Zone, 1989).

In responding to these criticisms, Orr and Westman (1990) pointed out that (a) the challenge component should not be discarded until a relevant reconceptualization is undertaken, (b) hardiness as a personality disposition needs to be examined in a variety of situations, and (c) a further effort must be made to examine specific conditions in which hardiness influences beneficial outcomes, processes by which hardiness operates, and the effects of social contexts on these processes. Recently, Ouellette-Kobasa (1993) suggested that (1) the effects of hardiness must be examined across various groups of people (e.g., gender, life stage, culture) using various health outcomes to analyze general mechanisms of hardiness; (2) measurement efforts should be consistent with the fundamental concept of hardiness (e.g.,

both component and composite measures should be examined to assess the nature of the dynamic interplay between the components);and (3) it is important to embrace the tension between empirical precision and broader conceptualization of human behavior (e.g., an extreme focus on empirical precision may lose sight of an overarching theme that hardiness can be "a vehicle for discovering and saying something important about people's general orientations in life," p. 95). Coleman and Iso-Ahola's (1993) model in which leisure-generated self-determination disposition is one of the two stress-resistant factors is based partly on Kobasa's hardiness concept.

Locus of control. Another basis of Coleman and Iso-Ahola's model is on locus of control. It has been demonstrated that an internal locus of control (people's general beliefs that life events are in their control) is associated with more adaptive coping responses (e.g., Compas, Banez, Malcarne, & Worsham, 1991; Hewitt & Flett, 1996; Holahan & Moos, 1987; Parkes, 1986), while an external locus of control (people's general beliefs that life events are out of their own control) is associated with self-blame for one's inability to control thought processes and actions, and consequently, with depression (e.g., Benassi, Sweeney, & Dufour, 1988). However, it must be noted that coping styles associated with an external locus of control can be effective under certain circumstances: for example, avoidance may be adaptive when life events are beyond one's control (e.g., Abella & Heslin, 1989; Hewitt & Flett, 1996). Also, it seems worthwhile to acknowledge that locus of control is a multidimensional concept since locus of control is differentiated in specific control domains including personal achievement, the interpersonal domain, and the health domain (Lefcourt, 1991). Lefcourt suggested that a match between a specific control domain and a specific problem area may lead to a stronger connection between personality, coping, and health-outcomes.

Learned resourcefulness. Rosenbaum (1980) developed the Self-Control Schedule (SCS) to measure individuals' learned resourcefulness which refers to a tendency to effectively apply a set of self-controlled beliefs, skills, and behaviors to manage life problems. This concept of learned resourcefulness rests on social psychological self-control models (e.g., Bandura, 1978). Basic assumptions of the self-control models are that "(a) human behavior is goal directed; (b) self-control behavior is called for when individuals encounter obstacles in the smooth execution of goal directed behavior; (c) self-control behavior is always associated with certain process regulating cognitions (PRC); and (d) there are multiple and interactive factors that influence the PRC and the self-control behavior" (Rosenbaum, 1990, p. 5). Thus, learned resourcefulness has different assumptions from locus of control which is framed by people's beliefs in their internal or external controllability.

Rosenbaum (1989, p. 253) identified that "the SCS covers the following context areas: (a) use of cognitions and self-instruction to cope with emotional and physiological responses; (b) application of problem-solving strategies (e.g., planning, problem definition, evaluation of alternatives, and anticipation of consequences); (c) tendency to delay immediate gratification; (d) beliefs in one's ability to self-regulate actions, emotions, and cognitions." It has been shown that process regulating cognitions (PRC), such as people's appraisal, perceived self-efficacy, and attribution patterns, mediate how people's learned resourcefulness influences their stress-coping behaviors (Rosenbaum & Ben-Ari, 1985; Rosenbaum & Ben-Ari Smira, 1986).

To explain the relationships between learned resourcefulness and health-related outcomes, Rosenbaum (1990, p. 26) distinguished between two-types of self-control behavior: redressive self-control and reformative self-control; "whereas in redressive self-control the person's efforts are directed at resuming normal functioning that was disrupted, in reformative self-control the person's efforts are directed at disrupting his or her customary way of functioning and adopting a new behavior." It has been found that those individuals high in the SCS use redressive self-control strategies to manage physical pain and discomfort (e.g., Rosenbaum & Rolnick, 1983), while reformative self-control strategies are used to enhance the acquisition of health-promoting behavior (e.g., Rosenbaum & Ben-Ari Smira, 1986).

Sense of coherence. Antonovsky (1979) cogently questioned the traditional medical model which is driven by a pathological orientation. The pathological orientation focuses on explaining why and how people suffer from illnesses. In contrast, Antonovsky (1979, 1987) adopted a *salutogenic orientation* which focuses on explaining why and how people move toward the positive end of the health-illness continuum. The salutogenic orientation is based on the premise that it is important to examine how personal and social-cultural resources enhance people's psychological and physical health. The sense of coherence (SOC) concept was developed from this salutogenic orientation (Antonovsky, 1979).

Antonovsky (1987, p. 19) defined the sense of coherence (SOC) as "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predicable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement." As described in the above definition, there are three components of the SOC: comprehensibility, manageability, and meaningfulness. First, comprehensibility is concerned with the extent to which people interpret the stimuli as "ordered, consistent, structured, and clear, rather than as noise-chaotic, disordered, random, accidental, and inexplicable;" hence, individuals high in comprehensibility feel that the stimuli they face

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make cognitive sense (Antonovsky, 1990, p. 33). Second, manageability refers to the extent to which people perceive that their coping resources are under their control and are appropriate to meet the demands posed by stressful encounters; and consequently, people with a high sense of manageability do not feel that they are victims of the stressful events (Antonovsky, 1990). Finally, meaningfulness is defined as the extent to which people are willing to face the environmental demands as challenges, they think it is worthwhile to invest their energy to overcome these demands, and they feel that the demands they face make emotional sense. Antonovsky (1990) proposed that although all of the components are important, there seems to be the hierarchy of centrality in which meaningfulness, as the motivational component, is the most crucial, followed by comprehensibility and manageability.

Similar to Lazarus and his associates (Lazarus, 1993abc; Lazarus & Folkman, 1984), Antonovsky (1990) suggested that how individuals appraise stressful encounters greatly influences whether or not those individuals cope with the encounters successfully. Specifically, those with a strong SOC are likely to appraise demanding stimuli as nonstressors, or when these stimuli are appraised as stressors, they interpret the stressors as positive, benign, or irrelevant, not as harmful or threatening. They are confident that they have enough capabilities or resources to manage the stressors (i.e., a sense of self-efficacy, Bandura, 1986). Also, Antonovsky (1987) proposed that since those with a strong SOC have a functional self-regulating system, they are likely to avoid facing unmanageable stressful situations, use appropriate coping strategies to handle a specific stressor, and engage in health-promoting behaviors (e.g., dieting, exercise, sleep). Since Antonovsky's salutogenic orientation seems to possess important implications for research on leisure, stress, and coping, the issues addressed in the SOC can be useful for the conceptualization of leisure-generated coping resources. In Coleman and Iso-Ahola's model, the absence of illness is considered as a health outcome (i.e., pathological orientation). A more salutogenic conceptualization may be needed to better understand the role of leisure in stress-coping processes.

Optimism. Carver and Scheier (Carver & Scheier, 1981, 1982; Scheier & Carver, 1987) have developed the idea that an optimistic orientation — a person's generalized outcome expectations that good things will happen — may be beneficial to health. This notion is based on expectancy-oriented theories which explain how people's generalized outcome expectancies influence their self-regulated behaviors (Lefcourt, 1976; Rotter, 1954). Scheier and Carver (1985) constructed the Life Orientation Test (LOT) to assess individuals' optimistic or pessimistic orientations.

The optimistic-pessimistic orientations have been shown to be associated with various health-related outcomes. For example, Scheier, Matthews, Owens, Lebfevre, Abbott, and Carver (1989) found

that optimistic patients who underwent coronary artery bypass surgery showed fewer signs of intraoperative complications and a faster rate of recovery, compared to pessimistic patients. Mechanisms of why optimists do better can be explained by the findings that (a) optimists tend to use active coping strategies (e.g., problem-focused coping, continued positive striving, positive reframing or interpretation), and tend not to rely on negative coping strategies (e.g., denial, disengagement) (Fontaine & Manstead, 1993: Scheier, Weintraub, & Carver, 1986); (b) optimists are likely to maintain adaptive health habits (e.g., carefully following a prescribed medical regimen) and believe that they can benefit from them; (c) optimists may benefit from having other coping resources (e.g., social support) (Scheier & Carver, 1987).

Constructive thinking. Based on the idea that people generally differ in using constructive or destructive thoughts to cope with stress, Epstein and Meier (1989) developed the Constructive Thinking Inventory (CTI) to measure individuals' general coping abilities to cope with problems in their everyday lives. The CTI was designed to assess the ways in which people perceive and respond to emotionally significant life events (Epstein & Katz, 1992). Those individuals high in the CTI have been shown to be successful in their lives including workplaces, social relationships, intimate relationships, and mental-physical health (Epstein, 1992: Epstein & Meier, 1989).

To explain part of the mechanisms of how constructive thinking is related to successful life, Epstein and Katz (1992) introduced the concept of productive load which refers to the extent to which people effectively use social and personal resources that are assumed to have productive consequences. They found that those individuals high in the CTI carry and use greater productive loads in their everyday lives, hence, they are less associated with perceived stress and illness symptoms.

In summary, different perspectives have been adopted to explain dispositional coping resources. Although there seem to be some overlaps (e.g., self-regulative processes) between each of the concepts discussed in this section, it is important to acknowledge the differences in the basic theoretical assumptions. In applying these ideas to leisure research, Coleman and Iso-Ahola based their thinking on the constructs of hardiness and locus of control, and suggested that leisure-generated self-determination disposition is an important buffer against stress. It can be argued that leisure researchers need to explore other potential dispositions and accompanying cognitive mechanisms (e.g., Antonovsky's salutogenic orientation) in order to reconceptualize leisure-generated coping dispositions.

At the same time, we must recognize that the relationships between dispositional resources, stress, and health outcomes are complex, since other coping resources (e.g., social support) and various mediating variables (e.g., appraisal, coping) play significant roles in influencing these relationships (e.g.,

Lazarus, 1991; Turner & Roszel, 1994). Rather than considering that these dispositional resources directly help people cope with stress, we need to pay attention to the influences of other coping resources and strategies, appraisal patterns, and social and cultural contexts which may indirectly explain stress-health relationships. These potential relationships are not addressed in Coleman and Iso-Ahola's model. The next section reviews potential mediating variables involved in these relationships.

Mediators of Stress-Coping Processes

In the previous discussion of the stress and coping research, appraisals and coping activities were conceptualized as mediators of stress-coping processes. There are additional important mediators which have been shown to influence the stress-coping processes. These mediators include self-efficacy, personal agency, and self-concept, which can be applicable to research on leisure and coping.

Self-efficacy. According to Bandura (1986, p. 391), "perceived self-efficacy is defined as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not [simply] with the skills one has but with judgments of what one can do with whatever skills one possesses." Bandura (1982) considered people's perceived self-efficacy as one of the central mechanisms of human agency. It has been theorized and found that self-efficacy is not a personality disposition, but people's perceived self-efficacy varies in the types of activities across various situations (e.g., Bandura, 1977; Gerin, Litt, Deich, & Pickering, 1995). Rather than regarding self-efficacy as an antecedent variable, it is desirable to conceptualize it as a mediating variable of human actions (Bandura, 1986). For example, perceived self-efficacy functions as a mediating, cognitive mechanism in which perceived control decreases subsequent psychophysioloigcal arousal (e.g., emotional distress, Bandura, Adams, Hardy, & Howells, 1980; fear arousal, Bandura, Reese, & Adams, 1982; cardiovascular reactivity, Gerin et al., 1995).

With regard to the role of self-efficacy in stress-coping, it has been shown that (a) a combination of perceived self-efficacy and perceived control reduces stress reactions and enhances coping effectiveness (Bandura et al., 1988; Gerin et al., 1995; Litt, 1988); (b) perceived self-efficacy influences how much effort people will expend and how long they will persist this effort when facing obstacles or challenges (Bandura, 1977, 1982; Bandura & Schunk, 1981); and (c) perceived self-efficacy can be a self-regulation tool, for example, people avoid activities that they perceive low self-efficacy (Bandura, 1977, 1982, 1989). In general, perceived self-efficacy greatly influences people's thought processes and emotional reactions during anticipatory and actual transactions with the environment (Bandura, 1982).

Self-concept. Another critical mediator of stress-health relationship is self-concept. Self-concept has been broadly viewed as having (a) a knowledge component (a cognitive structure) and (b) an

evaluative or affective component, both of which play a role in organizing self-identity and controlling the processing of self-relevant information (Campbell, 1990; Kihlstorm & Cantor, 1983). According to Rosenberg (1979), there are four principles for the formation of self-concept: (1) reflected appraisals (individuals' appraisals or interpretations of how others view them), (2) social comparisons (individuals' judgments about themselves based on a comparison with others), (3) self-attribution (bases on which individuals draw conclusions about their motives and behaviors), and (4) psychological centrality (the hierarchical importance of each of the organized and interrelated parts of self-concept). Self-esteem and self-identity are conceptualized under the rubric of self-concept (Rosenberg, 1979). Self-esteem represents the positive or negative evaluation of the images of individuals, whereas self-identity reflects the identification of who they are (Schlenker & Weigold, 1989; Yardley & Honess, 1987).

A link between self-esteem and psychological distress or depression has been found in stressful situations (e.g., Brown, 1987; Kessler, Turner, & House, 1988; Shamir, 1986). Turner and Roszell (1994) suggested that self-esteem plays a mediating role in influencing individuals' interpretation of stressful encounters, persistence of efforts expended to manage the encounters, and resiliency in the face of challenging situations. They also pointed out that the relationships between self-esteem and other psychosocial resources must be acknowledged. Moreover, in contrast to the view that mental health depends on accurate perceptions and evaluations of self, world, and future, Taylor and Brown (1988) argued that overly positive self-evaluations, exaggerated perceptions of mastery or control, and unrealistic optimism are not only characteristics of normal individuals, but also these positive illusions are associated with better mental health.

Personal agency. It has been long recognized that personal agency is a significant contingency or mediator in human functioning and development (e.g., Lefcourt, 1976; Seligman, 1975; White, 1959). A sense of personal control and a sense of mastery have been identified as the two central aspects of personal agency (Pearlin & Schooler, 1978; Rotter, 1966; Turner & Roszell, 1994). A substantial body of evidence has accumulated that the greater a sense of control and mastery, the lower the level of psychological distress (Lefcourt, 1981; Mirowsky & Ross, 1989; Turner & Noh, 1988). Those individuals high in a sense of control and mastery are likely not only to have skills required to manage difficult demands, but also to have relevant attributional or explanatory styles and be more resilient in the face of stressful events (e.g., Seligman, 1991; Turner & Roszell, 1994).

Each of the mediators discussed in this section have been theorized or shown to be associated with leisure (e.g., Haggard & Williams, 1992; Iso-Ahola, 1980; Iso-Ahola, Graefe, LaVerde, 1989; Kelly, 1983; Neulinger, 1981; Shamir, 1992). For example, cognitive concepts such as perceived

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freedom, perceived competence, a sense of control, and a sense of mastery have been identified as key properties of leisure experiences (e.g., Csikszentmihalyi & Larson, 1984; Iso-Ahola, 1980; Mannell, Zuzanek, & Larson, 1988; Shaw, 1985; Stewart, 1992). Also, self-efficacy, self-concept, and personal agency (a sense of mastery and control) have been the important concepts applied to leisure education and therapeutic recreation (e.g., Dowd, 1984; Iso-Ahola, 1988; Marsh, Richards, & Barnes, 1986; Searle & Mahon, 1993; Witt & Ellis, 1984). In Csikszentmihalyi's (1990) flow and Stebbins' (1992) serious leisure theories, a sense of competence, mastery, self-esteem, self-identity, and self-efficacy are essential characteristics. From feminist perspectives, leisure is an important source of self-esteem and self-identity which in turn help women maintain mental health (e.g., Freysinger & Flannery, 1992; Wearing, Wearing, & Kelly, 1994). Recently, it has been found that leisure can provide an important context for self-concept in the form of self-expression, self-identity, or self-affirmation (Haggard & Williams, 1992; Shamir, 1992). Thus, the consideration of these potential mediating variables provides some insights into the mechanisms of why and how leisure-generated coping resources or strategies help people cope with stress.

Gender and Stress-Coping

A more inclusive approach to stress-coping research has been increasingly advocated. Among various social and cultural variables (e.g., class, age, race) that need to be considered, an examination of the influence of gender on stress-coping processes has important implications (e.g., Barnett, 1993; Baum & Grunberg, 1991; Gore & Colten, 1991; Thoits, 1991). It has been evident that although women and men are similar in the report of primary illnesses (e.g., cardiovascular diseases, cancers), some types of illness and some causes of death differ between women and men (Baum & Grunberg, 1991). For example, women are more likely than men to suffer from obsessive-compulsive disorders, phobia, depression, panic disorders, pneumonia, and influenza, whereas men are more likely than women to suffer from antisocial personality disorders, substance abuse, suicide, and diseases and death from accidents (Cleary, 1987; Verbrugge, 1985). It has been argued that as well as biological and physiological differences between women and men, differences in socialization experiences, social norms or roles, the types of stressors that people encounter, stress appraisals, stress responses, and coping styles influence women's and men's health (Barnett, 1993; Baum & Grunberg, 1991; Eckenrode & Gore, 1990). However, because of complex relationships between gender, stress-coping, and health, research has provided mixed findings. This section briefly discusses some of the central issues involved in research on gender, stress-coping, and health.

One of the consistent findings which has puzzled stress and coping researchers has been higher occurrence of depressive symptoms among women than men (Gore & Colten, 1991; Thoits, 1991). Three major explanations have been provided. First, the methodological artifact explanation suggests that since women are socialized to be expressive, they are more likely than men to report emotional symptoms in response to standard depression scales (e.g., Newmann, 1984). Secondly, the stress-exposure explanation argues that women encounter more stressors, in general, and more severe and chronic stressors, in particular, than men (e.g., Gove, 1972; Kessler & McLeod, 1984). Third, the vulnerability argument suggests that women lack coping resources or appropriate coping strategies to manage stressors (e.g., Pearlin & Schooler, 1978; Turner & Noh, 1983). To date, mixed findings have been reported (e.g., Gove & Geerken, 1977; Newmann, 1984; Thoits, 1987).

In an attempt to resolve this issue, Gore and Colten (1991) argued for the cross-fertilization of stress and coping research with main-stream gender research. Specifically, they suggested that the social and cultural organization of gender, which is developed through the continuous reinforcement of socialization processes over the life span, can be both the cause and effect of gender-linked role behaviors. In addition to an earlier interest in femininity, masculinity, and androgyny, and gender differences in expressiveness and instrumentality, recent research has paid more attention to gender differences in intraindividual characteristics, such as a sense of mastery, self-esteem, assertiveness, dependence on others, and cognitive attributional styles that may influence mental health and adjustment (Gore & Colten, 1991).

In a comprehensive review of gender, stress, and coping studies, Gore and Colten (1991) suggested that (a) there seems to be no difference in the vulnerability to various types of stressors between women and men; (b) a more substantial cost of emotional caring by women than men seems to account for part of the gender-distress relationship; and (c) gender differences in learned helplessness, attributional styles, self-evaluation, and perceptions of control have not received strong empirical support. Similarly, in his review of the stress-coping research, Lazarus (1993a, p. 9) concluded that "when the type of stressful encounter is held constant, ... women and men show very similar coping patterns, despite public prejudices to the contrary." However, the detrimental effect of emotional cost of caring by women in a variety of situations on their health has been found in many studies (e.g., Kessler & McLeod, 1984; Long & Kahn, 1993; Wethington, McLeod, & Kessler, 1987)

Empirical research which examines gender-specific stressors and coping processes, and differential meanings in social and relational contexts has begun to accumulate significant findings. It has been shown that (a) different models of stress-coping processes can be applied to women and men (e.g., a

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greater responsiveness among women to environmental influences, Cronkite & Moos, 1984; a greater context dependence more for women than men, Wheaton, 1990); and (b) women's socialization processes and gender roles require coping liabilities and attentiveness to others' needs (e.g., Wethington et al., 1987). The above evidence is explained by the fact that social structures (e.g., social structural positions and group memberships) and socialization processes often encourage women to depend on others' suggestions in making their decisions, and this dependency by women may prevent from fostering a desirable self-image or self-esteem (e.g., Bush, 1987; Gilligan, 1982). This lack of incentives or opportunities to foster independent sources of self-esteem may lead women to rely on interpersonal experiences for self-evaluation; hence, they are responsive to emotional ties and social connections (Gore & Colten, 1991; Turner & Roszell, 1994). This tendency seems to explain why women benefit more from social support than men (e.g., Dean & Lin, 1977). On the other hand, it has been found that social support in the absence of self-esteem or sense of competence tends to increase vulnerability to stress (e.g., Husaini, Newbrough, Neff, & Moore, 1982).

To examine the relationships between stressors, social support, and self-esteem. Brown and associates (Brown & Bifulco, 1985; Brown & Harris, 1978) conducted intensive studies of working-class married and unmarried women. They found that for the married women, on-going low marital support and difficulties with their husbands reduced their self-esteem which was a major source of depression. Social and relational contexts which influence self-esteem, self-image, self-identity, self-efficacy, and other intrapersonal factors seem to provide important insights into how gender plays a role in the link between stress-coping and health.

Men may also suffer from gender role stressors. For example, Eisler and Blalock (1991) found that rigid commitment to masculine schemes such as the inhibition of emotional expressiveness; reliance on power, control, and aggressiveness; and obsession with success and achievement may produce stress and lead to dysfunctional coping patterns among men. We must pay attention to social and cultural contexts, on the one hand, and intrapersonal characteristics, on the other, in research on gender, stress-coping, and health.

Leisure Stress-Coping Dimensions

The final section in this chapter concludes with a discussion of leisure stress-coping dimensions. A reconceptualization of leisure stress-coping dimensions (i.e., hierarchical dimensions of leisure stress-coping) has been outlined in Chapter 1. A more in-depth discussion of each dimension is provided in the following section.

Self-determination. Coleman and Iso-Ahola (1993) have suggested that a leisure-generated self-determination disposition (i.e., people's general beliefs or orientations that their actions are mainly self-determined, freely chosen, or autonomous) is one of the two important factors that help people cope with stress. The self-determination disposition is closely linked to a sense of freedom, a sense of control, and intrinsic motivation which have been demonstrated to be major properties of leisure pursuits (e.g., Freysinger & Flannery, 1992; Iso-Ahola, 1980; Weissinger & Bandalos, 1995). Coleman (1993, p. 354) constructed the Perceived Leisure Freedom Index (PLFI) which measures "a disposition towards freedom of choice in leisure and the extent to which people tend to participate in freely chosen leisure pursuits." He found that the perceived leisure freedom disposition buffered against stress to maintain people's health. Iso-Ahola and Park (1996) used both the PLFI and the Intrinsic Leisure Motivation (ILM) scale (Weissinger & Bandalos, 1995) to operationalize the leisure-generated self-determination disposition. The present research has proposed that a self-determination disposition is a sub-dimension of leisure coping dispositions under leisure coping beliefs (see Figure 3).

Social support. In Coleman and Iso-Ahola's (1993) model of leisure and health, leisure-generated social support is another stress-resistant factor. More recently, Iso-Ahola and Park (1996) have distinguished between *leisure friendship* (people's beliefs that their friendships developed through leisure provide them with social support) and *leisure companionship* (discretionary and enjoyable shared experiences as a form of social support). In the hierarchical dimensions of leisure stress-coping, leisure friendship is a sub-dimension of leisure coping beliefs, whereas leisure companionship is a sub-dimension of leisure coping strategies. Leisure companionship was found to moderate the effect of stress on physical health in Iso-Ahola and Park's (1996) study.

As pointed out previously, in the social support literature, researchers generally agree that social support is a multidimensional concept (e.g., Barrera, 1986; Cohen & McKay, 1984; Pierce, Sarason, & Sarason, 1996; Vaux, 1992; Veiel & Baumann, 1992). One of the major classifications distinguishes among different functions of perceived social support including: (a) emotional support, (b) esteem support, (c) tangible aid, and (d) informational support (Pierce et al., 1996; Vaux, 1992; Veiel & Baumann, 1992). Because leisure friendship represents perceived social support gained through leisure, the above four functions of perceived social support are seen as sub-dimensions of leisure friendship in the hierarchical dimensions of leisure stress-coping.

Empowerment. From feminist perspectives, Henderson and Bialeschki (1991, pp. 51, 62) argued that "women may gain empowerment through a sense of entitlement to leisure within their lives," and in turn, "opportunities for empowerment through the leisure aspects of women's lives may have a

relationship to other areas of women's lives." Similarly, Freysinger and Flannery (1992) found that leisure can help women develop personal agency which empowers them to challenge or resist a falsified sense of self and the demands of their lives, as well as to regain or create a valued sense of self. Also. they suggested that the empowerment and resistance through leisure can help women maintain their mental health. The distinction between resistance to imposed constraints and resistance through leisure (Shaw, 1994) and leisure as a means of self-expression (Samdahl, 1988) are also relevant to the conceptualization of empowerment.

Furthermore, coping resources discussed in stress and coping research support the idea that empowerment is an important element of coping styles. For example, empowerment seems to be implied in (a) the challenge component of hardiness (people's views that demands and changes in life are seen as challenges and opportunities for growth: Ouellette-Kobasa, 1993); (b) the meaningfulness component of sense of coherence (people's willingness to face demands as challenges, and to invest their energy to overcome these demands: Antonovsky, 1990); (c) an optimistic orientation (people's generalized outcome expectations that good things will happen: Scheier & Carver, 1987); (d) constructive thinking (people's general coping abilities to cope with problems in their everyday lives: Epstein & Meier, 1989); and (e) learned resourcefulness (people's tendencies to effectively apply a set of self-regulated beliefs, skills, and behaviors to manage life problems: Rosenbaum, 1990). In the hierarchical model of leisure stress-coping, leisure empowerment is a sub-dimension of leisure coping dispositions under leisure coping beliefs. The distinction between self-determination and empowerment has been discussed in Chapter 1.

Palliative coping. Another dimension of leisure stress-coping is palliative coping (Mannell & Kleiber, 1997). Leisure palliative coping is assumed to operate in the following ways: (a) having occupied leisure time is more constructive than participation in destructive activities (e.g., juvenile delinquency and criminal activities) or than a state of boredom as a result of having unoccupied time (Caldwell & Smith, 1995; Iso-Ahola & Crowley, 1991; Weissinger, 1995); (b) leisure is seen as a means of temporarily distracting people or allowing them to escape from stressful events or painful experiences, such as loss of a job, or the death of an important person (Driver et al., 1991; Sharp & Mannell, 1996); and (c) this temporal break may allow people to "regroup" their psychological resources, and then, when they return to the reality of their daily lives, they may be better able to handle their problems or negative events (Endler & Parker, 1990; Folkman & Lazarus, 1980). In short, leisure palliative coping helps people keep their minds and bodies busy, temporarily distract or escape from stressful events, and regroup their lives. In the hierarchical model of leisure stress-coping, leisure palliative coping is a sub-dimension of leisure coping strategies.

Mood enhancement. Finally, the enhancement of positive mood and the reduction of negative mood through leisure pursuits is another stress-coping dimension. Hull and his associates (e.g., Hull, 1990; Hull & Michael, 1995) suggested that certain types of leisure (e.g., nature-based recreation) may have a stress-reducing potential as well as enhance positive mood and reduce negative mood. The important links between stress-coping and mood have been demonstrated in coping research, although coping researchers have paid little attention to the role of leisure (e.g., Lazarus, 1991; Stone, Kennedy-Moore, & Neale, 1995). Despite the potential of leisure's contribution to the enhancement of positive mood and the reduction of negative mood in stressful circumstances, there have been only few empirical studies (e.g., Hull & Michael, 1995) which examined how leisure influences stress-mood-health relationships. In the hierarchical model of leisure stress-coping, leisure mood enhancement is a sub-dimension of leisure coping strategies.

Dispositional versus situation-specific stress-coping. According to Coleman and Iso-Ahola (1993), leisure-generated stress-coping resources are conceptualized as people's dispositional characteristics. Subsequent research on leisure and health has mainly examined the dispositional orientations of leisure-related coping resources (Coleman, 1993; Iso-Ahola & Park, 1996). However, coping researchers who advocate contextual and process approaches emphasize the importance of recognizing situation-specific coping strategies because individuals with particular dispositional coping styles display different coping responses in specific stressful episodes (Folkman, 1992; Lazarus, 1993; Pearlin & Schooler, 1978). The distinction between dispositional coping styles and situation-specific coping strategies reflects the differences in the focus of inquiry in coping research: (a) the focus on dispositional personality styles in coping with stress across situations, and (b) the focus on changing coping processes influenced by dynamic transactions between persons and specific contexts over time (Endler, Parker, & Summerfeldt, 1993; Lazarus, 1993). At the same time, leisure has been shown to develop dispositional personality styles (Mannell, 1984; Weissinger & Bandalos, 1995; Witt & Ellis, 1984), and provide various types of situation-specific benefits such as a temporal relief or escape from stress (Driver et al., 1991; Iso-Ahola, 1989). Although there seem to be associations between the dispositional coping styles and the temporal or situation-specific coping strategies, these two are not identical concepts. Reported correlations between the dispositional coping styles and the situation-specific coping strategies (e.g., r's = .07 to .76, Carver, Scheier, & Weintraub, 1989; r's = -.36 to .71, Endler & Parker, 1994) support this notion.

Therefore, the distinction between dispositional coping resources and situation-specific coping strategies has been made in the conceptual model of leisure stress-coping in this research. The model calls

dispositional coping resources developed through leisure as *leisure coping beliefs*, and situation-specific coping strategies available through leisure as *leisure coping strategies*. These two represent the most general concepts in the hierarchical model of leisure stress-coping. There are a number of sub-dimensions under each of the two concepts; therefore, the conceptual model of leisure-coping developed in this research is called a *hierarchical* model (see Figure 3, p. 10).

Chapter 3

METHODS

Overview of Research Designs

Two preliminary studies (see Appendix 1) were conducted to (a) construct the Leisure Stress-Coping Scales, (b) examine the scales' reliability and validity, and (c) develop and refine a repeated stress-coping assessment design for the main study. The objective of the main study (see Appendix 1) was to examine the effects of leisure and general stress-coping strategies on how people manage major life events and weekly hassles. First, participants recalled the most stressful major life event that they had experienced in the past year, and described how they coped with the event. They responded to life event measures, coping measures, emotion measures, health and well-being measures, and a set of dispositional measures. Secondly, participants monitored the most stressful event that they had experienced during the preceding weeks, and described how they coped with each event. They reported the types of events, appraisal of the events, the use of coping strategies, leisure participation patterns, and emotions for two weeks. Weekday events were recorded on Thursdays, and weekend events on Sundays. After the completion of the two-week session, the participants responded to a set of health and well-being measures.

These two sets of assessments (i.e., the assessment of coping responses to major life events and the repeated assessments of coping responses to everyday hassles) were designed to (1) examine the ways in which leisure helps people cope with stress (i.e., dimensions of leisure stress-coping), and (2) test the various models of leisure and health (i.e., direct and indirect models, buffer models, process models, optimal matching models). The second part of the study (i.e., the repeated assessments of coping responses to weekly hassles) also assisted in examining each individual's stress-coping processes across various circumstances over time. As well, the effect of gender was examined in the main study.

Preliminary Studies

Development of Leisure Coping Scales. The first preliminary study involved the development of two types of Leisure Stress-Coping Scales: (a) a dispositional measure, Leisure Coping Belief Scale (LCBS) and (b) a situation-specific measure, Leisure Coping Strategy Scale (LCSS). As discussed in Chapter 1, there are a number of sub-dimensions in each of the scales. The LCBS consists of six sub-dimensions: (1) self-determination, (2) empowerment, (3) emotional support, (4) esteem support, (5) tangible aid, and (6) informational support. The first two sub-dimensions are classified under leisure coping dispositions, and the last four sub-dimensions under leisure friendships. The LCSS consists of

three sub-dimensions: (1) leisure companionship. (2) leisure palliative coping, and (3) leisure mood enhancement.

A list of initial items (70) were generated to represent a wide range of possible leisure stress-coping resources or strategies. These "ways" of coping constituted the proposed dimensions. A panel of judges (i.e., four researchers in the Department of Recreation and Leisure Studies) evaluated the content and face validity of the items. They were given the conceptual definitions of the dimensions, categorized each scale item according to its definition, and rated the relevancy and clarity of each item. Then, irrelevant and redundant items were removed, and unclear items were modified. This process reduced the total number of items to 48, and the items were the basis of two related scales.

In the first preliminary study, participants (n = 159; women=94, men=65) were recruited from a first-year recreation course at the University of Waterloo. The age of participants ranged from 19 to 34 (average=20.9). 83 participants had their major in recreation, 18 in applied health sciences (AHS) other than recreation, 65 in non-AHS, and 3 undecided. The participants were told that their responses to the questionnaire would be used to construct an instrument which assesses how people cope with stress. Ethical issues concerning participation in this research are discussed after the description of research designs in this chapter. First, the participants responded to the Leisure Coping Belief Scale (LCBS: in Appendix 2, the Preliminary Study Assessment Scales, pp. 1-2) to assess their dispositional and stable beliefs about gaining stress-coping benefits through leisure. Also, they completed the Major Life Event Inventory (MLEI: Appendix 2, p. 3) to examine the inventory's comprehensiveness in sampling major life events for the main study. The MLEI has been developed based on studies by Dohrenwend, Krasnoff, Askenasy, and Dohrenwend (1982) and Mattlin et al. (1990). The inventory's comprehensiveness in sampling major life events was determined by frequency of reporting events on the checklist. Events frequently reported in the section of "other problems" were included as additional categories in the refined inventory. Then, the participants described the most stressful event of the past year by responding to the Event Appraisal Scale (EAS; Appendix 2, pp. 4-5). The EAS consists of a number of dimensions that have been identified to be important in examining stress-coping processes (see Summary of Variables). Subsequently, they responded to the Leisure Coping Strategy Scale (LCSS; Appendix 2, pp. 5-6) to assess the extent to which leisure pursuits specifically helped them cope with stress.

Development and refinement of a repeated assessment design. The objective of the second preliminary study was to develop and refine a repeated assessment design. Participants (n=18; women=11, men=7) were recruited from a fourth year recreation course. All participants majored in recreation, and their age ranged from 22 to 30 (average=23.8). They were informed that the purpose of

the study was to examine relevance and effectiveness of a research design which would be later employed in a larger project regarding leisure and stress-coping. Also, they were told that their feedback would be used to improve the research design for the project. The researcher carefully went over the instructions with the participants, and reminded them to: (a) complete a project log twice a week for two weeks (weekday events on Fridays and weekend events on Sundays), and (b) fill out a log at the end of Fridays and Sundays (e.g., after school/work, after supper, or before going to bed).

A project log (Appendix 3) included (a) the Daily Stress Inventory (DSI, Brantley & Jones, 1989) which assesses the impact of minor stressors frequently experienced in everyday life; (b) the Event appraisal Scale; (c) the Coping Orientation for Problem Experiences (COPE) Inventory (Carver, Scheier, & Weintraub, 1989); (d) the Leisure Participation Inventory (LPI);[1] (e) the Leisure Coping Strategy Scale (LCSS); (f) the Coping Outcome Assessment Scale (COAS); and (g) the Emotion Assessment Scale (EAS). The participants were encouraged to conscientiously follow the instructions, and they were given feedback on progress by the researcher through E-mail and/or phone during the study period (Stone, Kessler, & Haythornthwaite, 1991). The description of each measure is provided at the end of this chapter.

After the completion of the two-week session, the participants had a meeting with the researcher to respond to the Study Evaluation Form and discuss their experiences of participating in the study. The SEF and their feedback assisted in not only improving relevance of the instructions and the measures used in the main study, but also in evaluating comprehensiveness of sampling events and experiences, and cooperation by the participants (e.g., participation burden, task difficulty, interest, incentive). Based on the participants' comments, parts of the research design for the main study were modified: (a) weekday events were recorded on Thursdays rather than Fridays because Fridays were often seen as part of weekends by the participants, (b) the number of items was reduced to make the completion of a log less demanding, (c) the original plan of having one-month session was changed to having only two-week session because the participants felt that two weeks were sufficient to gain enough information about stress-coping processes in their daily lives (i.e., one month seemed demanding for participants), and (d) an open-ended question was included at the end of a log so that participants could make their comments on their stress-coping and/or research.

Main Study: Assessments of Coping Responses to Major Life Events and Weekly Hassles

Participants (n=85; women=63, men=22) in the main study were recruited from several courses in the Faculty of Applied Health Sciences (AHS) at the University of Waterloo. 35 participants majored

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[1] The Leisure Participation Inventory was not analyzed in the thesis.

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in recreation, 37 in kinesiology, 4 in health studies, 7 in non-AHS, and 2 undecided. Their age ranged from 19 to 27 (average=21.1). They were informed *of* the purpose of the study (i.e., to examine how people cope with stress) and *given* a brief overview of the study. In order to minimize potential problems associated with the participation in a repeated assessment study (Porter & Stone, 1996; Stone, Kessler, & Haythornthwaite, 1991), care was taken to maintain the participants' interest in the study and their motivation to complete the study. The researchers asked the participants to be "coresearchers" or "collaborators" who worked together with the researcher to find out how the participants themselves coped with stress. The researcher emphasized the importance of conscientiously following the instructions not only for the research purpose, but also for their personal benefits (i.e., an understanding of the participants' stress-coping strategies). Further, the researchers provided feedback on progress via E-mail and/or phone throughout the study period (e.g., encouragement and appreciation). As noted previously, the participants' comments in the second preliminary study were incorporated to improve relevance and effectiveness of the research design.

During the first meeting, the participants responded to the Initial Assessment Scales (Appendix 4) which consisted of (a) the Leisure Coping Belief Scale (LCBS); (b) the Leisure Support Network Assessment Scale (LSNAS); (c) Helgeson's (1994) Multidimensional Gender Role Orientation Scale; (d) the Physical Health Assessment Scale including the Pennebaker Inventory of Limbic Languidness (PILL, Pennebaker, 1982), and four items from the somatization dimension of the Hopkins Symptom Check List (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974); (e) the Mental Health Inventory (MHI, Veit & Ware, 1983) including the obsessive-compulsive dimension and the interpersonal sensitivity dimension of the HSCL (Derogatis et al., 1974); and (f) the Scales of Psychological Well-Being (SPWB; Ryff, 1989).

The measures of physical and mental health and psychological well-being were completed by the participants to account for prior individual differences in health and well-being. The measures of physical and mental health assessed illness symptoms, while the measures of psychological well-being assessed positive psychological functioning including autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance (Ryff, 1989). Helgeson's (1994) multidimensional gender role scale was used to examine the impact of gender role orientations on the relationships between leisure stress-coping and health. Researchers such as Helgeson (1990) and Holahan and Spence (1980) have shown that each dimension of feminine and masculine orientations has different effects on health and well-being. Again, the description of each measure is provided at the end of this chapter.

After the participants completed the above measures, they indicated what kinds of major life events they have experienced in the past year, and how they have coped with the most stressful major life event of the year. The participants responded to the Major Stress-Coping Assessment Scales (Appendix 5) including: (a) the Major Life Event Inventory (MLEI): (b) the Event Appraisal Scale: (c) the Coping Orientation for Problem Experiences (COPE) Inventory (Carver, Scheier, & Weintraub, 1989): (d) the Leisure Participation Inventory (LPI): (e) the Leisure Coping Strategy Scale (LCSS): and (f) the Emotion Assessment Scale (EAS). The MLEI was designed to assess the types of major life events (e.g., health problems, interpersonal problems, school problems) the participants experienced, and the severity of the events. The COPE Inventory was used to examine the effects of general coping strategies on stress-health relationships. Again, the descriptions of the measures are provided at the end of this chapter.

After the completion of the above measures, the participants followed the instructions of the repeated assessment design for two weeks, and completed a Project Log (Appendix 6) on Thursdays and Sundays. Essentially, the instructions and the measures used were the same as the second preliminary study except that the modifications described earlier were done as a result of the preliminary study.

After the completion of the two-week session, the participants had an after-study meeting with the researcher, and handed in their completed project logs. They filled out the Post Study Assessment Scales (Appendix 7) which consisted of: (a) the Physical Health Assessment Scale including the Pennebaker Inventory of Limbic Languidness (PILL, Pennebaker, 1982), and four items from the somatization dimension of the Hopkins Symptom Check List (HSCL: Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974); (b) the Mental Health Inventory (MHI, Veit & Ware, 1983) including the obsessive-compulsive dimension and the interpersonal sensitivity dimension of the HSCL (Derogatis et al., 1974): and (c) the Scales of Psychological Well-Being (SPWB: Ryff, 1989). A brief discussion session was followed to provide the participants with an opportunity to describe their experiences in the participation in the study and make their comments on stress-coping and the research.

Ethical considerations. Participation in the studies was voluntary, and the participants were allowed to decline participation at any time. Also, anonymity and confidentiality of the information collected were guaranteed. The researcher informed the participants of the general purpose of the studies (i.e., an examination of lifestyle and stress-coping) because the participants' understanding of the general purpose would not seem to distort their responses. As indicated earlier, the participants were asked to be "coresearchers" or "collaborators" who worked together with the researcher to find out about the participants' stress-coping strategies. The participants completed consent forms if they agreed to

participate, follow the instructions, and allow the researcher to analyze the data obtained. The participants were encouraged to contact the researcher and/or the Office of Human Research (OHR) on campus if they had any questions or needed any assistance before, during, or after the research.

Following the completion of participation in the research, a debriefing process involved the distribution of a letter which indicated the detailed purposes, procedures, and significance of the studies, as well as the rational for using these procedures. In this letter, the participants were encouraged to contact the researcher and/or the OHR and discuss any ethical concerns. The researcher orally summarized the content of the letter as well. Major findings of the studies will be distributed to the participants later if they request this information. I carefully followed the ethical guidelines stated by the OHR to ensure the rights of the participants (i.e., protection of the participants from harm, deception, discomfort, and loss of privacy). Not only did I treat the participants with respect and dignity in a professional manner, but I also made an effort to make their participation comfortable, interesting, and enjoyable. Furthermore, I paid close attention to developing a healthy relationship or rapport with the participants. Researchers often have the power to manipulate or control the participants' behaviors, and the researcher-participant relationship often makes the participants vulnerable. I attempted to minimize the effects of the researcher's power on the participants' behaviors and vulnerability as much as I could. This attempt was facilitated by asking the participants to be "coresearchers" or "collaborators," and emphasizing an "equal balance" of the researcher-participant relationship.

Summary of Variables

Antecedent variables. (a) The participants' *dispositional and relatively stable beliefs about gaining stress-coping benefits through leisure involvements* were measured using the Leisure Coping Belief Scale (LCBS; Appendix 4, p. 1). The LCBS consists of six sub-dimensions: (1) self-determination, (2) empowerment, (3) emotional support, (4) esteem support, (5) tangible aid, and (6) informational support. The first two sub-dimensions are classified under leisure coping dispositions, and the last four sub-dimensions under leisure friendships. The participants indicated to what extent they agree or disagree with statements using a 7-point Likert-like scale, ranging from 1 (=very strongly disagree) to 7 (=very strongly agree). The information about reliability is reported in Chapter 4.

(b) Participants' *social support network developed through leisure* was measured using the Leisure Support Network Assessment Scale (LSNAS; Appendix 4, pp. 2-4), which is a modified format of Vaux and Harrison's (1985) Social Support Resources Scale. The LSNAS is designed to assess (a) size of support network; (b) frequency, closeness, balance, complexity, and the nature of relationship such as husband-wife and close friend; (c) levels of satisfaction with different aspects of social support

(i.e., emotional support, socializing, practical assistance, financial assistance, and advice/guide). The size of support network was measured by asking participants to list initials of up to 10 significant others who provide them with each of emotional support, socializing, practical assistance, financial assistance, and advice/guide. Frequency, closeness, balance, and complexity of relationship were measured by Likert-like rating scales for each of the significant others (e.g., 1 = "about once a month or less" to 5 = "about everyday" for frequency). One-item Likert-like scales were used to measure levels of satisfaction with the different aspects of social support (1 = "not at all satisfied" to 5 = "extremely satisfied").

(b) *Gender role orientations* were measured using the scale of multidimensional feminine-masculine orientations developed by Helgeson (1994; Appendix 4, p. 5). Helgeson's scale is designed to measure lay conceptions of feminine and masculine characteristics. She has conducted two studies in which college students (n in Study 1 = 223, n in Study 2 = 444) and their parents (n in Study 1 = 182, n in Study 2 = 173) were asked to describe one of six stimulus persons: masculine male, masculine female, masculine person, feminine male, feminine female, and feminine person. Factor analyses in her second study revealed 8 dimensions of femininity: (1) good person (16 items, 18 %; percentage represents the amount of variance explained by each dimension), (2) attractive in style and manner (11 items, 8 %), (3) not aggressive (6 items, 6 %), (4) gentle (7 items, 4 %), (5) social (6 items, 3 %), (6) neat (5 items, 3 %), (7) family oriented (6 items, 2 %), and (8) artistic/expressive (5 items, 2 %); and 7 dimensions of masculinity: (1) good person (10 items, 15 %), (2) aggressive (10 items, 14 %), (3) emotional strength (7 items, 5 %), (4) ambitious (6 items, 4 %), (5) athletic (5 items, 3 %), (6) interest in women (3 items, 3 %), and (7) male bonding (3 items, 3 %). The participants indicated their own feminine and/or masculine characteristics using a 5-point Likert-type scale, ranging from 1 (= "never true for me") to 5 (= "always true for me").

(c) The severity and types of *major life events* were measured using the Major Life Event Inventory (MLEI; Appendix 5, p. 1) which was developed according to studies by Dohrenwend et al. (1982) and Mattlin et al. (1990). The inventory consists of two parts. The first part asked the participants to indicate whether or not certain stressful events have happened to them in the last year. Also, they rated the extent to which each event was experienced as stressful using a Likert-type scale, ranging from 1 (= "did not occur") to 5 (= "an enormous amount of stress"). In the second part, the participants described the single most stressful event they have experienced in the last year in an open-ended question format, and rated the severity or seriousness of the event using a 10-point Likert-type scale (1 = "very minor" to 10 = "extremely serious") in which 10 was equivalent to "the death of someone you love."

(d) The frequency and impact of *weekly hassles* were assessed by the Daily Stress Inventory (DSI; Brantley & Jones, 1989; Appendix 6, pp. 1-2). The DSI is designed to measure the frequency and impact of common minor stressors often experienced in everyday life, and can be administered serially over several days or weeks. The DSI provides three basic scores: (1) the Event score — the number of items rated as having occurred on that day or in a selected time period (2) the Impact score — the sum of impact rating values assigned to each item appraised by respondents, and (3) the I/E Ratio — the average impact rating for the day or the selected time period, calculated by dividing the Impact score by the Event score (Brantley & Jones, 1989). The Impact scores were obtained from the participants' responses to each item using a 7-point Likert-type scale, ranging from 1 (= "did not occur in the past week") to 7 (= "caused extreme stress"). The DSI consists of 58 items which are categorized into five content clusters: (1) interpersonal problems, (2) personal competency, (3) cognitive stressors, (4) environmental hassles, and (5) varied stressors. "Item ratings within content clusters can be examined to define more exactly the stressors being experienced by the respondent" (Brantley & Jones, 1989, p. 1).

Internal consistency reliability coefficients (alphas) reported from the adult sample (n = 433) were high for both the Event score (.83) and the Impact score (.87) and acceptable for the I/E Ratio score (.80) (Brantley, Waggoner, Jones, & Rappaport, 1987). Brantley et al. (1987) have also reported correlation coefficients between subjective global ratings of daily stress and each of the Impact score (r = .35), the I/E Ratio score (r = .49), and the Event score (r = .13), and demonstrated the concurrent validity of at least two scores of the DSI. In addition, they have provided evidence of the convergent and discriminant validity of the DSI in their correlational analyses between the DSI and each of the State-Trait Anxiety Inventory, the Multiple Affect Adjective Checklist, and the Hassles and Uplifts Scales. Further evidence for the construct validity of the DSI has been demonstrated in several studies which examined the associations between the DSI and other theoretically related variables among different groups of people (see Brantley & Jones, 1989).

In this research, the latent variable of weekly hassles was constructed by four indicators: (a) interpersonal problems, (b) personal competency, (c) cognitive stressors, and (d) environmental hassles in SEM analyses. Each of the four indicators represented mean of items under each content cluster (dimension) of the DSI. In regression analyses, however, levels of weekly hassles were measured by calculating mean of the total items in the DSI for each participant.

Mediating variables. (a) The participants' *appraisal of events* (i.e., how the participants perceive and interpret stressful encounters) was measured by the Event Appraisal Scale (EAS; Appendix 6, pp. 3-4). Based on the literature on stress and coping (e.g., Folkman et al., 1986; Lazarus, 1991; Stone et al.,

1995). leisure (e.g., Haggard & Williams, 1992; Shamir, 1992), and cognitive mediators (e.g., Bandura, 1986; Rosenberg, 1979), this research developed items representing 15 major factors associated with appraisal of events: (1) relevance or importance of an event, (2) undesirability of the event, (3) controllability of the event, (4) anticipation of the occurrence of the event, (5) length of the event, (6) changeability of the event, (7) self-esteem, (8) a sense of loss, (9) helplessness, (10) optimism or challenge, (11) self-efficacy, (12) self-identity, (13) threat or danger, (14) self-blame, and (15) blame for others.

These 15 factors have been shown or proposed to mediate the relationship between stress and health or well-being (e.g., Bolger, 1990; Bandura, 1986; Folkman & Lazarus, 1984; Lazarus, 1991, 1993; Porter & Stone, 1996; Seligman, 1991). Also, it is assumed that leisure's influence on stress-health relationship is mediated by the 15 factors. Parts of the items have been directly adapted from the literature (e.g., Folkman et al., 1986; Lazarus, 1991; Rosenberg, 1979; Shamir, 1992; Stone et al., 1995); however, most items have been developed specifically for this research. The participants indicated the extent to which they agree or disagree with statements using a 7-point Likert-type scale, ranging from 1 (= "very strongly disagree") to 7 (= "very strongly agree"). As a result of exploratory and confirmatory factor analyses, the above 15 factors were reduced to 14 factors (optimism and helplessness were combined because helplessness was found to be the opposite of optimism). Moderate to high factor loadings were reported in SEM analyses of this research.

(b) The respondents' *leisure participation patterns* were measured by the Leisure Participation Inventory (LPI; Appendix 6, pp. 6-7). The respondents indicated (1) how many hours they spent participating in each of the 6 major groups of leisure activities (Ragheb, 1980) in the past week; (2) how many people they participated with in each activity (level of socialization); and (3) how much personal effort they exerted when engaging in each activity using a Likert-type scale, ranging from 1 (= "very low personal effort") to 5 (= "very high personal effort"). These measures allowed to explore whether or not types of leisure activities, levels of participation, levels of socialization, and levels of personal effort influenced the relationship between stress-coping and health/well-being.

(c) *The extent to which leisure involvements specifically help people cope with stress* was measured using the Leisure Coping Strategy Scale (LCSS; Appendix 6, pp. 7-8). The LCSS, a situation-specific version of the leisure stress-coping scale, consists of three dimensions: (1) leisure companionship, (2) leisure palliative coping, and (3) leisure mood enhancement. The participants indicated to what extent they agree or disagree with statements using a 7-point Likert-like scale, ranging

from 1 (=very strongly disagree) to 7 (=very strongly agree). The information about the scale's reliability is reported in Chapter 4.

(d) The participants' *general stress-coping strategies* which are not directly associated with leisure were assessed by a situation-specific version of the Coping Orientation for Problem Experiences (COPE) Inventory (Carver et al., 1989; Appendix 6, pp. 4-6). The COPE Inventory is a theoretically based multidimensional coping instrument. The COPE Inventory consists of 14 types of general coping strategies: (1) active coping, (2) planning, (3) suppression of competing activities, (4) restraint coping, (5) seeking social support for instrumental reasons, (6) seeking social support for emotional reasons, (7) positive reinterpretation and growth, (8) acceptance, (9) turning to religion, (10) focus on and venting of emotions, (11) denial, (12) behavioral disengagement, (13) mental disengagement, and (14) alcohol-drug disengagement. There are four items for each type except for alcohol-drug disengagement which has only one item. The inventory uses Likert-type rating scales (1 = "I did not do this at all" to 5 = "I did this a great deal"). Carver et al. (1989) reported preliminary information about the inventory's reliability, and convergent and discriminant validity.

Outcome variables. (a) People's *immediate coping outcomes* were measured by the Coping Outcome Assessment Scale (COAS; Appendix 6, p. 8). According to Folkman et al. (1986) and Zautra and Wrabetz (1991), immediate consequences of coping actions (e.g., coping effectiveness) influence stress-health relationships. The COAS consists of three dimensions: (a) coping effectiveness (the extent to which people's coping strategies are effective); (b) coping satisfaction (the extent to which people are satisfied with coping outcomes); and (c) stress reduction (the extent to which stress levels are reduced). Each dimension has three items along a 7-point Likert-like scale (1 = "very strongly disagree" to 7 = "very strongly agree").

(b) The participants' *emotions* were assessed by the Emotion Assessment Scale (EAS; Appendix 6, p. 9), which consists of a series of adjectives representing 15 emotions. Emotions are considered to be short-term outcomes of stress-coping (Lazarus, 1990). The selection of emotions was based on Folkman and Lazarus' (1985) framework of stress-coping, coping appraisal, and emotions. Specifically, emotions which are theoretically assumed to have close relationships with stress-coping processes have been selected. The participants indicated their emotions at the completion of coping with a specific stressful event using a 5-point Likert-type scale, ranging from 1 (= "not at all") to 5 (= "a great deal"). Folkman and Lazarus' (1985) factor analyses of the 15 emotions have suggested the existence of four factors: threat emotions (worried, fearful, and anxious; alpha = .80), challenge emotions (confident, hopeful, and eager; alpha = .59), harm emotions (angry, sad, disappointed, guilty, and disgusted; alpha = .84), and

benefit emotions (exhilarated, pleased, happy, and relieved: alpha = .78). Similarly, the present research found that these four types of emotions had high reliability scores (alphas = .81, .77, .77, .87 for threat emotions, challenge emotions, harm emotions, and benefit emotions, respectively) and moderate to high factor loadings of the items. On the other hand, Lazarus (1991) has argued that to capture the uniquenesses of independent emotions, an approach to aggregating several emotions to create factors may not be appropriate.

(c) The participants' *physical health* was measured by the Pennebaker Inventory of Limbic Languidness (PILL, Pennebaker, 1982: Appendix 7, p. 1) and four items from the somatization dimension of the Hopkins Symptom Checklist (HSCL: Derogatis et al., 1974: Appendix 7, p. 1). The PILL is a 54-item self-report checklist designed to measure the frequency of experiencing a large number of common physical symptoms and diseases. The participants reported whether or not and how often they have experienced physical health problems along a 5-point scale, ranging from 0 ("have never or almost never experienced the symptom") to 4 ("more than once every week") for each of the 54 symptoms. Pennebaker (1982) has reported internal reliability consistency (alpha) of .91 and test-retest reliability of .83. He has suggested that the PILL can be used not only to assess a tendency for experiencing physical symptoms, but also to see which specific symptoms are frequently reported by a sample of the participants (e.g., factor analyses on responses to the PILL). As recommended by Pennebaker, weighted scores based on the frequency of independent physical symptoms were used to create an overall index of physical health problems for each participant. Specifically, the index was calculated by adding weighted scores, ranging from 0 (= "have never or almost never experienced the symptom") to 4 (= "more than once every week"), for all symptoms reported. Four items from the somatization dimension of the Hopkins Symptom Checklist (HSCL: Derogatis et al., 1974) which are not included in the PILL were added to the PILL in order to enhance the comprehensiveness of sampling physical symptoms.

(d) The participants' *mental health* was measured by the Mental Health Inventory (MHI: Veit & Ware, 1983: Appendix 7, p. 2) and the obsessive-compulsive dimension and the interpersonal sensitivity dimension of the Hopkins Symptom Checklist (HSCL; Derogatis et al., 1974: Appendix 7, p. 2). The MHI is a 38-item measure of mental health developed for the use in general populations. Veit and Ware's (1983) cross-validational and combined-sites analyses of data (four large samples having quite different characteristics, n = 5,089) have suggested that the MHI is a hierarchical factor model composed of (1) a general underlying factor (i.e., mental health), (2) a higher order factor structure defined by two correlated factors — emotional distress and emotional well-being, and (3) a lower order factor structure defined by five correlated factors — anxiety, depression, loss of behavior or emotional control, general

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positive affect, and emotional ties. The participants went through a list of statements and indicated how often they have felt or behaved this way during the past week, ranging from 0 (= "rarely or none of the time: less than 1 day") to 4 (= "almost all of the time: everyday"). The internal reliability consistency has been demonstrated for all models across different samples: an alpha for the one-factor model is .96, and alphas for other models range from .92 to .94 for the two-factor model and from .83 to .91 for the five factor model (Veit & Ware, 1983).

Veit and Ware (1983) have suggested that there is a sound psychometric basis for using the one-factor model of the MHI to define a bipolar psychological distress versus well-being concept; however, reliance on the one-factor model leads to a significant loss of information. They have observed substantial gains of information with the two-factor model, whereas they have consistently identified lower structures within two correlated higher structures (psychological well-being and psychological distress) in all of the four samples. Their analyses have provided psychometric support for a hierarchical model and scoring options, ranging from one-factor summary index to five distinct constructs.

The obsessive-compulsive dimension (8 items) and the interpersonal sensitivity dimension (7 items) of the Hopkins Symptom Checklist (HSCL: Derogatis et al., 1974) were used to measure additional characteristics of mental health which are not included in the MHI. The items of these dimensions were added to the MHI, and the same instruction and rating scale as the MHI were used for these additional items. A series of reliability and validity studies and factor analyses of the HSCL (see Derogatis et al., 1974) have provided evidence of adequate internal consistency (alphas ranging from .84 to .87), test-retest reliability, inter-rater reliability, criterion validity, construct validity, and internal structure of the scales.

(e) The respondents' *psychological well-being* was measured by the Scales of Psychological Well-Being (SPWB: Ryff, 1989: Appendix 7, p. 3). Ryff (1989) has argued that popular measures of psychological well-being (e.g., the Affect Balance Scale, Bradburn, 1969: the Life Satisfaction Index, Neugarten, Havighurst, & Tobin, 1961) are mainly empirically driven and lack strong theoretical grounds, and that indicators of well-being such as happiness, life satisfaction, and positive and negative affect are not suitable to assess the quality of well-being. In an attempt to address these issues, Ryff (1989) has developed the SPWB based on mental health, clinical, and life-span developmental theories (e.g., Allport, 1961; Buhler & Massarik, 1968; Erikson, 1959; Maslow, 1968; Neugarten, 1973; Jahoda, 1958; Rogers, 1961). The SPWB consists of six scales:

(1) *self-acceptance* (possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self including both good and bad qualities; feels positive about past life);

(2) *positive relations with others* (has warm, satisfying, and trusting relationships with others; is concerned about the welfare of others; capable of strong empathy, affection, and intimacy; understands give and take of human relationships);

(3) *autonomy* (is self-determining and independent; able to resist social pressures to think and act in certain ways; regulates behaviors from within; evaluates self by personal standards)

(4) *environmental mastery* (has a sense of mastery and competence in managing the environment; controls complex array of external activities; makes effective use of surrounding opportunities; able to choose or create contexts suitable to personal needs and values);

(5) *purpose in life* (has goals in life and a sense of directedness; feels there is meaning to present and past life; holds beliefs that give life purpose; has aims and objectives for living);

(6) *personal growth* (has a feeling of continued development; sees self as growing and expanding; is open to new experiences; has sense of realizing her/his potential; sees improvement in self and behavior over time; is changing in ways that reflect more self-knowledge and effectiveness).

A series of studies (see Ryff, 1989; Ryff & Singer, 1996) have provided evidence of the reliability and validity of the scales including internal consistency (alphas ranging from .86 to .93 for 20-item "parent" scales); test-retest consistency (coefficients ranging from .81 to .88); correlations with other measures of positive functioning (e.g., life satisfaction, affect balance, self-esteem, internal control) and negative functioning (e.g., depression); and factor structures. Also, differences in age, gender, class, culture, and experiences of life events have been examined using the scales (see Ryff & Singer, 1996). Of three versions of the scales: 14-item scales, 9-item scales, and 3-item scales, this research used the 3-item scales. The participants went through a list of statements and indicated how often they have felt this way during the past week using a Likert-like scale, ranging from 1 (= "rarely or none of the time; less than 1 day") to 5 (= "almost all of the time; everyday").

Chapter 4

RESULTS

In this chapter, the results from a series of studies are described in two main sections: (a) the development and refinement of leisure stress-coping scales, and (b) the examination of relationships between stress-coping and health/wellbeing. The first section describes the psychometric procedures used for scale development, whereas the second section concerns the mechanisms and processes by which coping strategies or resources help people manage stress to maintain or improve health/wellbeing.

Development of Leisure Stress-Coping Scales

First, the idea of hierarchical dimensions of leisure stress-coping was examined in the first preliminary study and the main study. The purpose was to develop and refine measurement scales designed to assess the proposed leisure stress-coping dimensions.

Exploratory Analyses of the Leisure Stress-Coping Scales

Participants (n = 159) in the first preliminary study completed the Leisure Coping Belief Scale (LCBS) to measure their dispositional and stable beliefs about gaining stress-coping benefits through leisure pursuits. Next, they responded to the Leisure Coping Strategy Scale (LCSS) to measure the extent to which leisure involvements specifically helped them cope with stress. The participants were asked to think back the most stressful event of the year and to recall how they coped with this event.

Following the examination of descriptive statistics (frequency distributions, means, standard deviations), the participants' responses to the items on the LCBS and the LCSS underwent correlation analyses, reliability tests, and exploratory factor analyses for scale refinements.

Correlation coefficients between each item of the LCBS and the LCSS within the dimensions ranged: (a) from .00 to .58 within self-determination, (b) from -.01 to .73 within empowerment, (c) from .18 to .54 within emotional support, (d) from .46 to .68 within esteem support, (e) from .41 to .67 within tangible aid, (f) from .30 to .58 within informational support, (g) from .24 to .83 within leisure companionship, (h) from .48 to .81 within leisure palliative coping, and (i) from .33 to .68 within leisure mood enhancement. These correlation coefficients were statistically significant at .05 level except for ones between SELFDET3 and SELFDET6 (.07), SELFDET6 and SELFDET7 (.00), and EMPOW3 and EMPOW4 (-.01), in which capital letters with numbers represent variable names for each sub-dimension of the Leisure Coping Scales (this point applies to the following sections, as well). These results were taken into account when considering item deletion.

The scales' reliabilities were tested by computing Cronbach alphas for each component. Also, each item's item-to-total correlations (internal homogeneity test) and whether an item's elimination improved corresponding alpha values were examined. Cronbach alphas computed for each component

were .70 (self-determination), .81 (empowerment), .73 (emotional support), .84 (esteem support), .83 (tangible aid), .79 (informational support), .88 (leisure companionship), .89 (leisure palliative coping), and .86 (leisure mood enhancement). Corrected item-total correlation coefficients ranged from .29 to .82. Items for which elimination would improve corresponding alpha values included SELFDET6, EMPOW3, EMPOW4, EMOSUP2, ESTSUP1, TANGAID4, INFOSUP1, and COMPAN5. Again, these results were taken into consideration in making decisions about item deletion.

Principal axis factoring (one of the extraction techniques for exploratory factor analysis) was conducted with oblique rotation to explore factor structures of the LCBS and the LCSS. Of various extraction approaches used in exploratory factor analysis, principal axis factoring is most widely used, and its goal is to extract maximum orthogonal variance and analyze common variance with unique and error variance removed (Tabachnick & Fidell, 1989). In terms of the selection of a factor rotation technique, because the dimensions of the LCBS and the LCSS are theoretically assumed to be correlated, oblique rotation was used rather than orthogonal rotation.

First, the initial run for the LCBS reported that five factors had eigenvalues of more than 1, whereas the scree plot appeared to suggest that there were only two meaningful factors. Factor loadings in the pattern matrix suggested that there were only two variables in the third factor, one variable in the fourth factor, and no variable in the fifth factor which met a cut off point of .45 (20 % of variance) for inclusion of a variable in the interpretation of a factor (Tabachnick & Fidell, 1989). Accordingly, in the next run only two factors were specified.

Loadings of variables on factors, communalities, and percent of variance explained as a result of the two factor solution are shown in Table 1. Variables are ordered and grouped by size of loading to facilitate interpretation, and loadings above the criterion of .45 (20 % of variance) are bolded. Communality values ranged from extremely low to moderately high (from .007 to .73). That is, .007 % to 73 % of the variance in each variable is accounted for by the two factors. With a cut off point of .45, three items of self-determination (SELFDET5, 6, & 7) and two items of empowerment (EMPOW 3 & 4) loaded on neither factor. These items were seen to be candidates for deletion. No single item loaded on both factors with a cut off point of .45.

The pattern matrix seems to suggest that the first factor represents leisure as a source of friendship (including emotional support, esteem support, tangible aid, and informational support), whereas the second factor measures leisure as a source of self-determination and empowerment dimensions. The results appear to support the conceptual distinction between leisure friendship and leisure self-determination/empowerment dispositions.

Next, in the initial run for the LCSS, three factors were found to have the eigenvalues of more than 1, whereas the scree plot seemed to suggest that only one factor was meaningful. Factor loadings

in the pattern matrix indicated that there were nine variables in the first factor, three variables in the second factor, and three variables in the third factor which met a cut off point of .45 (20 % of variance) for inclusion and interpretation of a factor (Tabachnick & Fidell, 1989). Thus, the three factor solution appeared to be reasonable.

Loadings of variables on factors, communalities, and percent of variance explained as a result of the three factor solution are shown in Table 2. Again, variables are ordered and grouped by size of loading to facilitate interpretation, and loadings above the criterion of .45 (20 % of variance) are bolded. Communality values ranged from moderately low to high (from .31 to .78). That is, 31 % to 78 % of the variance in each variable is accounted for by the three factors. With a cut off point of .45, one item of leisure companionship (COMPAN1) and two items of leisure mood enhancement (MOOD 1 & 3) did not load on any factor. These items were possible candidates for deletion. Also, no single item loaded on both factors with a cut off point of .45.

The interpretation of the pattern matrix is difficult. Four items of leisure companionship, four items of leisure palliative coping, and one item of leisure mood enhancement had loadings of more than .45 for the first factor. Also, two items of leisure palliative coping and one item of leisure mood enhancement had loadings of more than .45 for the second factor, and so did one item of leisure companionship and two items of leisure mood enhancement for the third factor. Interestingly, the items loaded high on the third factor are all negatively worded questions. By and large, the results appeared to suggest that there was some overlap in the three dimensions of leisure coping strategies.

The decision of which items to delete was based on a comprehensive examination of correlation analyses, reliability tests, and exploratory factor analyses, as well as on theoretical considerations (Tabachnick & Fidell, 1989). SELFDET6 and EMPOW3 were consistently seen as "problems" in all of the above analyses. Thus, only these two items were deleted for the confirmatory factor analyses. Additional items such as SELFDET7 and EMPOW4 could be legitimately deleted. However, it was decided that these items would be retained because confirmatory factor analyses, which are more powerful and conceptually appealing than exploratory factor analyses, were expected to provide more convincing results with regard to item deletions.

Confirmatory Factor Analyses of the Leisure Stress-Coping Scales

The retained 46 items were subject to confirmatory factor analyses using AMOS (Arbuckle, 1997). The initial analysis which included all of the 46 items to test the conceptual model of leisure stress-coping dimensions showed that two items of self-determination (SELFDET5 & 7) and one item of leisure companionship (COMPAN5) did not meet the cut off point of factor loading (i.e., .45, 20 % of variance). The factor loadings were .30, .33, and .39 for SELFDET5, SELFDET7, and COMPAN5, respectively. The squared multiple correlation coefficients which indicate the percent of variance

explained were .09, .11, and .15 for these three variables, respectively. Consequently, these three items were deleted from further analyses.

Forty-three items were included in the Leisure Coping Belief Scale (LCBS, 26 items) and the Leisure Coping Strategy Scale (LCSS, 17 items) and used in the main study. Eighty-five participants responded to the LCBS once during the first stage of the main study, and to the LCSS four times during the second stage of the main study. In the second stage, the participants reported 4 stressful episodes during a two-week period. Thus, 340 (85 X 4) episodes were used for the analyses of the LCSS in the main study. Cronbach alpha reliability scores for the dimensions of the LCBS and the LCSS in the main study were: .61 (self-determination), .77 (empowerment), .74 (emotional support), .68 (esteem support), .86 (tangible aid), .82 (informational support), .91 (leisure companionship), .84 (leisure palliative coping), and .81 (leisure mood enhancement). Test-retest reliability scores for the Leisure Coping Strategies Sub-scales calculated for coping with major event stress and weekly hassles ranged from .28 to .49 for the companionship sub-scale, .03 to .49 for the palliative coping sub-scale, and .15 to .47 for the mood enhancement sub-scale. The participants seemed to use somewhat different types of coping strategies to deal with major event stress and weekly hassles, although some levels of stability were shown.

The participants' responses to the LCBS and the LCSS in the main study underwent confirmatory factor analyses using AMOS to examine the factor structure, dimensionality, and level of hierarchy. To achieve this goal, four measurement models were developed and tested: (a) one factor model (Figure 11), (b) two correlated factor model, (Figure 12) (c) second-order hierarchical model (Figure 13), and (d) third-order hierarchical model (Figure 14). The one factor model, in which all items were loaded only on one factor, made no distinctions among dimensions. The two correlated factor model distinguished between two factors: leisure coping beliefs and leisure coping strategies; however, no distinctions among dimensions of the two factors were made. The second-order hierarchical model specified two levels of dimensions. This model distinguished between the leisure coping disposition and leisure friendship dimensions under leisure coping beliefs, as well as the distinction among leisure companionship, palliative coping, and mood enhancement under leisure coping strategies.

Finally, the third-order hierarchical model specified three levels of dimensions. This third-order hierarchical model is consistent with the conceptual model of the hierarchical dimensions of leisure stress-coping that guided the development of the items. In addition to the distinctions made in the second-order hierarchical model, this model further distinguishes between self-determination and empowerment under the leisure coping disposition, as well as the distinction among the different functions of leisure friendship (i.e., emotional support, esteem support, tangible aid, and informational support). The comparison among the four measurement models provided a test to determine if there

were distinguishable dimensions at each level of hierarchy.

Table 3 reports a *function of log likelihood* statistic for the four models calculated from AMOS. In an analysis with missing data, AMOS cannot generate a chi-square statistic and values for other fit indices. Instead, it provides a function of log likelihood statistic and a number of parameters value. In general, the better a model fits the data, the smaller the function of log likelihood statistic will be, although there is no absolute standard for deciding when the statistic is small enough to accept the model. However, this statistic and the number of parameters can be used like the chi-square statistic and degrees of freedom to compare two or more nested models for goodness of fit (Arbuckle, 1997). The differences in a function of log likelihood statistic, controlling for the number of parameters, between the models suggested: (a) a better fit of the two correlated factor model than the one factor model, (b) a better fit of the second-order hierarchical model than the two correlated factor model, and (c) a better fit of the third-order hierarchical model than the second-order hierarchical model. All of the differences in fit were statistically significant ($p < .001$). The factor loadings and squared multiple correlations associated with the third-order hierarchical model are reported in Figure 14.

In summary, the exploratory and confirmatory analyses provided preliminary evidence of the reliability and validity of the LCBS and the LCSS in the two studies. The exploratory analyses, which were a precursor to the confirmatory analyses, were performed to generate, refine, and select scale items in the preliminary study. The confirmatory factor analyses, that were performed on the data generated in the main study, were used to further determine how much confidence could be placed in the conceptual measurement model and the measurement scales. The confirmatory factor analyses provided support for the proposed measurement model (the third-order hierarchical model) and scales. The model and scales distinguish between people's relatively enduring *beliefs* about the ways in which their leisure involvements help them cope with stress, and the situation-specific behavioral and cognitive *strategies* their leisure provides for coping with the stress they encounter. The model is hierarchical in the sense that there are a number of sub-dimensions and corresponding measurement sub-scales that comprise both the *belief* and *strategy* dimensions of the model. With respect to the *leisure coping beliefs* (Level 1), there are two major types of beliefs (Level 2). People believe to varying degrees that their leisure involvements provide the opportunity to develop and strengthen *friendships* and *personality dispositions* that aid them in dealing with stressful events. More specifically, people believe to differing degrees that their leisure friendships help them cope with stress by providing *emotional support, esteem support, tangible aid,* and/or *informational support* (Level 3), and that leisure contributes to the stronger personality dispositions of *self-determination* and/or *empowerment* which enable better stress coping (Level 3). With respect to the actual use of *leisure coping strategies* (Level 1), there are three major types of strategies (Level 2). When faced with a

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stressful situation or event, people to varying degrees report using leisure to provide *companionship, palliative coping* opportunities, and/or *mood enhancement* as ways of dealing with stress.

One of the unique aspects of the main study was the opportunity it provided for administering the LCSS (situation-specific measure) four times in the two-week session. This approach was useful for capturing the stress-coping strategies each participant actually used in her/his everyday life. However, the LCBS (dispositional measure) was administered only once because it was expected that the participants' beliefs were relatively stable over time, particularly during a short period of time (i.e., two weeks). The difference in the number of administrations of the two scales might be considered to be a weakness with regard to the examination of the hierarchical model of leisure coping. Nevertheless, the benefits of comprehensiveness and repeatability seemed to outweigh any limitations of the approach.

Finally, it should be emphasized that the results from these studies are preliminary, and the psychometric properties of the measurement scales should be further examined in future research. Although the third-order hierarchical model provided the best fit to the data among the models compared, low factor loadings and/or only acceptable item-total correlations of a few items (sd3, sd4, emot2, est1, mood4w) were reported. However, at this early stage of the scale development, it appears appropriate to suggest that the scales seem to possess *reasonable* psychometric properties. This type of issue associated with the scale's development has been illustrated by Weissinger and Bandalos (1995) in their analyses of the Intrinsic Leisure Motivation Scale. Thus, the measurement scales were considered adequate enough to be used for subsequent analyses of the data.

Relationships between Stress-Coping and Health/Wellbeing

The second half of the Result section concerns the examination of relationships between stress-coping and health/wellbeing. In the following report, all β values are statistically significant at .05 level unless otherwise stated.

Effects of Stressful Events on Health/Wellbeing

Before exploring the impact of the coping-related variables on stress-health relationships, the effects of the stressful events, reported by the participants, on health/wellbeing were examined. Figure 15 reports the effects of weekly hassles, whereas Figure 16 reports the effects of major event stress. The differences in the nature of structural equation models between the two Figures reflect the timing or sequence of data collection. In Figure 15, health and wellbeing measures were assessed at Time 1, followed by the weekly hassle measures and, finally, by the health and wellbeing measures at Time 2. In Figure 16, however, the participants recalled major stressful events in the past year, then they reported their health and wellbeing at Time 1. Subsequently, they responded to the health and wellbeing measures, again, after the completion of the main study at Time 2.

In Figure 15, the components of weekly hassles consist of the dimensions of the Daily Stress

Inventory (Brantley & Jones, 1989), including interpersonal problems, competence problems, cognitive problems, and environmental annoyances. Figure 15 suggests that those individuals who had suffered from mental and/or physical illnesses at Time 1 reported higher levels of weekly hassles (βs=.32 & .33, respectively) which, in turn, contributed to mental illness and/or negative psychological wellbeing at Time 2 (βs=.38 & -.19, respectively). The effects of psychological wellbeing at Time 1 on weekly hassles, and the effects of weekly hassles on physical symptoms at Time 2 were not statistically significant at .05 level. As expected, each of the health and wellbeing measures at Time 1 was positively related to the corresponding measure at Time 2. Only one cross-over effect was found to be statistically significant, that is, the influence of psychological wellbeing at Time 1 on mental illness at Time 2 (β=-.14). Figure 16 indicates that major event stress promoted the deterioration of health and wellbeing at Time 1. The impact of major event stress on health and wellbeing at Time 2 was not strong; the effect on mental illness at Time 2 was the only statistically significant path (β=.41). Table 4 reports a function of log likelihood statistic for the structural equation models tested.

Effects of Leisure Coping Beliefs on Stress-Health Relationships

Two approaches were taken in examining the effects of leisure coping beliefs on stress-health relationships. First, regression analyses were employed to test the buffer effects of leisure coping beliefs. Secondly, structural equation modeling (SEM) was used to analyze both the direct and indirect effects of leisure coping beliefs. In both analyses, the effects on mental illness, psychological wellbeing, and physical illness at Time 2 were examined separately. Also, weekly hassles were distinguished from major event stress.

Buffer models. A series of regression analyses were performed to examine whether or not the leisure coping beliefs acted as "buffers" against the negative impacts of stress on health/wellbeing. Table 5 reports that the weekly stress X leisure empowerment interaction effects accounted for 1.2 % (p=.007) and 1.6 % (p=.002) of the variance in mental illness and physical symptoms at Time 2, respectively, after controlling the corresponding mental illness and physical symptoms measures at Time 1, and the main effects of weekly hassles and empowerment. Also, the weekly stress X leisure friendship interaction effects were statistically significant (0.9 %, p=.022) in predicting mental illness at Time 2 (Table 5). As for the effect of major life event stress, 5.5 % of the variance in mental illness at Time 2 was explained by the major event stress X leisure friendship interaction effects (p=.034; Table 5).

Figures 23 through 26 illustrate the nature of these statistically significant interaction effects. One standard deviations above or below mean scores were used to classify high vs. low stress levels, and high vs. low levels of leisure empowerment and friendship. Figure 23 suggests that when stress levels of weekly events were low, the levels of leisure empowerment did not make a difference in

predicting mental illness at Time 2. However, when stress levels increased, those individuals in the low leisure empowerment group reported higher levels of mental illness than those in the high empowerment group. Likewise, Figure 24 indicates that the levels of leisure friendship had an impact on mental illness only when stress levels were high. Those people in the low leisure friendship group reported higher levels of mental illness than those in the high leisure friendship group when they experienced high stress. The findings summarized in Figures 23 and 24 provide evidence for the idea of "leisure as a buffer," which assumes that leisure protects people from the deterioration of their health under stressful conditions.

In contrast, interaction effects plotted in Figures 25 and 26 are not consistent with the idea of leisure as a buffer. Figure 25 suggests that those in the high leisure empowerment group reported higher levels of physical symptoms than those in the low empowerment group when stress levels were high, and that the reverse was the case when stress levels were low. Figure 26 appears to indicate that having high leisure friendship beliefs is associated with lower mental illness when stress levels were low, and that the impact of leisure friendship beliefs was small when stress levels were high. In either case, the nature of the interaction effects is inconsistent with the notion of leisure as a buffer.

The buffer effects (Figures 23 & 24) must be interpreted with caution because of the small amount of variance explained by the interaction effects (i.e., 1.2 % and 0.9 %). Also, of eighteen models tested for the effects of leisure coping beliefs, the interaction effects of only four models were statistically significant, and only two models were consistent with the buffer perspective. Therefore, the findings did not provide strong support for the buffer effects. On the other hand, given the relatively small sample size and the amount of variance accounted for by the corresponding health or wellbeing measures at Time 1, the buffer effects that were found to be statistically significant are of psychological or practical interest.

Direct and indirect effect models. Next, SEM was used to test direct and indirect models of the relationships between leisure coping beliefs, stress, and health/wellbeing. Generally, structural equation modeling assumes no significant interactions exist between the exogenous and endogenous variables in a model. Although the previous analyses of the buffer models found a few statistically significant interactions, the limited number of the significant interactions, and the small amount of variance explained by these interactions, appeared to support the use of SEM for subsequent analyses.

Figure 17 illustrates the impact of the various types of leisure coping beliefs on the weekly hassles-mental illness relationship. Mental illness at Time 1 was included to account for individual differences in prior mental health. The components of mental illness consisted of anxiety, depression, loss of control, obsessive-compulsive, and interpersonal sensitivity. Both direct and indirect effects of the leisure coping beliefs were found. Leisure empowerment and leisure friendship directly contributed

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to the reduction of mental illness at Time 2 (βs=-.24 & -.09, respectively). Also, leisure friendship indirectly protected participants from the deterioration of mental health through its effect on lowering levels of weekly hassles (β=-.15). Unexpectedly, higher levels of self-determination were associated with higher levels of mental illness (β=.24).

Figure 18 represents the effects of the various leisure coping beliefs on the major event stress-mental illness relationship. Similar to Figure 17, empowerment and leisure friendship reduced the levels of mental illness (βs=-.24 & -.14), while self-determination did the reverse (β=.28). However, self-determination indirectly provided a positive impact on mental health through its effect on lowering levels of major event stress (β=-.22).

Figure 19 describes the effects of the leisure coping beliefs on weekly stress-psychological wellbeing relationships. Essentially, the nature of the relationships was similar as those described in Figure 17. Each of the dimensions directly influenced psychological wellbeing at Time 2 (i.e., the positive effects of empowerment and leisure friendship, and the negative effect of self-determination: βs=.25, .35, & -.22, respectively). Also, I found the indirect and positive effect of leisure friendship on psychological wellbeing through its suppressing effect on weekly hassles (β=-.15).

Likewise, Figure 20 reflects similar relationships as those shown in Figure 18, with respect to the direct effects of empowerment, leisure friendship, and self-determination. However, the indirect effect of self-determination on psychological wellbeing was not supported because the impact of major life event stress on wellbeing was not statistically significant at .05 level (β=-.05). Though, self-determination contributed to the reduction of major life event stress (β=-.21).

Figures 21 and 22 represent relationships involving effects on physical symptoms at Time 2. The impact of weekly hassles was tested in Figure 21, while the impact of major life event stress was tested in Figure 22. In Figure 21, leisure friendship led to the decrease of both physical symptoms and weekly stress (βs=-.07 & -.15, respectively). Again, self-determination seemed to have a detrimental effect on physical health (β=.17). The effect of weekly stress on physical symptoms was not statistically significant at the .05 level (β=-.01).

Finally, only self-determination played a role in affecting the major event stress-physical symptoms relationship (see Figure 22). Self-determination was directly and positively associated with level of physical symptoms (β=.21), whereas it was indirectly and negatively associated through its contribution to the suppression of major life event stress (β=-.22). In summary, both direct and indirect effects of the leisure coping beliefs on stress-health relationships were found. Leisure friendship contributed to the enhancement of positive health/wellbeing both directly and indirectly, whereas leisure empowerment did the same only directly. However, self-determination's effects on

health/wellbeing were not consistent. Table 4 reports a function of log likelihood statistic for the structural equation models tested.

Effects of Leisure Coping Strategies on Stress-Health Relationships

Buffer models and process models were developed and tested to examine the effects of leisure coping strategies on weekly stress-health relationships.

Buffer models. Tests of buffer models were done with regression analyses. Table 6 reports that weekly stress X leisure palliative coping interaction effects accounted for 1.8 % (p=.002) and 0.9 % (p=.022) of the variance in mental illness and physical symptoms at Time 2, respectively, after controlling corresponding illness and symptom measures at Time 1, and the main effects of weekly stress and palliative coping. Also, weekly stress X leisure companionship interaction effects explained 2 % (p=.001) of the variance in mental illness at Time 2 (Table 6).

Figures 36 through 38 illustrate these interaction effects. One standard deviations above or below mean scores were used to classify high vs. low stress levels, and high vs. low levels of leisure palliative coping and companionship. The nature of the interaction effects is not clear in Figures 36 and 37. These figures appear to suggest that those participants with high leisure palliative coping or companionship reported lower levels of mental illness than those participants with low palliative coping or companionship when stress levels were low. But, the reverse was likely the case when stress levels were high. The interaction effects described in Figures 36 and 37 appear inconsistent with the buffer perspective.

In contrast, Figure 38 provides a much clearer illustration of interaction effects that support the leisure buffer hypothesis. When stress levels were low, leisure palliative coping did not influence the participants' levels of physical symptoms. However, when stress levels increased, those participants in the high leisure palliative coping group were able to maintain "good" physical health compared to those participants in the low palliative coping group who reported higher levels of physical symptoms. That is, leisure palliative coping acted as a "buffer" against the negative impact of weekly stress on physical symptoms. However, as pointed out previously, this buffer effect must be interpreted with caution because of the small amount of variance explained by the interaction effect (i.e., 0.9 %). As well, of eighteen models tested for the effects of leisure coping strategies, only three models reached the statistical significance level of .05, and only one model was consistent with the buffer perspective. Though, this buffer effect appears to be meaningful to some degree due to the sample size and the account of the corresponding physical symptom measure at Time 1.

Process models. As indicated previously, although a few interactions were found to be statistically significant, the limited number of the significant interactions, and the small amount of variance explained by these interactions, seem to support the use of SEM for subsequent analyses. In

the process models, it was proposed that the effect of weekly stress on health/wellbeing was not direct, but was mediated by cognitive and behavioral factors including event appraisals, leisure coping strategies, coping effectiveness, and emotions. Stressful events were classified into several categories including: academic problems (n=120), interpersonal problems (n=61), competence problems other than academic ones (n=24), cognitive problems (n=18), and environmental problems (n=27), on the basis of participants' descriptions of events.

To test the process models, first, only parts of the relationships were analyzed using SEM: (a) the effects of stress on event appraisals, (b) the effects of event appraisals on leisure coping strategies, (c) the effects of leisure coping strategies on coping effectiveness, (d) the effects of coping effectiveness on emotions, and (e) the effects of emotions on each of mental illness, psychological wellbeing, and physical illness at Time 2. The results from these analyses were used in constructing comprehensive models. In this section, those models which were found to have the best fit to the data are described. All β values reported below are statistically significant at .05 level unless otherwise stated. The following sections describe the processes underlying leisure stress-coping and health/wellbeing, beginning with the influence of academic stress, followed by the influence of interpersonal stress, competence problems, and environmental annoyances. The effects on mental illness, psychological wellbeing, and physical symptoms are described separately for each of the stressful events.

Figure 27 is a process model for the relationships between academic stress, leisure coping strategies, and mental illness. This figure suggests that the effect of academic stress on mental illness at Time 2 was not direct (β=.06, p>.05), but was mediated by several process-oriented variables. First, academic stress was perceived to be a threat or danger by students (β=.23). Also, activities producing academic stress were seen by the students as an opportunity to develop their self-identity (β=.12). The appraisal of academic stress as a threat negatively influenced engagement in leisure for mood enhancement (β=-.23). In contrast, the appraisal of academic stress as an opportunity to foster self-identity positively affected the use of leisure for mood enhancement, palliative coping, and companionship (βs=.74, .99, & .91, respectively).

The use of leisure coping strategies did not always guarantee that these strategies were effective in enhancing positive mental health. Leisure palliative coping promoted coping effectiveness (β=.83) which, consequently, reduced levels of mental illness through its suppression effects on "threat emotions" (being "worried, fearful, and anxious;" β=-.41). Leisure companionship, however, resulted in coping ineffectiveness (β=-.55) which detrimentally impacted mental illness through its effect on threat emotions. Also, leisure companionship negatively influenced mental health through its positive effect

on "harm emotions" (being "angry, sad, disappointed, guilty, and disgusted;" β=.47). On the other hand, leisure mood enhancement contributed to reduced mental illness through its suppression effects on harm emotions (β=-.42). In summary, to deal with academic stress, leisure palliative coping and mood enhancement appeared to have positive consequences for mental health, although the perception of threat or danger suppressed likely mood of using leisure for mood enhancement. On the other hand, leisure companionship did not seem to be a good choice to manage academic stress.

Figure 28 describes the relationships between academic stress, leisure coping strategies, and psychological wellbeing. The processes involved are essentially identical to the ones in Figure 27 except that threat emotions did not influence psychological wellbeing at Time 2, that leisure mood enhancement facilitated coping effectiveness (β=.38), and that coping effectiveness reduced levels of harm emotions (β=-.39). Overall, leisure mood enhancement and palliative coping were important mediators to enhance psychological wellbeing. Unexpectedly, academic stress promoted psychological wellbeing at Time 2 (β=.15). Perhaps, this finding reflects the fact that most participants in this study were "good" students who were motivated and interested in academic pursuits. Particularly, opportunities to excel in academic activities seemed to facilitate some dimensions of psychological wellbeing, namely, purpose in life and personal growth.

The processes involved are a little different for the effects on physical symptoms (see Figure 29). Of the leisure coping strategies, only leisure mood enhancement played a mediating role, and facilitated "benefit emotions" (being "exhilarated, pleased, happy, and relieved: β=.26). Contrary to expectation, benefit emotions increased physical symptoms (β=.15).

Figures 30 through 32 summarize the effects of interpersonal stress. Again, several process-related variables explained the relationships. In these Figures, interpersonal stress can be seen to result in a sense of loss (βs=.59) and damaged self-esteem (βs=-.27). Sense of loss triggered engagement in leisure companionship (βs=.11 or .12), whereas a lack of self-esteem encouraged involvement in leisure for mood enhancement (βs=.17, .18, or .19). In Figure 30, leisure companionship contributed to the reduction of mental illness through its positive effects on "challenge emotions" (being "confident, hopeful, and eager;" β=.15). Leisure mood enhancement did the same, but through its positive impact on coping effectiveness and challenge emotions (βs=.34 & .66). In addition, interpersonal stress provided direct and detrimental effects on mental health (β=.35).

In Figure 31, coping effectiveness, challenge emotions, and harm emotions mediated the effects of leisure mood enhancement and companionship on psychological wellbeing, taking multiple routes. Key mechanisms involved are (a) the enhancement of challenge emotions by leisure companionship (β=.22), (b) the facilitation of coping effectiveness by mood enhancement (β=.48), and (c) the reduction

of harm emotions by mood enhancement and coping effectiveness (βs=-.18 & -.47). However, leisure companionship also promoted coping ineffectiveness and harm emotions (βs=-.43 & .33), while leisure mood enhancement contributed to psychological wellbeing through its positive impacts on coping effectiveness and its negative effects on harm emotions. Leisure companionship appeared to have both positive and negative effects on psychological wellbeing.

Figure 32 describes the effects of interpersonal stress on physical symptoms. As well as the direct and detrimental effects of interpersonal stress on physical health (β=.14), the Figure reports the mediating effects of several variables. Leisure mood enhancement contributed to the reduction of physical symptoms through its positive impacts on coping effectiveness and benefit emotions (βs=.61 & .70). In contrast, leisure companionship led to coping ineffectiveness (β=-.41).

Figures 33 and 34 depict the effects of competence problems on mental illness and physical symptoms, respectively. Contrary to the finding of the previous analyses, event appraisal did not play a mediating role. In both Figures, competence stress triggered the use of leisure mood enhancement which, subsequently, contributed to the reduction of mental illness and physical symptoms through its positive effects on coping effectiveness. Also, benefit emotions mediated the relationships and reduced mental illness in Figure 33, whereas challenge emotions mediated the relationships, but, were positively associated with physical symptoms in Figure 34.

Finally, Figure 35 illustrates the effects of environmental annoyances on mental illness. Environmental annoyances discouraged a sense of self-efficacy (β=-.53), which facilitated the use of leisure mood enhancement (β=.51). Then, leisure mood enhancement contributed to the reduction of mental illness through its positive effect on coping effectiveness (β=.61). Table 4 reports a function of log likelihood statistic for the structural equation models tested.

Effects of Leisure Coping on the Relationship between General Coping and Health/Wellbeing

Another question addressed by this research was: "How is leisure stress-coping related to general stress-coping and health/wellbeing?" To examine such relationships at a global level, weekly events reported by the total sample were analyzed. Initial analyses involved the examination of causal relationships between leisure stress-coping and general stress-coping. Although leisure stress-coping as both a cause and an effect were tested, the effects of general coping on leisure coping were extremely weak. On the other hand, strong effects of leisure coping on general coping were found. That is, leisure coping appeared to be an antecedent of general coping. Thus, only unidirectional relationships (i.e., the effect of leisure coping on general coping) were considered for further analyses.

Figure 39 describes the effects of the various leisure coping strategies on general coping strategies. Leisure companionship had positive effects on each of problem-focused coping, emotion-

focused coping, and escape-oriented coping (βs=.14, .42, & .28, respectively). Likewise, leisure palliative coping positively influenced problem-focused coping and escape-oriented coping (βs=.13 & .19, respectively). Leisure mood enhancement, however, discouraged the use of emotion-focused coping and escape-oriented coping (βs=-.21 & -.27, respectively).

Figure 40 illustrates the effects of the components of leisure coping beliefs on general coping strategies. Leisure empowerment promoted the use of problem-focused coping and emotion-focused coping (βs=.16 & .10, respectively), and discouraged the use of escape-oriented coping (β=-.18). Also, self-determination had a positive impact on escape-oriented coping (β=.13), while leisure friendship encouraged the use of problem-focused coping (β=.12).

Analyses of parts of the relationships between leisure and general coping and health/wellbeing helped in the development of comprehensive models. The influences of leisure coping strategies and beliefs were examined independently. Also, the effects on mental illness, psychological wellbeing, and physical symptoms were analyzed separately. Only models which showed the best fit of the models tested and compared are to be described below.

Figure 41 shows a comprehensive model of the relationships between leisure and general coping strategies, and mental illness. The effects of the dimensions of leisure coping strategies on general coping strategies are identical to the ones described in Figure 39. Problem-focused coping contributed to the reduction of mental illness through its positive impact on coping effectiveness (β=.32). Emotion-focused coping provided mixed effects on mental health. When it promoted challenge emotions (β=.22), coping effectiveness was facilitated (β=.46), and it resulted in the decrease of mental illness (β=-.18). However, when emotion-focused coping enhanced harm and threat emotions (βs=.25 & .27, respectively), these emotions led to coping ineffectiveness (βs=-.19 & -.29, respectively) and, consequently, to the deterioration of mental health. Similarly, escape-oriented coping produced detrimental effects on mental health through the enhancement of harm and threat emotions (βs=.68 & .46) and the reduction of challenge emotions (β=-.30).

When the impacts of leisure coping strategies are taken into account, leisure companionship and palliative coping contributed to the reduction of mental illness through their positive effects on problem-focused coping (βs=.15 & .13, respectively). Also, leisure companionship did the same through its effect on emotion-focused coping (β=.44) only when emotion-focused coping promoted challenge emotions. The reverse was the case (i.e., companionship's negative effect on mental health) when emotion-focused coping increased harm or threat emotions. Further, leisure mood enhancement helped reduce mental illness through suppressing escape-oriented coping (β=-.37). However, leisure companionship and palliative coping led to increased mental illness when these coping strategies

promoted escape-oriented coping ($\beta s=.34$ & .13, respectively).

Figure 42 reports the impact of leisure coping beliefs on the relationships between general coping strategies and mental illness. Leisure empowerment and friendship contributed to the reduction of mental illness through their positive effects on problem-focused coping ($\beta s=16$ & .13, respectively). Leisure empowerment also did the same through its positive effect on emotion-focused coping ($\beta=.09$). though only when emotion-focused coping enhanced challenge emotions. In addition, the suppression of escape-oriented coping by leisure empowerment ($\beta=-.21$) reduced mental illness, whereas the encouragement of escape-oriented coping by self-determination beliefs ($\beta=.12$) increased mental illness.

Figure 43 outlines the effects of leisure coping strategies on the relationships between general coping strategies and psychological wellbeing. Emotion-focused coping and escape-oriented coping promoted harm emotions ($\beta s=.30$ & .58) which, consequently, reduced levels of psychological wellbeing ($\beta=-.14$). Problem-focused coping did not have any impact on psychological wellbeing either directly or indirectly. As for the effects of leisure coping strategies, leisure mood enhancement contributed to psychological wellbeing through its suppressing effect on emotion-focused and escape-oriented coping ($\beta s=-.27$ & -.30). However, leisure companionship and palliative coping did the reverse through their positive effects on emotion-focused and/or escape-oriented coping ($\beta s=.41, .30,$ & .15).

Figure 44 summarizes the effects of leisure coping beliefs and general coping on wellbeing. Leisure empowerment facilitated psychological wellbeing through its negative effect on escape-oriented coping ($\beta=-.20$), whereas self-determination did the opposite through its positive effect on escape-oriented coping ($\beta=.14$). Models for physical symptoms did not show statistically significant results. In summary, a variety of stress-coping mechanisms were revealed in these analyses of the relationships between leisure and general coping and health/wellbeing. Stress-coping strategies had either positive or negative impact on health/wellbeing depending on whether these strategies promoted or discouraged coping effectiveness and/or particular types of emotions. Table 4 reports a function of log likelihood statistic for the structural equation models tested.

Tests of Optimal Matching Models

Some researchers have argued that it is important to pay attention to specific types of stressful events and coping strategies, and that a match between the demands of stressors and coping functions results in better coping outcomes and health/wellbeing (i.e., optimal matching models; Cohen & McKay, 1984; Cutrona & Russell, 1990; Hobfoll & Vaux, 1993; Thoits, 1986; Vaux, 1988). Contrary to the previous analyses on the buffer and process models, the test of optimal matching models requires the classification of stressful events and coping strategies into various types, and the prediction of

outcome indicators (e.g., coping effectiveness, health) by specific coping strategies for different event types.

To test optimal matching models, the stressful events reported were classified into various types (i.e., academic problems, n=120; interpersonal problems, n=61; competence problems other than academic, n=24; cognitive stressors, n=18; environmental annoyances, n=27; financial problems, n=4; illnesses/injuries, n=6; and illnesses of a loved one, n=4). Because academic problems and interpersonal problems were the two most frequently reported events, the following analyses concerned these two types of stressful events only. That is, the rest of event groups did not have sufficient cases to proceed analyses with statistical confidence.

Other classifications represented the different appraisals of events based on the levels of controllability and self-esteem, which have been suggested to be important concepts in examining optimal matching models (e.g., Cutrona, 1990). Below or above mean scores were used to distinguish between controllable events and uncontrollable events, and to select events which damaged one's self-esteem. Then, a series of regression analyses were performed to examine the effects of coping strategies and resources (leisure and general coping strategies and social support resources) on various coping outcome measures (coping effectiveness, satisfaction with coping outcomes, stress reduction, mental illness, psychological wellbeing, and physical illness).

Different types of general coping strategies were assessed by the Coping Orientation for Problem Experiences (COPE) Inventory (Carver et al., 1989). The COPE Inventory consists of 4 items for each of the 13 types of general coping strategies (e.g., active coping, planning, suppression) using likert-type scales (1="I did not do this at all" to 5="I did this a great deal"). People's support network developed through leisure was measured by the Leisure Support Network Assessment Scale (LSNA). The LSNAS is designed to measure size of support network; frequency, closeness, and complexity of relationships; and levels of satisfaction with different aspects of social support (e.g., emotional support, socializing, advice or guidance). The size of support network was measured by the number of significant others available for the different aspects of social support described above. Frequency, closeness, and complexity of relationships were measured by Likert-like rating scales for each of the significant others (e.g., 1 = "about once a month or less" to 5 = "about everyday" for frequency). Finally, one-item Likert-like scales were used to measure levels of satisfaction with different aspects of social support (1 = "not at all satisfied" to 5 = "extremely satisfied").

The results suggest that, in most cases, a match between the demands of stressors and coping functions led to positive coping outcomes. For example, when students dealt with academic problems (Table 7), *planning* promoted coping effectiveness (β=.38) and reduced threat emotions (β=-.39), whereas *active coping* facilitated coping satisfaction (β=.28). Also, *positive reinterpretation/growth*

enhanced coping effectiveness and challenge emotions (βs=.25 & .31, respectively). As expected. *satisfaction with advice or guidance* led to the reduction of stress. mental illness, physical symptoms. and threat emotions (βs=.30, -.34, -.34, -.27, respectively), and to the enhancement of psychological wellbeing (β=.19). In addition. having a larger *support network* was associated with coping effectiveness, psychological wellbeing, the reduction of physical symptoms, the reduction of threat and harm emotions, and the increase of benefit emotions (βs=.40, .24, -.25, -.37, -33, .49, respectively). Interestingly. *financial assistance* promoted coping satisfaction and reduced mental illness (βs=.47. -.34, respectively).

As well. leisure-related coping strategies provided positive outcomes in dealing with academic stress (Table 7). Leisure mood enhancement facilitated coping effectiveness, coping satisfaction. stress reduction (β=.28, .24, .32, respectively), and reduced mental illness, and threat and harm emotions (βs= -.19, -.40, -.26, respectively). Leisure empowerment contributed to the reduction of stress. mental illness, and harm emotions, and the enhancement of psychological wellbeing (βs=.23. -.15, -.30. .20. respectively). Furthermore, emotional support (a component of leisure friendship) was associated with an increase in psychological wellbeing and decrease physical symptoms (βs=.28. -.29. respectively). although it enhanced harm emotions (β=.43).

Some coping strategies were not effective for handling academic stress (Table 7). For example. turning to religion led to dissatisfaction with coping outcomes and increased physical symptoms (βs= -.23, .20, respectively). Likewise, venting of emotions and alcohol consumption promoted mental illness (βs=.19 & .32, respectively), and the former enhanced harm emotions (β=.33).

To manage interpersonal problems, however, coping strategies involving social support appeared to provide positive outcomes (Table 8). For example, practical assistance from significant others enhanced coping effectiveness and satisfaction with coping outcomes, and reduced harm emotions (βs=.94, .66, -.48, respectively). Similarly, satisfaction with advice from significant others led to coping satisfaction, reduced mental illness and harm emotions, and increased benefit emotions (βs=.42, -.35, -.32, .44, respectively). Also. emotional support and esteem support (components of leisure friendship) contributed to the suppression of mental illness (βs=-.72 & -.60, respectively). The latter type of coping enhanced psychological wellbeing as well (β=.51). Tangible aid (another component of leisure friendship) resulted in coping effectiveness and coping satisfaction (βs=.67, .71, respectively), and mood enhancement contributed to coping effectiveness and stress reduction (βs=.58 & .60, respectively). In contrast, behavioral disengagement promoted threat and harm emotions (βs=.57 & .55, respectively), while denial did the same for harm emotions (β=.38). Particular types of coping strategies helped the respondents deal with a specific event and, in most cases, the results are consistent

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with what the optimal matching models suggest.

Similar results were found for event appraisals. For instance, problem-focused coping such as active coping and positive reinterpretation/growth were effective in helping people handle *controllable* events (Table 9). Both active coping and positive reinterpretation facilitated coping effectiveness (βs=.33, .48, respectively) and coping satisfaction (βs=.46, .32, respectively). The latter also promoted stress reduction, and challenge and benefit emotions (βs=.27, .43, .33). Satisfaction with practical assistance or advice and financial assistance were useful in dealing with controllable events as well. In contrast, turning to religion, alcohol, and denial provided negative consequences to handle controllable events.

On the other hand, social support was useful in coping with *uncontrollable* events (Table 10). For example, satisfaction with advice/guidance promoted satisfaction with coping outcomes and psychological wellbeing (βs=.42 & .34, respectively), and reduced mental illness and physical symptoms (βs=-.52 & -.41). The emotional support gained from leisure friendship also provided positive consequences such as the enhancement of coping satisfaction and psychological wellbeing (βs=.39 & .37). Leisure mood enhancement was helpful in reducing stress and mental illness (βs=.35 & -.19), whereas leisure palliative coping contributed to stress reduction (β=.38). Positive reinterpretation was effective for coping with uncontrollable events, as well (the reduction of stress and mental illness, and the promotion of challenge and benefit emotions; βs=.30, -.23, .58, .49).

Likewise, social support, particularly esteem and emotional support, helped respondents deal with events in which their self-esteem was damaged (Table 11). For example, esteem support gained from leisure friendship encouraged stress reduction and psychological wellbeing (βs=.32 & .21), and reduced threat and harm emotions (βs=-.33 & -47). Whereas, emotional support as a component of leisure friendship enhanced psychological wellbeing and suppressed physical symptoms (βs=.50, -.25). Also, leisure mood enhancement facilitated coping effectiveness, coping satisfaction, stress reduction, and challenge emotions (βs=.28, .28, .51, .26), and reduced participants' level of mental illness (β= -.19).

Effects of Gender on Stress-Health Relationships

Next, the effects of both biological sex and gender role orientation on the elements of stress-health relationships (i.e., event appraisals, leisure and general coping strategies, coping effectiveness, emotions, and health/wellbeing) were examined separately. A question addressed by the analyses was "Does gender role orientation explain stress-health relationships better than biological sex?" To examine this question, hierarchical regression analyses were performed in which biological sex (coded 1 for women and 0 for men) was entered first, followed by the variables of femininity and masculinity

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at the second step.

Both biological sex and gender role orientation played a role in explaining the relationships examined. However, in most cases, gender role orientation explained greater amounts of variance than biological sex, particularly the effects on emotions and health/wellbeing. First, in terms of event appraisals (Table 12), women perceived weekly stressful events to be a threat more than men (β=.13), whereas men perceived these events more optimistically and as an opportunity to facilitate self-efficacy (βs=-.14 & -.24, respectively). Also, those individuals with feminine characteristics appraised stressful events to be undesirable and unchangeable (βs=.17 & -.21, respectively), while those with masculine characteristics felt these events could be changed and improved and could enhance self-efficacy (βs=.16 & .16, respectively).

As for the experience of stress (Table 12), men reported higher academic stress than women (β=-.20), while women reported higher cognitive stress than men (β=.54). High femininity was associated with lower academic stress (β=-.24). Concerning types of coping strategies (Tables 13 & 14), men were more likely than women to use planning, restraint coping, positive reinterpretation, and acceptance (βs=-.13, -.18, -.14, -.15, respectively). In contrast, women tended to use turning to religion, venting of emotions, and mental disengagement more frequently than men (βs=.13, .17, .12, respectively). Also, high masculinity was associated with active coping and positive reinterpretation (βs=.16 & .18, respectively), and high femininity with planning, emotional social support, positive reinterpretation, acceptance, and turning to religion (βs=.21, .14, .19, .13, .24, respectively). Interestingly, high femininity was related to the engagement in all of the leisure coping strategies (i.e., leisure companionship, leisure palliative coping, and leisure mood enhancement; βs=.23, .20, .14, respectively).

Regarding coping outcomes (Table 15), those individuals with masculine characteristics reported higher coping effectiveness, coping satisfaction, and stress reduction than their counterparts (βs=.27, .21, .16, respectively). As for emotions, men or those with high masculinity experienced higher challenge emotions than women or those with low masculinity (βs=-.15 & .19, respectively; Table 16). Finally, with respect to gender and health (Table 16), interestingly, high femininity was related to lower mental illness (β=-.13).

To further explore the effects of gender role orientation on stress-health relationships, the manner in which femininity and masculinity influenced event appraisals, coping strategies, coping outcomes, and health/wellbeing were examined for women and men separately. With regard to event appraisals (Table 17), feminine women perceived stressful events to be undesirable and changeable (βs=.16 & .15, respectively), while masculine women perceived them to be a threat (β=.20). In contrast,

masculine men experienced stressful events to be desirable and an opportunity to promote self-identity (βs=-.63 & .53, respectively). Also, feminine women reported lower academic stress than their counterparts (β= -.23).

As for coping strategies (Tables 18 & 19), feminine women used leisure companionship and palliative coping often (βs=.21 & .18, respectively). Likewise, feminine men engaged in leisure companionship, palliative coping, and mood enhancement frequently (βs=.54, .49, .50, respectively). Interestingly, masculine women used active coping and positive reinterpretation often (βs=.14 & .15, respectively), whereas feminine women reported planning, positive reinterpretation, and turning to religion frequently (βs=.18, .17, .23, respectively). On the other hand, feminine men preferred planning, and instrumental and emotional social support (βs=.48, .46, .56, respectively), and masculine men reported higher restraint coping and lower venting of emotions (βs=.53 & -.56, respectively).

Finally, with respect to coping outcomes (Table 20), interestingly, masculine women coped with stressful events effectively, were satisfied with coping outcomes, and reduced stress successfully (βs=.21, .16, & .14, respectively). Masculine women also reported higher challenge emotions and psychological wellbeing (βs=.15 & .10, respectively; Tables 20 & 21). Feminine women, in contrast, reported higher threat emotions (β=.14). Conversely, masculine characteristics did not seem to be beneficial for men in terms of these effects on health (Tables 20 & 21). Although masculine men experienced benefit emotions often (β=.57), they reported higher mental illness and physical symptoms (βs=.49 & .64, respectively). On the other hand, feminine men reported lower mental illness and physical symptoms (βs=-.77 & -.85, respectively), even though they reported lower psychological wellbeing (β=-.90). The beneficial impacts of masculine characteristics on coping outcomes, emotions, and psychological wellbeing appeared to be more prominent for women than for men. Interestingly, for men, feminine characteristics seemed to be associated with better mental and physical health, although these feminine characteristics lowered psychological wellbeing.

Within Individual Analyses

The analyses reported so far were done at between-individual levels. That is, only between-individual variance was considered in these analyses. However, an examination of the variables which were measured multiple times during the course of a study requires analyses at within-individual levels. Only between-individual variance is available in a cross-sectional design, whereas both between-individual variance and within-individual variance are available in a repeated assessment design. It has been argued that an examination of within-individual variance is more appropriate than an examination of between-individual variance in a repeated assessment design because of non-independence of

observations (Bolger & Schilling, 1991; Porter & Stone, 1996; West & Hepworth, 1991). The last section involved within-individual analyses of the relationships between variables which were measured several times during the course of the main study.

To remove between-individual variance and retain within-individual variance only, dummy variables, one for each participant except for the last, were entered into regression models prior to entering the independent variables (Stone et al., 1995). For example, a dummy variable for the first participant was created by assigning "1" for the first participant and "0" for the rest of the participants. Because there were 85 participants in the main study, 84 dummy variables were created and entered at the first step.

In the within-individual analyses, first, differences in event appraisals influenced the selection of specific coping strategies (Tables 22 & 23). For example, highly undesirable events promoted the use of leisure companionship, palliative coping, mood enhancement, active coping, and suppression of competing activities ($\beta s=.18, .26, .24, .22, .26$, respectively), and discouraged the use of denial and behavioral disengagement ($\beta s=-.20$ & $-.20$, respectively).

Highly relevant events led to the use of a wide range of coping strategies, including leisure companionship, planning, suppression, instrumental and emotional social support, positive reinterpretation, turning to religion, venting of emotions, and denial ($\beta s=.13, .32, .20, .25, .29, .25, .10, .15, .24$, respectively). In contrast, uncontrollability, unchangeability, and low self-esteem encouraged very specific types of coping strategies only. The appraisals of events as uncontrollable promoted the use of restraint ($\beta=-.18$), whereas unchangeability led to the use of acceptance and turning to religion ($\beta s=-.27$ & $-.10$, respectively). Also, low self-esteem increased the use of venting of emotions, denial, and mental disengagement ($\beta s=-.19, -.28, -.18$, respectively).

Next, the use of different coping strategies resulted in varied coping outcomes (i.e., emotions, coping effectiveness, coping satisfaction, stress reduction; see Table 24). Some strategies led to positive outcomes, while others to negative outcomes. For instance, positive reinterpretation contributed to not only coping effectiveness, coping satisfaction, and stress reduction ($\beta s=.34, .35, .19$, respectively), but also to the enhancement of challenge and benefit emotions ($\beta s=.26$ & $.31$, respectively). Leisure mood enhancement also provided positive coping outcomes including coping effectiveness, coping satisfaction, stress reduction, and the reduction of threat emotions ($\beta s=.26, .23, .29, -.20$, respectively). Active coping promoted coping effectiveness ($\beta=.23$), and leisure companionship enhanced challenge emotions ($\beta=.27$). On the other hand, denial resulted in coping ineffectiveness and harm emotions, and failed to reduce stress ($\beta s=-.18, .26, -.19$, respectively). Restraint coping, venting of emotions, and alcohol also led to coping ineffectiveness ($\beta s=-.15, -.17, -.19$, respectively). Unexpectedly, planning

increased threat and harm emotions (βs=.27 & .20, respectively).

The effects of coping strategies on emotions and coping outcomes for specific types of events and event appraisals from the within-individual perspective were also examined. Results suggest that the relationships differed according to the different types of events and event appraisals. First, to cope with academic stress (Table 25), planning, instrumental social support, and positive reinterpretation promoted coping effectiveness (βs=.67, .47, .41, respectively). Also, positive reinterpretation and leisure companionship were effective in enhancing challenge and benefit emotions (βs=.37 & .47 for the former, and .45 & .56 for the latter, respectively). Interestingly, venting of emotions was useful in reducing threat emotions and facilitating benefit emotions for coping with academic stress (βs=-.40 & .55, respectively).

When students dealt with *uncontrollable* problems (Table 26), however, leisure mood enhancement was the single most important strategy in promoting coping effectiveness and stress reduction (βs=.39 & .43, respectively). Additionally, leisure companionship and positive reinterpretation enhanced challenge emotions (βs=.48 & .41, respectively). To cope with *controllable* problems (Table 27), active coping facilitated coping effectiveness and coping satisfaction (βs=.52 & .59, respectively), and suppressed threat and harm emotions (βs=-.35 & -.37, respectively). Also, positive reinterpretation was seen to be an effective coping strategy (β=.34), and leisure mood enhancement was useful to reduce threat and harm emotions (βs=-.31 & -.35, respectively). In contrast, denial was detrimental to coping effectiveness, coping satisfaction, and stress reduction, and increased threat emotions (βs=-.39, -.42, -.30, .24, respectively).

Finally, when students faced stressful events in which their self-esteem was damaged (Table 28), leisure mood enhancement contributed to coping effectiveness, coping satisfaction, and stress reduction (βs=.39, .41, .41, respectively). Also, positive reinterpretation promoted coping satisfaction (β=.31), whereas restraint coping reduced threat emotions (β=-.22). Overall, the results suggest that it is beneficial to pay attention to the different types of events or event appraisals when examining the consequences of various coping strategies from the within-individual perspective. For example, leisure mood enhancement was found to be the most important strategy in coping with stressful events that were beyond the respondents' control, or when their self-esteem was threatened. However, problem-focused coping strategies such as active coping were found to be effective in dealing with controllable events. Therefore, the idea that one coping strategy is always better than another did not appear to be supported, even though a few generalizations are possible (e.g., the beneficial consequences of positive reinterpretation).

Chapter 5

DISCUSSION

The present research examined a variety of ways in which leisure helps people cope with stress to maintain or enhance health/wellbeing from a longitudinal perspective. First, the dimensions of leisure stress-coping were reconceptualized and examined. Secondly, various models of leisure and health were developed and tested including: direct and indirect effect models, buffer models, process models, and optimal matching models. Thirdly, the effects of gender on the relationships between stress, leisure, and health were analyzed. Finally, within-individual analyses of the relationships between repeatedly measured variables were performed.

Summary of Major Findings

Analyses of the data from a series of studies specifically designed to address the above issues provided evidence for the various roles played by leisure in helping people cope with stress in their everyday lives. The comparisons of different measurement models supported the idea of hierarchical dimensions of leisure-stress coping in which the various sub-dimensions of leisure coping beliefs and strategies are identified at three levels of specificity. Also, only limited evidence for the buffer hypothesis was found. Leisure empowerment, friendship, and palliative coping acted as a buffer against the negative impact of weekly stress to maintain mental or physical health.

Furthermore, this research identified a number of processes by which leisure influences the relationship between stress and health/wellbeing. Leisure empowerment and friendship directly contributed to the reduction of mental illness and the enhancement of psychological wellbeing. Also, leisure friendship indirectly reduced mental illness and promoted psychological wellbeing through its suppression effects on weekly stress. The three types of leisure coping strategies (i.e., leisure companionship, palliative coping, and mood enhancement) had different mediating effects on the stress-health/wellbeing relationship according to the types of stressful events experienced (e.g., academic stress and interpersonal stress). Other mediators of the stress-health/wellbeing relationship included event appraisal, coping effectiveness, and emotions.

The analyses of gender differences suggested that both biological sex and gender role orientation played a role in affecting the stress-health relationship. Overall, the amount of variance explained appeared to be greater for the effects of gender role orientation than for the effects of biological sex. Interestingly, *gender role orientation reversal* (the demonstration of masculinity by women and femininity by men) was associated with better coping outcomes and health/wellbeing. The present research also provided evidence that a match between the demands of stressors and coping functions led to positive coping outcomes and health/wellbeing (i.e., the idea of optimal matching). Finally, the within-individual analyses suggested that the effectiveness of the specific types of coping

strategies and these consequences for coping outcomes and emotions varied according to the different types of stressful events or different appraisals of these events.

Of the various models of leisure and health/wellbeing tested, stronger evidence was found for the alternative models (i.e., the direct and indirect effect models, the process or mediating models, and the optimal matching models) than for the buffer models. The comparisons of competing models and the path coefficients in SEM analyses supported the structures of the relationships for the direct and indirect effect models and the process models. Likewise, the path coefficients in regression analyses supported the concept of optimal matching. As for the buffer models, regression analyses and plots of the interaction effects provided evidence for only three out of 36 models tested in total (i.e., only 8.3 %).

There appeared to be some consistent findings across the different analytic approaches taken in this research. First, the ways in which leisure helps people cope with stress are multifaceted. Not only did the analyses of the measurement models support the idea of the hierarchical dimensions of leisure stress-coping, but the subsequent analyses also demonstrated that the different dimensions or types of leisure stress-coping had different impacts on the stress-health relationship. People seem to use a variety of ways in coping with stress through leisure involvements.

Secondly, the processes by which leisure influences the stress-health/wellbeing relationship are complex. This research found that these processes are explained by various cognitive and behavioral factors including event appraisal, leisure and general coping strategies, coping effectiveness, and emotions. SEM approaches helped identify these processes at the *global or general level*, while the analyses of the optimal matching and the effects of gender assisted in identifying these processes at the *specific or disaggregated level*, and the within-individual analyses at the *individual level*.

Thirdly, the stress-health/wellbeing relationship differed according to the types of stressful events, appraisal of the events, and the types of health/wellbeing measures. Varied relationships were found on the basis of the distinctions (a) between weekly hassles and major life event stress; (b) among academic stress, interpersonal stress, competence problems, and environmental annoyances; and (c) among different appraisals of the events (e.g., controllability, undesirability, self-esteem). Also, the relationships differed depending on whether mental/physical symptom indicators or psychological wellbeing scales were used.

Finally, both individual characteristics and social factors influenced the stress-health/wellbeing relationship. Stable individual differences such as biological sex, gender role orientation, and leisure coping beliefs had impacts on the ways in which, and the processes by which, people cope with stress. At the same time, social factors such as social support networks affected these relationships.

Despite these consistent findings across the various approaches, each approach contributed to an understanding of different aspects of leisure stress-coping. The analyses of the hierarchical model of leisure stress-coping helped *identify and classify the different ways* in which leisure helps people cope with stress. These analyses focused on the *dimensionality* of leisure stress-coping. On the other hand, the tests of the direct and indirect effect models and the process models emphasized the *different relationships or mechanisms* by which leisure helps people cope with stress. Therefore, *process-oriented* approaches were used rather than just the classifications of leisure stress-coping in these tests.

The analyses of the optimal matching concept examined the specific hypothesis that a match between the demands of stressors and coping functions results in positive outcomes. The essential part of these analyses involved distinctions among different types of events, appraisals of events, types of coping strategies, and types of coping outcomes. Analyses were performed to determine which types of coping strategies were effective for coping with specific types of events and promoting positive coping outcomes.

Gender-based analyses of the stress-health relationship had a specific focus as well. In a series of regression analyses, both biological sex and gender role orientation were identified as independent variables in predicting a variety of variables central to the stress-health relationship. Particularly, the findings helped understand how biological sex and gender role orientation interacted with each other to influence the stress-health relationship.

Finally, the within-individual analyses of the stress-health relationship took a somewhat different approach. The focus was on the examination of only within-individual variance. Between individual variance was removed, and individual differences in repeatedly measured variables were examined. For example, some individuals consistently reported higher positive emotions, whereas others consistently reported lower positive emotions during the course of the research. When these individual differences were considered, a clearer picture of the stress-health relationship was obtained. In summary, the present research found consistent patterns with different approaches, and these approaches each provided unique insights.

Measurement Models: Dimensionality of Leisure Stress-Coping

The findings for the dimensionality of leisure stress-coping suggest that the feelings of self-determination and social support gained from leisure (Coleman & Iso-Ahola, 1993) are only two of many dimensions of leisure stress-coping. Other dimensions that were supported by this research include leisure empowerment, leisure palliative coping, and leisure mood enhancement. Also, social support can be classified into two major types: leisure friendship and leisure companionship. The specific functions of leisure friendship (i.e., emotional support, esteem support, tangible aid, and informational support) were identified as well. To effectively classify these dimensions or sub-

dimensions of leisure stress-coping, a hierarchical model of leisure stress-coping was developed in which the different types of leisure stress-coping have three levels of specificity. Higher levels represent more general types, whereas lower levels represent more specific coping functions. This model is hierarchical in the sense that there are a number of sub-dimensions and corresponding measurement sub-scales that comprise both the *belief* and *strategy* dimensions of the model.

Two measurement scales were developed to assess each dimension of leisure-stress coping: the Leisure Coping Belief Scale (LCBS, dispositional measures) and the Leisure Coping Strategy Scale (LCSS, situation-specific measures). A series of analyses provided preliminary evidence for the reliability and validity of the scales. The findings provided evidence that supported the hierarchical model of leisure stress-coping. The advantages of these measurement scales include: (a) the scales have a theoretical basis, (b) the scales are comprehensive in that they cover a wide range of leisure stress-coping mechanisms, and (c) the hierarchical nature of the scales allows researchers to operationalize concepts at both general or higher levels (e.g., leisure coping beliefs and strategies) and specific or lower levels (e.g., self-determination and empowerment). These scales appear to be useful for future research on leisure and health.

Though the measurement model is a promising start, further refinement will probably prove useful. Although the third-order hierarchical model was the best fit among the measurement models compared, the dimensionality of leisure stress-coping, the hierarchical nature of the model's structure, and the relevance of the scale's items should be examined further to strengthen the psychometric properties of the scales. For example, the hierarchical model of leisure stress-coping needs to be examined using different populations such as an elderly population or sample more representative of the adult population. An examination of the reliability and validity of the measurement scales is an important area for research to determine how much confidence can be placed in the scales. Though the comprehensiveness of leisure stress-coping dimensions is one of the strengths of the measures, an exploration of additional dimensions of leisure stress-coping may be warranted.

Buffer Models

Of 36 buffer models tested in total, only three models provided evidence for the buffer perspective (i.e., only 8.3 %). Two types of leisure coping beliefs and one type of leisure coping strategy acted as buffers against stress to protect participants' health. Both leisure empowerment and friendship buffered the effect of weekly stress on *mental illness*, whereas leisure palliative coping did so for the effect of weekly stress on *physical symptoms*. In these cases, the beneficial effects of these leisure coping dimensions were not evident when stress levels were low. However, when stress levels were high, those participants with high leisure empowerment or friendship were able to maintain better mental health compared to those participants with low empowerment or friendship who were more

vulnerable to mental illness. Similar results were found for the impacts of leisure palliative coping on physical health.

The different effects on mental and physical health of the different types of leisure coping might be attributed to whether leisure coping has attitudinal or behavioral characteristics. Leisure empowerment and friendship represent relatively stable attitudes developed through socialization processes. These attitudinal factors appeared to be beneficial for maintaining or improving *mental* health under stressful conditions. In contrast, leisure palliative coping mostly represents physical activities or behaviors such as a temporal escape from problems through exercise. These physical or behavioral elements of leisure palliative coping seemed to be effective for maintaining or improving *physical* health under stressful circumstances.

However, the amount of variance explained by the interaction effects was small, ranging from 0.9 % to 1.2 %. These results are consistent with a recent criticism of the buffer model, namely, that the buffer model cannot be generalized (Barrera, 1988; Cutrona & Russell, 1990; Eckenrode & Wethington, 1990; Hobfoll & Vaux, 1993; Sarason, Sarason, & Pierce, 1990). That is, buffer effects seem to be limited to certain types of coping resources or strategies and to only specific indicators of health under particular circumstances. Therefore, the buffer model should be only one of the many possible explanations by which leisure helps people cope with stress. Direct and indirect effects models and process models may be important alternatives to the buffer model.

Direct and Indirect Effect Models: Effects of Leisure Coping Beliefs

This research found both direct and indirect effects of leisure coping beliefs on health and wellbeing. Of the three dimensions or types of leisure coping beliefs, leisure friendship was found to be the most important in its contribution to participants' health and wellbeing. Leisure friendship directly contributed to not only the reduction of mental and physical illness, but also to the enhancement of psychological wellbeing. As well, higher levels of leisure friendship indirectly reduced the level of mental illness and promoted psychological wellbeing through its effect on lowering levels of weekly stress. Leisure empowerment suppressed levels of mental illness, and enhanced psychological wellbeing only directly.

Unexpectedly, self-determination was *directly* associated with higher mental and physical illness, and with lower psychological wellbeing. However, self-determination *indirectly* contributed to better mental and physical health through its suppression effects on major event stress. These contradictory findings might be attributed to the fact that those students who highly valued self-determination were not able to exercise sufficient freedom of choice or a sense of control in their relatively restrictive academic environments. Their frustration with the inability to exercise self-determination might have resulted in negative health or wellbeing. But, at the same time, their self-

determination perhaps allowed them to interpret major stressful events as challenges or opportunities for growth rather than just problems: thus levels of major event stress were lower for those students high in self-determination.

The finding that direct and indirect models were supported more strongly than buffer models is consistent with Mannell, Zuzanek, Iwasaki, and Smale's (1998) analyses of the 1994 Canadian National Population Health Survey (n=17,626). They did not find evidence of buffer effects, and instead, found that physically active leisure and self-determination both directly and indirectly influenced mental or physical health, whereas social support indirectly influenced mental or physical health by lowering levels of chronic stress. The apparent suppression of chronic stress by social support is parallel to the findings of the present study that leisure friendship indirectly contributed to mental health through its suppression effect on weekly hassles, that is, the availability of leisure friendship was associated with perceptions of having lower levels of weekly hassles. Furthermore, the indirect effect of leisure friendship on health/wellbeing through its suppression of stress is consistent with Barrera's (1986) stress prevention model in which social support is assumed to prevent or reduce the occurrence of stressors or reduce levels of perceived stress, and, subsequently, contributes to better health.

Process Models: Effects of Leisure and General Stress-Coping

One of the major weaknesses of the buffer model is the inability to identify detailed processes in which leisure has impact on stress-coping. To overcome this weakness, a number of process models of leisure stress-coping were developed and tested. The SEM analyses of the process models supported the idea that the effects of weekly stress on health/wellbeing were mediated by several cognitive and behavioral factors such as event appraisal, leisure coping strategies, coping effectiveness, and emotions. Another important point is that the processes involved in these models differed depending on the types of stressful events, as well as on the types of health/wellbeing indicators being considered.

For example, the perception of academic stress as a threat negatively affected the use of leisure mood enhancement strategies, whereas the perception of academic stress as an opportunity to promote self-identity positively influenced engagement in leisure for mood enhancement, palliative coping, and companionship. Subsequently, leisure mood enhancement contributed to the reduction of mental illness through its suppression effects on harm emotions. Likewise, leisure palliative coping led to the reduction of mental illness through its positive effects on coping effectiveness, and its suppression effects on threat emotions. Also, leisure mood enhancement and palliative coping were important mediators for enhancing psychological wellbeing. On the other hand, leisure companionship was negatively associated with mental health and psychological wellbeing because it facilitated coping ineffectiveness or harm emotions. Therefore, to cope with academic stress, leisure mood enhancement

and palliative coping provided positive consequences for mental health and psychological wellbeing, while leisure companionship had a negative impact on them.

A little different picture emerges when considering the relationship between interpersonal stress and health/wellbeing. Interpersonal stress increased a sense of loss and decreased participants' self-esteem. Increases in a sense of loss were associated with engagement in leisure for companionship, whereas decreases in self-esteem seemed to result in increased use of leisure for mood enhancement. Consequently, leisure mood enhancement contributed to: (a) the reduction of mental illness through its positive effects on coping effectiveness and challenge emotions, (b) the promotion of psychological wellbeing through its suppression effects on harm emotions, and (c) the reduction of physical symptoms through its positive impact on coping effectiveness and benefit emotions. Also, leisure companionship helped the participants reduce mental illness through its positive effects on challenge emotions, and helped them enhance psychological wellbeing through increasing challenge emotions. When leisure companionship led to coping ineffectiveness and increased harm emotions, negative psychological wellbeing resulted. Also, increased physical symptoms were an end result when leisure companionship was seen as an ineffective coping strategy and reduced benefit emotions. Therefore, leisure mood enhancement was the most effective strategy for coping with interpersonal stress and enhancing health and wellbeing. In contrast, leisure companionship had a mixed impact on health and wellbeing. Likewise, different relationships were found for the effects of competence stress and environmental annoyances on mental or physical health.

Taking *general* coping strategies into account helped to improve our understanding of stress-health/wellbeing relationships. The analyses suggested that leisure coping beliefs and strategies contributed to the use of general coping strategies which, subsequently, had a variety of impacts on coping effectiveness, emotions, and health/wellbeing. For example, leisure companionship, palliative coping, empowerment, and friendship contributed to the reduction of mental illness through their positive effects on problem-focused coping which facilitated coping effectiveness. Leisure companionship and empowerment also reduced mental illness through their positive effects on emotion-focused coping when emotion-focused coping enhanced challenge emotions. Leisure companionship contributed to higher levels of mental illness or lower levels of psychological wellbeing when emotion-focused coping promoted harm or threat emotions. On the other hand, leisure mood enhancement and empowerment reduced mental illness and increased psychological wellbeing through their suppression effects on escape-oriented or emotion-focused coping. But, leisure companionship, palliative coping, and self-determination did the reverse through their positive effects on escape-oriented and/or emotion-focused coping.

Therefore, as far as the effects of weekly stress are concerned, the consequences of leisure coping beliefs and strategies for health/wellbeing depend on whether or not they trigger the use of specific types of general coping strategies. The promotion of problem-focused coping by leisure companionship, palliative coping, empowerment, and friendship results in better mental health. Also, the suppression of escape-oriented coping and/or emotion-focused coping by leisure mood enhancement and empowerment has positive effects on mental health and psychological wellbeing. However, the enhancement of emotion-focused coping by leisure companionship and empowerment leads to better mental health only when emotion-focused coping promotes challenge emotions.

The important point to be noted about the process models is that event appraisal, coping strategies, coping effectiveness, and emotions play a mediating role in stress-health/wellbeing relationships. This research clearly demonstrated the utility of paying attention to these mediating factors in order to facilitate a better understanding of various processes in which leisure helps people cope with stress. The findings are consistent with studies or propositions by a number of researchers who advocate process approaches to stress-coping research (Barrera, 1986; Cutrona & Russell, 1990; Folkman, 1992; Hobfoll & Vaux, 1993; Lazarus, 1993; Lin, 1986; Pearlin, 1991; Stone et al, 1995; Thoits, 1986; Vaux, 1988; Wheaton, 1985, 1994).

However, it should be highlighted that these processes supported in this research are only a few of many possible processes linking leisure to health/wellbeing. Although each process model that is reported in Chapter 4 had the best fit among the models compared for each relationship, the process models tested can be modified and improved. That is, the structure of the relationships can be reconsidered. This interpretation makes sense to some extent; however, it should be pointed out that the component fit of the models on the basis of path coefficients supported the structure of the relationships. Nevertheless, it is important to consider other ways of linking leisure to leisure/wellbeing in process models.

It can be argued that the analysis approach taken was more empirically than theoretically driven. Because there has been no specific theory developed to construct process models of leisure and health [except for a general process-oriented framework for stress-health relationships suggested by Lazarus (1990)], the process models examined in this thesis that were developed and tested were largely exploratory. At the same time, it should be emphasized that Lazarus' (1990, 1995) *transactional, process, contextual, and meaning-centered approach* to stress-coping research was taken into consideration in these exploratory analyses, and that the findings are parallel to what Lazarus advocates (i.e., the important role of mediating variables, and transactions between persons and contexts across various circumstances over time). Also, the sequence or timing of data collection (i.e., stressors-appraisal-coping strategies-coping effectiveness-emotions-health/wellbeing) was consistent with the

structure of the process models. Nonetheless, the development of a theoretical framework for leisure and health from a process perspective, and an examination of alternative process models, are important areas of inquiry.

Another issue that needs to be noted is the treatment of leisure coping beliefs and leisure coping strategies in SEM approaches. Leisure coping beliefs were treated as antecedents in direct and indirect models and process models because these beliefs represent relatively stable personality dispositions. In contrast, leisure coping strategies were treated as process variables or mediators in the relationships between stress and health/wellbeing (process models) because these strategies reflect situation-specific cognitive or behavioral ways of coping with stress. However, it is important to examine the extent to which these beliefs are stable over time, and the degree to which these strategies are situation-specific across various circumstances in future research.

An additional question that could be addressed in this research is: "How do leisure coping beliefs influence leisure coping strategies?" However, the focus of the research was to examine the independent effects of these two sets of leisure coping on stress-health/wellbeing relationships; thus, this question was not examined in the main analyses. Nevertheless, supplemental analyses (Figure 45) suggested that coping beliefs *did* influence leisure coping strategies. Self-determination positively influenced all of the leisure coping strategies (βs=.78, .95, & .98, p < .05 for each of leisure mood enhancement, palliative coping, and companionship, respectively). Also, leisure empowerment promoted leisure mood enhancement (β=.12, p < .05), whereas leisure friendship was positively associated with leisure companionship (β=.07, p < .05). Thus, self-determination is the strongest predictor of engagement in leisure coping strategies among the three dimensions of leisure coping beliefs. However, statistically non-significant paths from each of leisure empowerment and friendship to two of the leisure coping strategies suggest that personality dispositions or beliefs do not always predict actual ways of coping with stress. The model shown in Figure 45, which combines both leisure coping beliefs and strategies, appears to be a good start for constructing a more comprehensive model of leisure stress-coping and health/wellbeing for future research.

Optimal Matching Models

Optimal matching models assume that a match between the demands of stressors and coping functions result in better coping outcomes (e.g., coping effectiveness, positive emotions, and better health/wellbeing) than a mismatch between the two (Cohen & McKay, 1984; Cutrona, 1990; Cutrona & Russell, 1990; Hobfoll & Vaux, 1993; Thoits, 1986; Vaux, 1988). Overall, the findings seem to support the idea of optimal matching. For example, when participants dealt with academic problems, planning, active coping, positive reinterpretation, satisfaction with advice, support network, and financial assistance provided positive coping outcomes. As well, leisure empowerment and mood enhancement

did the same. In contrast, turning to religion, venting of emotions, and alcohol consumption led to negative coping outcomes. Academic stress mostly required the use of direct or problem-focused coping strategies to effectively manage problems.

When the participants were faced with interpersonal problems, however, social support appeared to be useful. Practical assistance from significant others, satisfaction with advice, emotional support, esteem support, and tangible aid, all contributed to positive coping outcomes. However, behavioral disengagement and denial resulted in negative coping outcomes. Likewise, social support, in particular, esteem support or emotional support, was effective in helping participants deal with problems in which their self-esteem was threatened.

Various coping strategies also differed in their effectiveness depending on whether the participants were dealing with controllable or uncontrollable problems. To handle controllable problems, active coping, positive reinterpretation, satisfaction with practical assistance or advice, and financial assistance resulted in positive coping outcomes. To manage uncontrollable problems, however, social support, in particular, emotional support and satisfaction with advice, as well as leisure mood enhancement and palliative coping, were effective strategies. Interestingly, positive reinterpretation was useful for dealing with both controllable and uncontrollable problems.

In summary, the results seemed to provide evidence for the optimal matching concept. Direct or problem-focused coping strategies such as planning and active coping were effective and promoted positive coping outcomes when the participants managed academic or controllable problems. In contrast, social support and some leisure coping strategies were good choices to effectively handle interpersonal problems, uncontrollable problems, or events which threatened participants' self-esteem. An important message highlighted by the analyses of the optimal matching models is that an understanding of the relationships between stress-coping and health can be facilitated by paying attention to: (a) what types of stressful events people experience, (b) how they perceive or appraise these events, (c) what kinds of coping strategies they use, and (d) how effective certain types of coping strategies are to manage specific types of stressful events.

Effects of Gender on Stress-Health Relationship

Both biological sex and gender role orientation influenced the relationship between stress and health/wellbeing. When the effects of biological sex were compared to the effects of gender role orientation, the findings seem to suggest that: (a) gender role orientation explains a greater amount of variance in this relationship than biological sex, and (b) it is important to take into account both concepts to facilitate a better understanding of the effects of gender on stress-health relationship because biological sex and gender role orientation interact with each other to influence these

relationships. These results are consistent with the findings or arguments by Barnett (1993), Baum and Grunberg (1991), and Hirschman (1984).

One of the most interesting findings with regard to the effects of gender is that masculine characteristics had strong positive effects on coping outcomes and wellbeing for women. Those women who had high masculine characteristics coped with stress more effectively, were more satisfied with coping outcomes, reduced stress more successfully, and reported higher psychological wellbeing than those women who had low masculine characteristics. Conversely, these masculine characteristics do not appear to contribute to better coping outcomes and health for men. In fact, those men who had high masculine characteristics showed higher mental illness and physical symptoms than those men who had low masculine characteristics. Interestingly, for men, feminine characteristics were associated with better mental and physical health, although these feminine characteristics were detrimental to psychological wellbeing.

The above findings can be explained by the differences in people's event appraisal and the selection of coping strategies on the basis of biological sex and gender role orientation. For example, although masculine women perceived stressful events as a threat, they nevertheless often used active coping and positive reinterpretation which were generally seen to be effective in dealing with the stressful events encountered by the students. However, masculine men reported restraint coping frequently which was generally considered to be an ineffective coping strategy, although they interpreted stressful events to be desirable and an opportunity to promote self-identity. On the other hand, feminine men used planning, and instrumental and emotional social support frequently. Therefore, masculine women and feminine men engaged in more effective coping strategies than masculine men to manage stressful events in their lives. The selection of appropriate coping strategies is likely to enhance better coping outcomes, health, and wellbeing. This idea is consistent with the optimal matching concept.

It can be argued that this gender role orientation reversal (the demonstration of masculinity by women and femininity by men) requires strong empowerment or self-determination to challenge or resist conventional views of women and men. Consequently, masculine women and feminine men are likely to be more empowered or self-determined which may be an important characteristic for effectively coping with stressful events or constraints in life. Follow-up analyses suggested that, for women, masculinity had a stronger correlation with empowerment ($r=.30$, $p=.00$) than femininity ($r=.14$, $p=.02$), whereas, for men, femininity had a stronger correlation with empowerment and self-determination ($r=.68$, $p=.00$ & $r=.73$, $p=.00$; respectively) than masculinity ($r=.46$, $p=.002$ & $r=.29$, $p=.06$; respectively). These results seem to support the above interpretation. Researchers such as Henderson and Bialeschki (1991), Freysinger and Flannery (1992), and Shaw (1994) have highlighted

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the important role of empowerment or self-determination for enhancing women's health, wellbeing or quality of their lives.

Another notable finding is that high femininity was associated with lower mental illness regardless of biological sex. Again, the selection of effective coping strategies is likely to be one of the reasons why this was the case. Although those people with feminine characteristics perceived stressful events to be undesirable and unchangeable, they tended to use a wide range of coping strategies, including planning, emotional social support, positive reinterpretation, acceptance, and all of the leisure coping strategies. The flexibility in the selection of effective coping strategies might be an important characteristic that enhances mental health under stressful conditions (Lazarus, 1993a, 1993b; Zeidner & Saklofske, 1996).

Within Individual Analyses

The purpose of the within-individual analyses was to take advantage of the repeated measures aspect of the main study. By removing between-individual variance and retaining within-individual variance only, it was hoped that a clearer picture of various stress-health relationships could be obtained.

Highly relevant or undesirable events promoted the use of a wide range of coping strategies (many different types of general or leisure coping strategies). In contrast, events which were perceived to have higher uncontrollability and unchangeability, or promote lower self-esteem encouraged very specific types of coping strategies (restraint coping for uncontrollable events, acceptance and turning to religion for unchangeable events, and venting of emotions, denial, and mental disengagement for events which threatened self-esteem). Coping strategies which resulted in positive outcomes were positive reinterpretation, leisure mood enhancement, and active coping. In contrast, denial, restraint coping, venting of emotions, and alcohol led to negative coping outcomes.

When events were classified into specific types or appraisal groups, within-individual analyses showed that the stress-health relationship differed according to these specific classifications. To manage academic stress, planning, instrumental social support, positive reinterpretation, leisure companionship, and venting of emotions provided positive coping outcomes. To deal with uncontrollable events, however, leisure mood enhancement was the single most effective strategy. Likewise, leisure mood enhancement and positive reinterpretation were effective for handling events where people's self-esteem was threatened. To cope with controllable events, on the other hand, active coping and positive reinterpretation resulted in positive outcomes.

Therefore, the above results were partly consistent with the optimal matching analyses. Problem-focused or direct approaches such as active coping were shown to be useful for coping with controllable problems. Whereas, leisure mood enhancement was found to be the most important

approach for handling uncontrollable problems or events where people's self-esteem was threatened. The only exception was that the previous analyses on the optimal matching models found social support to be the most effective strategy in dealing with events beyond participants' control or events which negatively influenced their self-esteem. However, social support was not found to be important for coping with these types of events in the within-individual analyses.

This difference seems to be due to the different focus of the analyses. The examination of the optimal matching models from a *between-individual* perspective focused on an understanding of the relationships at *general or group* levels. Therefore, this type of examination did *not* account for non-independence of observations due to the effects of individual differences on the report of repeatedly measured variables. For example, some individuals may consistently report higher negative emotions, while others may consistently report lower negative emotions. Conversely, *within-individual* analyses did account for non-independence of observations because the focus of these analyses was to explain the relationships at *individual* levels. Both analyses have theoretical and empirical rationales; thus, it is impossible to say one approach is better than the other. Nonetheless, the findings from the within-individual analyses are likely to be more appealing and appropriate than the findings from the between-individual analyses, as far as the relationships between repeatedly measured variables are concerned (Bolger & Schilling, 1991; Folkman et al., 1988; Larsen & Kasimatis, 1991; Porter & Stone, 1996).

Implications and Future Research Perspectives

The findings from this research appear to have both theoretical and practical implications. First, the two measurement scales that were developed to assess the various dimensions of leisure stress-coping, may be useful for future research on leisure and health. The theoretical basis of the measures, comprehensiveness of the dimensions, relatively small number of items, and ease of administration are some advantages of these scales.

Secondly, the research showed the strengths of a repeated assessment design from a longitudinal perspective. Although the processes of research design construction, participant recruitment, and analyses were very tedious and lengthy, the richness of the information collected was one of the most positive aspects of this research. Thirdly, these studies addressed some of the most relevant and intriguing issues faced by researchers studying leisure, stress-coping, and health. As well as the analyses of the dimensionality of leisure stress-coping, these studies examined direct and indirect models, buffer models, process models, optimal matching models, the effects of gender, and within-individual relationships. The results from these analyses illustrated the unique and multiple ways in which leisure influences stress-health relationships.

These ideas and the research have practical implications. The impact of lifestyle, including leisure style, on health has been the "hot" topic of the 90s. Many researchers have speculated about how

our lifestyle has an impact on our health and wellbeing. Unfortunately, there has been a lack of sufficient evidence to suggest meaningful guidelines for people, or for organizations to develop effective policies or programs for the purpose of improving people's health status. Researchers need to provide reliable and valid evidence to demonstrate how people's lifestyles including leisure styles influence their health/wellbeing.

The present studies point out that it is difficult to generalize about the ways in which leisure helps people cope with stress. That is, leisure influences stress-coping in a variety of ways and by numerous processes. There is a need to consider differences in types of stress, appraisal of events, available coping strategies, coping effectiveness, emotions, and health/wellbeing, as well as differences in individual characteristics such as biological sex, gender role orientation, and leisure coping beliefs. Once these differences are identified, we can gain a much clearer understanding of the ways or processes through which leisure can influence stress-health relationships. The results from the present analyses provide evidence that begins to help explain these relationships. Not only may this type of information help people effectively cope with stress through leisure pursuits at the *individual level*, but they may also help professionals develop effective programs or services in leisure education or counseling at the *organizational level*.

At the individual level, the findings from this research and other studies on leisure and health might assist people in understanding the role of leisure in successfully coping with stress. This information could help them make desirable lifestyle modifications to prevent or reduce mental or physical illness, and enhance their wellbeing and quality of life. For example, as highlighted by the present research, the enhancement of leisure friendship and/or leisure empowerment may be a key factor for either directly or indirectly promoting physical or mental health. Lifestyle modifications can be done to facilitate healthy interpersonal relationships through leisure involvements, or to foster stronger personal resources for empowering individuals through leisure pursuits. Because individuals in our society experience high levels of stress from a variety of sources (e.g., work problems, family and interpersonal problems, academic problems, health-related problems), the development of coping resources or strategies to fight against the negative impact of stress on health is a major concern. The promotion of leisure styles that produce health benefits, including effective stress-coping, can make an important contribution.

At the organizational level, the accumulated evidence from numerous studies on leisure and health (e.g., Caltabiano, 1994, 1995; Coleman, 1993; Iso-Ahola & Park, 1996; Hull & Michael, 1995; Patterson & Coleman, 1996), including the findings from the present research, might help leisure service agencies, schools, industries, or community organizations develop policies or programs to educate users, students, workers, or citizens, and to facilitate meaningful leisure pursuits for stress-

coping and health. To accomplish this goal, it is important to pay attention to antecedent factors such as personal characteristics and beliefs, and the process factors that are highlighted in this research. For example, as found in the process analyses, the use of leisure for mood enhancement is an important strategy for coping with interpersonal stress and enhancing health/wellbeing. Service providers may pay attention to improving the participants' positive moods or reducing their negative moods in leisure services/programs (e.g., leisure education or counseling) in order to effectively deal with interpersonal stress. The orchestration of positive leisure experiences might be accomplished by coordinating an effective balance between what participants want and what leisure contexts offer. However, as shown in this research, leisure involvements do not always guarantee successful stress-coping. Certain types of leisure coping beliefs or strategies lead to positive consequences for health or psychological wellbeing under specific circumstances only.

This research has limitations. The sample consisted of university students; thus, there is a limitation on the generalizability of the findings. Different relationships or processes may operate for different populations, although key factors may remain the same regardless of population characteristics. At the same time, the homogeneity of the sample helped control for the effects of third variables ("noise"). Nevertheless, replication using different samples is needed to improve confidence in the findings from this research.

The reliability and validity of the two leisure stress-coping scales developed need to be examined further. Although the series of studies were carefully designed and conducted to develop and refine these scales, a few items still seem to be problematic. Two items in the self-determination sub-scale (sd3 & sd4), and one item in emotional support (emot2), esteem support (est1), and mood enhancement (mood4) sub-scales were found to have relatively low factor loadings and only acceptable item-total correlations.

The key dependent variables (i.e., mental and physical illness and psychological wellbeing) in this research were assumed to be relatively stable during the two-week study period. Thus, these dependent variables were measured only twice (before and after the two week session). On the other hand, process variables (i.e., event appraisals, coping strategies, coping effectiveness, and emotions) were measured four times during the same period because these process variables were expected to vary according to the types of stressful events or circumstances. By measuring the health outcome variables only twice, variability in health during the two weeks may have been underestimated, and consequently, the strength of the relationships with other variables in the models tested underestimated. In future research it is also important to examine the extent to which health and wellbeing measures are stable (i.e., whether or not these measures are traits or states).

The inability to analyze stress-health relationships for major life event stress from a longitudinal perspective is another limitation. The research design did not allow the assessment of the participants' health conditions prior to their report of major life events, and the participants relied on their memory when they reported major life events and coping processes. Thus, the findings from the analyses of major life events should be interpreted carefully. In contrast, this research had the advantage of allowing the collection of information about everyday events and stress-coping processes over time on a weekly basis. Stronger relationships between stress-coping and health were found for these weekly episodes than for major life events.

One of the unique aspects of this research was that the participants were asked to be "co-researchers" or "collaborators." The general purpose of the research was revealed at the first meeting, and the participants were asked to be "honest" when reporting their activities and experiences during the study period. Implicitly, the researcher "trusted" the participants. It was expected that this approach would be useful for enhancing the participants' interest and involvement in the research, for minimizing the effects of the researcher's power or control on the participants' behaviors and vulnerability, and for facilitating rapport with the participants and an "equal balance" in the researcher-participant relationship. It can be argued that this approach could increase the participants' reactivity toward the research procedures; thus, the results might be biased (i.e., the participants might report what they like to do rather than what they actually did). However, the researcher emphasized the importance of honestly reporting the participants' activities/experiences not only for the importance of the research, but also for their personal benefits (e.g., educational benefits such as an increased understanding of effective coping strategies). Further, the participants contributed to the research in various ways (i.e., the participants' inputs were used to refine the research design and measures; discussion sessions were held individually with each participant to gain insights into the students' stress-coping). These benefits appeared to outweigh potential costs associated with this type of approach.

Another influence that needs to be taken into account when examining the relationship between stress-coping and health/wellbeing is the impact of social factors or environmental conditions. It can be expected that these relationships differ according to social or environmental factors. This research included measures of the social support networks which were useful for examining the effects of an important part of people's social environment. However, the impact of life circumstances, communities, and wider social systems was not the focus of this research.

Despite these limitations, this leisure-related research explored important issues, employed some new approaches, and provided interesting results. However, the approach taken in this research represents only one of the many possible ways of examining how leisure influences health/wellbeing.

More sophisticated and thorough approaches need to be considered in future research of leisure and health — one of the central themes in contemporary leisure studies.

For example, it seems possible that the stress-coping functions of leisure operate simultaneously with other beneficial functions of leisure. Recently, Mannell and Kleiber (1997) have summarized various social psychological theories or models that describe how leisure contributes to mental health or wellbeing. They classified these theories or models into seven categories, including: (1) keeping idle-hands busy theory, (2) psychological hedonism, (3) need-compensation theory, (4) personal growth theory, (5) identity formation and affirmation theory, (6) buffer and coping hypothesis, and (7) activity and substitution theory of aging. Some of the above models of leisure and wellbeing can be combined and tested in a future study. For instance, it would be interesting to examine how leisure helps people cope with stress, form and affirm their identity, and facilitate their personal growth in a single model because it is likely that leisure may provide stress-coping functions, as well as identity formation and affirmation, and personal growth simultaneously.

Also, it is important to conduct a larger longitudinal project of leisure and health/wellbeing. If sufficient funds and resources are available, the ways in which people maintain or improve their health/wellbeing, and the processes by which people's lifestyles impact on their health/wellbeing can be monitored periodically for a longer period of time. This type of longitudinal research on leisure and health has tremendous implications from both theoretical and practical perspectives. An understanding of the long term impacts of people's lifestyles, including their leisure styles, on their health and quality of life can help construct important theories, as well as can assist in developing and administering effective services/programs for educational, counseling, and therapeutic purposes.

The construction of a more comprehensive model of leisure and health deserves research consideration. The present research focused on the development and testing of specific models of leisure stress-coping and health according to types of stressful events, event appraisals, and health/wellbeing measures. Future research might pay attention to more general relationships between leisure and health across different circumstances. As noted earlier, the combinations of leisure coping beliefs and strategies may be a good start toward accomplishing this goal.

The recruitment of participants from specific lifestyle groups is another important consideration for future research. For example, single working mothers with small children seem to show a different stress-health relationship than other groups of people such as retired individuals. As well as gender, age, marital status, income, and social class, ethnic or racial differences need to be given research attention.

Although the buffer model was not strongly supported in this research, this finding does not mean that the buffer model should be ignored in future research. However, as this research and some other studies (e.g., Barrera, 1988; Hobfoll & Vaux, 1993) have shown, the buffer model does not appear

to be generalizable to all coping situations. For future research, it is important to examine what types of leisure involvements act as buffers, under what circumstances buffer effects emerge, and what types of health outcomes buffer effects influence.

Finally, future research on leisure and health should recognize the multifaceted types of leisure stress-coping and the complex reality of stress-coping processes or mechanisms. Research approaches specifically designed for examining these complex processes are essential in improving our understanding of the leisure-health relationship. Although the usefulness of Lazarus' (1990, 1995) *transactional, process, contextual, and meaning-centered approach* was demonstrated in the present research, this is only one of the many possible approaches to coping research. Numerous opportunities are available for researchers who are interested in pursuing this exciting endeavor.

Figure 1. Buffer Model of Leisure and Health (Coleman & Iso-Ahola, 1993)
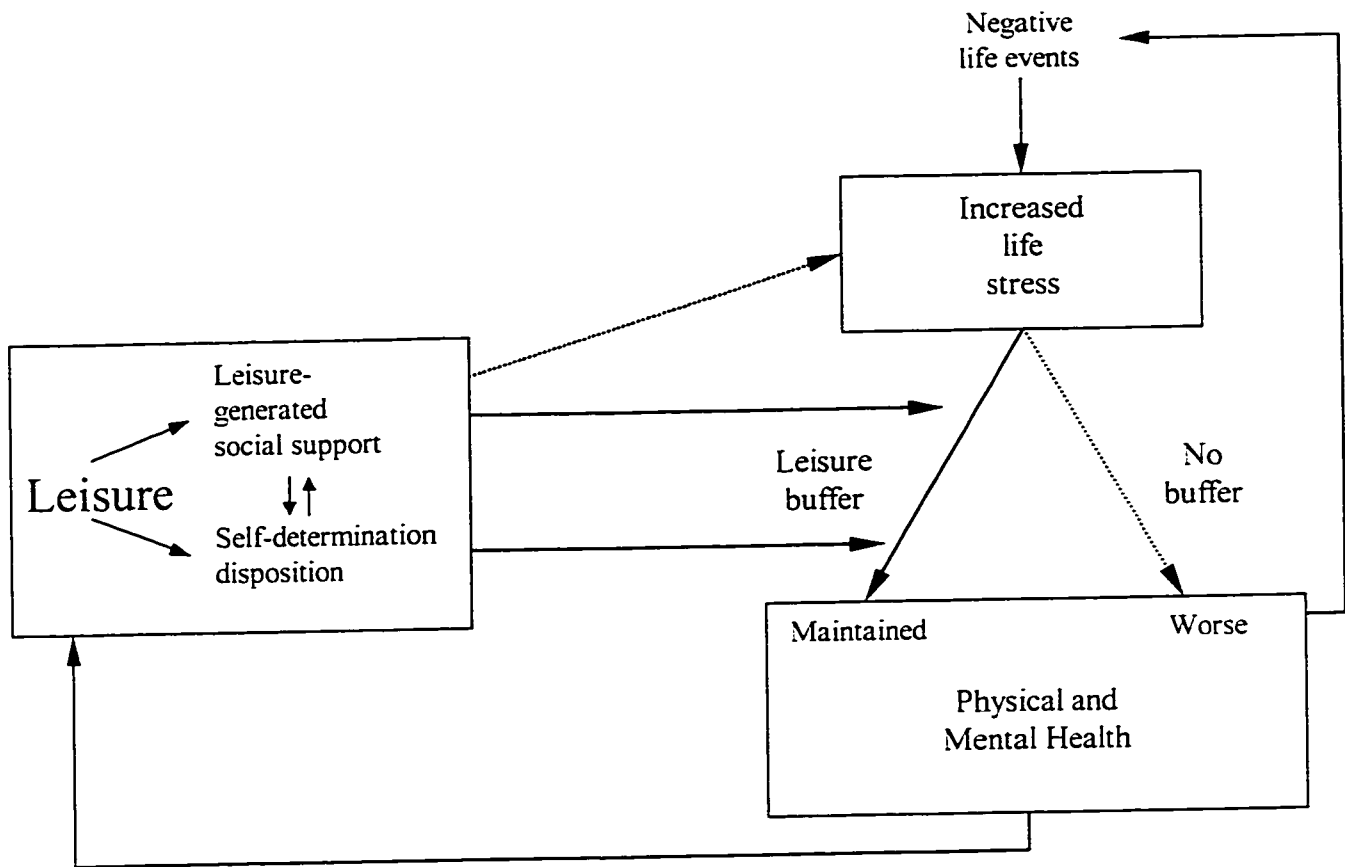
Figure 2. Hypothesized Buffering Effects
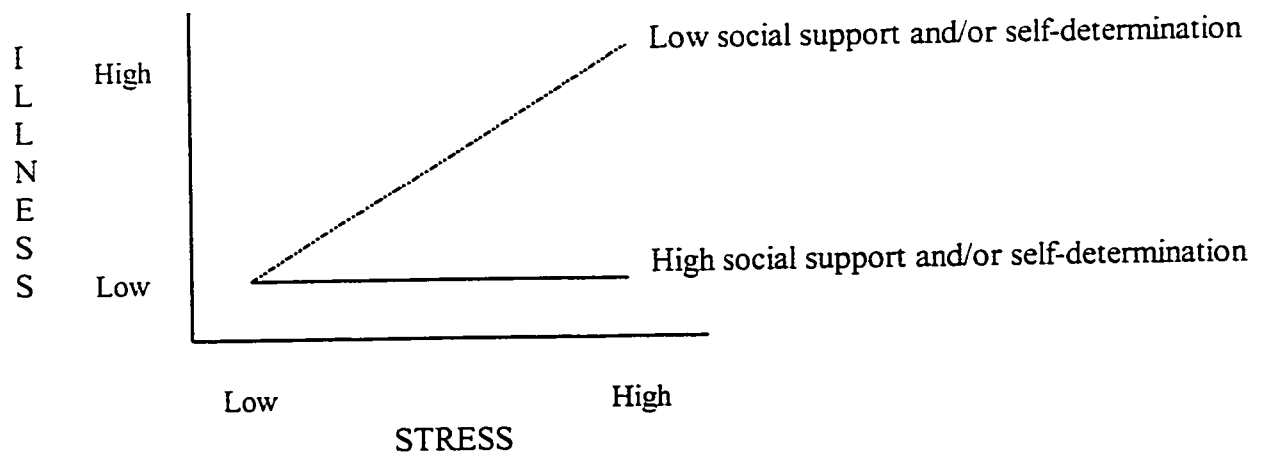
Figure 3. Hierarchical Dimensions of Leisure Stress-Coping

Leisure
Coping

Level 1

Leisure
Coping Beliefs

Level 2

Leisure
Coping
Dispositions

Leisure
Friendship

Self-
determination

Empowerment

Emotional
Support

Esteem
Support

Tangible
Aid

Informational
Support

Level 3

Leisure
Companionship

Leisure
Coping Strategies

Level 2

Leisure
Palliative
Coping

Leisure
Mood
Enhancement

Level 2

101
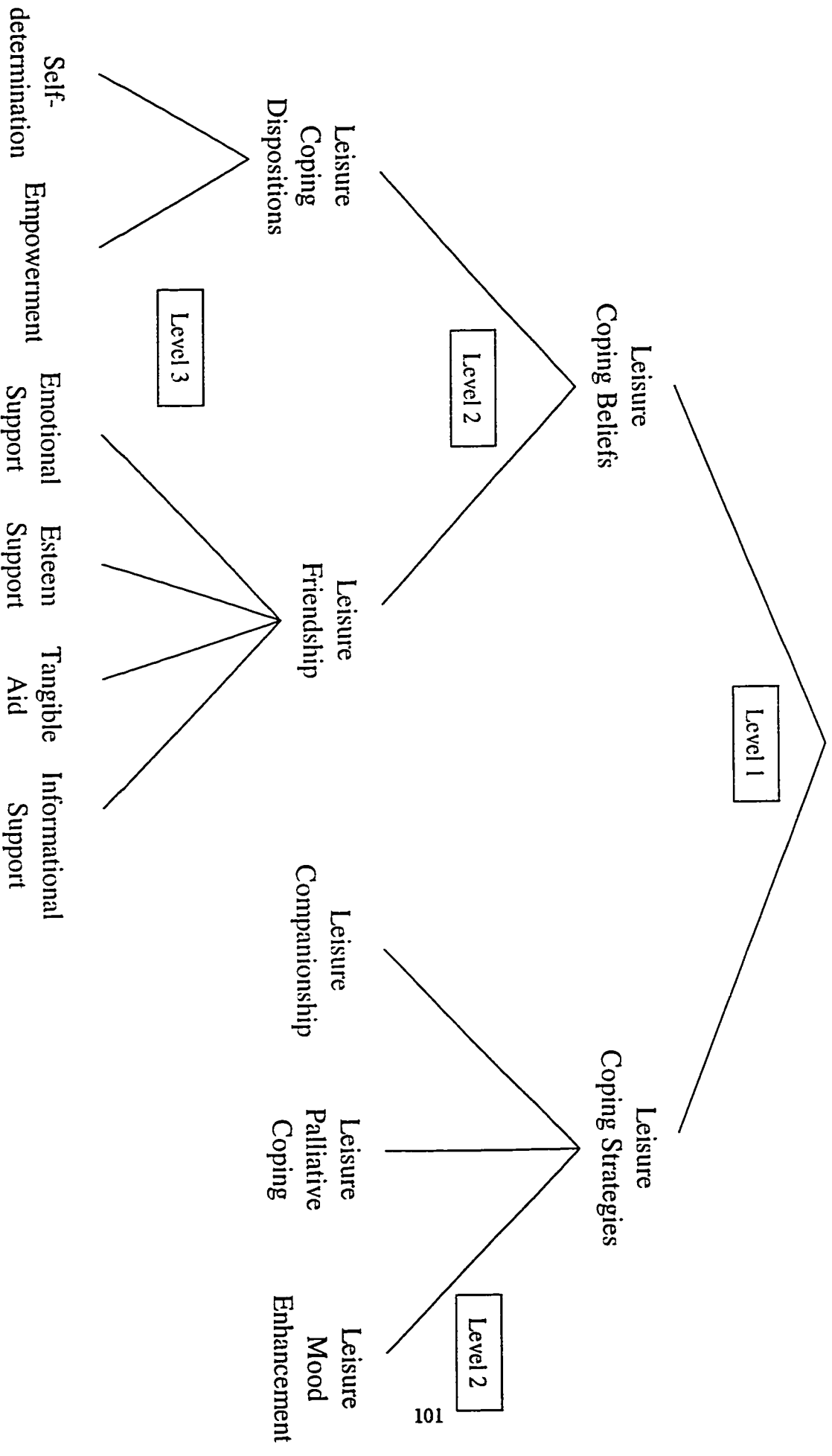
Figure 4. Direct Effect Model of Leisure and Health/Wellbeing

Leisure coping
beliefs ——————→
Physical health
Mental Health
Psychological
well-being
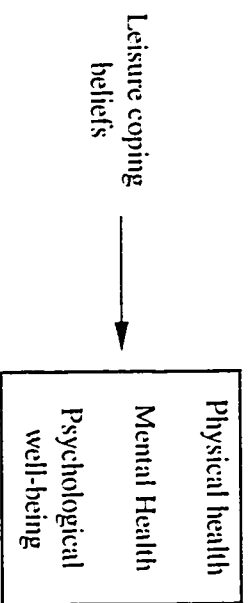
Figure 5. Indirect Effect Model of Leisure and Health/Wellbeing

Leisure coping
beliefs ——————→ Stress levels ——————→
Physical health
Mental Health
Psychological
well-being
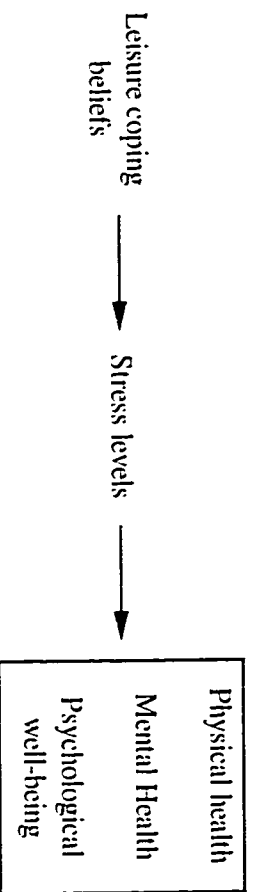
Figure 6. Process Model of Leisure and Health/Wellbeing

Stressors ——→ Appraisal

Leisure coping
strategies
General coping
strategies

Coping
outcomes ——→ Emotions ——→
Physical health
Mental Health
Psychological
well-being
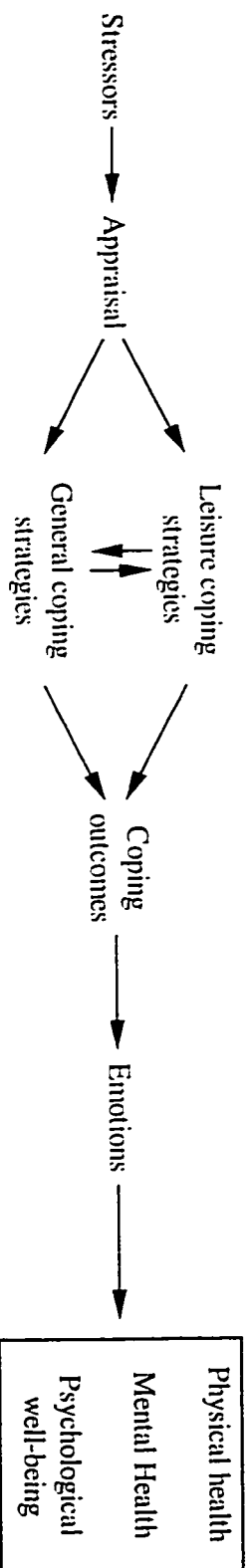
Figure 7. Support Mobilization Model (adapted from Barrera, 1986)

Support

+   −

Stressors ————————————→ Distress

+
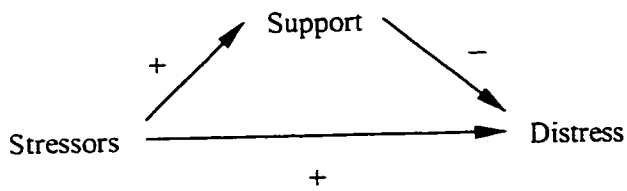
Figure 8. Support Deterioration Model (adapted from Barrera, 1986)

Support

−   −

Stressors ————————————→ Distress

+
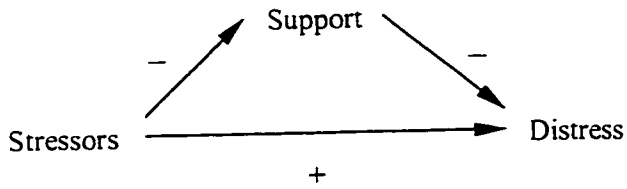
Figure 9. Stress Prevention Model (adapted from Barrera, 1986)

Occurrence of
Stressors   +

−   Distress

Support

−   Perceived   +
      Stress
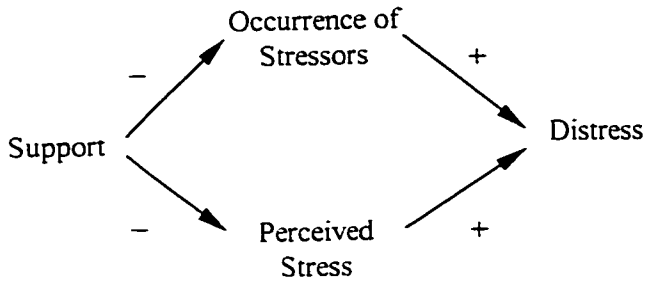
Figure 10. Optimal Matching Model (adapted from Cutrona & Russell, 1990)

−

Stressors' —— Resources' ————→ Distress
Demands ==   Functions ————→ Well-Being

+

103
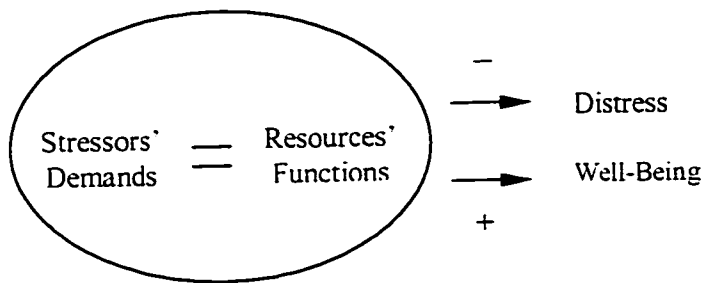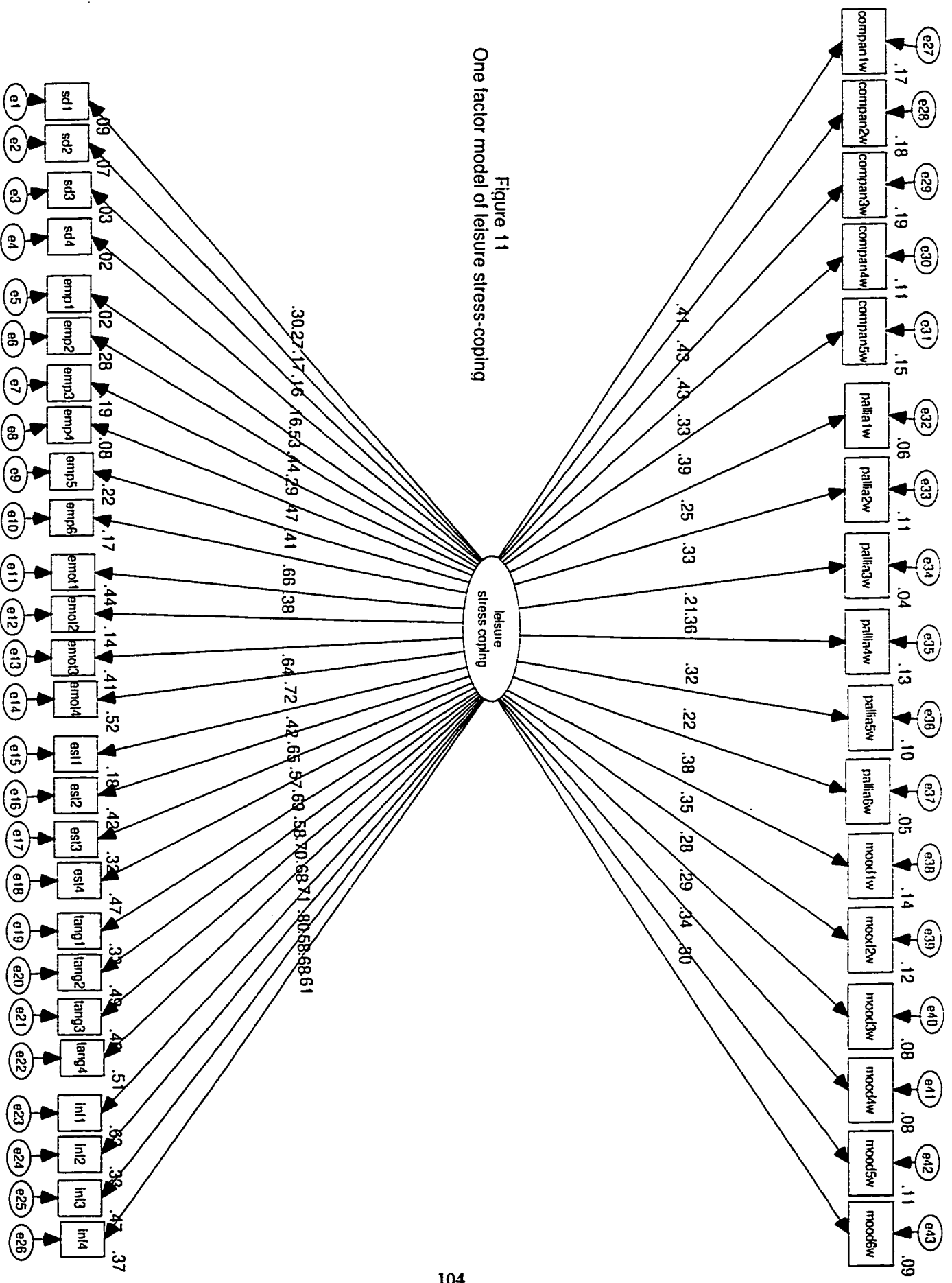
Figure 11
One factor model of leisure stress-coping

leisure
stress-coping

compan1w .17 e27
compan2w .18 e28
compan3w .19 e29
compan4w .11 e30
compan5w .15 e31
pallia1w .06 e32
pallia2w .11 e33
pallia3w .04 e34
pallia4w .13 e35
pallia5w .10 e36
pallia6w .05 e37
mood1w .14 e38
mood2w .12 e39
mood3w .08 e40
mood4w .08 e41
mood5w .11 e42
mood6w .09 e43

.41 .43 .43 .33 .39 .25 .33 .21 .36 .32 .22 .38 .35 .28 .29 .34 .80

e1 sd1 .09
e2 sd2 .07
e3 sd3 .03
e4 sd4 .02
e5 emp1 .02
e6 emp2 .28
e7 emp3 .19
e8 emp4 .08
e9 emp5 .22
e10 emp6 .17
e11 emol1 .44
e12 emol2 .14
e13 emol3 .41
e14 emol4 .52
e15 esl1 .18
e16 esl2 .42
e17 esl3 .32
e18 esl4 .47
e19 tang1 .32
e20 tang2 .49
e21 tang3 .41
e22 tang4 .51
e23 lnf1 .62
e24 lnf2 .33
e25 lnf3 .47
e26 lnf4 .37

.30 .27 .17 .16 .53 .44 .29 .47 .41 .66 .38 .64 .72 .42 .65 .57 .69 .58 .70 .68 .71 .80 .58 .68 .61

Figure 12
Two correlated factor model of leisure stress-coping

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Figure 13
Second-order hierarchical model
of leisure stress-coping
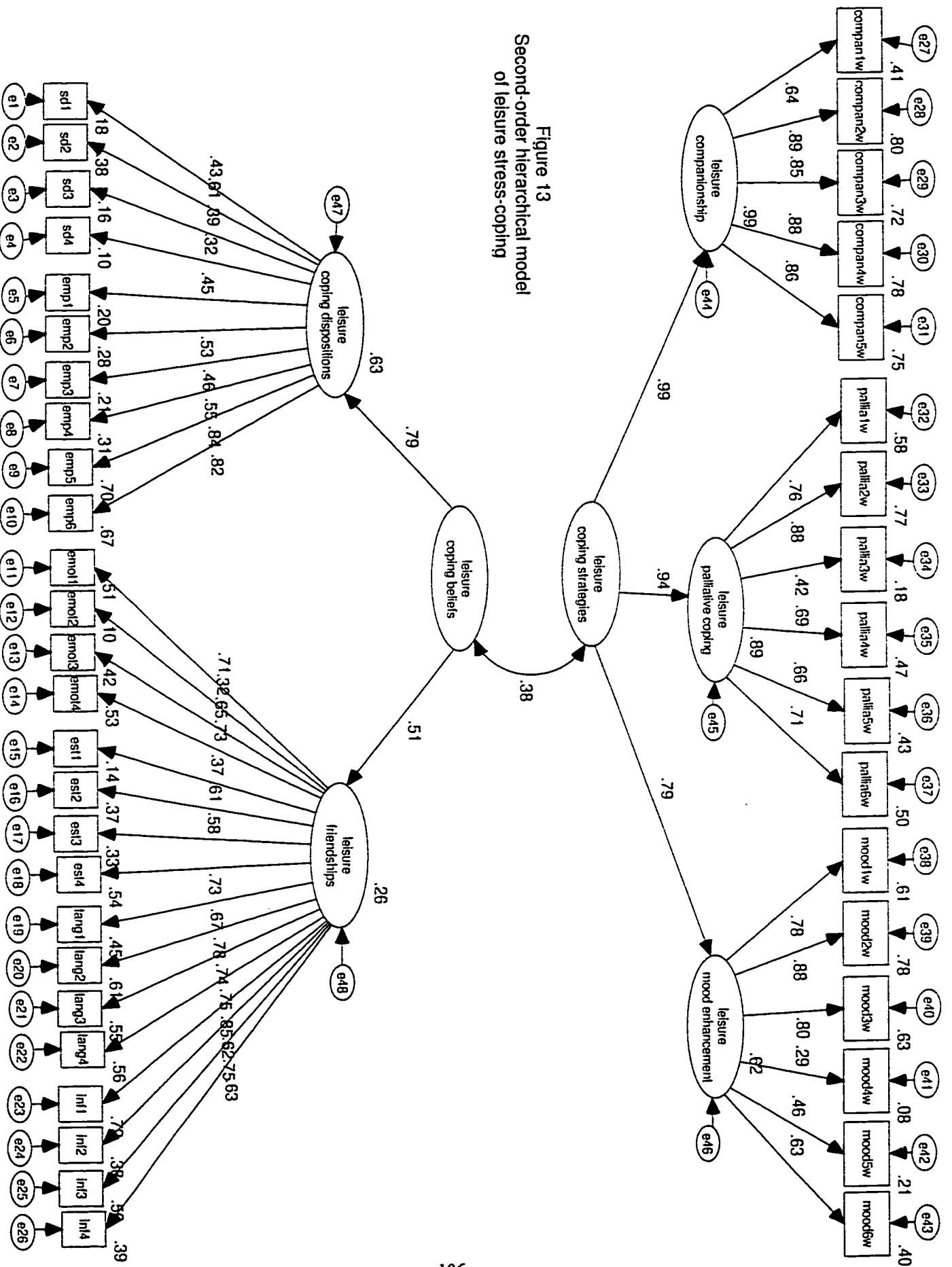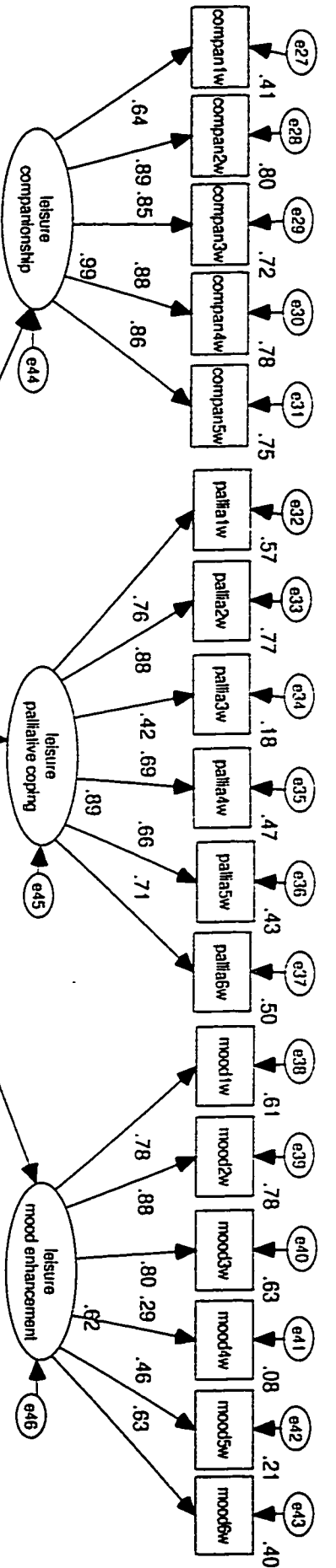
Figure 14
Third-order hierarchical model
of leisure stress-coping

107
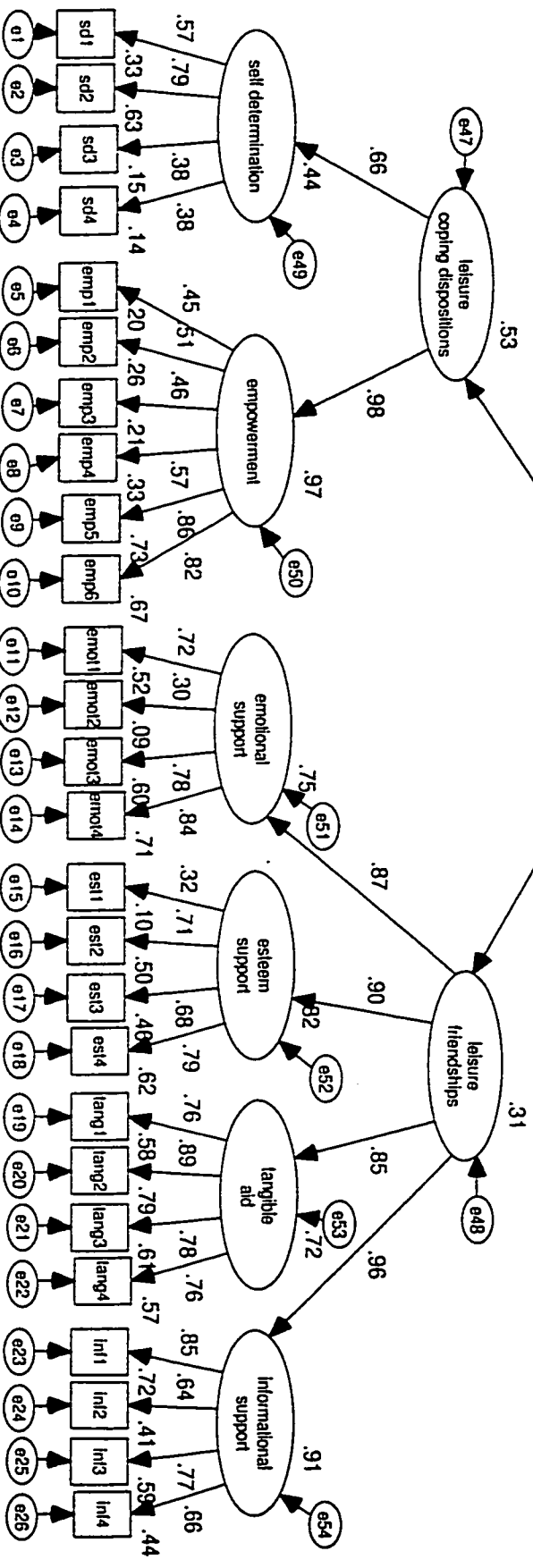
Figure 15
Effects of weekly hassles on health and wellbeing

108
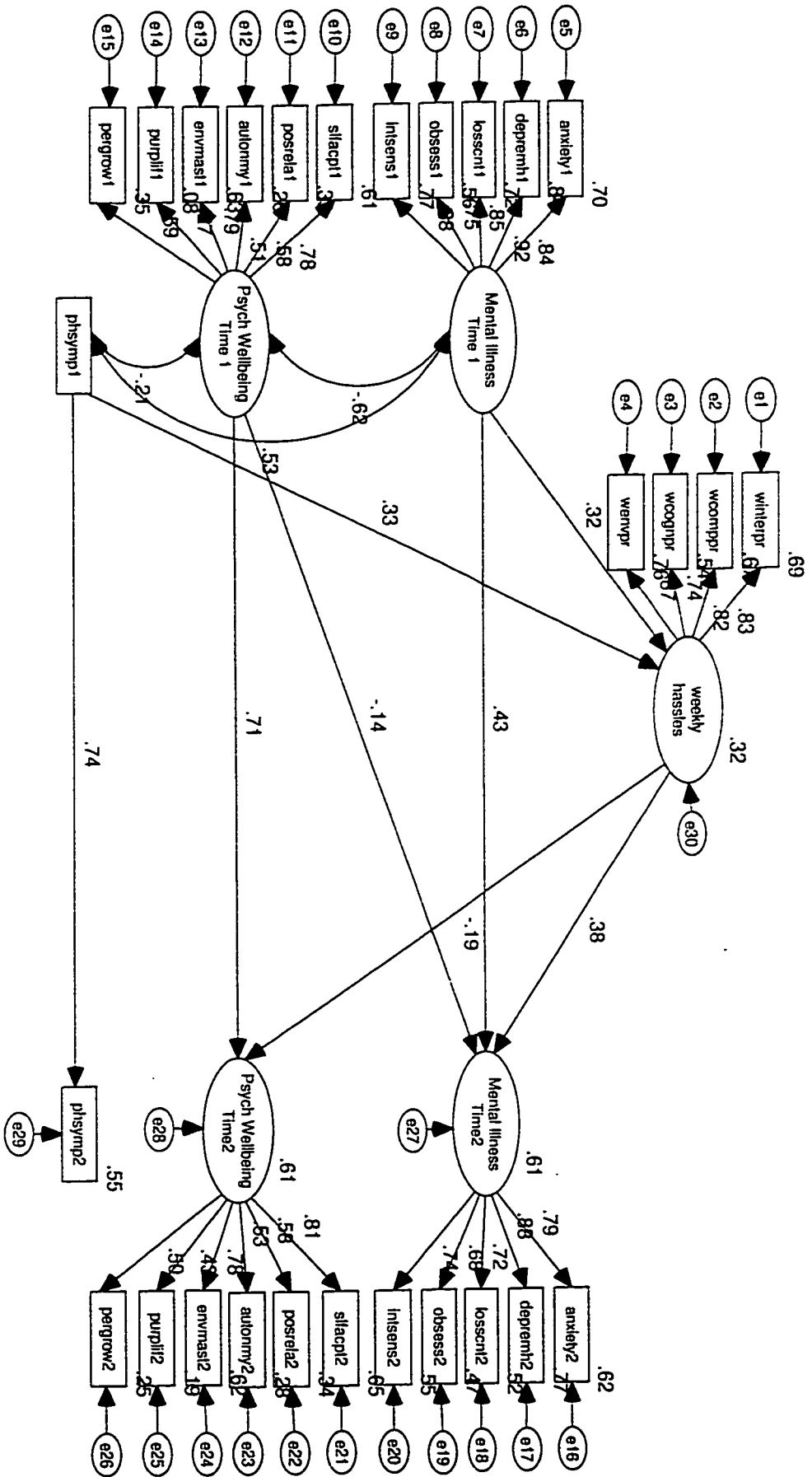
Figure 16
Effects of major event stress on health and wellbeing
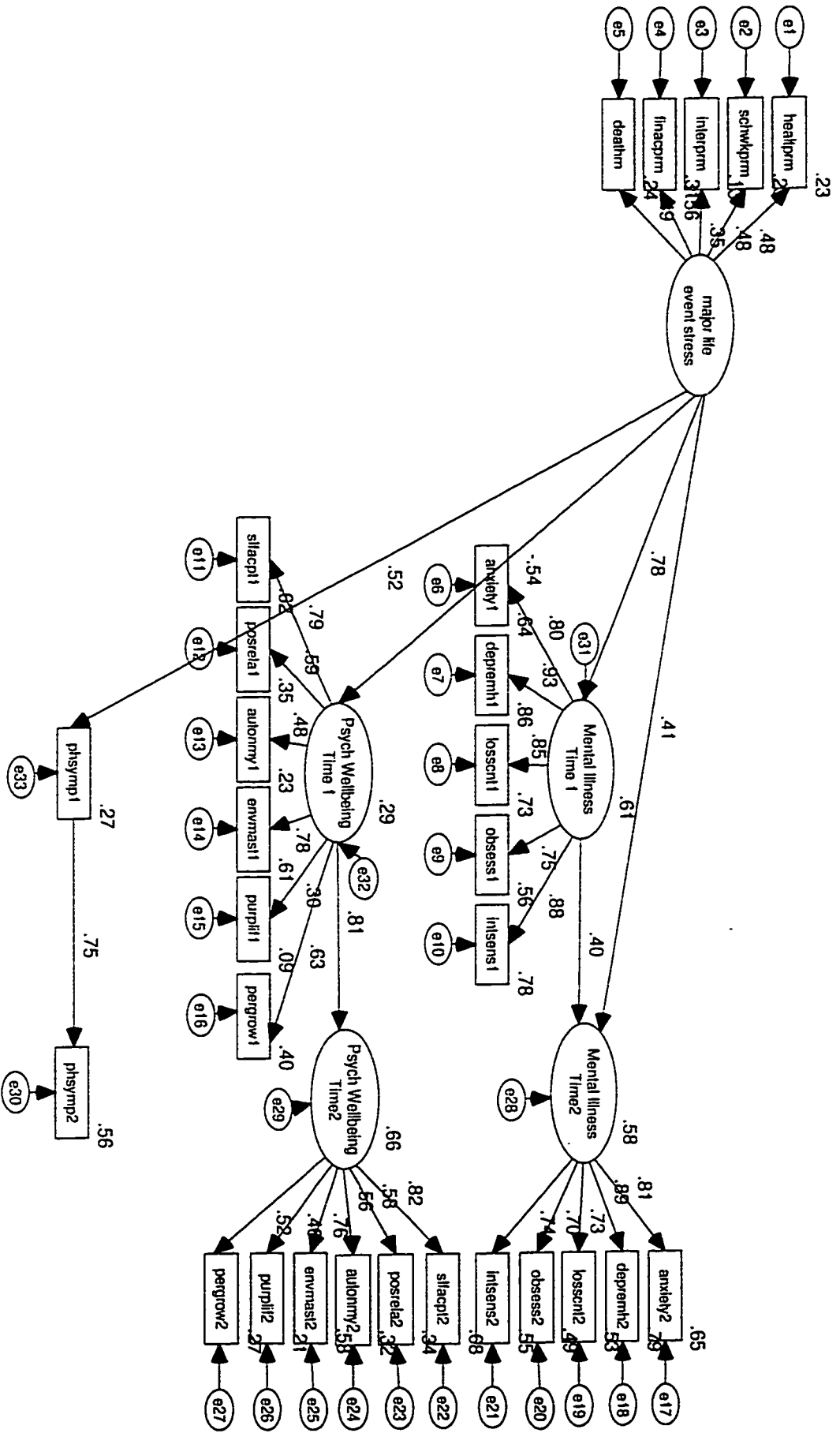
Figure 17
Effects of leisure beliefs on the relationships
between weekly hassles and mental illness
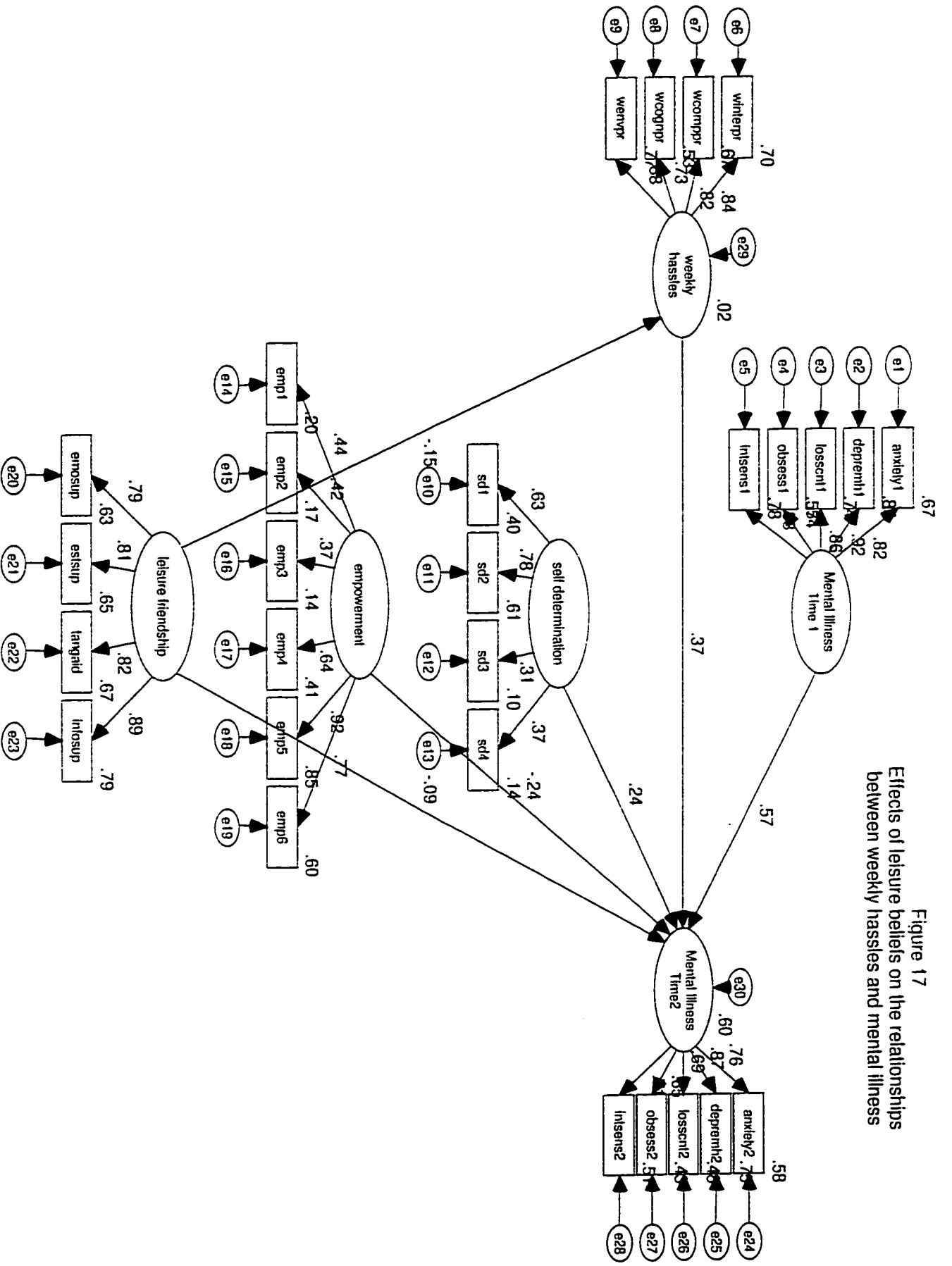
Figure 18
Effects of leisure beliefs on the relationship
between major life event stress and mental illness

111
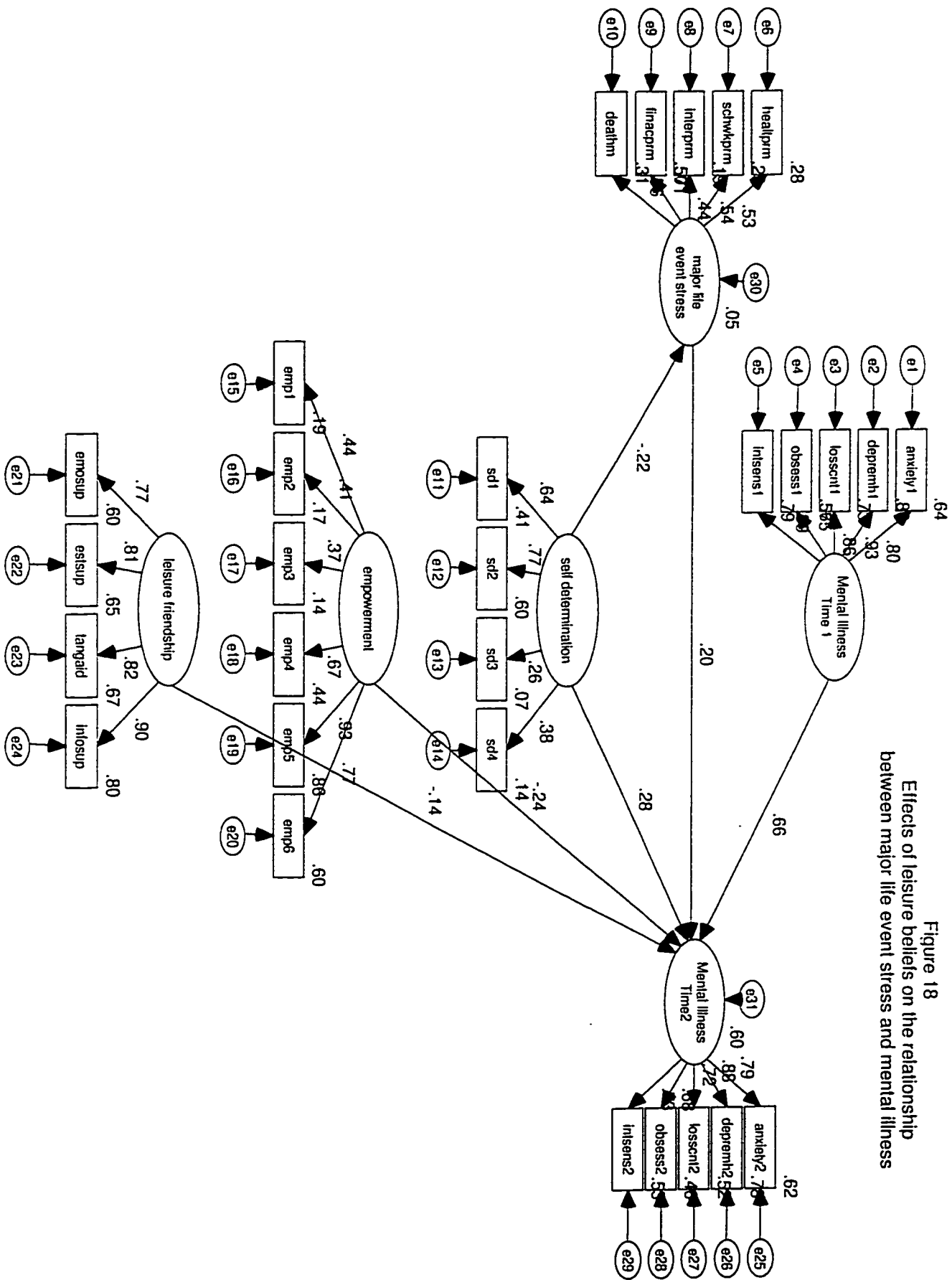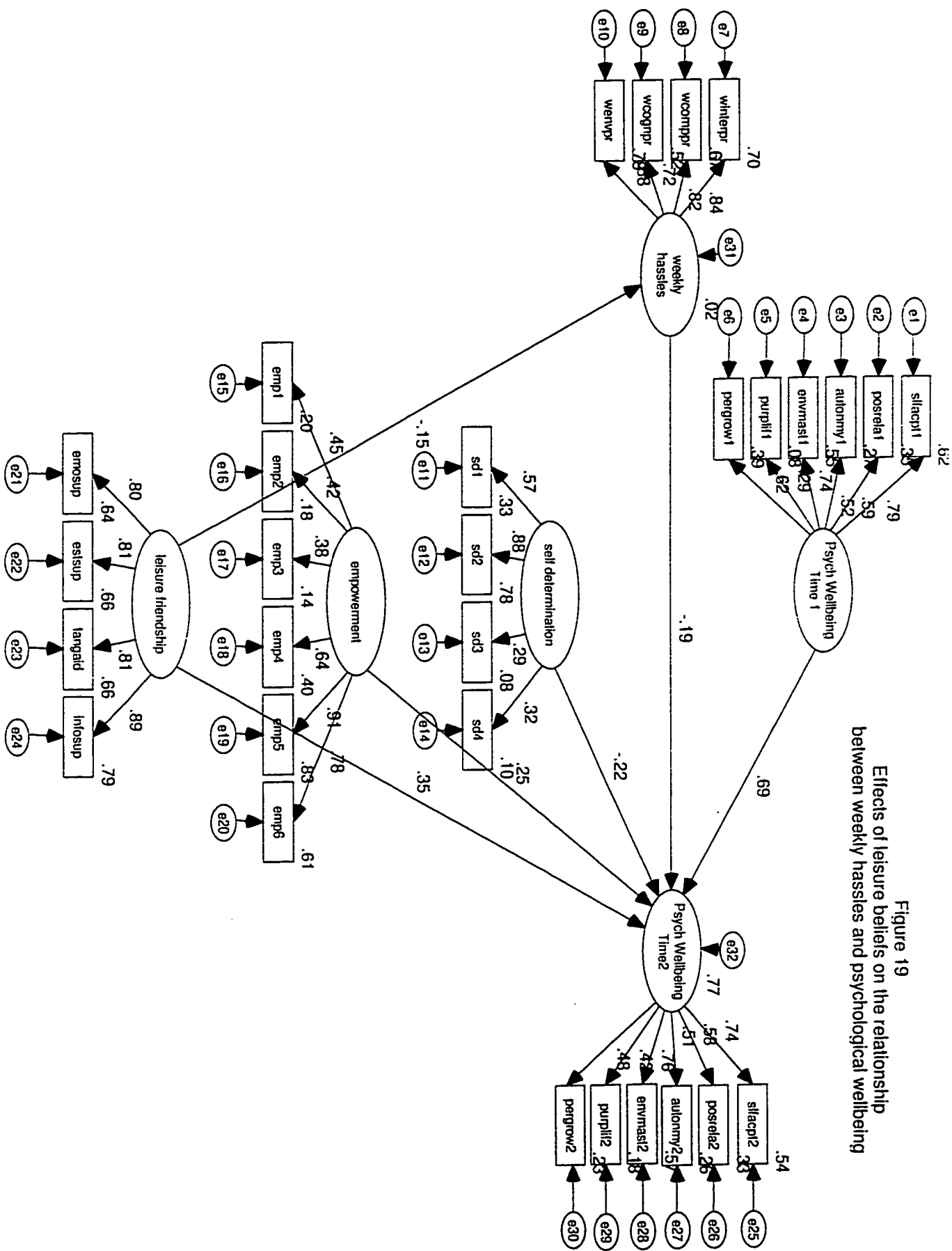
Figure 19
Effects of leisure beliefs on the relationship
between weekly hassles and psychological wellbeing

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Figure 20

Effects of leisure beliefs on the relationship between major life event stress and psychological wellbeing
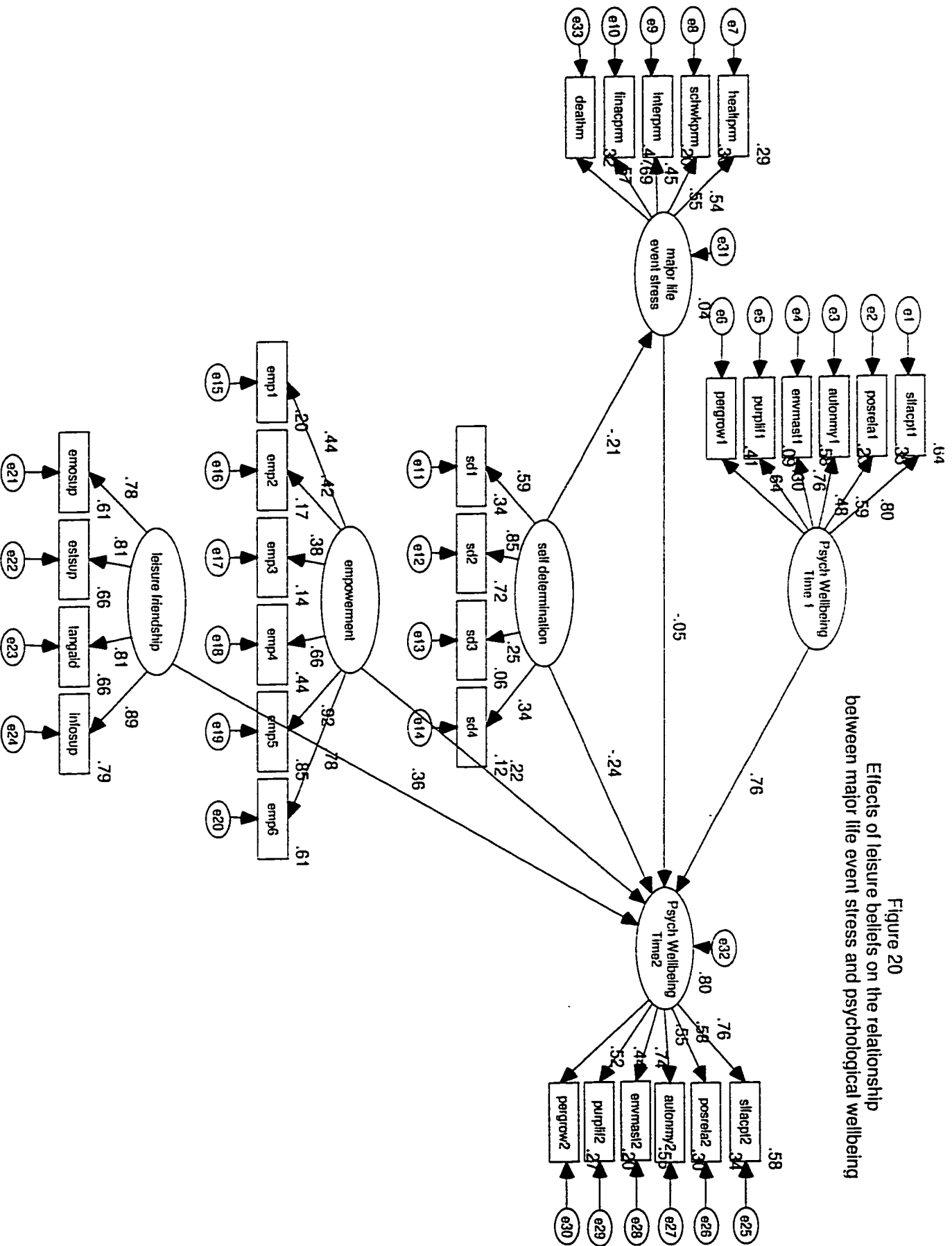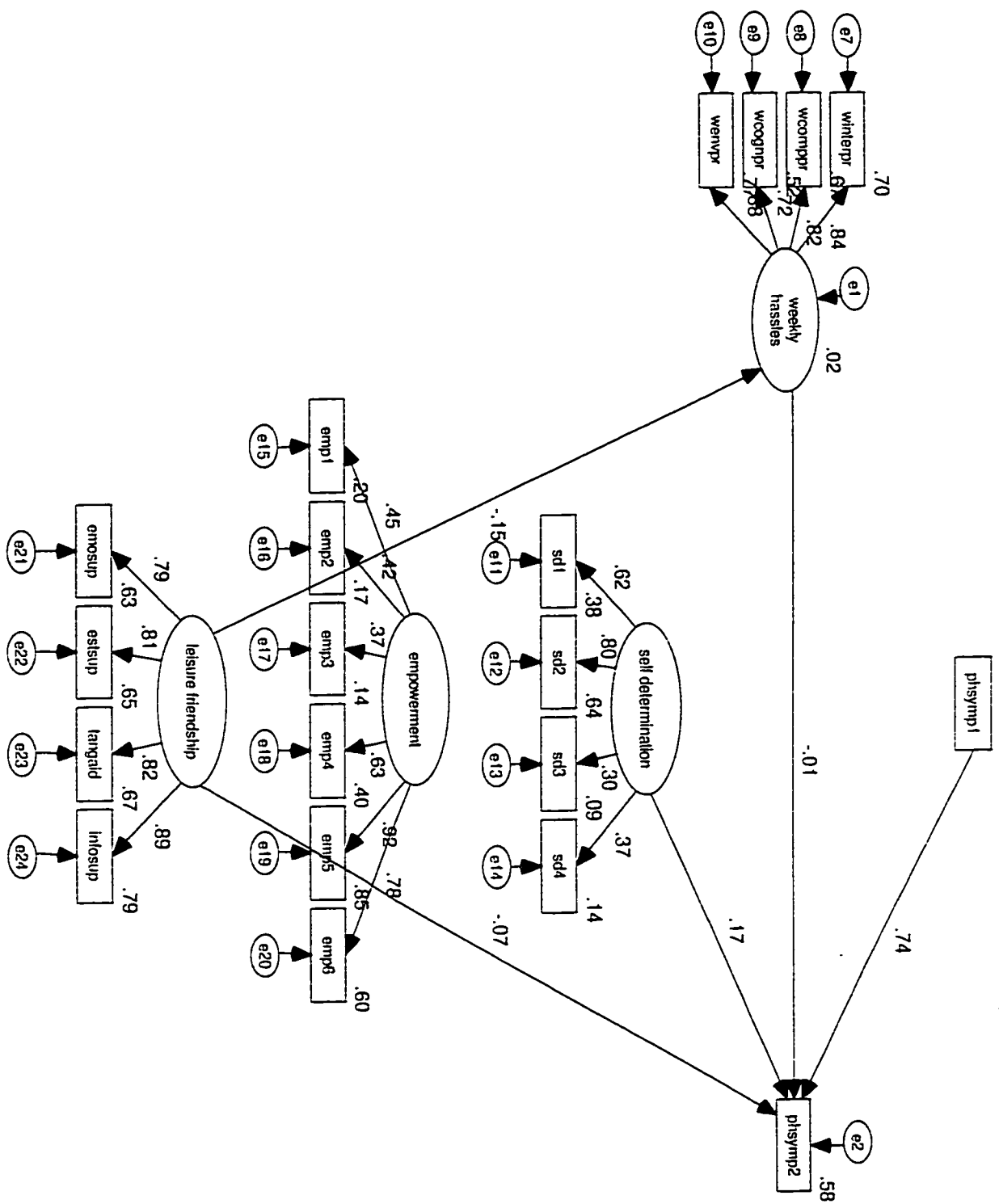
Figure 21
Effects of leisure beliefs on the relationship
between weekly hassles and physical symptoms
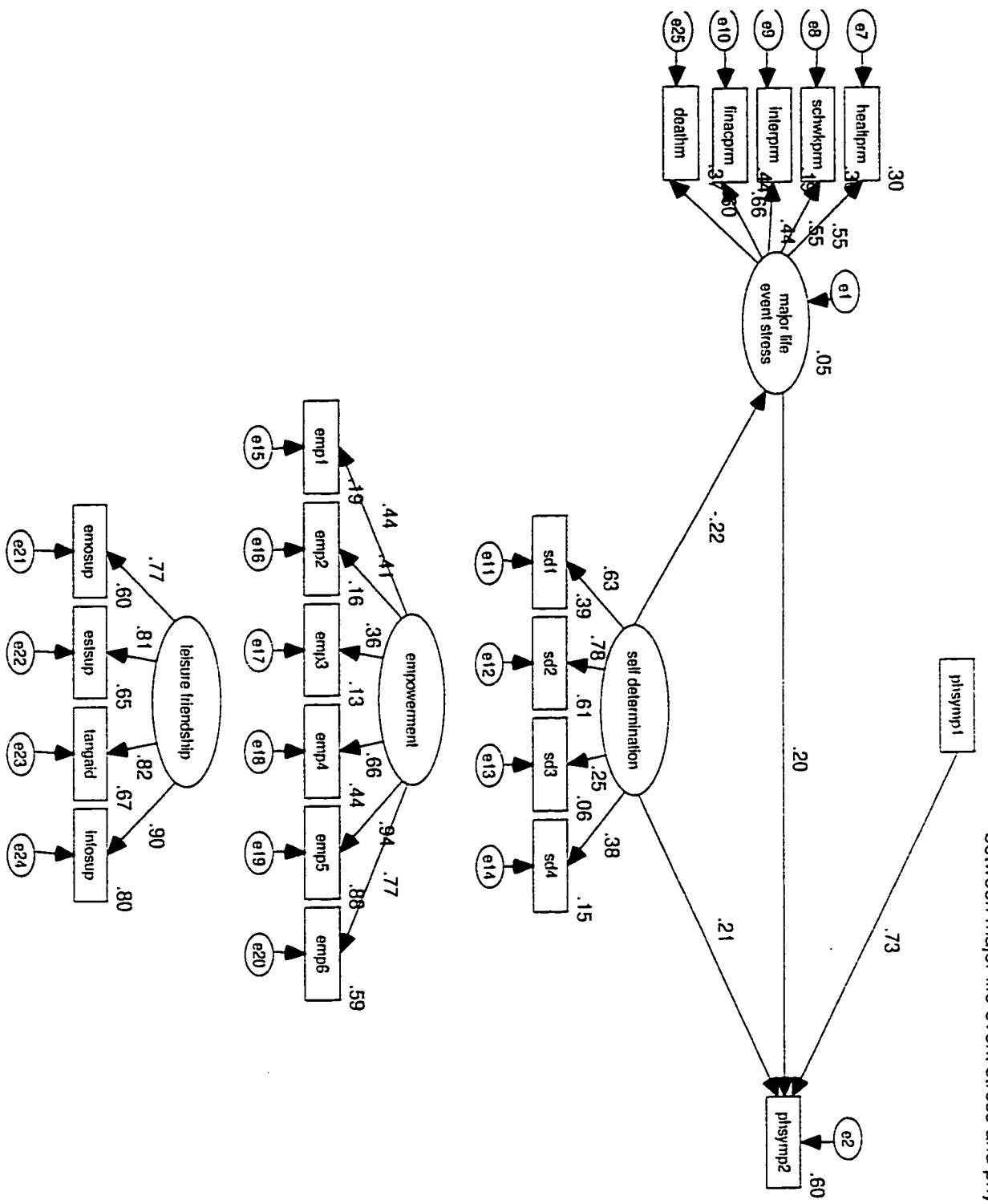
Figure 22
Effects of leisure beliefs on the relationship
between major life event stress and physical symptoms

Figure 23: Interaction effects between leisure empowerment and weekly stress on mental illness at Time 2

Mental illness at Time 2 (range: 0-4)

Stress levels of weekly events

Low   High

——■—— High leisure empowerment
· · ·▲· · Low leisure empowerment

Note: One standard deviations above or below mean scores were used to classify into high vs. low stress levels and high vs. low leisure empowerment.

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Figure 24: Interaction effects between leisure friendship and weekly stress
on mental illness at Time 2

Mental illness at Time 2 (range: 0-4)

Stress levels of weekly events

Low   High
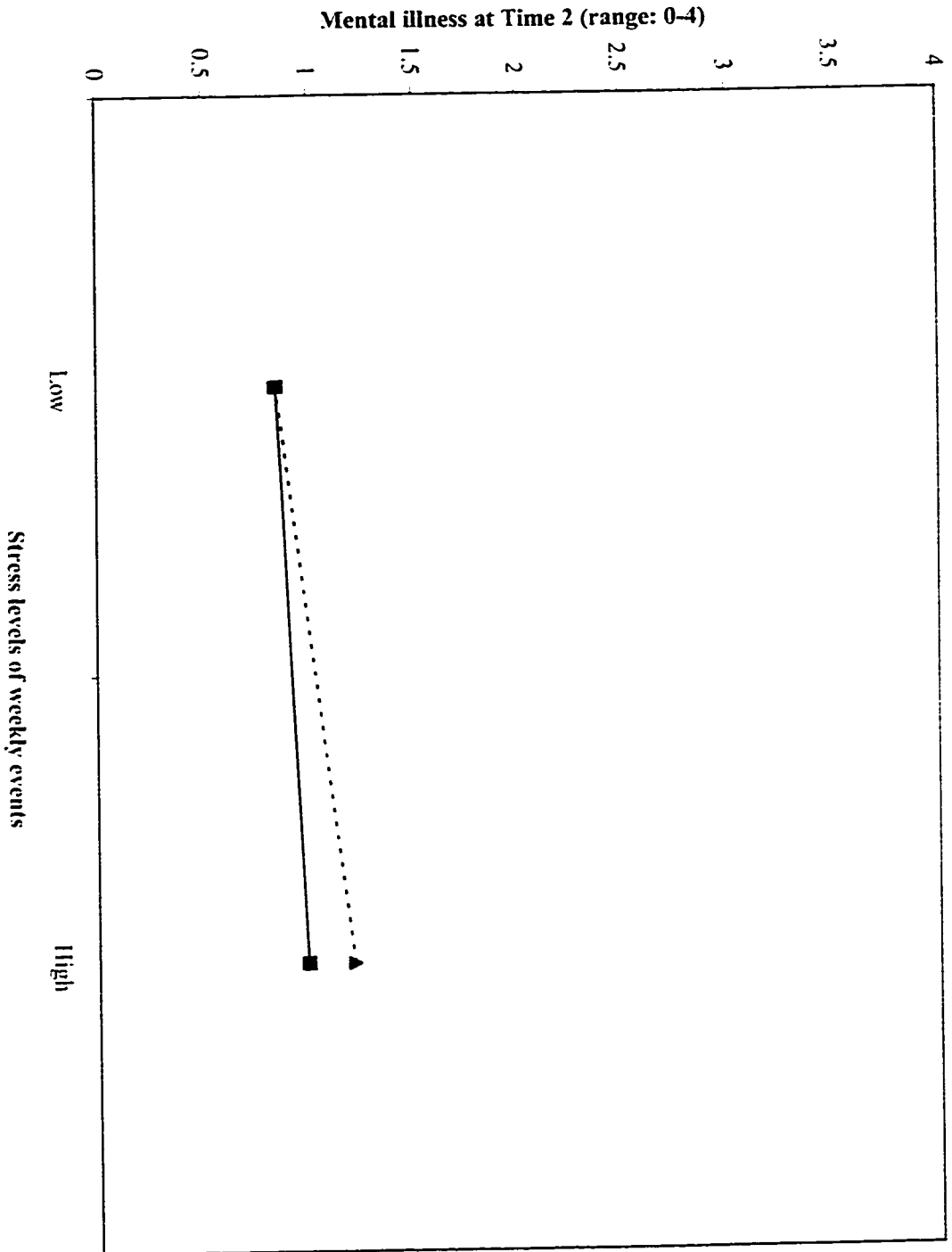
High leisure friendship
Low leisure friendship

Note: One standard deviations
above or below mean scores
were used to classify into high
vs. low stress levels and high
vs. low leisure friendship.

Figure 25: Interaction effects of leisure empowerment and weekly stress on physical symptoms at Time 2
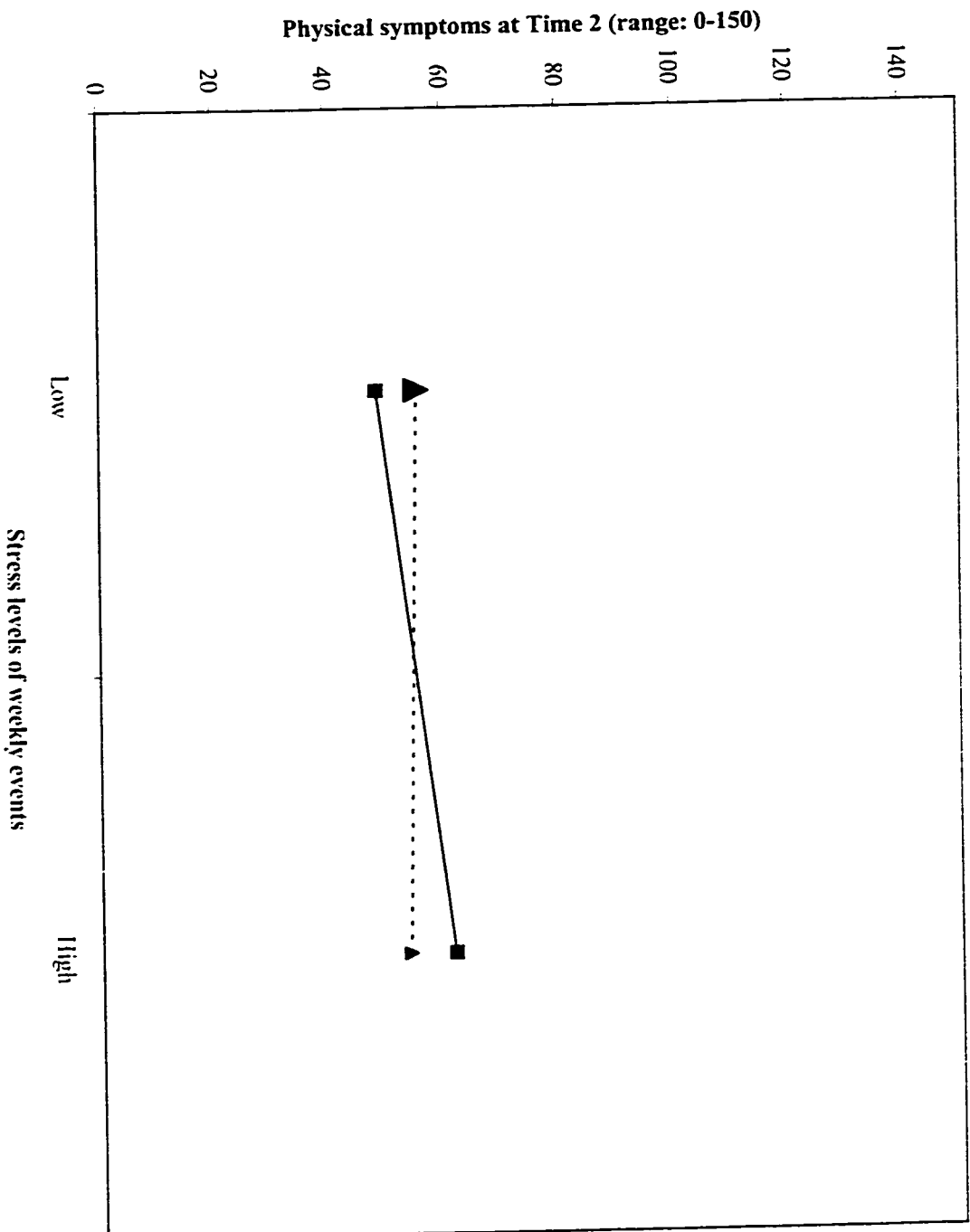
Physical symptoms at Time 2 (range: 0-150)

Stress levels of weekly events

Low   High

Legend:
■——— High leisure empowerment
▲· · · Low leisure empowerment

Note: One standard deviations above or below mean scores were used to classify into high vs. low stress levels and high vs. low leisure empowerment.

Figure 26: Interaction effects between leisure friendship and major life event stress on mental illness at Time 1

Figure 27
Relationships between stress, leisure-coping,
and mental illness
(Academic problems)

120
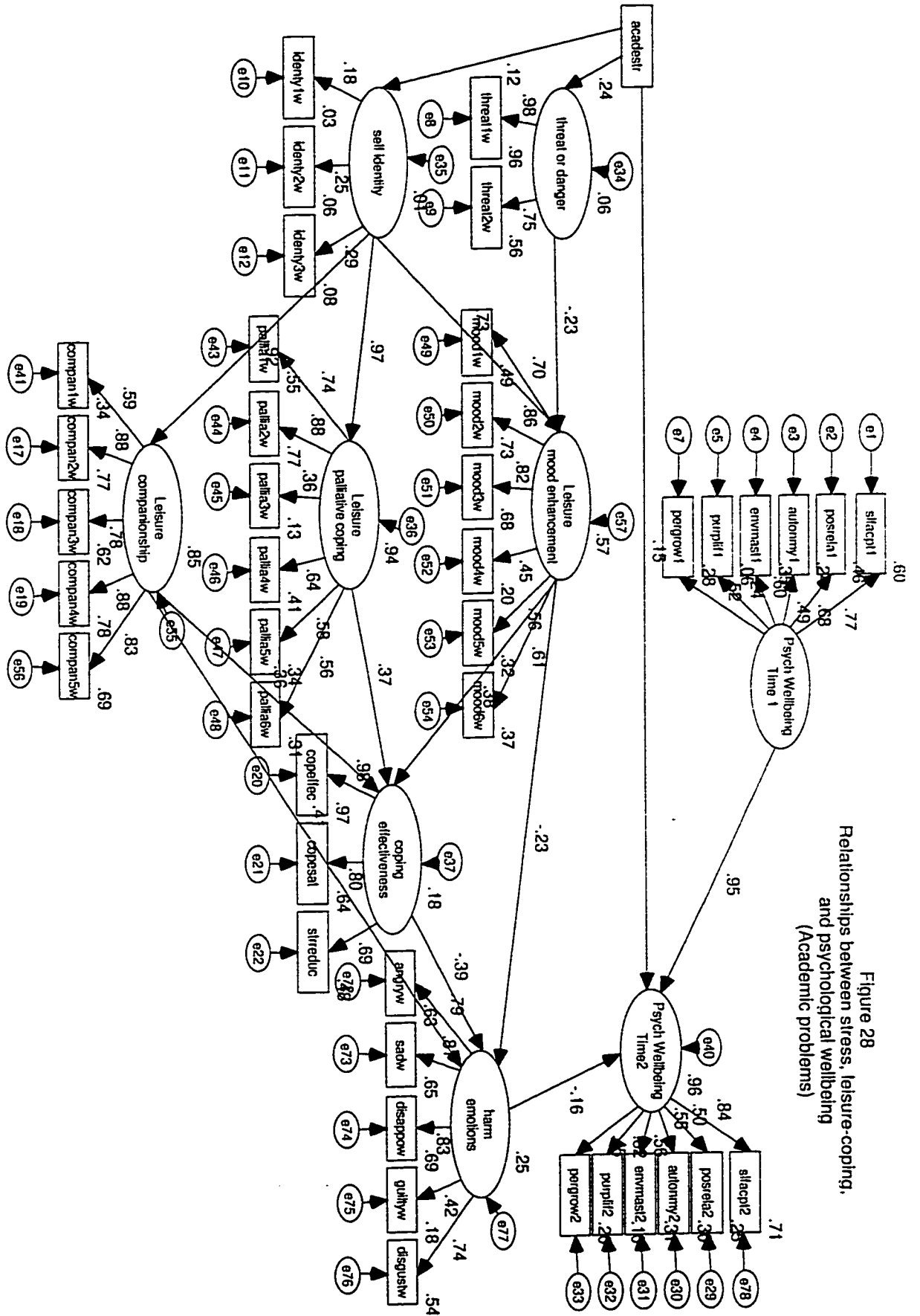
Figure 28
Relationships between stress, leisure-coping,
and psychological wellbeing
(Academic problems)

Figure 29
Relationships between stress, leisure-coping,
and physical illness
(Academic problems)
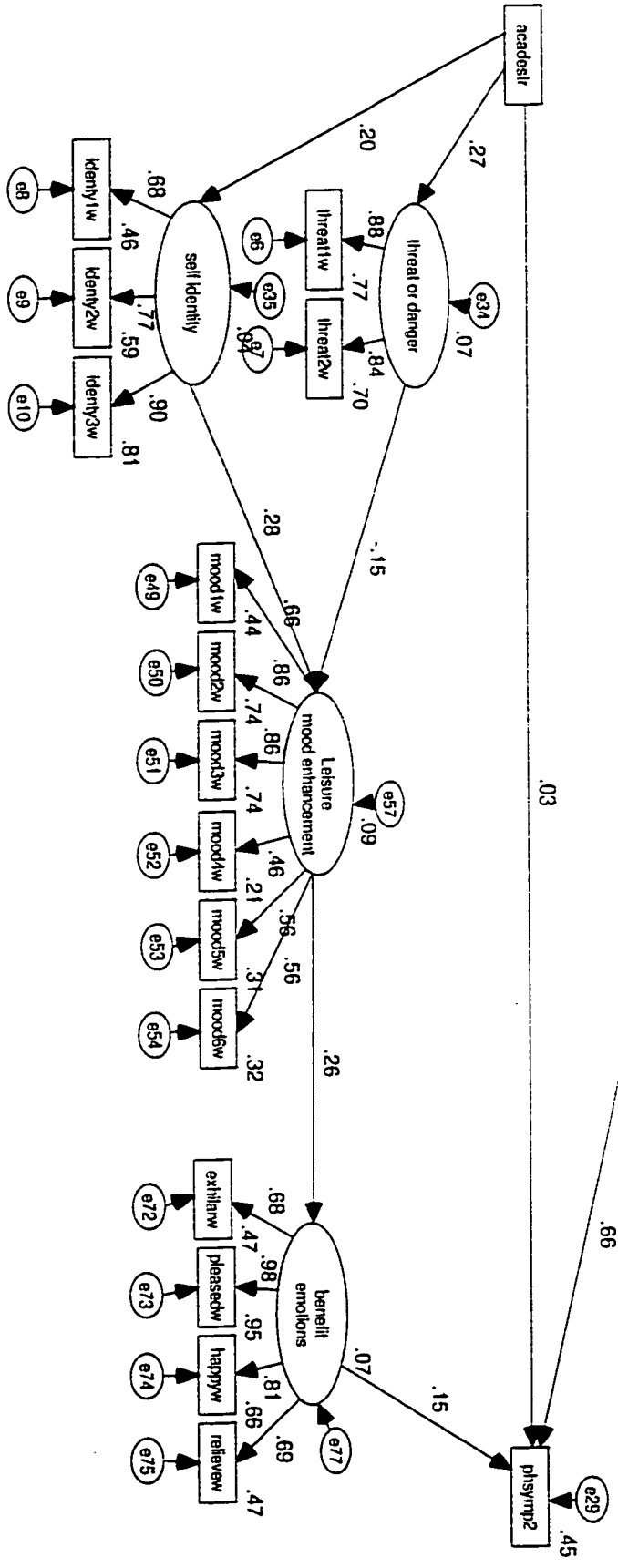
Figure 30
Relationships between stress, leisure-coping,
and mental illness
(interpersonal problems)

123
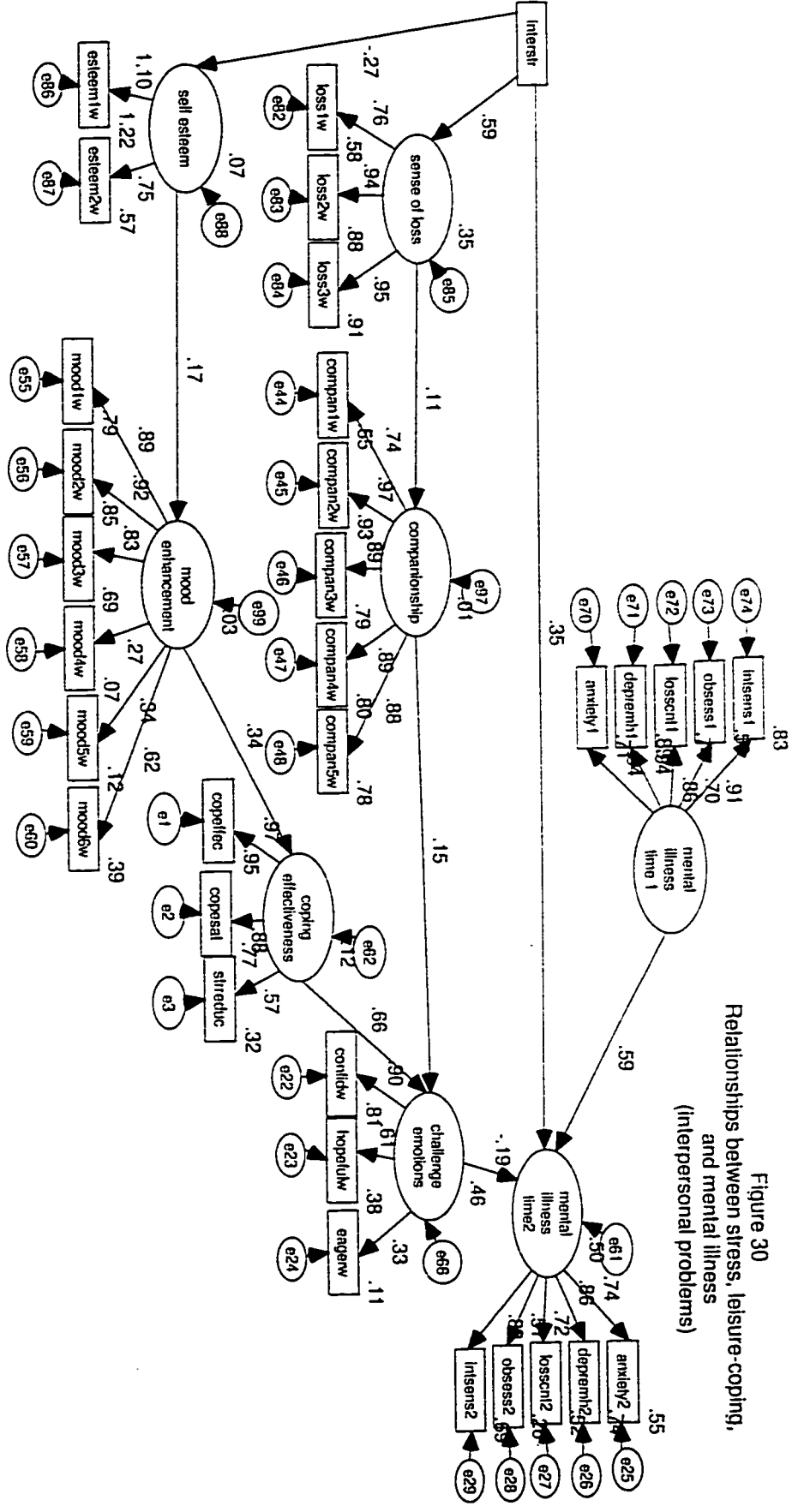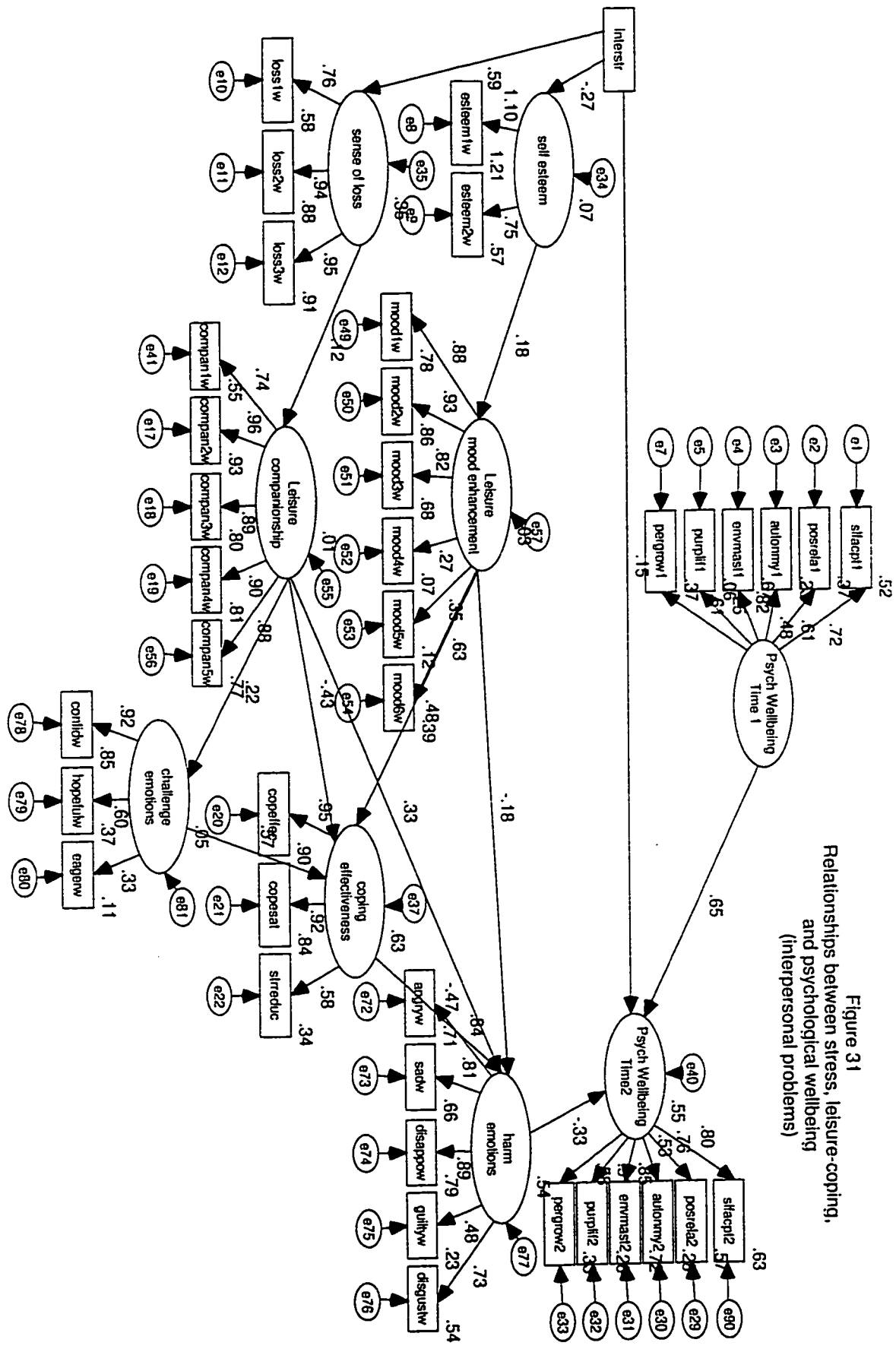
Figure 31
Relationships between stress, leisure-coping,
and psychological wellbeing
(interpersonal problems)

Figure 32
Relationships between stress, leisure-coping,
and physical symptoms
(Interpersonal problems)

125

Figure 33
Relationships between stress, leisure-coping,
and mental illness
(Competence problems)

126
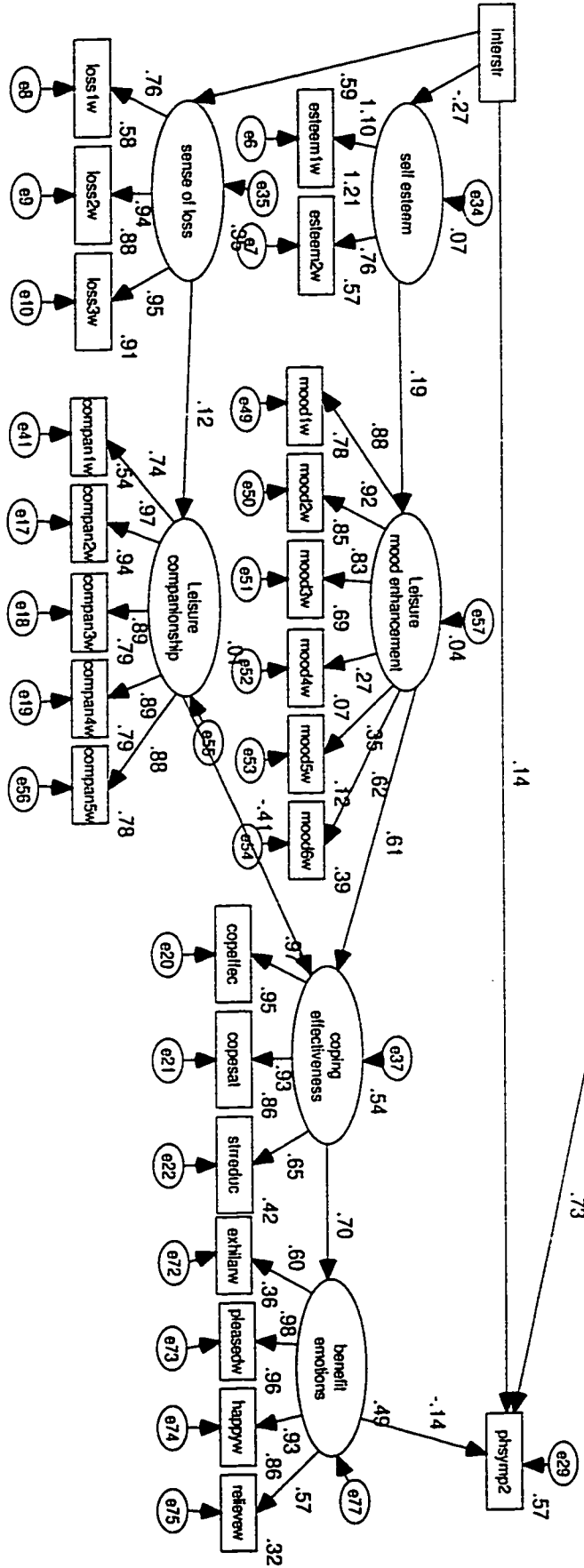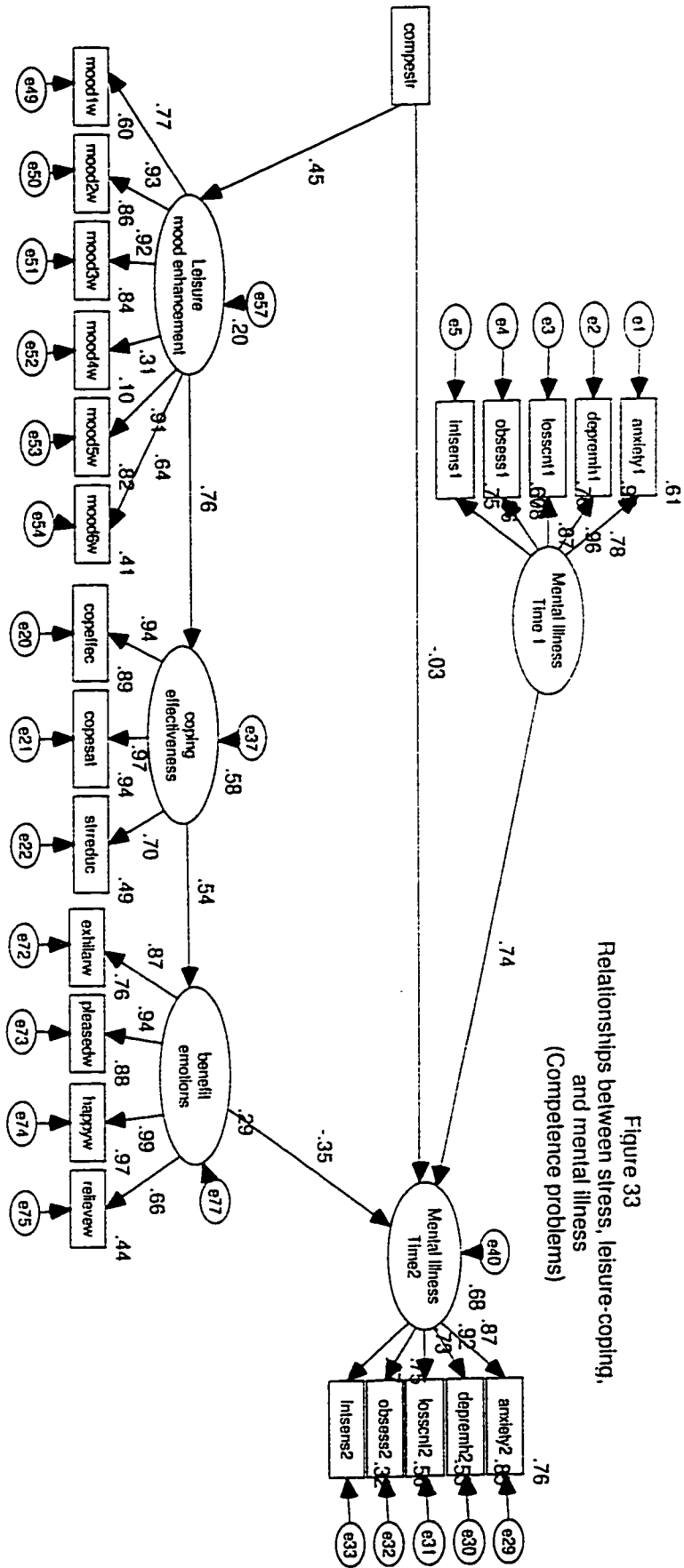
Figure 34
Relationships between stress, leisure-coping,
and physical symptoms
(Competence problems)
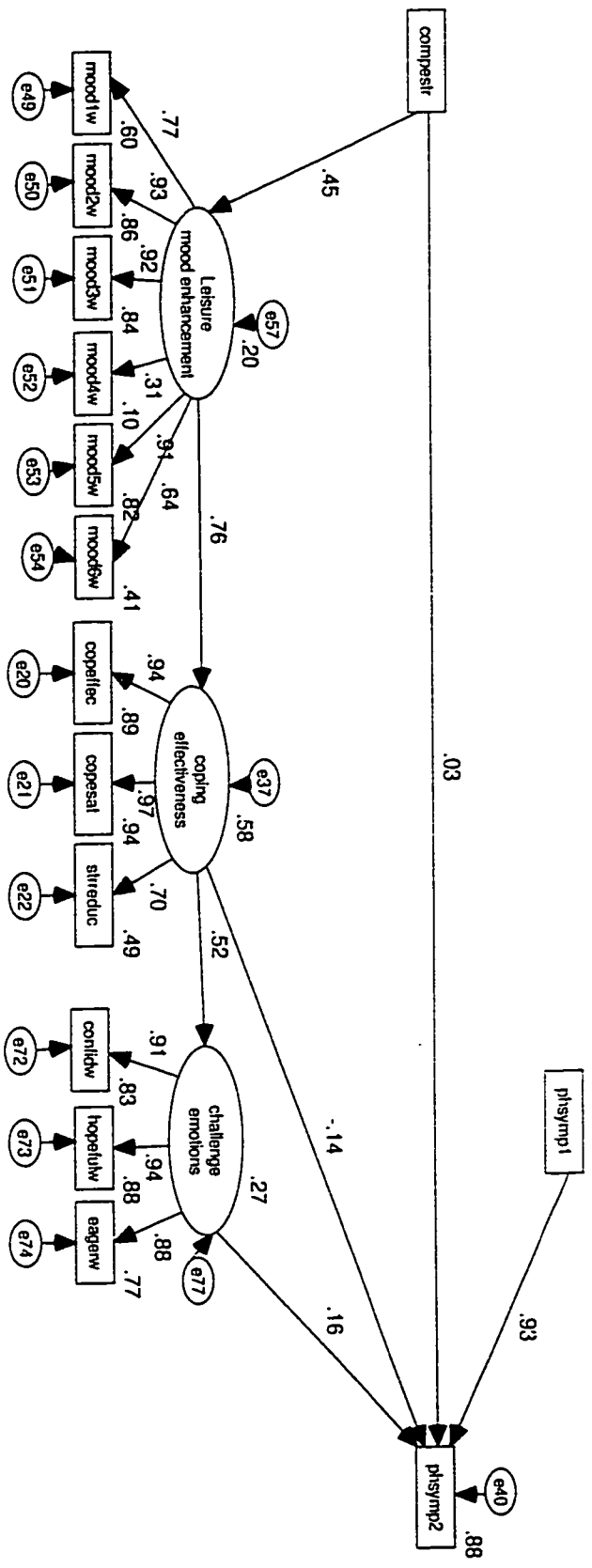
Figure 35
Relationships between stress, leisure-coping,
and mental illness
(Environmental annoyances)
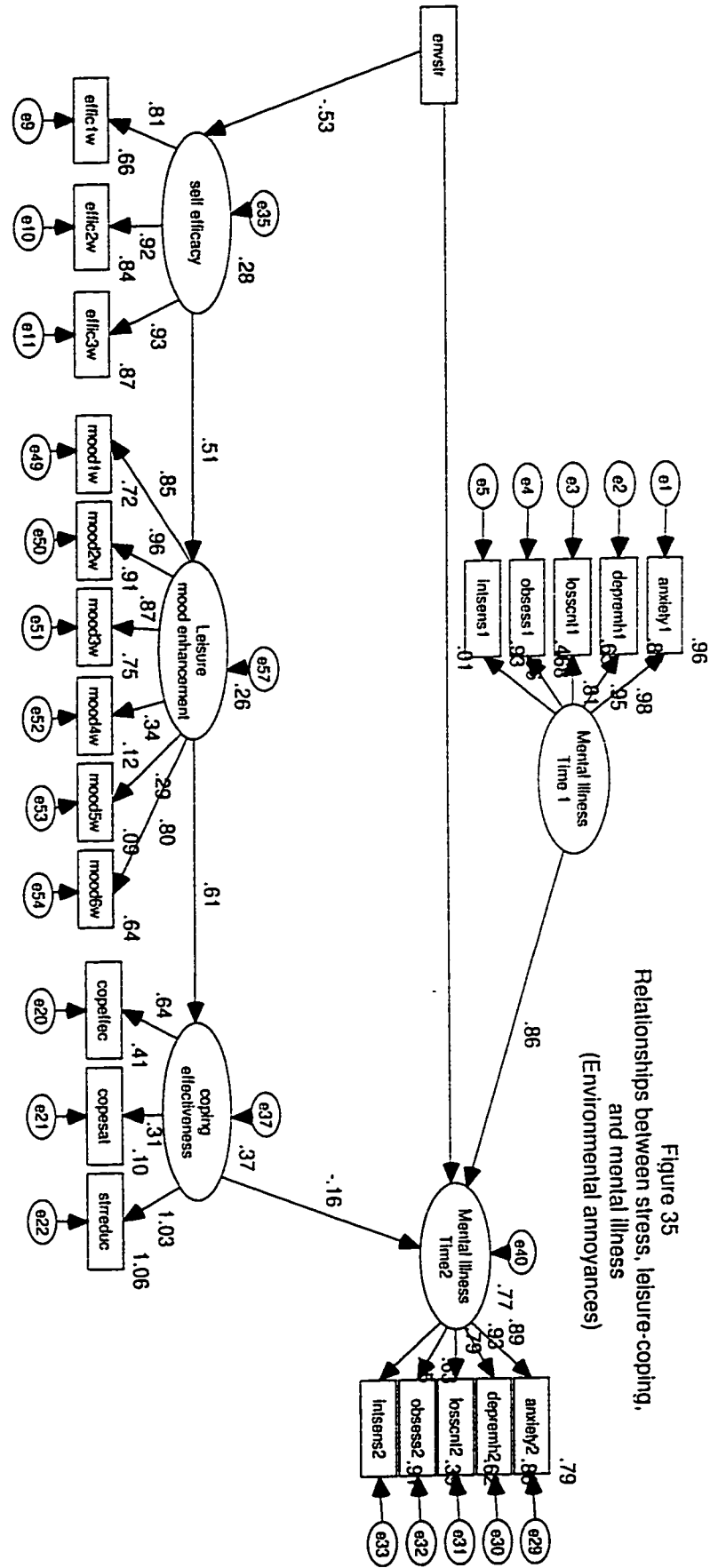
Figure 36: Interaction effects between leisure palliative coping and weekly stress on mental illness at Time 2

Mental illness at Time 2 (range: 0-4)

Stress levels of weekly events

Low   High

Legend:
- ■—— High leisure palliative coping
- ▲·· Low leisure palliative coping
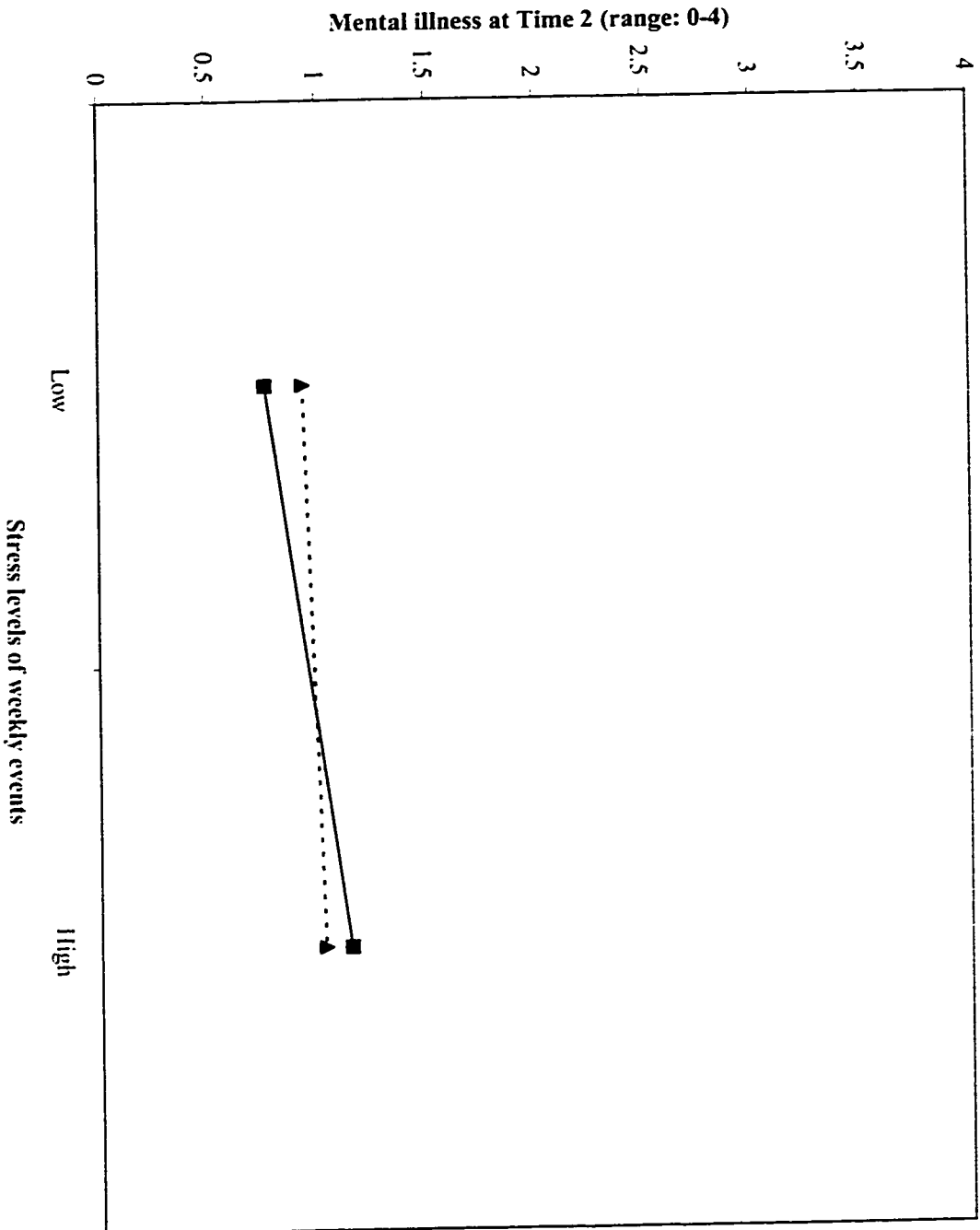
Note: One standard deviations above or below mean scores were used to classify into high vs. low stress levels and high vs. low leisure palliative coping.

Figure 37: Interaction effects between leisure companionship and weekly stress on mental illness at Time 2

Mental illness at Time 2 (range: 0-4)

Stress levels of weekly events

Low   High
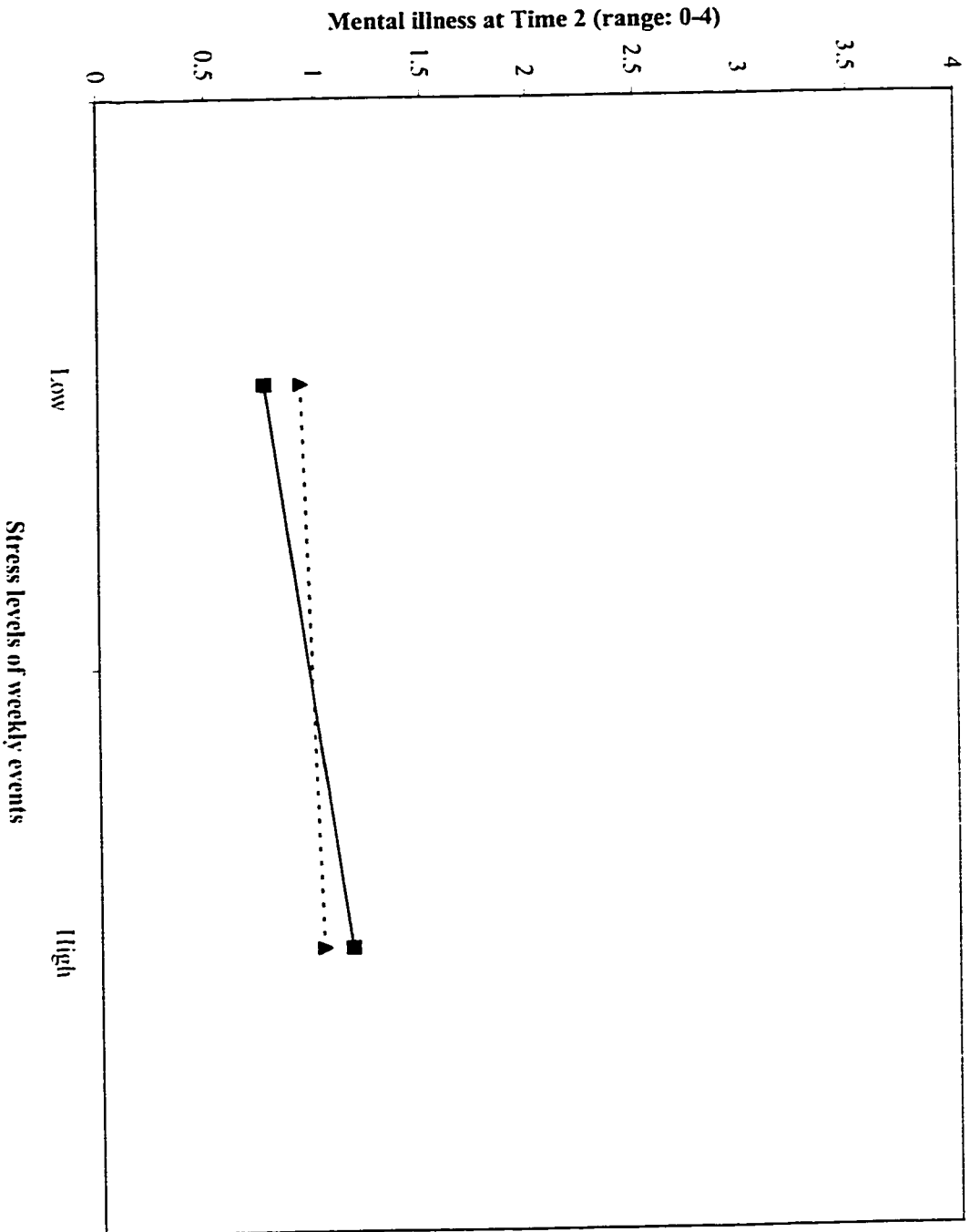
High leisure companionship
Low leisure companionship

Note: One standard deviations above or below mean scores were used to classify into high vs. low stress levels and high vs. low leisure companionship.

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Figure 38: Interaction effects between leisure palliative coping and weekly stress on physical symptoms at Time 2

Physical symptoms at Time 2 (range: 0-150)

Stress levels of weekly events

Low   High

High leisure palliative coping
Low leisure palliative coping

Note: One standard deviations
above or below mean scores
were used to classify into high
vs. low stress levels and high
vs. low leisure palliative
coping.

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Figure 39
Relationship between leisure coping strategies and general coping strategies

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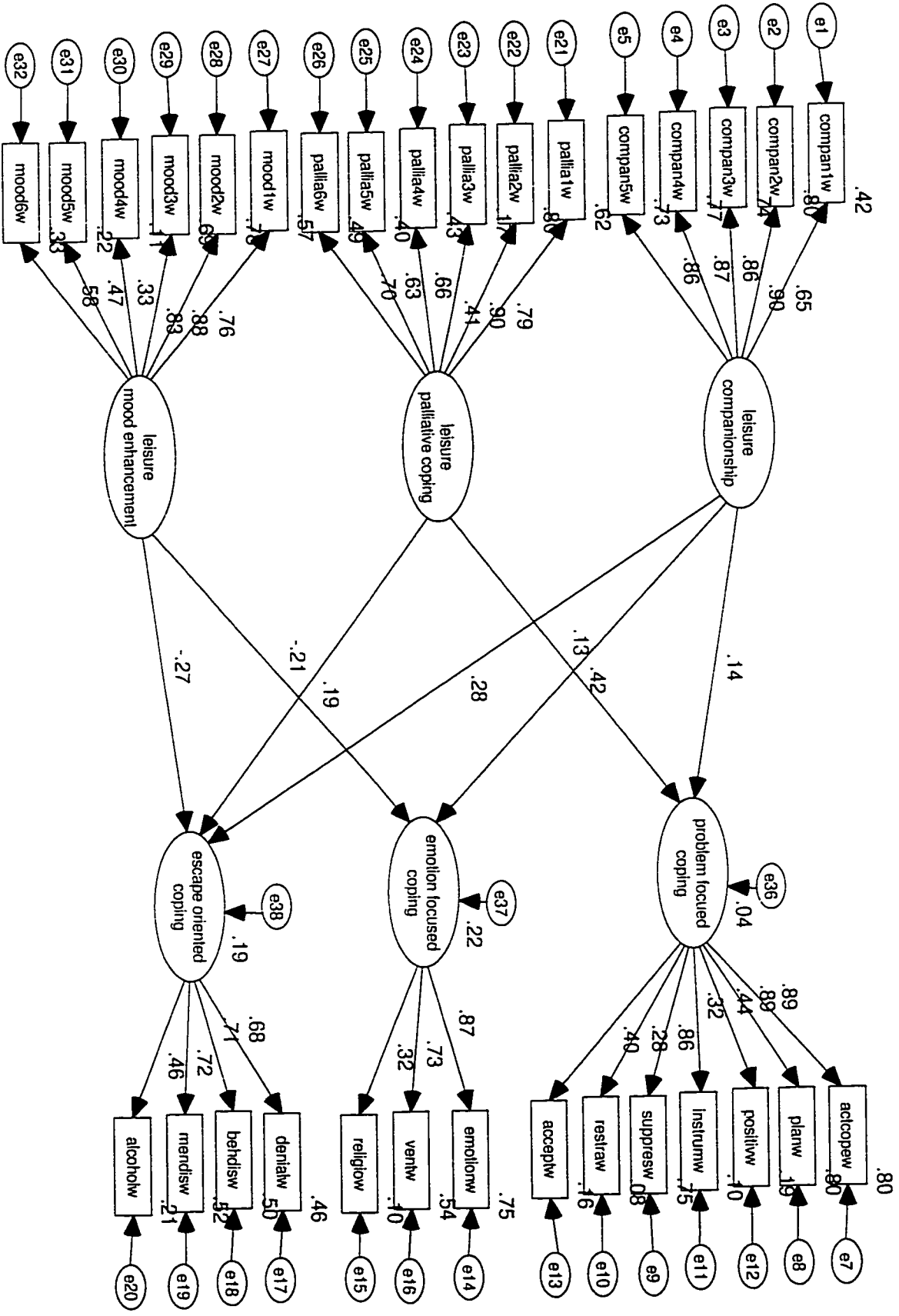
Figure 40
Relationship between leisure coping beliefs and general coping strategies
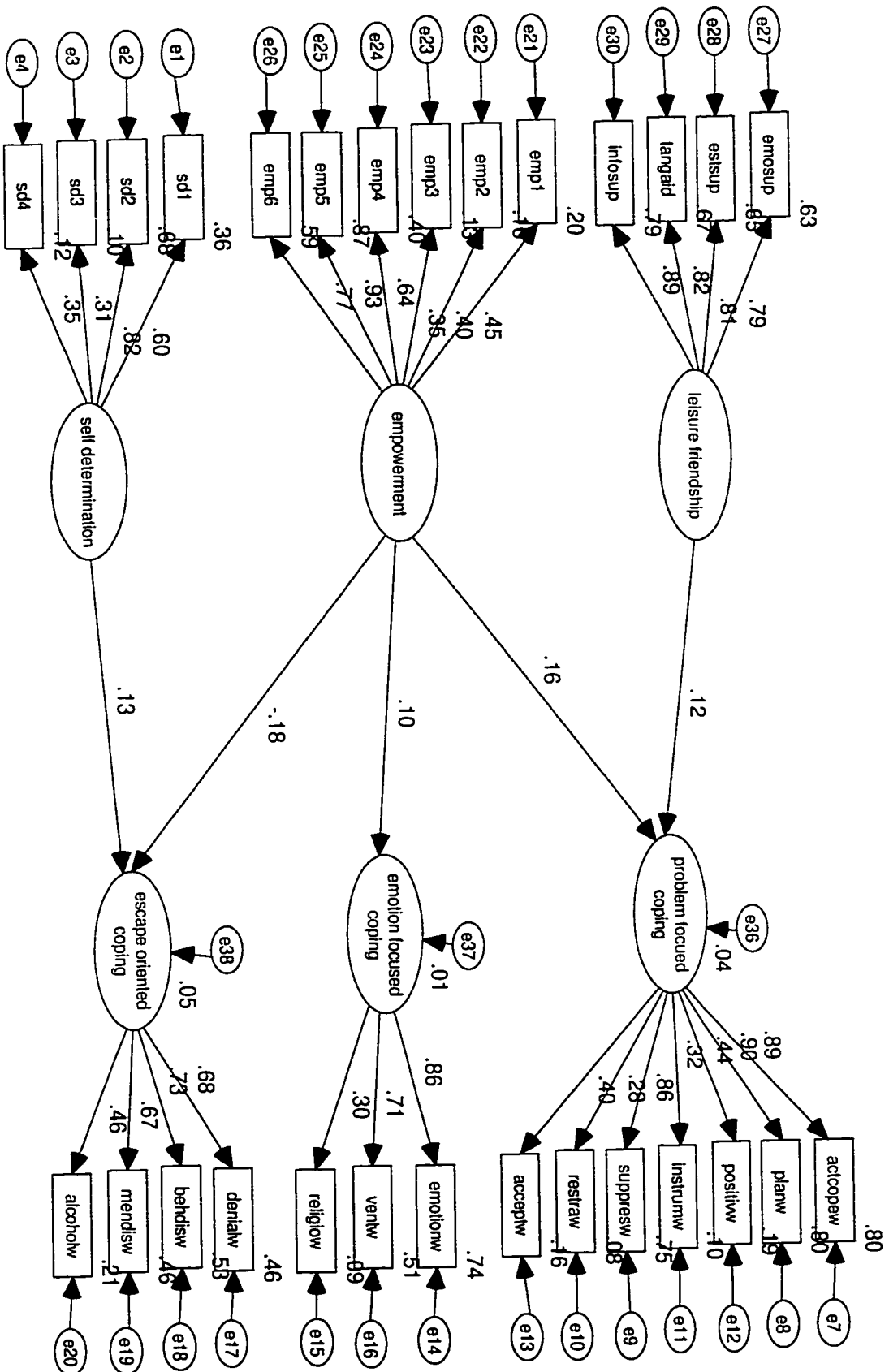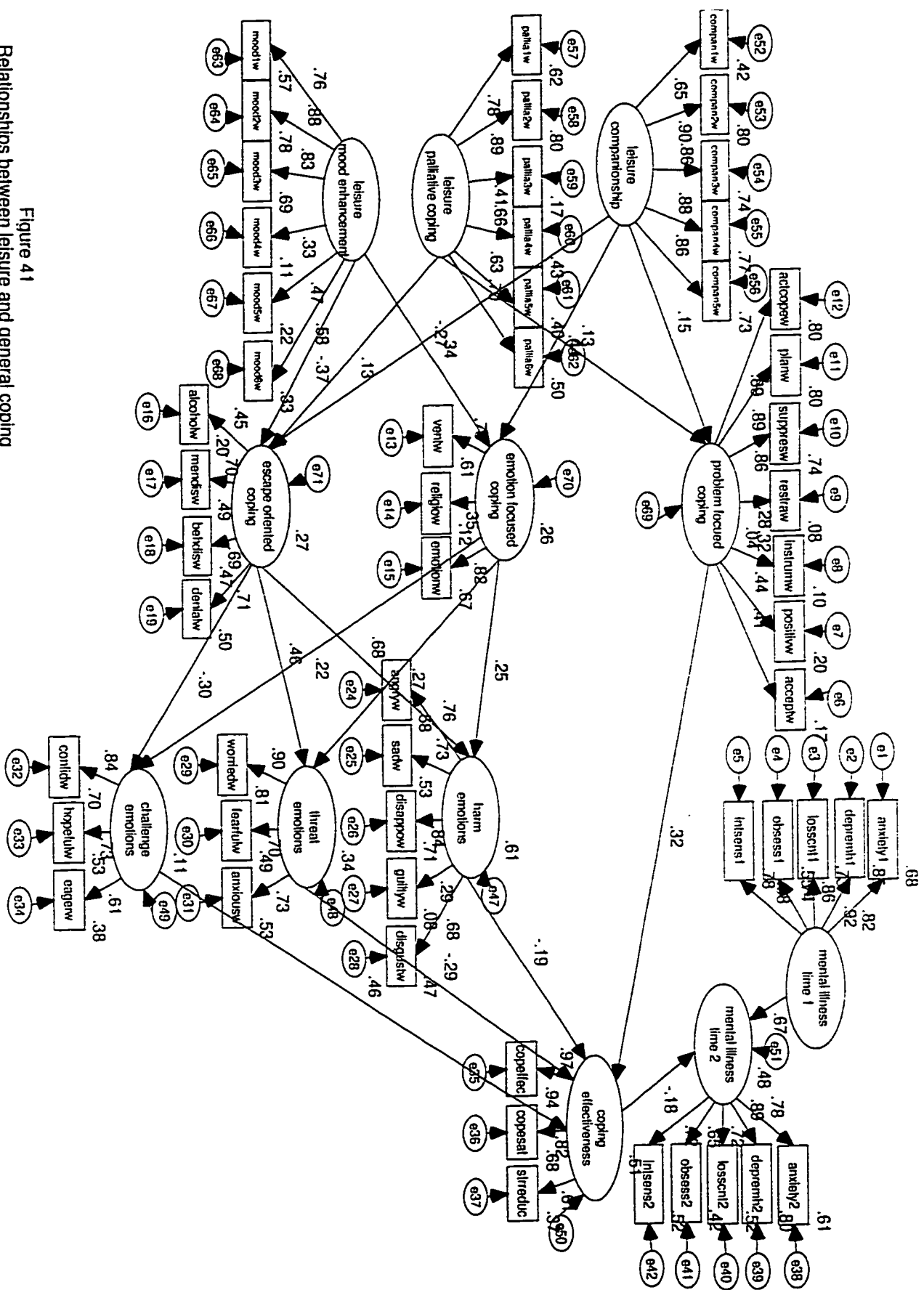
Figure 41
Relationships between leisure and general coping
and mental illness

134
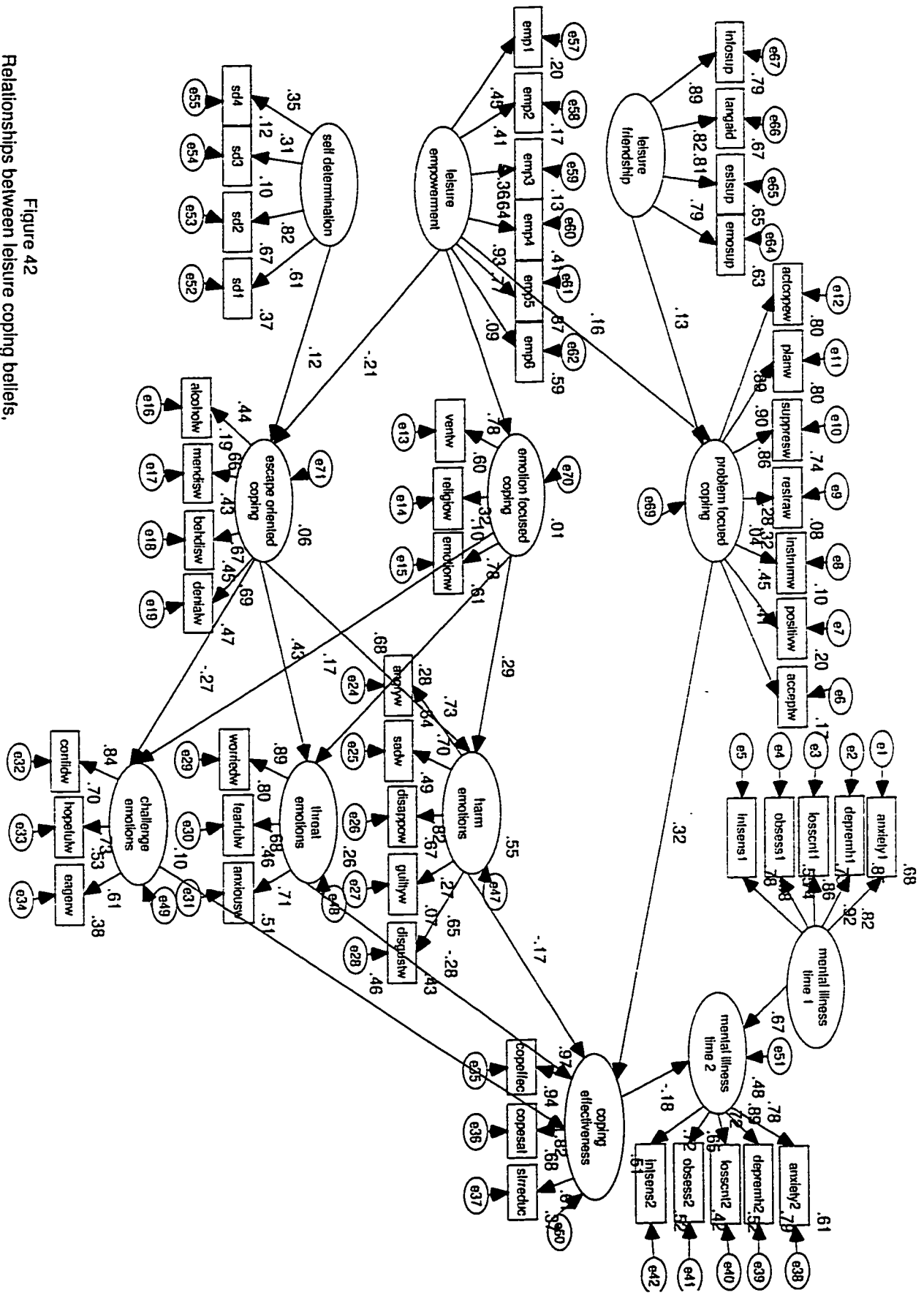
Figure 42
Relationships between leisure coping beliefs,
general coping, and mental illness

135
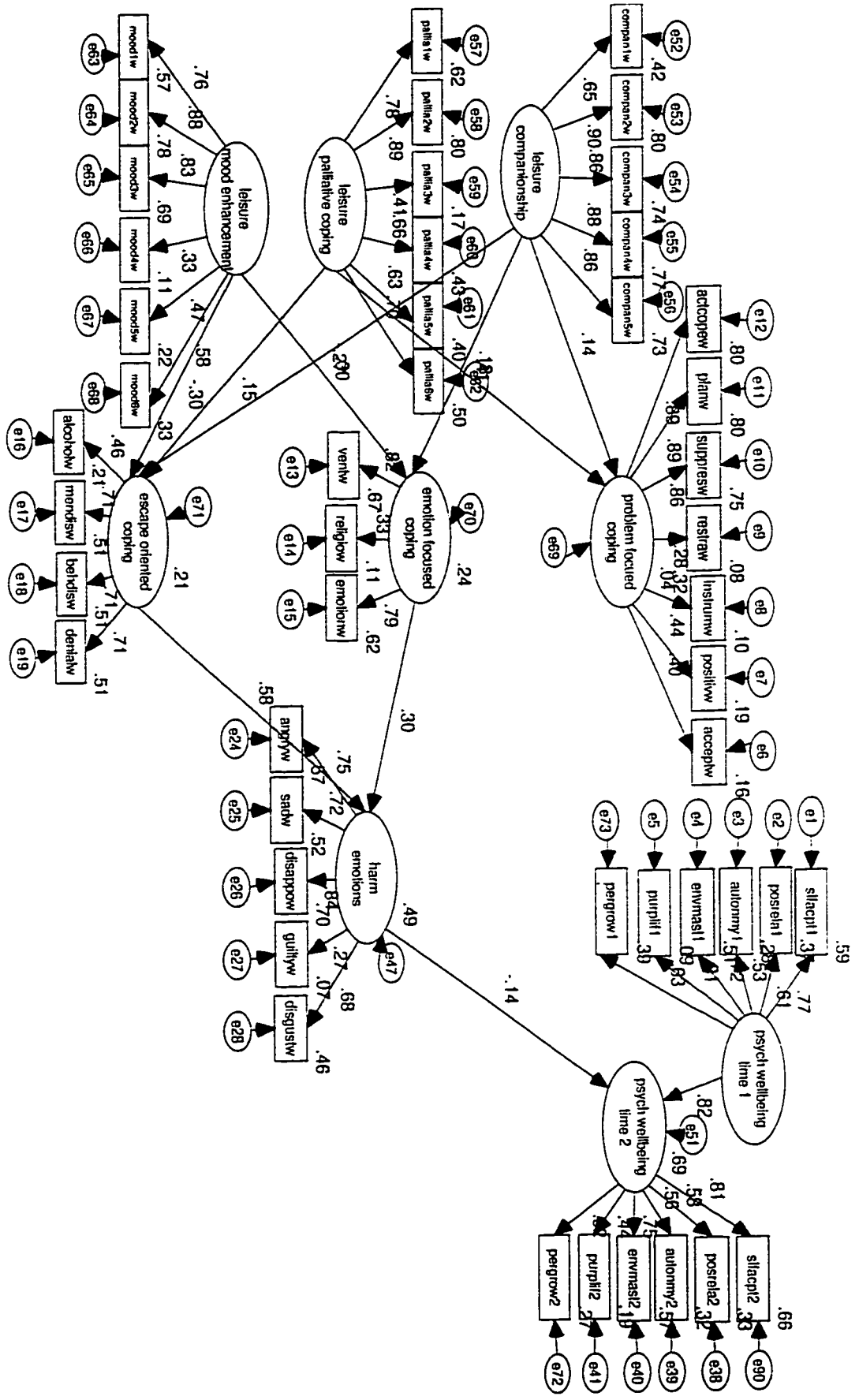
Figure 43
Relationships between leisure and general coping strategies
and psychological wellbeing

136
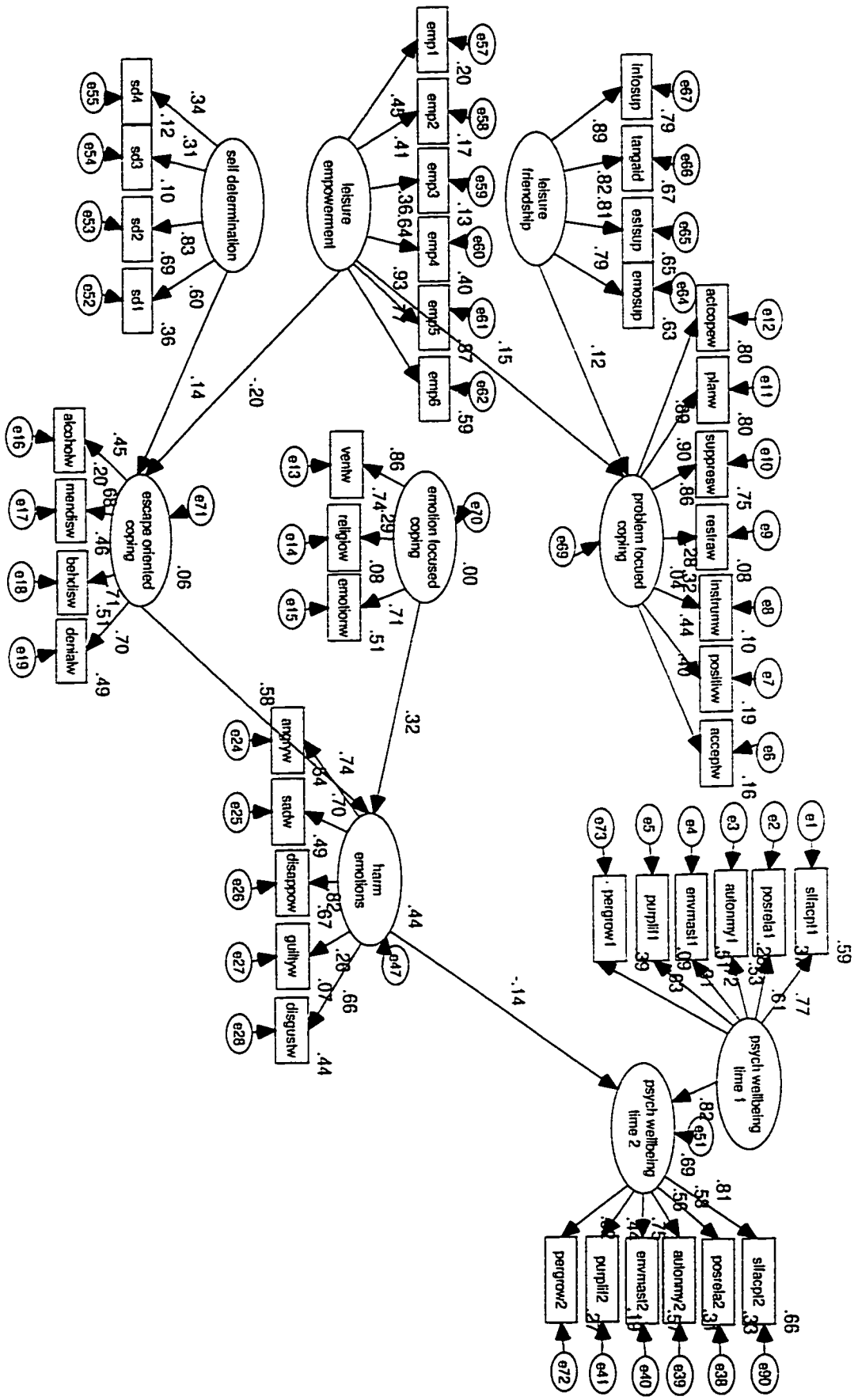
Figure 44
Relationships between leisure coping beliefs,
general coping strategies, and psychological wellbeing

137

Figure 45
Effects of leisure coping beliefs on leisure coping strategies

138
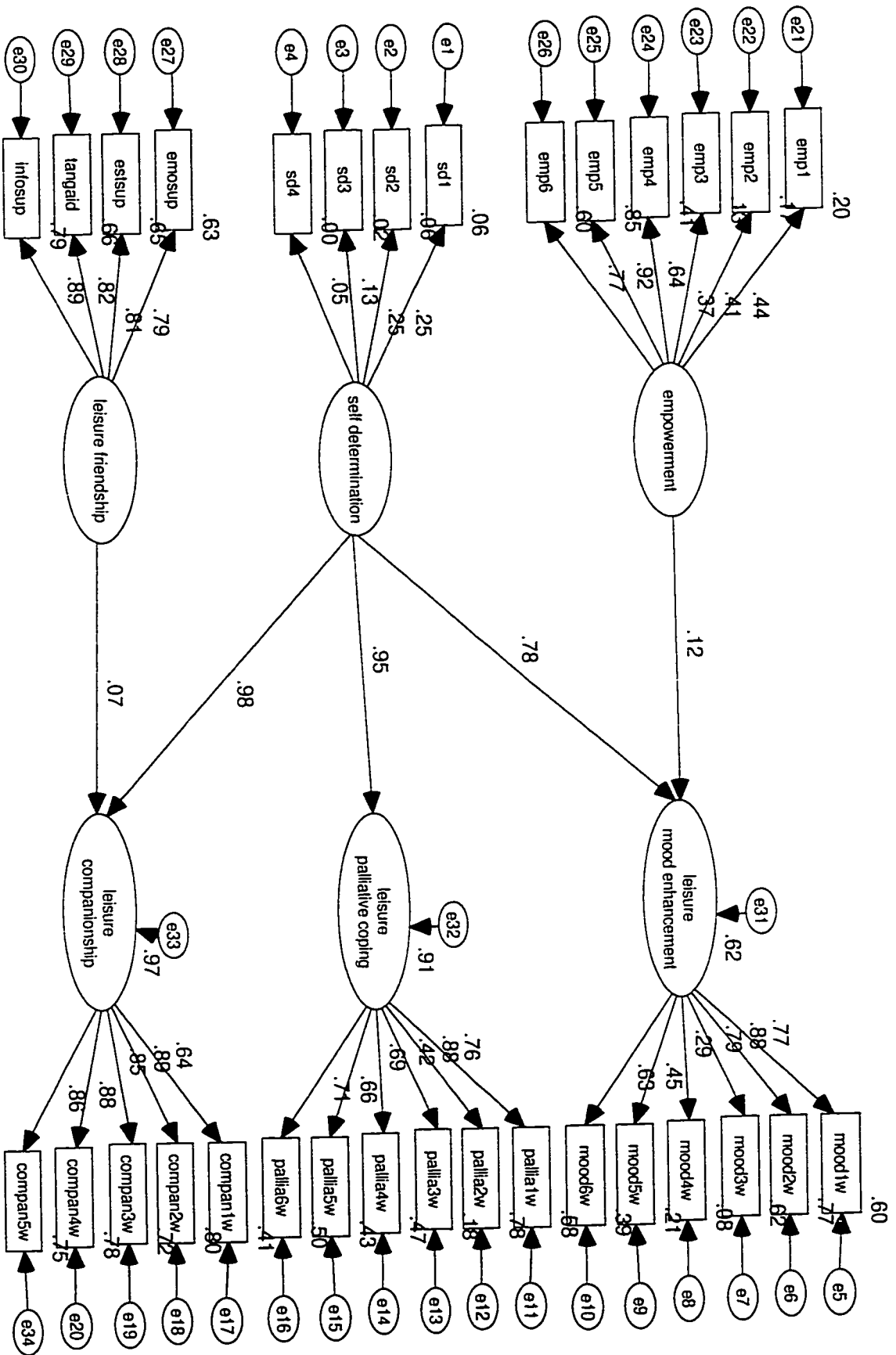
Table 1. Factor loadings, communalities, and percent of variance explained for principal axis factoring and oblique rotation (Leisure Coping Brief Scale: two-factor solution)

Items	Factor 1	Factor 2	Communalities
Tangible aid 2	.82	-.10	.63
Emotional support 1	.76	-.16	.52
Informational support 4	.75	.003	.58
Emotional support 3	.73	.10	.60
Informational support 3	.73	-.02	.53
Tangible aid 1	.73	-.06	.51
Informational support 2	.73	.07	.57
Tangible aid 3	.72	-.07	.48
Esteem support 4	.66	.27	.62
Tangible aid 4	.65	-.08	.39
Esteem support 3	.57	.32	.54
Esteem support 1	.57	.21	.44
Emotional support 4	.50	.05	.62
Emotional support 2	.48	.29	.48
Informational support 1	.47	.008	.22
Empowerment 2	.10	.82	.73
Empowerment 5	.16	.75	.66
Empowerment 1	-.06	.69	.46
Self-determination 2	.06	.69	.51
Empowerment 6	.18	.69	.58
Self-determination 1	.10	.68	.52
Empowerment 7	.21	.63	.53
Self-determination 3	.02	.52	.28
Esteem support 2	.38	.46	.48
Self-determination 4	.12	.46	.26
Self-determination 5	-.18	.42	.16
Empowerment 4	.26	.40	.29
Self-determination 7	-.13	.34	.10
Self-determination 6	.07	.33	.13
Empowerment 3	-.02	.27	.007
Percents of variance explained	32.94	10.57	

Note 1: Items are ordered and grouped by size of loading to facilitate interpretation, and loadings above .45 (20 % of variance) are bolded.
Note 2: Numbers with item names represent item numbers for each dimension consistent with the order included in the Leisure Coping Belief Scale.

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Table 2. Factor loadings, communalities, and percent of variance explained for principal axis factoring and oblique rotation (Leisure Coping Strategy Scale; three-factor solution)

Items	Factor 1	Factor 2	Factor 3	Communalities
Leisure companionship 2	**.92**	-.11	.06	.78
Leisure companionship 6	**.84**	.08	-.11	.72
Leisure palliative coping 1	**.84**	.02	-.10	.64
Leisure palliative coping 2	**.81**	.05	.005	.71
Leisure companionship 4	**.80**	-.05	.16	.74
Leisure companionship 3	**.77**	.02	.12	.71
Leisure palliative coping 6	**.63**	.31	-.22	.61
Leisure mood enhancement 2	**.57**	.03	.31	.64
Leisure palliative coping 3	**.56**	.12	.19	.58
Leisure palliative coping 5	.09	**.83**	-.06	.76
Leisure mood enhancement 6	.08	**.78**	-.03	.67
Leisure palliative coping 4	-.07	**.75**	.29	.74
Leisure mood enhancement 4	-.02	.22	**.60**	.50
Leisure companionship 5	.06	-.01	**.52**	.31
Leisure mood enhancement 5	.32	.02	**.49**	.51
Leisure companionship 1	.42	.19	.25	.53
Leisure mood enhancement 1	.39	.21	.38	.67
Leisure mood enhancement 3	.36	.14	.38	.54
Percents of variance explained	53.51	4.90	4.59	

Note 1: Items are ordered and grouped by size of loading to facilitate interpretation, and loadings above .45 (20 % of variance) are bolded.
Note 2: Numbers with item names represent item numbers for each dimension consistent with the order included in the Leisure Coping Strategy Scale.

Table 3. Summary of a function of log likelihood statistic for the measurement models compared

Model	Function of log likelihood	Df	Difference in function of log likelihood	Df difference
1. One factor model	11131.54	860		
2. Two correlated factor model	8745.37	859		
Difference between Model 1 & Model 2			2386.17 (p < .001)	1
3. Second-order hierarchical model	8000.79	854		
Difference between Model 2 & Model 3			744.58 (p < .001)	5
4. Third-order hierarchical model	7779.03	848		
Difference between Model 3 & Model 4			221.76 (p < .001)	7

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Table 4. Summary of a function of log likelihood for structural equation models tested

Model	Function of log likelihood	df
Figure 5: Effects of weekly hassles on health and wellbeing	1486.43	341
Figure 6: Effects of major event stress on health and wellbeing	511.74	372
Figure 7: Effects of leisure beliefs on the relationships between weekly hassles and mental illness	-676.84	344
Figure 8: Effects of leisure beliefs on the relationship between major life event stress and mental illness	-108.94	371
Figure 9: Effects of leisure beliefs on the relationship between weekly hassles and psychological wellbeing	277.23	399
Figure 10: Effects of leisure beliefs on the relationship between major life event stress and psychological wellbeing	137.94	428
Figure 11: Effects of leisure beliefs on the relationship between weekly hassles and physical symptoms	5656.94	167
Figure 12: Effects of leisure beliefs on the relationship between major life event stress and physical symptoms	1453.08	187
Figure 17: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and mental illness (Academic problems)	3385.65	888
Figure 18: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and psychological wellbeing (Academic problems)	3376.74	846
Figure 19: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and physical symptoms (Academic problems)	4116.93	130
Figure 20: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and mental illness (Interpersonal problems)	958.67	486
Figure 21: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and psychological wellbeing (Interpersonal problems)	1459.42	727
Figure 22: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and physical symptoms (Interpersonal problems)	2245.22	292
Figure 23: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and mental illness (Competence problems)	112.94	247
Figure 24: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and physical symptoms (Competence problems)	585.15	86
Figure 25: Relationships between stress, appraisal, leisure-coping, coping effectiveness, emotions, and mental illness (Environmental annoyances)	54.45	225
Figure 29: Relationship between leisure coping strategies and general coping strategies (Total weekly hassles)	7258.99	427
Figure 30: Relationship between leisure coping beliefs and general coping strategies (Total weekly hassles)	3030.80	345
Figure 31: Relationships between leisure and general coping strategies and mental illness (Total weekly hassles)	8500.76	1411
Figure 32: Relationships between leisure coping beliefs, general coping strategies, and mental illness (Total weekly hassles)	4225.93	1257
Figure 33: Relationships between leisure and general coping strategies and psychological wellbeing (Total weekly hassles)	7464.68	1069
Figure 34: Relationships between leisure coping beliefs, general coping strategies and psychological wellbeing (Total weekly hassles)	3186.00	937

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Table 5. Tests of buffer models for leisure coping beliefs: Hierarchical regression

Dependent variable: Mental illness at Time 2

Independent variables	R square change	Beta	p
Step 1: Mental illness at Time 1	.452	.672	.000
Step 2: Weekly stress	.072	.312	.000
Step 3: Leisure empowerment	.022	-.150	.000
Step 4: Weekly stress X leisure empowerment	.012	-1.157	.007

Dependent variable: Mental illness at Time 2

Independent variables	R square change	Beta	p
Step 1: Mental illness at Time 1	.452	.672	.000
Step 2: Weekly stress	.072	.312	.000
Step 3: Leisure friendship	.013	-.114	.007
Step 4: Weekly stress X leisure friendship	.009	-.944	.022

Dependent variable: Physical symptoms at Time 2

Independent variables	R square change	Beta	p
Step 1: Physical symptoms at Time 1	.521	.721	.000
Step 2: Weekly stress	.001	.039	.410
Step 3: Leisure empowerment	.000	-.004	.933
Step 4: Weekly stress X leisure empowerment	.016	1.316	.002

Dependent variable: Mental illness at Time 1

Independent variables	R square change	Beta	p
Step 1: Major event stress	.166	.407	.000
Step 2: Leisure friendship	.001	.023	.834
Step 3: Major event stress X leisure friendship	.055	2.244	.034

Table 6. Tests of buffer models for leisure coping strategies: Hierarchical regression

Dependent variable: Mental illness at Time 2

Independent variables	R square change	Beta	p
Step 1: Mental illness at Time 1	.458	.676	.000
Step 2: Weekly stress	.067	.303	.000
Step 3: Leisure palliative coping	.001	-.035	.406
Step 4: Weekly stress X leisure palliative coping	.018	.855	.002

Dependent variable: Mental illness at Time 2

Independent variables	R square change	Beta	p
Step 1: Mental illness at Time 1	.458	.676	.000
Step 2: Weekly stress	.067	.303	.000
Step 3: Leisure companionship	.000	-.019	.649
Step 4: Weekly stress X leisure companionship	.020	.863	.001

Dependent variable: Physical symptoms at Time 2

Independent variables	R square change	Beta	p
Step 1: Physical symptoms at Time 1	.521	.722	.000
Step 2: Weekly stress	.001	.038	.421
Step 3: Leisure palliative coping	.001	-.037	.386
Step 4: Weekly stress X leisure palliative coping	.009	-.620	.022

Table 7. The prediction of coping outcomes by coping strategies: Tests of optimal matching models (Academic problems)

Coping strategies	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions	Mental illness T2	Psych. wellbeing T2	Physical symptoms T2
Total R^2	.574	.582	.492	.633	.588	.577	.453	.300	.243	.398
Mood enhancement	.275	.244	.323	-.395	-.261			-.191		
Empowerment			.234		-.295			-.154	.197	
Tangible aid								-.359		
Emotional support					.426				.283	-.286
Esteem support									.318	
Planning	.379			-.389						
Active coping		.284								
Positive reinterpretation	.252									
Total support network size	.402			-.367	-.325		.487		.241	-.252
Socializing network size									.203	
Satisfaction-advice			.295	-.273				-.342	.187	-.342
Satisfaction-socializing								.201		
Frequency-socializing				-.251						
Practical assistance						-.450				
Advice						.364				
Instrumental social support							.335			
Religion		-.231								
Financial assistance		.470						-.344		.196
Mental disengagement			.249							
Venting of emotions					.334			.192		
Alcohol								.315		

Note 1:   Values represent beta coefficients except for total R^2. Only statistically significant beta coefficients at .05 level are reported.
Note 2:   For the prediction of mental illness, psychological wellbeing, and physical symptoms at Time 2, the corresponding health and wellbeing measures at Time 1 were entered at the first step followed by coping strategies. Thus, total R^2 reported is, in fact, R^2_{change} for coping strategies at Time 2.

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Table 8. The prediction of coping outcomes by coping strategies: Tests of optimal matching models (Interpersonal problems)

Coping strategies	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions	Mental illness T2	Psych. wellbeing T2	Physical symptoms T2
Total R^2	.835	.824	.736	.814	.911	.751	.751	.543	.464	.314
Mood enhancement	.583		.603							
Self-determination								-.449		
Tangible aid	.669	.712								
Emotional support								-.724		
Esteem support								-.599	.514	
Planning								-.511		
Active coping	.536									
Positive reinterpretation						.689	.542			
Total support network size						.648				
Satisfaction-advice		.420			-.317		.444	-.347		
Satisfaction-emotional sup.	.560									
Frequency-socializing			.534		-.367					
Practical assistance	.939	.656			-.481					
Instrumental social support	-.429									
Acceptance		.578								
Restraint coping				-.440	-.348			.568		
Turning to religion				.573	.545					
Behavioral disengagement										.368
Venting of emotions	-.683	-.561								
Denial					.384					

Note 1: Values represent beta coefficients except for total R^2. Only statistically significant beta coefficients at .05 level are reported.
Note 2: For the prediction of mental illness, psychological wellbeing, and physical symptoms at Time 2, the corresponding health and wellbeing measures at Time 1 were entered at the first step followed by coping strategies. Thus, total R^2 reported is, in fact, R^2_{change} for coping strategies at Time 2.

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Table 9. The prediction of coping outcomes by coping strategies: Tests of optimal matching models (Controllable stressful events)

Coping strategies	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions	Mental illness T2	Psych. wellbeing T2	Physical symptoms T2
Total R^2	.594	.546	.505	.452	.512	.488	.320	.303	.241	.413
Mood enhancement	.268	.277	.289	-.298						
Palliative coping										-.304
Empowerment									.170	
Emotional support					-.486				.270	-.335
Esteem support									.223	
Active coping	.327	.456								
Positive reinterpretation	.483	.316	.267			.428	.334			
Total support network size										-.303
Socializing network size					-.323					
Satisfaction-advice								-.330		-.393
Satisfaction-socializing								.458		
Satisfaction-practical assist.									.277	
Frequency-socializing								-.150		
Acceptance					.309	-.303				
Restraint coping										
Turning to religion	-.215	-.310						.221		
Financial assistance		.317						-.404		-.450
Behavioral disengagement						.220				
Denial	-.184									
Alcohol	-.209							.228		

Note 1:   Values represent beta coefficients except for total R^2. Only statistically significant beta coefficients at .05 level are reported.

Note 2:   For the prediction of mental illness, psychological wellbeing, and physical symptoms at Time 2, the corresponding health and wellbeing measures at Time 1 were entered at the first step followed by coping strategies. Thus, total R^2 reported is, in fact, R^2_{change} for coping strategies at Time 2.

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Table 10. The prediction of coping outcomes by coping strategies: Tests of optimal matching models (Uncontrollable stressful events)

Coping strategies	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions	Mental illness T2	Psych. wellbeing T2	Physical symptoms T2
Total R^2	.523	.504	.571	.520	.620	.550	.457	.283	.353	.182
Mood enhancement			.347					-.192		
Palliative coping			.384							
Empowerment			.249						.193	
Self-determination			-.266							-.375
Tangible aid										
Emotional support		.387						-.250	.373	
Positive reinterpretation			.298			.581	.486	-.225		
Socializing network size									.193	
Financial assist. size										-.195
Satisfaction-advice		.423						-.523	.336	-.411
Satisfaction-financial assist.										-.235
Instrumental social support							.418			
Acceptance			.223							
Restraint coping					.223			.185		
Turning to religion			-.265							.260
Mental disengagement			.225					.152		
Behavioral disengagement									.206	
Venting of emotions	-.261				.272					
Denial					.305		-.281			

Note 1: Values represent beta coefficients except for total R^2. Only statistically significant beta coefficients at .05 level are reported.

Note 2: For the prediction of mental illness, psychological wellbeing, and physical symptoms at Time 2, the corresponding health and wellbeing measures at Time 1 were entered at the first step followed by coping strategies at Time 2. Thus, total R^2 reported is, in fact, R^2_{change} for coping strategies at Time 2.

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Table 11. The prediction of coping outcomes by coping strategies: Tests of optimal matching models (Stressful events damaging self-esteem)

Coping strategies	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions	Mental illness T2	Psych. wellbeing T2	Physical symptoms T2
Total R^2	.500	.406	.486	.419	.503	.434	.235	.307	.339	.240
Mood enhancement	.282	.279	.508			.257		-.193		
Empowerment										
Tangible aid	.318							-.167	.180	-.221
Emotional support				.337				-.405	.503	-.248
Esteem support			.321	-.327	-.470				.214	
Informational support					.358					
Planning	.204	-.296		.394		.298				
Positive reinterpretation							.356		.180	
Total support network size										
Socializing network size					-.250					
Practical assist. network size						-.308				
Advice network size									.507	
Satisfaction-advice		.324						-.458		-.449
Satisfaction-financial assist.			.246							
Acceptance					.256					
Restraint coping								.147		
Suppression						.412	.302			
Religion										.197
Financial assist.										-.298
Mental disengagement										.134
Behavioral disengagement									.187	
Venting of emotions	-.241			.295	.329					
Alcohol								.174		-.118

Note 1:   Values represent beta coefficients except for total R^2. Only statistically significant beta coefficients at .05 level are reported.
Note 2:   For the prediction of mental illness, psychological wellbeing, and physical symptoms at Time 2, the corresponding health and wellbeing measures at Time 1 were entered at the first step followed by coping strategies. Thus, total R^2 reported is, in fact, R^2_{change} for coping strategies at Time 2.

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Table 12. Effects of gender on event appraisals and stress

Dependent variable: Undesirability

	R square change	Beta	p
Step 1: Biological sex	.011	.103	.083
Step 2: Gender role orientation	.023		
Femininity		.172	.011
Masculinity		-.026	.733

Dependent variable: Changeability

	R square change	Beta	p
Step 1: Biological sex	.013	-.115	.054
Step 2: Gender role orientation	.020		
Femininity		-.209	.013
Masculinity		.161	.018

Dependent variable: Optimism

	R square change	Beta	p
Step 1: Biological sex	.020	-.141	.018
Step 2: Gender role orientation	.006		
Femininity		-.017	.797
Masculinity		.101	.191

Dependent variable: Self-efficacy

	R square change	Beta	p
Step 1: Biological sex	.056	-.237	.000
Step 2: Gender role orientation	.019		
Femininity		.028	.671
Masculinity		.157	.036

Dependent variable: Threat

	R square change	Beta	p
Step 1: Biological sex	.016	.127	.032
Step 2: Gender role orientation	.045		
Femininity		.056	.396
Masculinity		.238	.002

Dependent variable: Academic stress

	R square change	Beta	p
Step 1: Biological sex	.041	-.202	.027
Step 2: Gender role orientation	.044		
Femininity		-.241	.027
Masculinity		.179	.127

Dependent variable: Cognitive stress

	R square change	Beta	p
Step 1: Biological sex	.294	.542	.020
Step 2: Gender role orientation	.060		
Femininity		-.067	.806
Masculinity		.396	.352

Note: Biological sex was coded 1 for women and 0 for men.

Table 13. Effects of gender on coping strategies: Part 1

Dependent variable: Leisure companionship

	R square change	Beta	p
Step 1: Biological sex	.002	-.046	.436
Step 2: Gender role orientation	.058		
Femininity		.228	.001
Masculinity		.091	.232

Dependent variable: Leisure palliative coping

	R square change	Beta	p
Step 1: Biological sex	.002	-.045	.449
Step 2: Gender role orientation	.031		
Femininity		.201	.003
Masculinity		-.063	.411

Dependent variable: Leisure mood enhancement

	R square change	Beta	p
Step 1: Biological sex	.002	-.044	.458
Step 2: Gender role orientation	.034		
Femininity		.139	.038
Masculinity		.123	.110

Dependent variable: Active coping

	R square change	Beta	p
Step 1: Biological sex	.005	-.067	.258
Step 2: Gender role orientation	.031		
Femininity		.095	.157
Masculinity		.159	.037

Dependent variable: Planning

	R square change	Beta	p
Step 1: Biological sex	.018	-.133	.025
Step 2: Gender role orientation	.044		
Femininity		.214	.001
Masculinity		.045	.552

Dependent variable: Restraint coping

	R square change	Beta	p
Step 1: Biological sex	.033	-.180	.002
Step 2: Gender role orientation	.010		
Femininity		-.014	.838
Masculinity		.129	.091

Dependent variable: Emotional social support

	R square change	Beta	p
Step 1: Biological sex	.001	-.039	.516
Step 2: Gender role orientation	.026		
Femininity		.141	.037
Masculinity		.082	.285

Note: Biological sex was coded 1 for women and 0 for men.

Table 14. Effects of gender on coping strategies: Part 2

Dependent variable: Positive reinterpretation

	R square change	Beta	p
Step 1: Biological sex	.020	-.143	.016
Step 2: Gender role orientation	.065		
Femininity		.185	.005
Masculinity		.183	.014

Dependent variable: Acceptance

	R square change	Beta	p
Step 1: Biological sex	.023	-.151	.011
Step 2: Gender role orientation	.029		
Femininity		.132	.049
Masculinity		.112	.140

Dependent variable: Turning to religion

	R square change	Beta	p
Step 1: Biological sex	.018	.134	.024
Step 2: Gender role orientation	.049		
Femininity		.244	.000
Masculinity		-.148	.048

Dependent variable: Venting of emotions

	R square change	Beta	p
Step 1: Biological sex	.028	.166	.005
Step 2: Gender role orientation	.014		
Femininity		.046	.497
Masculinity		.122	.110

Dependent variable: Mental disengagement

	R square change	Beta	p
Step 1: Biological sex	.015	.121	.041
Step 2: Gender role orientation	.000		
Femininity		-.009	.892
Masculinity		.013	.865

Note: Biological sex was coded 1 for women and 0 for men.

Table 15. Effects of gender on coping outcomes

Dependent variable: Coping effectiveness

	R square change	Beta	p
Step 1: Biological sex	.005	-.072	.230
Step 2: Gender role orientation	.060		
Femininity		.079	.235
Masculinity		.266	.000

Dependent variable: Satisfaction with coping outcomes

	R square change	Beta	p
Step 1: Biological sex	.012	-.108	.068
Step 2: Gender role orientation	.027		
Femininity		-.008	.903
Masculinity		.207	.007

Dependent variable: Stress reduction

	R square change	Beta	p
Step 1: Biological sex	.006	-.081	.176
Step 2: Gender role orientation	.034		
Femininity		.106	.115
Masculinity		.161	.035

Note: Biological sex was coded 1 for women and 0 for men.

Table 16. Effects of gender on emotions and health

Dependent variable: Challenge emotions

	R square change	Beta	p
Step 1: Biological sex	.023	-.153	.010
Step 2: Gender role orientation	.042		
Femininity		.107	.108
Masculinity		.190	.012

Dependent variable: Mental illness at Time 2

	R square change	Beta	p
Step 1: Mental illness (T1)	.458	.677	.000
Step 2: Biological sex	.000	-.002	.961
Step 3: Gender role orientation	.014		
Femininity		-.125	.012
Masculinity		-.016	.794

Note: Biological sex was coded 1 for women and 0 for men.

Table 17. Effects of gender role orientation on event appraisals and stress for women and men

Dependent variable: Undesirability (Women)

	R square	Beta	p
Gender role orientation	.028		
Femininity		.161	.013
Masculinity		.021	.745

Dependent variable: Undesirability (Men)

	R square	Beta	p
Gender role orientation	.270		
Femininity		.403	.070
Masculinity		-.628	.007

Dependent variable: Changeability (Women)

	R square	Beta	p
Gender role orientation	.021		
Femininity		.151	.021
Masculinity		-.038	.562

Dependent variable: Threat (Women)

	R square	Beta	p
Gender role orientation	.049		
Femininity		.047	.456
Masculinity		.204	.002

Dependent variable: Self-identity (Men)

	R square	Beta	p
Gender role orientation	.195		
Femininity		-.372	.108
Masculinity		.529	.026

Dependent variable: Academic stress (Women)

	R square	Beta	p
Gender role orientation	.050		
Femininity		-.226	.029
Masculinity		.163	.115

Table 18. Effects of gender role orientation on coping strategies for women and men: Part 1

Dependent variable: Leisure companionship (Women)

	R square	Beta	p
Gender role orientation	.064		
Femininity		.205	.001
Masculinity		.102	.109

Dependent variable: Leisure companionship (Men)

	R square	Beta	p
Gender role orientation	.276		
Femininity		.540	.015
Masculinity		-.582	.009

Dependent variable: Leisure palliative coping (Women)

	R square	Beta	p
Gender role orientation	.030		
Femininity		.178	.006
Masculinity		-.028	.659

Dependent variable: Leisure palliative coping (Men)

	R square	Beta	p
Gender role orientation	.237		
Femininity		.486	.030
Masculinity		-.549	.015

Dependent variable: Leisure mood enhancement (Men)

	R square	Beta	p
Gender role orientation	.171		
Femininity		.501	.032
Masculinity		-.286	.207

Dependent variable: Active coping (Women)

	R square	Beta	p
Gender role orientation	.030		
Femininity		.070	.280
Masculinity		.140	.031

Dependent variable: Planning (Women)

	R square	Beta	p
Gender role orientation	.038		
Femininity		.177	.006
Masculinity		.044	.495

Dependent variable: Planning (Men)

	R square	Beta	p
Gender role orientation	.169		
Femininity		.476	.046
Masculinity		-.145	.528

Table 19. Effects of gender role orientation on coping strategies for women and men: Part 2

Dependent variable: Positive reinterpretation (Women)

	R square	Beta	p
Gender role orientation	.068		
Femininity		.172	.007
Masculinity		.153	.016

Dependent variable: Turning to religion (Women)

	R square	Beta	p
Gender role orientation	.053		
Femininity		.226	.000
Masculinity		-.138	.031

Dependent variable: Turning to religion (Men)

	R square	Beta	p
Gender role orientation	.489		
Femininity		-.084	.642
Masculinity		.743	.000

Dependent variable: Restraint coping (Men)

	R square	Beta	p
Gender role orientation	.271		
Femininity		-.023	.916
Masculinity		.533	.019

Dependent variable: Instrumental social support (Men)

	R square	Beta	p
Gender role orientation	.228		
Femininity		.459	.046
Masculinity		.032	.886

Dependent variable: Emotional social support (Men)

	R square	Beta	p
Gender role orientation	.212		
Femininity		.559	.018
Masculinity		-.324	.154

Dependent variable: Venting of emotions (Men)

	R square	Beta	p
Gender role orientation	.229		
Femininity		.447	.051
Masculinity		-.559	.017

Table 20. Effects of gender role orientation on coping outcomes and emotions for women and men

Dependent variable: Coping effectiveness (Women)

	R square	Beta	p
Gender role orientation	.052		
Femininity		.049	.444
Masculinity		.221	.001

Dependent variable: Satisfaction with coping outcomes (Women)

	R square	Beta	p
Gender role orientation	.024		
Femininity		-.041	.527
Masculinity		.161	.014

Dependent variable: Stress reduction (Women)

	R square	Beta	p
Gender role orientation	.030		
Femininity		.074	.252
Masculinity		.137	.034

Dependent variable: Threat emotions (Women)

	R square	Beta	p
Gender role orientation	.018		
Femininity		.140	.033
Masculinity		-.037	.572

Dependent variable: Challenge emotions (Women)

	R square	Beta	p
Gender role orientation	.043		
Femininity		.101	.117
Masculinity		.154	.018

Dependent variable: Benefit emotions (Men)

	R square	Beta	p
Gender role orientation	.221		
Femininity		-.373	.102
Masculinity		.568	.016

Table 21. Effects of gender role orientation on health and wellbeing for women and men

Dependent variable: Psychological wellbeing at Time 2 (Women)

	R square	Beta	p
Step 1: Psych. wellbeing (T1)	.471	.686	.000
Step 2: Gender role orientation	.017		
Femininity		.084	.078
Masculinity		.100	.050

Dependent variable: Psychological wellbeing at Time 2 (Men)

	R square	Beta	p
Step 1: Psych. wellbeing (T1)	.625	.791	.000
Step 2: Gender role orientation	.326		
Femininity		-.903	.000
Masculinity		.073	.196

Dependent variable: Mental illness at Time 2 (Men)

	R square	Beta	p
Step 1: Mental illness (T1)	.166	.407	.032
Step 2: Gender role orientation	.406		
Femininity		-.768	.000
Masculinity		.489	.013

Dependent variable: Physical symptoms at Time 2 (Men)

	R square	Beta	p
Step 1: Psych. wellbeing (T1)	.522	.722	.000
Step 2: Gender role orientation	.356		
Femininity		-.846	.000
Masculinity		.639	.000

Table 22. Within-individual analyses: Effects of event appraisals on coping strategies (Part 1)

	Leisure companionship	Leisure palliative coping	Leisure mood enhancement	Active coping	Planning	Suppression of competing activities	Restraint coping	Instrumental social support	Emotional social support
Step 1: R^2	.585	.530	.568	.412	.476	.406	.565	.564	.511
Step 2: R^2_{change}	.039	.057	.055	.158	.154	.178	.087	.077	.119
Relevance	.132				.317	.195		.251	.292
Undesirability	.181	.262	.235	.217		.262			
Optimism	.213	.255	.194						
Other blame		.194				-.218	.175		.245
Self blame				.229	.179				
Anticipation				.207	.154	.248			
Self-efficacy				.256	.178			-.182	
Threat					.170				
Controllability							-.182		
Length								-.169	-.177

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for event appraisals represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

Table 23. Within-individual analyses: Effects of event appraisals on coping strategies (Part 2)

	Positive reinterpretation	Acceptance	Turning to religion	Venting of emotions	Denial	Behavioral disengagement	Mental disengagement	Alcohol
Step 1: R^2	.568	.558	.770	.511	.442	.519	.599	.578
Step 2: R^2_{change}	.136	.077	.038	.132	.166	.135	.045	.048
Relevance	.245		.101	.149	.238			
Undesirability						-.202		
Changeability		-.271	-.102		-.195			
Optimism						-.235		.216
Other blame				.196		.303		
Anticipation			.102					
Self-efficacy	.322	.240		-.181		-.159		-.203
Self-identity			.206	.335				
Self-esteem				-.192			-.181	
Threat					-.275	-.175		.149
Sense of loss					.226			

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for event appraisals represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

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Table 24. Within-individual analyses: Effects of coping strategies on coping outcomes and emotions

	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions
Step 1: R^2	.461	.430	.569	.617	.549	.490	.467
Step 2: R^2_{change}	.182	.128	.145	.059	.133	.146	.133
(Leisure coping)							
Mood enhancement	.258	.229	.290	-.195			
Companionship						.271	
Palliative coping							-.283
(General coping)							
Planning				.265	.196		
Active coping	.225						
Positive reinterpretation	.344	.350	.187			.261	.305
Emotional social support							
Instrumental social support						-.207	
Acceptance	-.151						
Restraint coping			.198			-.158	
Mental disengagement							
Venting of emotions	-.171						
Denial	-.178		-.192		.258		
Alcohol	-.194						

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for coping strategies represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

Table 25. Within-individual analyses: Effects of coping strategies on coping outcomes and emotions (Academic stress)

	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions
Step 1: R^2	.640	.740	.679	.809	.707	.751	.657
Step 2: R^2_{change}	.201	.075	.152	.066	.110	.108	.180
(Leisure coping)							
Mood enhancement				-.319			
Companionship						.446	.559
Palliative coping							-.554
(General coping)							
Planning	.669						
Positive reinterpretation	.409					.372	.467
Emotional social support	-.653			.653			-.679
Instrumental social support	.472						.380
Behavioral disengagement						.619	
Venting of emotions				-.398			.549
Denial	-.397			.291		-.320	-.468

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for event appraisals represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

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Table 26. Within-individual analyses: Effects of coping strategies on coping outcomes and emotions (Uncontrollable stressful events)

	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions
Step 1: R^2	.622	.608	.686	.775	.607	.682	.648
Step 2: R^2_{change}	.185	.143	.163	.062	.212	.186	.162
(Leisure coping)							
Mood enhancement	.393		.429				
Companionship						.478	
(General coping)							
Positive reinterpretation						.405	
Restraint coping	-.404						
Denial					.442		-.353

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for coping strategies represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

Table 27. Within-individual analyses: Effects of coping strategies on coping outcomes and emotions (Controllable stressful events)

	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions
Step 1: R^2	.576	.579	.645	.694	.711	.541	.531
Step 2: R^2_{change}	.206	.150	.135	.116	.111	.198	.157
(Leisure coping)							
Mood enhancement				-.314	-.346		
(General coping)							
Planning				.341			
Active coping	.520	.592		-.354	-.368		
Positive reinterpretation	.341						
Acceptance						-.394	
Suppression		-.361		-.225			
Restraint coping							
Turning to religion					-.370		
Venting of emotions	-.344						
Denial	-.388	-.420	-.299	.237			

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for coping strategies represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

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Table 28. Within-individual analyses: Effects of coping strategies on coping outcomes and emotions (Stressful events damaging self-esteem)

	Coping effectiveness	Coping satisfaction	Stress reduction	Threat emotions	Harm emotions	Challenge emotions	Benefit emotions
Step 1: R^2	.595	.495	.691	.658	.664	.599	.515
Step 2: R^2_{change}	.129	.132	.104	.108	.138	.101	.094
(Leisure coping)							
Mood enhancement	.386	.406	.407				
(General coping)							
Planning				.456			
Positive reinterpretation		.306					
Restraint coping				-.219			
Turning to religion					-.373		
Mental disengagement					.294		
Alcohol	-.219						

Note 1: Dummy variances, one for each participant except for the last, were entered into regression models at the first step.
Note 2: Values for coping strategies represent beta coefficients (only statistically significant beta coefficients at .05 level are reported).

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Appendix 1: Research Procedures

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┌─────────────┐          ┌─────────────┐     ┌─────────────┐     ┌─────────────┐
│     1st     │          │             │     │             │     │             │
│ Preliminary │─────────▶│   Initial   │────▶│  Two Week   │────▶│ Post-Study  │
│    Study    │          │ Assessment  │     │   Session   │     │ Assessment  │
└─────────────┘          └─────────────┘     └─────────────┘     └─────────────┘
                   ┌────────▲
┌─────────────┐    │
│     2nd     │────┘
│ Preliminary │
│    Study    │
└─────────────┘

Scale Development        Dispositions &        Weekly Hassles      Health/Wellbeing
                         Health/Wellbeing

Design Development       Major Life
                         Event Stress
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184
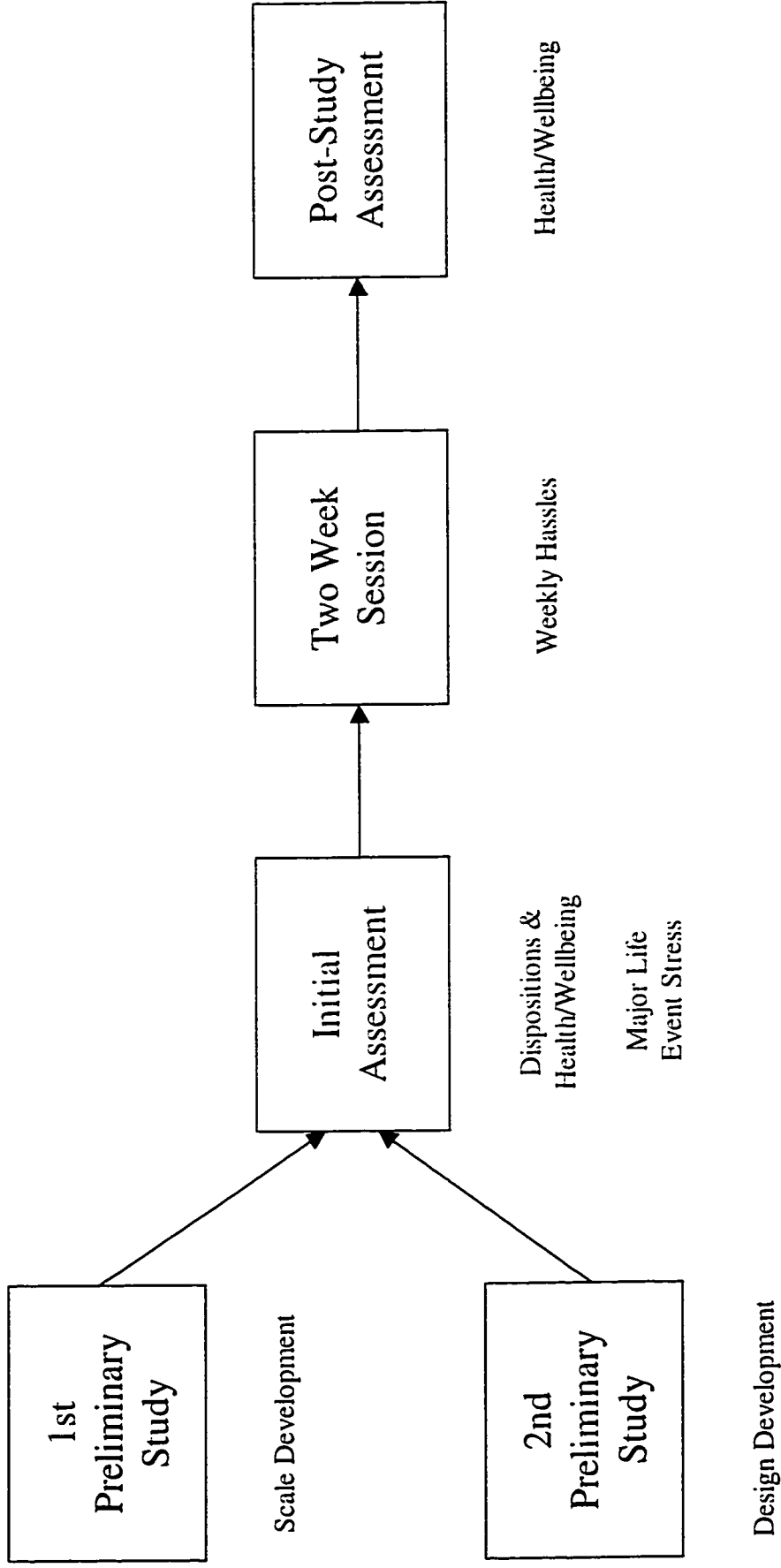
Appendix 2
Preliminary Study Assessment Scales

Questionnaire Development Project on Leisure and Stress-Coping

Principle Investigator:	Dr. Roger C. Mannell, Professor Department of Recreation and Leisure Studies
Student Investigator:	Yoshi Iwasaki, Ph.D. Candidate Department of Recreation and Leisure Studies
Title of Project:	Lifestyle, Stress-Coping, and Health

As part of Yoshi Iwasaki's dissertation research, we are desperately looking for students to participate in a questionnaire development project. The purpose of the study is to examine the relationships between students' lifestyles, stress-coping, and health/well-being. Your task is to respond to a set of questionnaires.

Participation in this study is voluntary. All information you provide will be confidential and will be analyzed only by my supervisor and myself. This project has received ethics approval through the Office of Human Research at the University of Waterloo.

By signing this form, you acknowledge that: (1) you are willing to participate in the study, (2) you understand the purpose of the study and your task, and (3) you allow the researchers to analyze your data. I would appreciate it if you could be part of our project.

Your sincerely,

Yoshi Iwasaki

I am willing to participate in the study, understand the study's purposes, and allow the researchers to analyze data.

_____
Participant Signature

Leisure Belief Scale

Instructions: This questionnaire is designed to assess your beliefs about leisure. Please read the following statements and indicate the extent to which you agree with each statement by circling the number which best corresponds to your answer. In the statements, *leisure companions* refers to those individuals with whom you often engage in leisure.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. My leisure companions help me feel good about myself.	1	2	3	4	5	6	7
2. Leisure provides opportunities to regain a sense of freedom.	1	2	3	4	5	6	7
3. My leisure companions assist me in deciding what to do.	1	2	3	4	5	6	7
4. My leisure involvements strengthen my ability to manage problems in life.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
5. I gain feelings of personal control in leisure.	1	2	3	4	5	6	7
6. Leisure is a self-determined activity for me.	1	2	3	4	5	6	7
7. My leisure companions listen to my private feelings.	1	2	3	4	5	6	7
8. For me, leisure is a means of developing friendships.	1	2	3	4	5	6	7
9. My leisure pursuits are freely chosen.	1	2	3	4	5	6	7
10. My leisure companions hold me in high esteem.	1	2	3	4	5	6	7
11. What I do in my leisure allows me to feel good about myself.	1	2	3	4	5	6	7
12. When I need to borrow something, my leisure companions will lend it to me.	1	2	3	4	5	6	7
13. Leisure contributes little to giving me energy to handle problems.	1	2	3	4	5	6	7
14. If I need extra hands for doing tasks, I can turn to my leisure companions.	1	2	3	4	5	6	7
15. I am able to openly express who I am in my leisure time.	1	2	3	4	5	6	7
16. My leisure companions would lend me money if necessary.	1	2	3	4	5	6	7
17. I have difficulty in deciding what to do in leisure.	1	2	3	4	5	6	7
18. My leisure companions give me advice when I am in trouble.	1	2	3	4	5	6	7
19. The things I do in my leisure help me gain confidence.	1	2	3	4	5	6	7
20. My leisure companions often provide me with useful information.	1	2	3	4	5	6	7
21. I'm respected by my leisure companions.	1	2	3	4	5	6	7
22. I feel constrained in leisure.	1	2	3	4	5	6	7
23. I can talk to my leisure companions when I am not sure what to do.	1	2	3	4	5	6	7
24. I feel that I'm valued by my leisure companions.	1	2	3	4	5	6	7
25. Most of my leisure companions are happy to take care of my house (apartment), children, or pets when I am away.	1	2	3	4	5	6	7
26. My leisure participation enhances my self-concept.	1	2	3	4	5	6	7
27. I decide what to do in my leisure time by myself.	1	2	3	4	5	6	7
28. I feel emotionally supported by my leisure companions.	1	2	3	4	5	6	7
29. I lack emotional support from my leisure companions.	1	2	3	4	5	6	7
30. Opportunities to express myself in leisure enhance my self-concept.	1	2	3	4	5	6	7

Please go to the next page!

Major Life Event Inventory

Instructions: This inventory is designed to assess the nature of stressful major life events. There are two parts in this inventory. The first part is designed to assess a range of stressful events in the past year. Please indicate whether or not you have experienced certain life events in the last year and rate the seriousness or severity of each event. Then, the second part is to be answered with regard to the single most stressful event you have experienced in the last year.

1. Have you personally experienced any of the following stressful events in the last year? Please circle the number which represents your answer.

	Did not occur (past year)	A little amount of stress	A fair amount of stress	A great deal of stress	An enormous amount of stress
Your acute or chronic health problems	1	2	3	4	5
Acute or chronic health problems of someone you love	1	2	3	4	5
Injuries	1	2	3	4	5
Job losses	1	2	3	4	5
Problems at work	1	2	3	4	5
Problems at school	1	2	3	4	5
Problems in family	1	2	3	4	5
Crime or legal problems	1	2	3	4	5
Accidents (e.g., burglaries, car accidents)	1	2	3	4	5
Financial difficulties	1	2	3	4	5
Marital difficulties	1	2	3	4	5
Problems in getting along with family members other than spouse	1	2	3	4	5
Problems in getting along with friends	1	2	3	4	5
Problems in getting along with boy/girl friends	1	2	3	4	5
Death of a loved one	1	2	3	4	5
Any problems of someone you care for	1	2	3	4	5
Other problems (please list: _____)	1	2	3	4	5

2. Of the problems you have checked, which one was the most stressful? Please describe this *single most stressful event in the last year* in the following space.

The most stressful event of the year: _____

Descriptions:

_____

_____
_____

3. On a scale of 1 to 10 in which 10 is equivalent to the death of someone you love and 1 to very minor annoyance, how stressful was the event you have just described in Question 2? Please circle the number which corresponds to the severity or seriousness of the event.

   1   2   3   4   5   6   7   8   9   10
very minor   extremely
serious

4. Events can be classified as either "loss" or "threat." By "loss" we mean some valued person, object, or idea was harmed. By "threat" we mean future harm might result from the situation. Was the event you have just described in Question 2 "loss" or "threat"? Please circle either "loss" or "threat." If you are not sure, please circle "unsure."

loss   threat   unsure

5. Over how long a period has the event you have just described in Question 2 continued? One day, one week, one month, one year, two years, three years, more than three years, etc.? Please indicate the approximate length of the event.

_____

Please go to the next page!

Event Appraisal Scale

Instructions: I would like you to describe in more detail *the single most stressful event of the year* that you identified on the previous page. Please read each statement and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. I felt optimistic about this event.	1	2	3	4	5	6	7
2. This event was welcome.	1	2	3	4	5	6	7
3. This event provided me with an opportunity to express who I am.	1	2	3	4	5	6	7
4. This event did not really concern me.	1	2	3	4	5	6	7
5. Other individuals were trying to take advantage of me.	1	2	3	4	5	6	7
6. This was an undesirable event to me.	1	2	3	4	5	6	7
7. I had control over whether or not this event happened.	1	2	3	4	5	6	7
8. I felt a sense of loss as a result of this event.	1	2	3	4	5	6	7
9. I felt threatened or in danger.	1	2	3	4	5	6	7
10. This was an unexpected event.	1	2	3	4	5	6	7
11. I believed I had the ability to manage this problem.	1	2	3	4	5	6	7
12. This has been or will be a long-lasting problem.	1	2	3	4	5	6	7
13. I was looking forward to this event.	1	2	3	4	5	6	7
14. There was no possibility that this event would be changed for improvement.	1	2	3	4	5	6	7
15. I was confident about my skills to deal with this event.	1	2	3	4	5	6	7
16. This event could have been prevented if other people were more careful.	1	2	3	4	5	6	7
17. Nothing could be done to change this event for the better.	1	2	3	4	5	6	7
18. This event made me feel good about myself.	1	2	3	4	5	6	7
19. I was in danger or threatened by this event.	1	2	3	4	5	6	7
20. I did not anticipate this event.	1	2	3	4	5	6	7
21. There was a problem because of me.	1	2	3	4	5	6	7
22. This event helped me understand my values.	1	2	3	4	5	6	7
23. This situation was hopeless.	1	2	3	4	5	6	7
24. I had no control over the occurrence of this event.	1	2	3	4	5	6	7
25. Something I cared about was gone.	1	2	3	4	5	6	7
26. I lost my self-respect because of this event.	1	2	3	4	5	6	7
27. This event was very important to me.	1	2	3	4	5	6	7
28. I blamed myself for this bad situation.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
29. This problem was not relevant to my life.	1	2	3	4	5	6	7
30. I thought things could work out in this situation.	1	2	3	4	5	6	7
31. I was not able to control the occurrence of this event.	1	2	3	4	5	6	7
32. I felt competent to manage this situation.	1	2	3	4	5	6	7
33. I anticipated the occurrence of this event.	1	2	3	4	5	6	7
34. There was a chance that this situation would change for the better.	1	2	3	4	5	6	7
35. This event made me proud of myself.	1	2	3	4	5	6	7
36. I was afraid of facing this event.	1	2	3	4	5	6	7
37. This problem has lasted or will last for a long time.	1	2	3	4	5	6	7
38. This event was my fault.	1	2	3	4	5	6	7
39. Someone else was to blame for this bad situation.	1	2	3	4	5	6	7
40. This event had or will have no long-term consequence.	1	2	3	4	5	6	7
41. Someone or something I loved was gone.	1	2	3	4	5	6	7
42. This situation enabled me to realize who I am.	1	2	3	4	5	6	7

Leisure Coping Scale

Instructions: The following statements assess to what extent your leisure helps you cope with stress in your life. In some cases, you may intentionally choose your leisure involvements to help you deal with stress. At other times, you may find that what you do in your leisure has helped reduce stress even though you chose to participate for other reasons. Please think back *the most stressful event of the year* you just described on the previous pages. Now recall how you coped with this event. Read each of the following statements and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. My leisure helped me feel better.	1	2	3	4	5	6	7
2. My leisure allowed me to be in the company of supportive friends.	1	2	3	4	5	6	7
3. I engaged in a leisure activity to temporarily get away from the problem.	1	2	3	4	5	6	7
4. Escape through leisure was a way of coping with stress.	1	2	3	4	5	6	7
5. Socializing in leisure was a means of managing stress.	1	2	3	4	5	6	7
6. I gained a positive feeling from leisure.	1	2	3	4	5	6	7
7. I dealt with stress through spending leisure time with my friends.	1	2	3	4	5	6	7
8. Engaging in social leisure was a stress-coping strategy for me.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
9. Leisure was an important means of keeping myself busy.	1	2	3	4	5	6	7
10. I maintained a good mood in leisure.	1	2	3	4	5	6	7
11. Engagement in leisure allowed me to gain a fresh perspective on my problem(s).	1	2	3	4	5	6	7
12. My leisure involvements failed to improve my mood.	1	2	3	4	5	6	7
13. Leisure made me feel miserable.	1	2	3	4	5	6	7
14. By escaping from the problem through leisure, I was able to tackle my problem(s) with renewed energy.	1	2	3	4	5	6	7
15. Lack of companionship in leisure prevented me from coping with stress.	1	2	3	4	5	6	7
16. Leisure helped me manage my negative feeling.	1	2	3	4	5	6	7
17. I took a brief break through leisure to deal with the stress.	1	2	3	4	5	6	7
18. One of my stress-coping strategies was participation in social leisure.	1	2	3	4	5	6	7

Emotion Assessment Scale

Instructions: The following scale consists of a number of words that describe different feelings and emotions. Please go over each item and mark the appropriate answer in the space next to that word. I would like you to indicate to what extent you felt this way *immediately after you coped with the most stressful event of the year.* Please use the following scale to record your answers (i.e., circle the number which corresponds to your answer).

	not at all	a little	moderately	quite a bit	a great deal
angry	1	2	3	4	5
anxious	1	2	3	4	5
guilty	1	2	3	4	5
relieved	1	2	3	4	5
sad	1	2	3	4	5
worried	1	2	3	4	5
hopeful	1	2	3	4	5
confident	1	2	3	4	5
fearful	1	2	3	4	5
disappointed	1	2	3	4	5
happy	1	2	3	4	5
pleased	1	2	3	4	5
disgusted	1	2	3	4	5
exhilarated	1	2	3	4	5
eager	1	2	3	4	5

This is the end of the questionnaire. Thank you very much for your help!

Appendix 3
Project Log for Second Preliminary Study

Project Log

Instructions: Please fill out this log twice each week at the end of the day on Fridays and Sundays (e.g., after school, after supper, before going to bed). *Weekday* events are to be reported on *Fridays,* and *weekend* events on *Sundays.*

Today's Date: _____ Day of the week: _____

A. Listed below are a variety of events that may be viewed as stressful or unpleasant. Please indicate whether or not these events occurred to you during the *past week* (or *the past weekend* if Sundays), and to what extent these events made you feel stressed. Please circle the number which corresponds to your answer.

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Interpersonal Problems:							
Was interrupted while talking	1	2	3	4	5	6	7
Performed poorly due to others	1	2	3	4	5	6	7
Experienced problem with kid(s)	1	2	3	4	5	6	7
Was ignored by others	1	2	3	4	5	6	7
Was forced to socialize	1	2	3	4	5	6	7
Someone broke a promise or appointment	1	2	3	4	5	6	7
Did not hear from someone you expected to hear from	1	2	3	4	5	6	7
Someone borrowed something without your permission	1	2	3	4	5	6	7
Argued with spouse, boyfriend, girlfriend	1	2	3	4	5	6	7
Argued with another person	1	2	3	4	5	6	7
Experienced confrontation with an authority figure	1	2	3	4	5	6	7
Was embarrassed	1	2	3	4	5	6	7

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Personal Competence:							
Performed poorly at a work-related task	1	2	3	4	5	6	7
Spoke or performed in public	1	2	3	4	5	6	7
Did something you are unskilled at	1	2	3	4	5	6	7
Was unable to complete a task	1	2	3	4	5	6	7
Was late for work, school, or appointment	1	2	3	4 ·	5	6	7
Performed poorly at sport or game	1	2	3	4	5	6	7
Was unable to complete all plans for this week or weekend	1	2	3	4	5	6	7
Was unorganized	1	2	3	4	5	6	7
Failed to understand something	1	2	3	4	5	6	7
Stopped unwanted personal habits (overeating, smoking, nailbiting, etc.)	1	2	3	4	5	6	7

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Cognitive Stressors:							
"Pet peeve" was violated (someone fails to knock, etc.)	1	2	3	4	5	6	7
Worried about the future	1	2	3	4	5	6	7
Heard some bad news	1	2	3	4	5	6	7
Worried about another's problems	1	2	3	4	5	6	7
Worried about unfinished work	1	2	3	4	5	6	7

Please go to the next page!

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Environmental Hassles:							
Was interrupted during task/activity	1	2	3	4	5	6	7
Experienced unwanted physical contact (crowded, pushed)	1	2	3	4	5	6	7
Was interrupted while thinking or relaxing	1	2	3	4	5	6	7
Was exposed to upsetting TV show, movie, book, etc.	1	2	3	4	5	6	7
Your property was damaged	1	2	3	4	5	6	7
Had a minor accident (broke something, tore clothing, etc.)	1	2	3	4	5	6	7
Experienced money problem	1	2	3	4	5	6	7
Had car trouble	1	2	3	4	5	6	7
Bothered by bad weather	1	2	3	4	5	6	7
Had difficulty in traffic	1	2	3	4	5	6	7
Experienced unexpected expenses (fines, traffic ticket, etc.)	1	2	3	4	5	6	7
Waited longer than you wanted	1	2	3	4	5	6	7
Had your sleep disturbed	1	2	3	4	5	6	7
Was exposed to a feared situation or object	1	2	3	4	5	6	7
Varied Stressors:							
Someone spoiled your completed work	1	2	3	4	5	6	7
Was criticized or verbally attacked	1	2	3	4	5	6	7
Dealt with rude waiter, waitress, salesperson, etc.	1	2	3	4	5	6	7
Was misunderstood	1	2	3	4	5	6	7
Someone "cut" ahead of you in line	1	2	3	4	5	6	7
Feared pregnancy	1	2	3	4	5	6	7
Misplaced something	1	2	3	4	5	6	7
Hurried to meet a deadline	1	2	3	4	5	6	7
Forgot something	1	2	3	4	5	6	7
Store lacked a desired item	1	2	3	4	5	6	7
Competed with someone	1	2	3	4	5	6	7
Experienced illness or physical discomfort	1	2	3	4	5	6	7
Was stared at	1	2	3	4	5	6	7
Ran out of food or personal article	1	2	3	4	5	6	7
Did something that you did not want to	1	2	3	4	5	6	7
Was concerned over personal appearance	1	2	3	4	5	6	7
Experienced narrow escape from danger	1	2	3	4	5	6	7
Others:							
_____	1	2	3	4	5	6	7
_____	1	2	3	4	5	6	7

Among the events or issues you have checked above (or other events or issues that are not listed above but bothered you), what was *the single most stressful event of the week*? Please briefly describe this problem below.

The most stressful event of the weekday (or the weekend): _____

Descriptions:

_____
_____
_____

On a scale from 1 to 10 (where 10 is the death of your significant others such as a family member or friend and 1 is a very minor annoyance), how stressful would you rate this problem or situation you have just described?

1	2	3	4	5	6	7	8	9	10
very minor									extremely stressful

Please go to the next page!

B. I would like you to describe in more detail *the single most stressful event of the week (or weekend)* that you identified on the previous page. Please read each statement and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. I felt optimistic about this event.	1	2	3	4	5	6	7
2. This event was welcome.	1	2	3	4	5	6	7
3. This event provided me with an opportunity to express who I am.	1	2	3	4	5	6	7
4. This event did not really concern me.	1	2	3	4	5	6	7
5. Other individuals were trying to take advantage of me.	1	2	3	4	5	6	7
6. This was an undesirable event to me.	1	2	3	4	5	6	7
7. I had control over whether or not this event happened.	1	2	3	4	5	6	7
8. I felt a sense of loss as a result of this event.	1	2	3	4	5	6	7
9. I felt threatened or in danger.	1	2	3	4	5	6	7
10. This was an unexpected event.	1	2	3	4	5	6	7
11. I believed I had the ability to manage this problem.	1	2	3	4	5	6	7
12. This has been or will be a long-lasting problem.	1	2	3	4	5	6	7
13. I was looking forward to this event.	1	2	3	4	5	6	7
14. There was no possibility that this event would be changed for improvement.	1	2	3	4	5	6	7
15. I was confident about my skills to deal with this event.	1	2	3	4	5	6	7
16. This event could have been prevented if other people were more careful.	1	2	3	4	5	6	7
17. Nothing could be done to change this event for the better.	1	2	3	4	5	6	7
18. This event made me feel good about myself.	1	2	3	4	5	6	7
19. I was in danger or threatened by this event.	1	2	3	4	5	6	7
20. I did not anticipate this event.	1	2	3	4	5	6	7
21. There was a problem because of me.	1	2	3	4	5	6	7
22. This event helped me understand my values.	1	2	3	4	5	6	7
23. This situation was hopeless.	1	2	3	4	5	6	7
24. I had no control over the occurrence of this event.	1	2	3	4	5	6	7
25. Something I cared about was gone.	1	2	3	4	5	6	7
26. I lost my self-respect because of this event.	1	2	3	4	5	6	7
27. This event was very important to me.	1	2	3	4	5	6	7
28. I blamed myself for this bad situation.	1	2	3	4	5	6	7
29. This problem was not relevant to my life.	1	2	3	4	5	6	7
30. I thought things could work out in this situation.	1	2	3	4	5	6	7
31. I was not able to control the occurrence of this event.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
32. I felt competent to manage this situation.	1	2	3	4	5	6	7
33. I anticipated the occurrence of this event.	1	2	3	4	5	6	7
34. There was a chance that this situation would change for the better.	1	2	3	4	5	6	7
35. This event made me proud of myself.	1	2	3	4	5	6	7
36. I was afraid of facing this event.	1	2	3	4	5	6	7
37. This problem has lasted or will last for a long time.	1	2	3	4	5	6	7
38. This event was my fault.	1	2	3	4	5	6	7
39. Someone else was to blame for this bad situation.	1	2	3	4	5	6	7
40. This event had or will have no long-term consequence.	1	2	3	4	5	6	7
41. Someone or something I loved was gone.	1	2	3	4	5	6	7
42. This situation enabled me to realize who I am.	1	2	3	4	5	6	7

C. Please think about *the most stressful event of the weekday (or weekend)* you have just described in the previous pages, and recall how you reacted to it. Then, please indicate the extent to which you did or felt whatever each following statement says.

	I did not do this at all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
1. I took additional action to try to get rid of the problem.	1	2	3	4	5
2. I tried to come up with a strategy about what to do.	1	2	3	4	5
3. I put aside other activities in order to concentrate on the problem.	1	2	3	4	5
4. I forced myself to wait for the right time to do something.	1	2	3	· 4	5
5. I asked people who have had similar experiences what they did.	1	2	3	4	5
6. I talked to someone about how I feel.	1	2	3	4	5
7. I looked for something good in what is happening.	1	2	3	4	5
8. I learned to live with it.	1	2	3	4	5
9. I seeked God's help.	1	2	3	4	5
10. I got upset and let my emotions out.	1	2	3	4	5
11. I refused to believe that it has happened.	1	2	3	4	5
12. I gave up the attempt to get what I want.	1	2	3	4	5
13. I turned to work or other substitute activities to take my mind off things.	1	2	3	4	5

Please go to the next page!

	I did not do this at all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
14. I drunk alcohol or took drugs in order to think about the problem less.	1	2	3	4	5
15. I concentrated my efforts on doing something about it.	1	2	3	4	5
16. I made a plan of action.	1	2	3	4	5
17. I focused on dealing with the problem, and if necessary let other things aside a little.	1	2	3	4	5
18. I held off doing anything about it until the situation permitted.	1	2	3	4	5
19. I tried to get advice from someone about what to do.	1	2	3	4	5
20. I tried to get emotional support from friends or relatives.	1	2	3	4	5
21. I tried to see it in a different light to make it seem more positive.	1	2	3	4	5
22. I accepted that this has happened and that it can't be changed.	1	2	3	4	5
23. I put my trust in God.	1	2	3	4	5
24. I let my feelings out.	1	2	3	4	5
25. I pretended that it hasn't really happened.	1	2	3	4	5
26. I just gave up trying to reach my goal.	1	2	3	4	5
27. I went to movies or watched TV to think about the problem less.	1	2	3	4	5
28. I did what has to be dome, one step at a time.	1	2	3	4	5
29. I kept myself from getting distracted by other thoughts or activities.	1	2	3	4	5
30. I made sure not to make matters worse by acting too soon.	1	2	3	4	5
31. I talked to someone to find out more about the situation.	1	2	3	4	5
32. I learned something from the experience.	1	2	3	4	5
33. I discussed my feelings with someone.	1	2	3	4	5
34. I got used to the idea that it happened.	1	2	3	4	5
35. I tried to find comfort in my religion.	1	2	3	4	5
36. I felt a lot of emotional distress and I found myself expressing those feeling a lot.	1	2	3	4	5
37. I acted as though it hasn't even happened.	1	2	3	4	5.

Please go to the next page!

	I did not do this al all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
38. I admitted to myself that I can't deal with it, and quit trying.	1	2	3	4	5
39. I daydreamed about things other than the problem.	1	2	3	4	5
40. I took direct action to get around the problem	1	2	3	4	5
41. I thought hard about what steps to take.	1	2	3	4	5
42. I tried hard to prevent other things from interfering with my efforts at dealing with the problem.	1	2	3	4	5
43. I refrained myself from doing anything too quickly.	1	2	3	4	5
44. I thought about how I might best handle the problem.	1	2	3	4	5
45. I talked to someone who could do something concrete about the problem.	1	2	3	4	5
46. I got sympathy and understanding from someone.	1	2	3	4	5
47. I tried to grow as a person as a result of the experience.	1	2	3	4	5
48. I accepted the reality of the fact that it happened.	1	2	3	4	5
49. I prayed more than usual.	1	2	3	4	5
50. I got upset, and was really aware of it.	1	2	3	4	5
51. I said to myself "this isn't real."	1	2	3	4	5
52. I reduced the amount of effort I'm putting into solving the problem.	1	2	3	4	5
53. I slept more than usual.	1	2	3	4	5

Please go to the next page!

D. This inventory asks about your leisure participation either during weekdays or during weekends. Again, if today is *Friday*, refer to *weekday* leisure; if today is *Sunday*, refer to *weekend* leisure. For each activity listed below, please indicate (1) the approximate length of time in minutes you spent in total, (2) the number of people you participated with not including yourself, and (3) the perceived level of personal effort you exerted when engaging in each activity (circle the number which corresponds to your answer). If you don't find activities in which you engaged in this list, please name the activities in the last section, "others."

	Minutes spent in total	With how many people did you participate (not including yourself)?	Very low personal effort	Low personal effort	Medium level of personal effort	High personal effort	Very high personal effort
MASS MEDIA							
Watching TV	____	____	1	2	3	4	5
Reading magazine or paper	____	____	1	2	3	4	5
Going to movie	____	____	1	2	3	4	5
SOCIAL ACTIVITIES							
Visiting friend(s)	____	____	1	2	3	4	5
Entertaining friend(s)	____	____	1	2	3	4	5
Dating	____	____	1	2	3	4	5
Attending party	____	____	1	2	3	4	5
Social dancing	____	____	1	2	3	4	5
Indoor game/party	____	____	1	2	3	4	5
SPORT ACTIVITIES							
Spectating sports event	____	____	1	2	3	4	5
Fitness activities (jog, swim, weight, etc.)	____	____	1	2	3	4	5
Team sports (softball, soccer, etc.)	____	____	1	2	3	4	5
Individual sports (golf, fencing, etc.)	____	____	1	2	3	4	5
Dual sports (tennis, racquet ball, etc.)	____	____	1	2	3	4	5
CULTURAL ACTIVITIES							
Attending concert	____	____	1	2	3	4	5
Attending ballet, opera, etc.	____	____	1	2	3	4	5
Visiting art museum	____	____	1	2	3	4	5
Folk or square dancing	____	____	1	2	3	4	5
Attending theatre	____	____	1	2	3	4	5
OUTDOOR ACTIVITIES							
Picnicking	____	____	1	2	3	4	5
Fishing, hunting	____	____	1	2	3	4	5
Gardening	____	____	1	2	3	4	5
Day outing (zoo, park, etc.)	____	____	1	2	3	4	5
Hiking	____	____	1	2	3	4	5
Boating, canoeing, or sailing	____	____	1	2	3	4	5
Nature study	____	____	1	2	3	4	5
Camping	____	____	1	2	3	4	5
HOBBIES							
Painting, drawing, sketching	____	____	1	2	3	4	5
Woodwork, furniture refinishing	____	____	1	2	3	4	5
Collecting stamps, coins, etc.	____	____	1	2	3	4	5
Needlework, sewing, knitting, etc.	____	____	1	2	3	4	5
Floral arranging, plant care	____	____	1	2	3	4	5
Waving, pottery, sculpture, etc.	____	____	1	2	3	4	5
Photography, video-making	____	____	1	2	3	4	5
OTHERS							
_____	____	____	1	2	3	4	5
_____	____	____	1	2	3	4	5

Please go to the next page!

E. The following statements assess to what extent your leisure helps you cope with stress in your life. In some cases, you may intentionally choose your leisure involvements to help you deal with stress. At other times, you may find that what you do in your leisure has helped reduce stress even though you chose to participate for other reasons. Please think back *the most stressful event of the week (or weekend)* you have described earlier. Now recall how you coped with this event. Read each of the following statements and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. My leisure helped me feel better.	1	2	3	4	5	6	7
2. My leisure allowed me to be in the company of supportive friends.	1	2	3	4	5	6	7
3. I engaged in a leisure activity to temporarily get away from the problem.	1	2	3	4	5	6	7
4. Escape through leisure was a way of coping with stress.	1	2	3	4	5	6	7
5. Socializing in leisure was a means of managing stress.	1	2	3	4	5	6	7
6. I gained a positive feeling from leisure.	1	2	3	4	5	6	7
7. I dealt with stress through spending leisure time with my friends.	1	2	3	4	5	6	7
8. Engaging in social leisure was a stress-coping strategy for me.	1	2	3	4	5	6	7
9. Leisure was an important means of keeping myself busy.	1	2	3	4	5	6	7
10. I maintained a good mood in leisure.	1	2	3	4	5	6	7
11. Engagement in leisure allowed me to gain a fresh perspective on my problem(s).	1	2	3	4	5	6	7
12. My leisure involvements failed to improve my mood.	1	2	3	4	5	6	7
13. Leisure made me feel miserable.	1	2	3	4	5	6	7
14. By escaping from the problem through leisure, I was able to tackle my problem(s) with renewed energy.	1	2	3	4	5	6	7
15. Lack of companionship in leisure prevented me from coping with stress.	1	2	3	4	5	6	7
16. Leisure helped me manage my negative feeling.	1	2	3	4	5	6	7
17. I took a brief break through leisure to deal with the stress.	1	2	3	4	5	6	7
18. One of my stress-coping strategies was participation in social leisure.	1	2	3	4	5	6	7

Please go to the next page!

F. The following questions ask you how well you coped with *the most stressful event of the week you* have described earlier. Again, if today is *Friday*, refer to the *weekday*'s most stressful event; if today is *Sunday*, refer to the *weekend's* most stressful event.

Does the most stressful event of the week which you have described still continue? Or, has this event ended?
    If the event still *continues*.   ⇒ Please skip this section and go to Section G.
    If the event has *ended*.   ⇒ Please answer the following questions and circle the number
                                which corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. I am satisfied with my response to this event.	1	2	3	4	5	6	7
2. My coping response was *ineffective.*	1	2	3	4	5	6	7
3. I coped well with this event.	1	2	3	4	5	6	7
4. This problem has been resolved satisfactorily.	1	2	3	4	5	6	7
5. The situation has become worse.	1	2	3	4	5	6	7
6. Things have worked out after all.	1	2	3	4	5	6	7
7. My feelings of stress were reduced.	1	2	3	4	5	6	7
8. My coping strategies contributed to stress reduction.	1	2	3	4	5	6	7
9. The things I did to cope with this event helped me reduce my feelings of stress.	1	2	3	4	5	6	7

G. The following scale consists of a number of words that describe different feelings and emotions. Please go over each item and mark the appropriate answer in the space next to that word. I would like you to indicate to what extent you felt this way *immediatelv after vou coped with the most stressful event of the week*. Please use the following scale to record your answers (i.e., circle the number which corresponds to your answer).

	not at all	a little	moderately	quite a bit	a great deal
angry	1	2	3	4	5
anxious	1	2	3	4	5
guilty	1	2	3	4	5
relieved	1	2	3	4	5
sad	1	2	3	4	5
worried	1	2	3	4	5
hopeful	1	2	3	4	5
confident	1	2	3	4	5
fearful	1	2	3	4	5
disappointed	1	2	3	4	5
happy	1	2	3	4	5
pleased	1	2	3	4	5
disgusted	1	2	3	4	5
exhilarated	1	2	3	4	5
eager	1	2	3	4	5

This is the end of the log.
Please make sure to complete a log twice a week.
Thank you very much for your help!

Appendix 4
Initial Assessment Scales

Leisure Coping Belief Scale

Instructions: This questionnaire is designed to assess your beliefs about leisure. Please read the following statements and indicate the extent to which you agree with each statement by circling the number which best corresponds to your answer. In the statements, *leisure companions* refers to those individuals with whom you often engage in leisure.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. My leisure companions help me feel good about myself.	1	2	3	4	5	6	7
2. Leisure provides opportunities to regain a sense of freedom.	1	2	3	4	5	6	7
3. My leisure involvements strengthen my ability to manage problems in life.	1	2	3	4	5	6	7
4. I gain feelings of personal control in leisure.	1	2	3	4	5	6	7
5. Leisure is a self-determined activity for me.	1	2	3	4	5	6	7
6. My leisure companions listen to my private feelings.	1	2	3	4	5	6	7
7. For me, leisure is a means of developing friendships.	1	2	3	4	5	6	7
8. My leisure pursuits are freely chosen.	1	2	3	4	5	6	7
9. My leisure companions hold me in high esteem.	1	2	3	4	5	6	7
10. What I do in my leisure allows me to feel good about myself.	1	2	3	4	5	6	7
11. When I need to borrow something, my leisure companions will lend it to me.	1	2	3	4	5	6	7
12. If I need extra hands for doing tasks, I can turn to my leisure companions.	1	2	3	4	5	6	7
13. I am able to openly express who I am in my leisure time.	1	2	3	4	5	6	7
14. My leisure companions would lend me money if necessary.	1	2	3	4	5	6	7
15. My leisure companions give me advice when I am in trouble.	1	2	3	4	5	6	7
16. The things I do in my leisure help me gain confidence.	1	2	3	4	5	6	7
17. I lack emotional support from my leisure companions.	1	2	3	4	5	6	7
18. My leisure companions often provide me with useful information.	1	2	3	4	5	6	7
19. I'm respected by my leisure companions.	1	2	3	4	5	6	7
20. I can talk to my leisure companions when I am not sure what to do.	1	2	3	4	5	6	7
21. I feel that I'm valued by my leisure companions.	1	2	3	4	5	6	7
22. Most of my leisure companions are happy to take care of my house (apartment), children, or pets when I am away.	1	2	3	4	5	6	7
23. My leisure participation enhances my self-concept.	1	2	3	4	5	6	7
24. I feel emotionally supported by my leisure companions.	1	2	3	4	5	6	7
25. Opportunities to express myself in leisure enhance my self-concept.	1	2	3	4	5	6	7
26. My leisure companions assist me in deciding what to do.	1	2	3	4	5	6	7

Please go to the next page!

Leisure Support Network Assessment Scale

Next, I would like to ask you questions about your social relationships primarily maintained through shared leisure pursuits. You may enjoy leisure with your family members and/or friends. These individuals with whom you share leisure may also give you emotional support, practical assistance, financial assistance, and advice/guidance, as well as an opportunity for socializing. There are two parts in the following questions. First, I would like you to list *up to* ten people who are important to you in each of the areas described below. *Some of the same people may, of course, be important in several areas. If so, please list them under each area.* Second, after you have listed people in each area, I would like to ask you questions specifically about these individuals. Remember, please refer to *individuals with whom you often share leisure* when you answer questions.

Questions:

1. *Emotional Support.* Please list up to 10 people with whom you share leisure, and who provide you with emotional support (please list only initials of these people). To help you think of these people, ask yourself the following questions:
   Who comforts you, or calms you down, when you are upset?
   Who do you feel close to?
   Who do you confide in and discuss your personal feelings with?
   (These questions are just to help you. People may provide emotional support in other ways, too.)

   _____ _____ _____ _____ _____
   _____ _____ _____ _____ _____

2. *Socializing.* Next, list up to 10 people with whom you socialize. To help you think of them, ask yourself the following questions:
   Who do you visit or invite to your home/apartment/dorm?
   With whom do you do things for fun and enjoyment (e.g., lunch, movies, drinks, travel)?

   _____ _____ _____ _____ _____
   _____ _____ _____ _____ _____

3. *Practical Assistance.* Next, list up to 10 people with whom you share leisure, and who help you out with practical problems. Ask yourself the following questions:
   Who would you ask to help you move, or do some other tasks that require extra hands?
   Who would you ask to look after your house, children, pets, or plants for a while?
   From whom do you borrow things such as tools, a car, books, notes, or other miscellaneous items?

   _____ _____ _____ _____ _____
   _____ _____ _____ _____ _____

4. *Financial Assistance.* Next, list up to 10 people with whom you share leisure, and who help you out with financial problems. Ask yourself the following questions:
   From whom would you borrow money?
   Who buys you things (e.g., meals, clothes, supplies) when you don't have enough money?

   _____ _____ _____ _____ _____
   _____ _____ _____ _____ _____

5. *Advice/Guidance.* Next list up to 10 people with whom you share leisure, and with whom you are comfortable asking for advice or guidance. Ask yourself the following questions:
   Who do you talk to when you are not sure what to do?
   Who do you talk to when you are confused?
   Who often provides you with useful or important information?

   _____ _____ _____ _____ _____
   _____ _____ _____ _____ _____

Please go to the next page!

I would now like to ask you questions about each person on your lists. If you have listed someone several times, just answer the questions about her/him the first time. Please answer the questions by circling the number which corresponds to your answer next to the name of a person you list.

A. *Frequency:* How frequently do you talk with this person, either in person, on the telephone, or through e-mail?

	about once a month or less	about a couple of times a month	about once a week	about a couple of times a week	about everyday
Name of the person: _____	1	2	3	4	5
(initials) _____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

B. *Closeness:* How close (trusting, intimate) do you feel to this person?

	not at all	a little close	fairly close	very close	extremely close
Name of the person: _____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

C. *Balance:* Do you feel that there is equal "give and take" in this relationship, or does one person give more than other?

	I give much more than I get	I give more than I get	We give and take equally	I get more than I give	I get much more than I give
Name of the person: _____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

Please go to the next page!

D. *Complexity:* Some relationships are simple in the sense that we do just one or a few things with the person, or see them mostly in one setting. Other relationships are very complex in that we see the person in many settings, and do a lot of different things with them. How complex is your relationship with each of the people listed?

        1. simple, we do only a few things together
        2. fairly complex, we see each other in several different roles and settings
        3. very complex, we see each other in many different settings and do many different things together

Name of the person: _____   Answer: ___ (indicate one of the numbers above)

        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___

E. *Relationship:* What is the nature of your relationship with this person? Is she or he...?

        1. husband/wife or marital-like partner
        2. immediate family
        3. extended family (cousins, uncles, aunts, in-laws, etc.)
        4. intimate sexual
        5. close friend
        6. social acquaintance
        7. other

Name of the person: _____   Answer: ___ (indicate one of the numbers above)

        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___
        _____   ___

F. *Satisfaction:* Finally, I would like to ask you how satisfied you are with each of the areas of support you get. Consider, for instance, the emotional support you get from all the people you listed in that category, how satisfied are you with that support? Using the scale below, circle the number which corresponds to your answer in each scale.

	Not at all satisfied	A little satisfied	Satisfied	Very satisfied	Extremely satisfied
1. Emotional support	1	2	3	4	5
2. Socializing	1	2	3	4	5
3. Practical assistance	1	2	3	4	5
4. Financial assistance	1	2	3	4	5
5. Advice or guidance	1	2	3	4	5

Please go to the next page!

Gender Role Orientation Scale

Instructions: This questionnaire consists of a series of personal characteristics that may or may not apply to you. These characteristics describe individuals' personality traits, physical appearances, role behaviors, or interests. Please indicate the extent to which each characteristic describes you using the scale below. Please circle the number which best corresponds to your answer.

		Never true for me	Often not true for me	Neutral	True for me	Always true for me			Never true for me	Often not true for me	Neutral	True for me	Always true for me
1.	Helpful	1	2	3	4	5	41.	Logical	1	2	3	4	5
2.	Intelligent	1	2	3	4	5	42.	Talkative	1	2	3	4	5
3.	Aggressive	1	2	3	4	5	43.	In control	1	2	3	4	5
4.	Fair	1	2	3	4	5	44.	Socializes	1	2	3	4	5
5.	Generous	1	2	3	4	5	45.	Traditional	1	2	3	4	5
6.	Loyal	1	2	3	4	5	46.	Man	1	2	3	4	5
7.	Sense of humor	1	2	3	4	5	47.	Neat hair	1	2	3	4	5
8.	Responsible	1	2	3	4	5	48.	Likes art	1	2	3	4	5
9.	Good listener	1	2	3	4	5	49.	Concern with work	1	2	3	4	5
10.	Loves life	1	2	3	4	5	50.	Poised	1	2	3	4	5
11.	Friendly	1	2	3	4	5	51.	Likes dancing	1	2	3	4	5
12.	Optimistic	1	2	3	4	5	52.	Smiles	1	2	3	4	5
13.	Not afraid	1	2	3	4	5	53.	Good manners	1	2	3	4	5
14.	Likes sports	1	2	3	4	5	54.	Family oriented	1	2	3	4	5
15.	Caring	1	2	3	4	5	55.	Passive	1	2	3	4	5
16.	Healthy	1	2	3	4	5	56.	Likes to cook	1	2	3	4	5
17.	Wears heals	1	2	3	4	5	57.	Delicate	1	2	3	4	5
18.	Brave	1	2	3	4	5	58.	Social	1	2	3	4	5
19.	Shy	1	2	3	4	5	59.	Well dressed	1	2	3	4	5
20.	Body-building	1	2	3	4	5	60.	Creative	1	2	3	4	5
21.	Woman	1	2	3	4	5	61.	Wears make up	1	2	3	4	5
22.	Loud	1	2	3	4	5	62.	Not selfish	1	2	3	4	5
23.	Wears jewelry	1	2	3	4	5	63.	Likes kids	1	2	3	4	5
24.	Independent	1	2	3	4	5	64.	Neat	1	2	3	4	5
25.	Social events	1	2	3	4	5	65.	Wears perfume	1	2	3	4	5
26.	Drinks	1	2	3	4	5	66.	Patient	1	2	3	4	5
27.	Active	1	2	3	4	5	67.	Arrogant	1	2	3	4	5
28.	Not aggressive	1	2	3	4	5	68.	Wears dresses	1	2	3	4	5
29.	Emotionally strong	1	2	3	4	5	69.	Rough	1	2	3	4	5
30.	Likes cars	1	2	3	4	5	70.	Soft	1	2	3	4	5
31.	High-pitched voice	1	2	3	4	5	71.	Manicured nails	1	2	3	4	5
32.	Cries easily	1	2	3	4	5	72.	Dominant	1	2	3	4	5
33.	Men friends	1	2	3	4	5	73.	Gossips	1	2	3	4	5
34.	Competitive	1	2	3	4	5	74.	Dates men	1	2	3	4	5
35.	Sensitive	1	2	3	4	5	75.	Tough	1	2	3	4	5
36.	Likes outdoors	1	2	3	4	5	76.	Flirts	1	2	3	4	5
37.	Dates women	1	2	3	4	5	77.	Demanding	1	2	3	4	5
38.	Gentle	1	2	3	4	5	78.	Happy	1	2	3	4	5
39.	Strong convictions	1	2	3	4	5	79.	Elegant	1	2	3	4	5
40.	Ambitious	1	2	3	4	5							

Please go to the next page!

Physical Health Assessment

Instructions: Several common symptoms or bodily sensations are listed below. Most people have experienced most of them at one time or another. We are interested in finding out how prevalent each symptom is. Please indicate how *frequently* you have experienced that symptom by indicating the number which corresponds to your answer within the parentheses (use the following scale.) Please indicate other symptoms and these frequencies at the end if you don't find in the following list.

0 = Have never or almost never experienced the symptom	1 = Less than 3 or 4 times a year	2 = Every month or so	3 = Every week or so	4 = More than once every week

( ) Eyes water
( ) Itching or painful eyes
( ) Ringing in ears
( ) Temporary deafness or hard of hearing
( ) Lump in throat
( ) Choking sensations
( ) Sneezing spells
( ) Running nose
( ) Congested nose
( ) Bleeding nose
( ) Asthma or wheezing
( ) Coughing
( ) Out of breath
( ) Swollen ankles
( ) Chest pain
( ) Racing heart
( ) Cold hands or feet even in hot weather
( ) Leg cramps
( ) Insomnia
( ) Toothaches
( ) Upset stomach
( ) Indigestion
( ) Heartburn
( ) Severe pains or cramps in stomach
( ) Diarrhea
( ) Constipation
( ) Hemorrhoids
( ) Swollen joints
( ) Stiff muscles
( ) Back pains
( ) Sensitive or tender skin

( ) Face flushes
( ) Severe itching
( ) Skin breaks out in rash
( ) Acne or pimples on face
( ) Acne or pimples other than face
( ) Boils
( ) Sweat even in cold weather
( ) Strong reactions to insect bites
( ) Headaches
( ) Sensation of pressure in head
( ) Hot flashes
( ) Chills
( ) Dizziness
( ) Feel faint
( ) Numbness or tingling in any part of body
( ) Twitching of eyelid
( ) Twitching other than eyelid
( ) Hands tremble or shake
( ) Stiff joint
( ) Sore muscles
( ) Sore throat
( ) Sunburn
( ) Nausea
( ) Feeling low in energy or slowed down
( ) Hot or cold spells
( ) Weakness in parts of your body
( ) Heavy feeling in your arms or legs
( ) Other [   ]
( ) Other [   ]
( ) Other [   ]
( ) Other [   ]

Please go to the next page!

Mental Health Inventory

Instructions. We are interested in finding out people's recent mental health. I would like you to go through the following statements and indicate how often you felt this way during the *past week.* Please indicate the number which best corresponds to your answer in the parentheses. Please use the following scale.

Rarely or none of the time (less than 1 day a week)	Some or a little of the time (1-2 days a week)	Occasionally or a moderate amount of time (3-4 days a week)	Most of the time (5-6 days a week)	Almost all of the time (everyday)
0	1	2	3	4

( ) Very nervous person
( ) Relaxed and free of tension
( ) Living a wonderful adventure
( ) Felt tense or high-strung
( ) Generally enjoyed things
( ) Difficulty trying to calm down
( ) Expect an interesting day
( ) Rattled, upset, flustered
( ) Hands shake when doing things
( ) Relax without difficulty
( ) Moody, brooded about things
( ) Low or very low spirits
( ) Time felt lonely
( ) Felt depressed
( ) Difficulty making decisions
( ) Wake up fresh, rested
( ) Control behavior, thoughts, feelings
( ) Love relations full, complete
( ) Felt emotionally stable
( ) Nothing turns out as wanted
( ) Felt like crying
( ) Having to do things very slowly in order to be sure that you were doing them right
( ) Down in the dumps
( ) Think about taking own life
( ) Nothing to look forward to
( ) Happy person
( ) Trouble concentrating
( ) Daily life interesting

( ) Anxious, worried
( ) Feeling that people are unfriendly or dislike you
( ) Strain, stress, pressure
( ) Nervous or jumpy
( ) Restless, fidgety, impatient
( ) Concern about losing control of mind
( ) Future hopeful, promising
( ) Felt loved and wanted
( ) Felt downhearted and blue
( ) Trouble remembering things
( ) Better off if dead
( ) Worried about sloppiness or carelessness
( ) Feeling blocked or stymied in getting things done
( ) Having check and double-check what you do
( ) Your mind going blank
( ) Feeling critical of others
( ) Feeling easily annoyed or irritated
( ) Temper outbursts you could not control
( ) Your feelings being easily hurt
( ) Feeling that others do not understand you or are unsympathetic
( ) Felt calm and peaceful
( ) Bothered by nervousness
( ) Feeling inferior to others
( ) Happy, satisfied, or pleased
( ) Felt cheerful, lighthearted

Please go to the next page!

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Scales of Psychological Well-Being

Instructions. We are interested in finding out people's recent psychological well-being. I would like you to go through the following statements and indicate how often you felt this way during the *past week*. Please select the best answer by circling the number which corresponds to your response.

		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most of the time (5-6 days)	Almost all of the time (everyday)
1.	In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5
2.	I have not experienced many warm and trusting relationships with others.	1	2	3	4	5
3.	I tend to be influenced by people with strong opinions.	1	2	3	4	5
4.	I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5
5.	The demands of everyday life often get me down.	1	2	3	4	5
6.	I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5
7.	I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5
8.	For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5
9.	I live life one day at a time and don't really think about the future.	1	2	3	4	5
10.	Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5
11.	I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5
12.	I like most aspects of my personality.	1	2	3	4	5
13.	Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5
14.	I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5
15.	People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5
16.	When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5
17.	In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5
18.	I am quite good at managing many responsibilities of my daily life.	1	2	3	4	5

This is the end of the questionnaire.
Thank you very much for your time and help!

Finally, please provide me with your demographic information. Again, all of your information will be kept confidential.

Gender: _____

Age: _____

Major: _____

This is the end of the questionnaire.
Thank you very much for your time and help!

Appendix 5
Major Stress-Coping Assessment Scales

Major Life Event Inventory

Instructions: This inventory is designed to assess the nature of stressful major life events. There are two parts in this inventory. The first part is designed to assess a range of stressful events in the past year. Please indicate whether or not you have experienced certain life events in the last year and rate the seriousness or severity of each event. Then, the second part is to be answered with regard to the single most stressful event you have experienced in the last year.

1. Have you personally experienced any of the following stressful events in the last year? Please circle the number which represents your answer.

	Did not occur (past year)	A little amount of stress	A fair amount of stress	A great deal of stress	An enormous amount of stress
Your acute or chronic health problems	1	2	3	4	5
Acute or chronic health problems of someone you love	1	2	3	4	5
Injuries	1	2	3	4	5
Job losses	1	2	3	4	5
Problems at work	1	2	3	4	5
Problems at school	1	2	3	4	5
Problems in family	1	2	3	4	5
Crime or legal problems	1	2	3	4	5
Accidents (e.g., burglaries, car accidents)	1	2	3	4	5
Financial difficulties	1	2	3	4	5
Marital difficulties	1	2	3	4	5
Problems in getting along with family members other than spouse	1	2	3	4	5
Problems in getting along with friends	1	2	3	4	5
Problems in getting along with boy/girl friends	1	2	3	4	5
Death of a loved one	1	2	3	4	5
Any problems of someone you care for	1	2	3	4	5
Other problems (please list: _____)	1	2	3	4	5

2. Of the problems you have checked, which one was the most stressful? Please describe this *single most stressful event in the last year* in the following space.

The most stressful event of the year: _____

Descriptions:

_____

_____

_____

3. On a scale of 1 to 10 in which 10 is equivalent to the death of someone you love and 1 to very minor annoyance, how stressful was the event you have just described in Question 2? Please circle the number which corresponds to the severity or seriousness of the event.

```
1        2     3     .4     5     6     7     8     9     10
very minor                                                extremely
                                                          serious
```

Event Appraisal Scale

Instructions: I would like you to describe in more detail *the single most stressful event of the year* that you identified above. Please read each statement and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. I felt optimistic about this event.	1	2	3	4	5	6	7
2. This event was welcome.	1	2	3	4	5	6	7
3. This event provided me with an opportunity to express who I am.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
4. This event really concerned me.	1	2	3	4	5	6	7
5. Other individuals were trying to take advantage of me.	1	2	3	4	5	6	7
6. This was an undesirable event to me.	1	2	3	4	5	6	7
7. I had control over whether or not this event happened.	1	2	3	4	5	6	7
8. I felt a sense of loss as a result of this event.	1	2	3	4	5	6	7
9. I felt threatened or in danger.	1	2	3	4	5	6	7
10. This was an unexpected event.	1	2	3	4	5	6	7
11. I believed I had the ability to manage this problem.	1	2	3	4	5	6	7
12. This has been or will be a long-lasting problem.	1	2	3	4	5	6	7
13. I was looking forward to this event.	1	2	3	4	5	6	7
14. There was no possibility that this event would be changed for improvement.	1	2	3	4	5	6	7
15. I was confident about my skills to deal with this event.	1	2	3	4	5	6	7
16. This event could have been prevented if other people were more careful.	1	2	3	4	5	6	7
17. This event made me feel good about myself.	1	2	3	4	5	6	7
18. I was in danger or threatened by this event.	1	2	3	4	5	6	7
19. I did not anticipate this event.	1	2	3	4	5	6	7
20. There was a problem because of me.	1	2	3	4	5	6	7
21. This event helped me understand my values.	1	2	3	4	5	6	7
22. This situation was hopeless.	1	2	3	4	5	6	7
23. I had no control over the occurrence of this event.	1	2	3	4	5	6	7
24. Something I cared about was gone.	1	2	3	4	5	6	7
25. This event was very important to me.	1	2	3	4 .	5	6	7
26. I blamed myself for this bad situation.	1	2	3	4	5	6	7
27. This event was relevant to my life.	1	2	3	4	5	6	7
28. I was not able to control the occurrence of this event.	1	2	3	4	5	6	7
29. I felt competent to manage this situation.	1	2	3	4	5	6	7
30. I anticipated the occurrence of this event.	1	2	3	4	5	6	7
31. There was a chance that this situation would change for the better.	1	2	3	4	5	6	7
32. This event made me proud of myself.	1	2	3	4	5	6	7
33. This problem has lasted or will last for a long time.	1	2	3	4	5	6	7
34. This event was my fault.	1	2	3	4	5	6	7
35. Someone else was to blame for this bad situation.	1	2	3	4	5	6	7
36. Someone or something I loved was gone.	1	2	3	4	5	6	7
37. This situation enabled me to realize who I am.	1	2	3	4	5	6	7

Please go to the next page!

Stress-Coping Scale

Instructions: Please think about *the most stressful event of the year* you have just described in the previous pages, and recall how you reacted to it. Then, please indicate the extent to which you did or felt whatever each following statement says.

	I did not do this al all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
1. I took additional action to try to get rid of the problem.	1	2	3	4	5
2. I tried to come up with a strategy about what to do.	1	2	3	4	5
3. I put aside other activities in order to concentrate on the problem.	1	2	3	4	5
4. I forced myself to wait for the right time to do something.	1	2	3	4	5
5. I asked people who have had similar experiences what they did.	1	2	3	4	5
6. I talked to someone about how I feel.	1	2	3	4	5
7. I looked for something good in what is happening.	1	2	3	4	5
8. I learned to live with it.	1	2	3	4	5
9. I seeked God's help.	1	2	3	4	5
10. I got upset and let my emotions out.	1	2	3	4	5
11. I refused to believe that it has happened.	1	2	3	4	5
12. I gave up the attempt to get what I want.	1	2	3	4	5
13. I turned to work or other substitute activities to take my mind off things.	1	2	3	4	5
14. I drunk alcohol or took drugs in order to think about the problem less.	1	2	3	4	5
15. I concentrated my efforts on doing something about it.	1	2	3	. 4	5
16. I made a plan of action.	1	2	3	4	5
17. I focused on dealing with the problem, and if necessary let other things aside a little.	1	2	3	4	5
18. I held off doing anything about it until the situation permitted.	1	2	3	4	5
19. I tried to get advice from someone about what to do.	1	2	3	4	5
20. I tried to get emotional support from friends or relatives.	1	2	3	4	5
21. I tried to see it in a different light to make it seem more positive.	1	2	3	4	5
22. I accepted that this has happened and that it can't be changed.	1	2	3	4	5
23. I put my trust in God.	1	2	3	4	5

Please go to the next page!

	I did not do this al all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
24. I let my feelings out.	1	2	3	4	5
25. I pretended that it hasn't really happened.	1	2	3	4	5
26. I just gave up trying to reach my goal.	1	2	3	4	5
27. I went to movies or watched TV to think about the problem less.	1	2	3	4	5
28. I did what has to be dome, one step at a time.	1	2	3	4	5
29. I kept myself from getting distracted by other thoughts or activities.	1	2	3	4	5
30. I made sure not to make matters worse by acting too soon.	1	2	3	4	5
31. I talked to someone to find out more about the situation.	1	2	3	4	5
32. I learned something from the experience.	1	2	3	4	5
33. I discussed my feelings with someone.	1	2	3	4	5
34. I got used to the idea that it happened.	1	2	3	4	5
35. I tried to find comfort in my religion.	1	2	3	4	5
36. I felt a lot of emotional distress and I found myself expressing those feeling a lot.	1	2	3	4	5
37. I acted as though it hasn't even happened.	1	2	3	4	5
38. I admitted to myself that I can't deal with it, and quit trying.	1	2	3	4	5
39. I daydreamed about things other than the problem.	1	2	3	4	5
40. I took direct action to get around the problem.	1	2	3	4	5
41. I thought hard about what steps to take.	1	2	3	4	5
42. I tried hard to prevent other things from interfering with my efforts at dealing with the problem.	1	2	3	4	5
43. I refrained myself from doing anything too quickly.	1	2	3	4	5
44. I thought about how I might best handle the problem.	1	2	3	4	5
45. I talked to someone who could do something concrete about the problem.	1	2	3	4	5
46. I got sympathy and understanding from someone.	1	2	3	4	5
47. I tried to grow as a person as a result of the experience.	1	2	3	4	5
48. I accepted the reality of the fact that it happened.	1	2	3	4	5

Please go to the next page!

	I did not do this al all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
49. I prayed more than usual.	1	2	3	4	5
50. I got upset, and was really aware of it.	1	2	3	4	5
51. I said to myself "this isn't real."	1	2	3	4	5
52. I reduced the amount of effort I'm putting into solving the problem.	1	2	3	4	5
53. I slept more than usual.	1	2	3	4	5

Leisure Coping Scale

Instructions: The following statements assess to what extent your leisure helps you cope with stress in your life. In some cases, you may intentionally choose your leisure involvements to help you deal with stress. At other times, you may find that what you do in your leisure has helped reduce stress even though you chose to participate for other reasons. Please think back *the most stressful event of the year* you just described on the previous pages. Now recall how you coped with this event. Read each of the following statements and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. My leisure helped me feel better.	1	2	3	4	5	6	7
2. My leisure allowed me to be in the company of supportive friends.	1	2	3	4	5	6	7
3. I engaged in a leisure activity to temporarily get away from the problem.	1	2	3	4	5	6	7
4. Escape through leisure was a way of coping with stress.	1	2	3	4	5	6	7
5. Socializing in leisure was a means of managing stress.	1	2	3	4	5	6	7
6. I gained a positive feeling from leisure.	1	2	3	4	5	6	7
7. I dealt with stress through spending leisure time with my friends.	1	2	3	4	5	6	7
8. Engaging in social leisure was a stress-coping strategy for me.	1	2	3	4	5	6	7
9. Leisure was an important means of keeping myself busy.	1	2	3	4	5	6	7
10. I maintained a good mood in leisure.	1	2	3	4	5	6	7
11. Engagement in leisure allowed me to gain a fresh perspective on my problem(s).	1	2	3	4	5	6	7
12. My leisure involvements failed to improve my mood.	1	2	3	4	5	6	7
13. Leisure made me feel miserable.	1	2	3	4	5	6	7
14. By escaping from the problem through leisure, I was able to tackle my problem(s) with renewed energy.	1	2	3	4	5	6	7
15. Leisure helped me manage my negative feeling.	1	2	3	4	5	6	7
16. I took a brief break through leisure to deal with the stress.	1	2	3	4	5	6	7
17. One of my stress-coping strategies was participation in social leisure.	1	2	3	4	5	6	7

Please go to the next page!

Emotion Assessment Scale

Instructions: The following scale consists of a number of words that describe different feelings and emotions. Please go over each item and mark the appropriate answer in the space next to that word. I would like you to indicate to what extent you felt this way *immediately after you coped with the most stressful event of the year.* Please use the following scale to record your answers (i.e., circle the number which corresponds to your answer).

	not at all	a little	moderately	quite a bit	a great deal
angry	1	2	3	4	5
anxious	1	2	3	4	5
guilty	1	2	3	4	5
relieved	1	2	3	4	5
sad	1	2	3	4	5
worried	1	2	3	4	5
hopeful	1	2	3	4	5
confident	1	2	3	4	5
fearful	1	2	3	4	5
disappointed	1	2	3	4	5
happy	1	2	3	4	5
pleased	1	2	3	4	5
disgusted	1	2	3	4	5
exhilarated	1	2	3	4	5
eager	1	2	3	4	5

This is the end of the questionnaire. Thank you very much for your help!

Appendix 6
Project Log for Main Study

Project Log

Instructions: Please fill out this log twice each week at the end of the day on Thursdays and Sundays (e.g., after school, after supper, before going to bed). *Weekday* events are to be reported on *Thursdays,* and *weekend* events on *Sundays.*

Today's Date: _____ Day of the week: _____

A. Listed below are a variety of events that may be viewed as stressful or unpleasant. Please indicate whether or not these events occurred to you during the *past week* (or *the past weekend* if Sundays), and to what extent these events made you feel stressed. Please circle the number which corresponds to your answer.

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Interpersonal Problems:							
Was interrupted while talking	1	2	3	4	5	6	7
Performed poorly due to others	1	2	3	4	5	6	7
Experienced problem with kid(s)	1	2	3	4	5	6	7
Was ignored by others	1	2	3	4	5	6	7
Was forced to socialize	1	2	3	4	5	6	7
Someone broke a promise or appointment	1	2	3	4	5	6	7
Did not hear from someone you expected to hear from	1	2	3	4	5	6	7
Someone borrowed something without your permission	1	2	3	4	5	6	7
Argued with spouse, boyfriend, girlfriend	1	2	3	4	5	6	7
Argued with another person	1	2	3	4	5	6	7
Experienced confrontation with an authority figure	1	2	3	4	5	6	7
Was embarrassed	1	2	3	4	5	6	7

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Personal Competence:							
Performed poorly at a work-related task	1	2	3	4	5	6	7
Spoke or performed in public	1	2	3	4	5	6	7
Did something you are unskilled at	1	2	3	4	5	6	7
Was unable to complete a task	1	2	3	4	5	6	7
Was late for work, school, or appointment	1	2	3	4 ·	5	6	7
Performed poorly at sport or game	1	2	3	4	5	6	7
Was unable to complete all plans for this week or weekend	1	2	3	4	5	6	7
Was unorganized	1	2	3	4	5	6	7
Failed to understand something	1	2	3	4	5	6	7
Stopped unwanted personal habits (overeating, smoking, nailbiting, etc.)	1	2	3	4	5	6	7

	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Cognitive Stressors:							
"Pet peeve" was violated (someone fails to knock, etc.)	1	2	3	4	5	6	7
Worried about the future	1	2	3	4	5	6	7
Heard some bad news	1	2	3	4	5	6	7
Worried about another's problems	1	2	3	4	5	6	7
Worried about unfinished work	1	2	3	4	5	6	7

Please go to the next page!

Environmental Hassles:	Did not occur (past week)	Occurred but was not stressful	Caused very little stress	Caused some stress	Caused much stress	Caused very much stress	Caused extreme stress
Was interrupted during task/activity	1	2	3	4	5	6	7
Experienced unwanted physical contact (crowded, pushed)	1	2	3	4	5	6	7
Was interrupted while thinking or relaxing	1	2	3	4	5	6	7
Was exposed to upsetting TV show, movie, book, etc.	1	2	3	4	5	6	7
Your property was damaged	1	2	3	4	5	6	7
Had a minor accident (broke something, tore clothing, etc.)	1	2	3	4	5	6	7
Experienced money problem	1	2	3	4	5	6	7
Had car trouble	1	2	3	4	5	6	7
Bothered by bad weather	1	2	3	4	5	6	7
Had difficulty in traffic	1	2	3	4	5	6	7
Experienced unexpected expenses (fines, traffic ticket, etc.)	1	2	3	4	5	6	7
Waited longer than you wanted	1	2	3	4	5	6	7
Had your sleep disturbed	1	2	3	4	5	6	7
Was exposed to a feared situation or object	1	2	3	4	5	6	7

Varied Stressors:

	Did not occur	Occurred but not stressful	Very little stress	Some stress	Much stress	Very much stress	Extreme stress
Someone spoiled your completed work	1	2	3	4	5	6	7
Was criticized or verbally attacked	1	2	3	4	5	6	7
Dealt with rude waiter, waitress, salesperson, etc.	1	2	3	4	5	6	7
Was misunderstood	1	2	3	4	5	6	7
Someone "cut" ahead of you in line	1	2	3	4	5	6	7
Feared pregnancy	1	2	3	4	5	6	7
Misplaced something	1	2	3	4	5	6	7
Hurried to meet a deadline	1	2	3	4	5	6	7
Forgot something	1	2	3	4	5	6	7
Store lacked a desired item	1	2	3	4	5	6	7
Competed with someone	1	2	3	4	5	6	7
Experienced illness or physical discomfort	1	2	3	4	5	6	7
Was stared at	1	2	3	4	5	6	7
Ran out of food or personal article	1	2	3	4	5	6	7
Did something that you did not want to	1	2	3	4	5	6	7
Was concerned over personal appearance	1	2	3	4	5	6	7
Experienced narrow escape from danger	1	2	3	4	5	6	7

Others:

_____	1	2	3	4	5	6	7
_____	1	2	3	4	5	6	7

Among the events or issues you have checked above (or other events or issues that are not listed above but bothered you), what was *the single most stressful event of the week?* Please briefly describe this problem below.

The most stressful event of the weekday (or the weekend): _____

Descriptions:

_____

_____

_____

On a scale from 1 to 10 (where 10 is the death of your significant others such as a family member or friend and 1 is a very minor annoyance), how stressful would you rate this problem or situation you have just described?

1	2	3	4	5	6	7	8	9	10
very minor									extremely stressful

Please go to the next page!

B. I would like you to describe in more detail *the single most stressful event of the week (or weekend)* that you identified on the previous page. Please read each statement and circle the number which best corresponds to your answer.

		Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1.	I felt optimistic about this event.	1	2	3	4	5	6	7
2.	This event was welcome.	1	2	3	4	5	6	7
3.	This event provided me with an opportunity to express who I am.	1	2	3	4	5	6	7
4.	This event really concerned me.	1	2	3	4	5	6	7
5.	Other individuals were trying to take advantage of me.	1	2	3	4	5	6	7
6.	This was an undesirable event to me.	1	2	3	4	5	6	7
7.	I had control over whether or not this event happened.	1	2	3	4	5	6	7
8.	I felt a sense of loss as a result of this event.	1	2	3	4	5	6	7
9.	I felt threatened or in danger.	1	2	3	4	5	6	7
10.	This was an unexpected event.	1	2	3	4	5	6	7
11.	I believed I had the ability to manage this problem.	1	2	3	4	5	6	7
12.	This has been or will be a long-lasting problem.	1	2	3	4	5	6	7
13.	I was looking forward to this event.	1	2	3	4	5	6	7
14.	There was no possibility that this event would be changed for improvement.	1	2	3	4	5	6	7
15.	I was confident about my skills to deal with this event.	1	2	3	4	5	6	7
16.	This event could have been prevented if other people were more careful.	1	2	3	4	5	6	7
17.	This event made me feel good about myself.	1	2	3	4	5	6	7
18.	I was in danger or threatened by this event.	1	2	3	4	5	6	7
19.	I did not anticipate this event.	1	2	3	4	5	6	7
20.	There was a problem because of me.	1	2	3	4	5	6	7
21.	This event helped me understand my values.	1	2	3	4	5	6	7
22.	This situation was hopeless.	1	2	3	4	5	6	7
23.	I had no control over the occurrence of this event.	1	2	3	4	5	6	7
24.	Something I cared about was gone.	1	2	3	4	5	6	7
25.	This event was very important to me.	1	2	3	4	5	6	7
26.	I blamed myself for this bad situation.	1	2	3	4	5	6	7
27.	This event was relevant to my life.	1	2	3	4	5	6	7
28.	I was not able to control the occurrence of this event.	1	2	3	4	5	6	7
29.	I felt competent to manage this situation.	1	2	3	4	5	6	7
30.	I anticipated the occurrence of this event.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
31. There was a chance that this situation would change for the better.	1	2	3	4	5	6	7
32. This event made me proud of myself.	1	2	3	4	5	6	7
33. This problem has lasted or will last for a long time.	1	2	3	4	5	6	7
34. This event was my fault.	1	2	3	4	5	6	7
35. Someone else was to blame for this bad situation.	1	2	3	4	5	6	7
36. Someone or something I loved was gone.	1	2	3	4	5	6	7
37. This situation enabled me to realize who I am.	1	2	3	4	5	6	7

C. Please think about *the most stressful event of the weekday (or weekend)* you have just described in the previous pages, and recall how you reacted to it. Then, please indicate the extent to which you did or felt whatever each following statement says.

	I did not do this at all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
1. I took additional action to try to get rid of the problem.	1	2	3	4	5
2. I tried to come up with a strategy about what to do.	1	2	3	4	5
3. I put aside other activities in order to concentrate on the problem.	1	2	3	4	5
4. I forced myself to wait for the right time to do something.	1	2	3	4	5
5. I asked people who have had similar experiences what they did.	1	2	3	4	5
6. I talked to someone about how I feel.	1	2	3	4	5
7. I looked for something good in what is happening.	1	2	3	4	5
8. I learned to live with it.	1	2	3	4	5
9. I seeked God's help.	1	2	3	4	5
10. I got upset and let my emotions out.	1	2	3	4	5
11. I refused to believe that it has happened.	1	2	3	4	5
12. I gave up the attempt to get what I want.	1	2	3	4	5
13. I turned to work or other substitute activities to take my mind off things.	1	2	3	4	5
14. I drunk alcohol or took drugs in order to think about the problem less.	1	2	3	4	5
15. I concentrated my efforts on doing something about it.	1	2	3	4	5
16. I made a plan of action.	1	2	3	4	5
17. I focused on dealing with the problem, and if necessary let other things aside a little.	1	2	3	4	5

Please go to the next page!

	I did not do this al all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
18. I held off doing anything about it until the situation permitted.	1	2	3	4	5
19. I tried to get advice from someone about what to do.	1	2	3	4	5
20. I tried to get emotional support from friends or relatives.	1	2	3	4	5
21. I tried to see it in a different light to make it seem more positive.	1	2	3	4	5
22. I accepted that this has happened and that it can't be changed.	1	2	3	4	5
23. I put my trust in God.	1	2	3	4	5
24. I let my feelings out.	1	2	3	4	5
25. I pretended that it hasn't really happened.	1	2	3	4	5
26. I just gave up trying to reach my goal.	1	2	3	4	5
27. I went to movies or watched TV to think about the problem less.	1	2	3	4	5
28. I did what has to be dome, one step at a time.	1	2	3	4	5
29. I kept myself from getting distracted by other thoughts or activities.	1	2	3	4	5
30. I made sure not to make matters worse by acting too soon.	1	2	3	4	5
31. I talked to someone to find out more about the situation.	1	2	3	4	5
32. I learned something from the experience.	1	2	3	4	5
33. I discussed my feelings with someone.	1	2	3	4	5
34. I got used to the idea that it happened.	1	2	3	4	5
35. I tried to find comfort in my religion.	1	2	3	4	5
36. I felt a lot of emotional distress and I found myself expressing those feeling a lot.	1	2	3	4	5
37. I acted as though it hasn't even happened.	1	2	3	4	5
38. I admitted to myself that I can't deal with it, and quit trying.	1	2	3	4	5
39. I daydreamed about things other than the problem.	1	2	3	4	5
40. I took direct action to get around the problem	1	2	3	4	5
41. I thought hard about what steps to take.	1	2	3	4	5
42. I tried hard to prevent other things from interfering with my efforts at dealing with the problem.	1	2	3	4	5

Please go to the next page!

	I did not do this al all	I did this a little bit	I did this a medium amount	I did this a lot	I did this a great deal
43. I refrained myself from doing anything too quickly.	1	2	3	4	5
44. I thought about how I might best handle the problem.	1	2	3	4	5
45. I talked to someone who could do something concrete about the problem.	1	2	3	4	5
46. I got sympathy and understanding from someone.	1	2	3	4	5
47. I tried to grow as a person as a result of the experience.	1	2	3	4	5
48. I accepted the reality of the fact that it happened.	1	2	3	4	5
49. I prayed more than usual.	1	2	3	4	5
50. I got upset, and was really aware of it.	1	2	3	4	5
51. I said to myself "this isn't real."	1	2	3	4	5
52. I reduced the amount of effort I'm putting into solving the problem.	1	2	3	4	5
53. I slept more than usual.	1	2	3	4	5

D. This inventory asks about your leisure participation either during weekdays or during weekends. Again, if today is *Thursday*, refer to *weekday* leisure; if today is *Sunday*, refer to *weekend* leisure. For each activity listed below, please indicate (1) the approximate length of time in hours you spent in total, (2) the number of people you participated with not including yourself, and (3) the perceived level of personal effort you exerted when engaging in each activity (circle the number which corresponds to your answer). If you don't find activities in which you engaged in this list, please name the activities in the last section, "others."

	Approximate hours spent in total	With how many people did you participate (not including yourself)?	Very low personal effort	Low personal effort	Medium level of personal effort	High personal effort	Very high personal effort
MASS MEDIA							
Watching TV	___	___	1	2	3	4	5
Reading magazine or paper	___	___	1	2	3	4	5
Going to movie	___	___	1	2	3	4	5
SOCIAL ACTIVITIES							
Visiting friend(s)	___	___	1	2	3	4	5
Entertaining friend(s)	___	___	1	2	3	4	5
Dating	___	___	1	2	3	4	5
Attending party	___	___	1	2	3	4	5
Social dancing	___	___	1	2	3	4	5
Indoor game/party	___	___	1	2	3	4	5
SPORT ACTIVITIES							
Spectating sports event	___	___	1	2	3	4	5
Fitness activities (jog, swim, weight, etc.)	___	___	1	2	3	4	5
Team sports (softball, soccer, etc.)	___	___	1	2	3	4	5
Individual sports (golf, fencing, etc.)	___	___	1	2	3	4	5
Dual sports (tennis, racquet ball, etc.)	___	___	1	2	3	4	5

Please go to the next page!

	Approximate hours spent in total	With how many people did you participate (not including yourself)?	Very low personal effort	Low personal effort	Medium level of personal effort	High personal effort	Very high personal effort
CULTURAL ACTIVITIES							
Attending concert	＿＿	＿＿	1	2	3	4	5
Attending ballet, opera, etc.	＿＿	＿＿	1	2	3	4	5
Visiting art museum	＿＿	＿＿	1	2	3	4	5
Folk or square dancing	＿＿	＿＿	1	2	3	4	5
Attending theatre	＿＿	＿＿	1	2	3	4	5
OUTDOOR ACTIVITIES							
Picnicking	＿＿	＿＿	1	2	3	4	5
Fishing, hunting	＿＿	＿＿	1	2	3	4	5
Gardening	＿＿	＿＿	1	2	3	4	5
Day outing (zoo, park, etc.)	＿＿	＿＿	1	2	3	4	5
Hiking	＿＿	＿＿	1	2	3	4	5
Boating, canoeing, or sailing	＿＿	＿＿	1	2	3	4	5
Nature study	＿＿	＿＿	1	2	3	4	5
Camping	＿＿	＿＿	1	2	3	4	5
HOBBIES							
Painting, drawing, sketching	＿＿	＿＿	1	2	3	4	5
Woodwork, furniture refinishing	＿＿	＿＿	1	2	3	4	5
Collecting stamps, coins, etc.	＿＿	＿＿	1	2	3	4	5
Needlework, sewing, knitting, etc.	＿＿	＿＿	1	2	3	4	5
Floral arranging, plant care	＿＿	＿＿	1	2	3	4	5
Waving, pottery, sculpture, etc.	＿＿	＿＿	1	2	3	4	5
Photography, video-making	＿＿	＿＿	1	2	3	4	5
OTHERS							
＿＿＿＿＿＿＿＿＿	＿＿	＿＿	1	2	3	4	5
＿＿＿＿＿＿＿＿＿	＿＿	＿＿	1	2	3	4	5

E. The following statements assess to what extent your leisure helps you cope with stress in your life. In some cases, you may intentionally choose your leisure involvements to help you deal with stress. At other times, you may find that what you do in your leisure has helped reduce stress even though you chose to participate for other reasons. Please think back *the most stressful event of the week (or weekend)* you have described earlier. Now recall how you coped with this event. Read each of the following statements and circle the number which best corresponds to your answer.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. My leisure helped me feel better.	1	2	3	4	5	6	7
2. My leisure allowed me to be in the company of supportive friends.	1	2	3	4	5	6	7
3. I engaged in a leisure activity to temporarily get away from the problem.	1	2	3	4	5	6	7
4. Escape through leisure was a way of coping with stress.	1	2	3	4	5	6	7
5. Socializing in leisure was a means of managing stress.	1	2	3	4	5	6	7
6. I gained a positive feeling from leisure.	1	2	3	4	5	6	7
7. I dealt with stress through spending leisure time with my friends.	1	2	3	4	5	6	7

Please go to the next page!

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
8. Engaging in social leisure was a stress-coping strategy for me.	1	2	3	4	5	6	7
9. Leisure was an important means of keeping myself busy.	1	2	3	4	5	6	7
10. I maintained a good mood in leisure.	1	2	3	4	5	6	7
11. Engagement in leisure allowed me to gain a fresh perspective on my problem(s).	1	2	3	4	5	6	7
12. My leisure involvements failed to improve my mood.	1	2	3	4	5	6	7
13. Leisure made me feel miserable.	1	2	3	4	5	6	7
14. By escaping from the problem through leisure, I was able to tackle my problem(s) with renewed energy.	1	2	3	4	5	6	7
15. Leisure helped me manage my negative feeling.	1	2	3	4	5	6	7
16. I took a brief break through leisure to deal with the stress.	1	2	3	4	5	6	7
17. One of my stress-coping strategies was participation in social leisure.	1	2	3	4	5	6	7

F. The following questions ask you how well you coped with *the most stressful event of the week you* have described earlier. Again, if today is *Thursday*, refer to the *weekday*'s most stressful event; if today is *Sunday*, refer to the *weekend's* most stressful event.

	Very Strongly Disagree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Very Strongly Agree
1. I am satisfied with my response to this event.	1	2	3	4	5	6	7
2. My coping response was ineffective.	1	2	3	4	5	6	7
3. I coped well with this event.	1	2	3	4	5	6	7
4. This problem has been resolved satisfactorily.	1	2	3	4	5	6	7
5. The situation has become worse.	1	2	3	4	5	6	7
6. Things have worked out after all.	1	2	3	4	5	6	7
7. My feelings of stress were reduced.	1	2	3	4	5	6	7
8. My coping strategies contributed to stress reduction.	1	2	3	4	5	6	7
9. The things I did to cope with this event helped me reduce my feelings of stress.	1	2	3	4	5	6	7

Please go to the next page!

G. The following scale consists of a number of words that describe different feelings and emotions. Please go over each item and mark the appropriate answer in the space next to that word. I would like you to indicate to what extent you felt this way *immediately after you coped with the most stressful event of the week*. Please use the following scale to record your answers (i.e., circle the number which corresponds to your answer).

	not at all	a little	moderately	quite a bit	a great deal
angry	1	2	3	4	5
anxious	1	2	3	4	5
guilty	1	2	3	4	5
relieved	1	2	3	4	5
sad	1	2	3	4	5
worried	1	2	3	4	5
hopeful	1	2	3	4	5
confident	1	2	3	4	5
fearful	1	2	3	4	5
disappointed	1	2	3	4	5
happy	1	2	3	4	5
pleased	1	2	3	4	5
disgusted	1	2	3	4	5
exhilarated	1	2	3	4	5
eager	1	2	3	4	5

H. Please feel free to comment or describe anything related to stress-coping and/or this project. You may have discovered something new or unexpected about your stress-coping strategies. Or, you may want to comment on the research project.

_____
_____
_____
_____
_____

This is the end of the log.
Please make sure to complete a log twice a week.
Thank you very much for your help and cooperation!

Appendix 7
Post Study Assessment Scales

Physical Health Assessment

Instructions: Several common symptoms or bodily sensations are listed below. Most people have experienced most of them at one time or another. We are interested in finding out how prevalent each symptom is. Please indicate how *frequently* you have experienced that symptom by indicating the number which corresponds to your answer within the parentheses (use the following scale.) Please indicate other symptoms and these frequencies at the end if you don't find in the following list.

| 0 = | Have never or almost never experienced the symptom | 1 = | Less than 3 or 4 times a year | 2 = | Every month or so | 3 = | Every week or so | 4 = | More than once every week |

( ) Eyes water
( ) Itching or painful eyes
( ) Ringing in ears
( ) Temporary deafness or hard of hearing
( ) Lump in throat
( ) Choking sensations
( ) Sneezing spells
( ) Running nose
( ) Congested nose
( ) Bleeding nose
( ) Asthma or wheezing
( ) Coughing
( ) Out of breath
( ) Swollen ankles
( ) Chest pain
( ) Racing heart
( ) Cold hands or feet even in hot weather
( ) Leg cramps
( ) Insomnia
( ) Toothaches
( ) Upset stomach
( ) Indigestion
( ) Heartburn
( ) Severe pains or cramps in stomach
( ) Diarrhea
( ) Constipation
( ) Hemorrhoids
( ) Swollen joints
( ) Stiff muscles
( ) Back pains
( ) Sensitive or tender skin

( ) Face flushes
( ) Severe itching
( ) Skin breaks out in rash
( ) Acne or pimples on face
( ) Acne or pimples other than face
( ) Boils
( ) Sweat even in cold weather
( ) Strong reactions to insect bites
( ) Headaches
( ) Sensation of pressure in head
( ) Hot flashes
( ) Chills
( ) Dizziness
( ) Feel faint
( ) Numbness or tingling in any part of body
( ) Twitching of eyelid
( ) Twitching other than eyelid
( ) Hands tremble or shake
( ) Stiff joint
( ) Sore muscles
( ) Sore throat
( ) Sunburn
( ) Nausea
( ) Feeling low in energy or slowed down
( ) Hot or cold spells
( ) Weakness in parts of your body
( ) Heavy feeling in your arms or legs
( ) Other [   ]
( ) Other [   ]
( ) Other [   ]
( ) Other [   ]

Please go to the next page!

Mental Health Inventory

Instructions. We are interested in finding out people's recent mental health. I would like you to go through the following statements and indicate how often you felt this way during the *past week.* Please indicate the number which best corresponds to your answer in the parentheses. Please use the following scale.

Rarely or none of the time (less than 1 day a week)	Some or a little of the time (1-2 days a week)	Occasionally or a moderate amount of time (3-4 days a week)	Most of the time (5-6 days a week)	Almost all of the time (everyday)
0	1	2	3	4

( ) Very nervous person
( ) Relaxed and free of tension
( ) Living a wonderful adventure
( ) Felt tense or high-strung
( ) Generally enjoyed things
( ) Difficulty trying to calm down
( ) Expect an interesting day
( ) Rattled, upset, flustered
( ) Hands shake when doing things
( ) Relax without difficulty
( ) Moody, brooded about things
( ) Low or very low spirits
( ) Time felt lonely
( ) Felt depressed
( ) Difficulty making decisions
( ) Wake up fresh, rested
( ) Control behavior, thoughts, feelings
( ) Love relations full, complete
( ) Felt emotionally stable
( ) Nothing turns out as wanted
( ) Felt like crying
( ) Having to do things very slowly in order to be sure that you were doing them right
( ) Down in the dumps
( ) Think about taking own life
( ) Nothing to look forward to
( ) Happy person
( ) Trouble concentrating
( ) Daily life interesting

( ) Anxious, worried
( ) Feeling that people are unfriendly or dislike you
( ) Strain, stress, pressure
( ) Nervous or jumpy
( ) Restless, fidgety, impatient
( ) Concern about losing control of mind
( ) Future hopeful, promising
( ) Felt loved and wanted
( ) Felt downhearted and blue
( ) Trouble remembering things
( ) Better off if dead
( ) Worried about sloppiness or carelessness
( ) Feeling blocked or stymied in getting things done
( ) Having check and double-check what you do
( ) Your mind going blank
( ) Feeling critical of others
( ) Feeling easily annoyed or irritated
( ) Temper outbursts you could not control
( ) Your feelings being easily hurt
( ) Feeling that others do not understand you or are unsympathetic
( ) Felt calm and peaceful
( ) Bothered by nervousness
( ) Feeling inferior to others
( ) Happy, satisfied, or pleased
( ) Felt cheerful, lighthearted

Please go to the next page!

Scales of Psychological Well-Being

Instructions. We are interested in finding out people's recent psychological well-being. I would like you to go through the following statements and indicate how often you felt this way during the *past week*. Please select the best answer by circling the number which corresponds to your response.

		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most of the time (5-6 days)	Almost all of the time (everyday)
1.	In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5
2.	I have not experienced many warm and trusting relationships with others.	1	2	3	4	5
3.	I tend to be influenced by people with strong opinions.	1	2	3	4	5
4.	I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5
5.	The demands of everyday life often get me down.	1	2	3	4	5
6.	I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5
7.	I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5
8.	For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5
9.	I live life one day at a time and don't really think about the future.	1	2	3	4	5
10.	Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5
11.	I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5
12.	I like most aspects of my personality.	1	2	3	4	5
13.	Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5
14.	I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5
15.	People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5
16.	When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5
17.	In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5
18.	I am quite good at managing many responsibilities of my daily life.	1	2	3	4	5

This is the end of the questionnaire.
Thank you very much for your time and help!

Appendix 8
Operationalization of Key Variables

Leisure Coping Beliefs (total alpha=.89)

Sub-dimensions	Variable Names	Items
Self-determination disposition (alpha=.61)	Sd1	Leisure provides opportunities to regain a sense of freedom.
	Sd2	I gain feelings of personal control in leisure.
	Sd3	Leisure is a self-determined activity for me.
	Sd4	My leisure pursuits are freely chosen.
Leisure empowerment (alpha=.77)	Emp1	My leisure involvements strengthen my ability to manage problems in life.
	Emp2	What I do in my leisure allows me to feel good about myself.
	Emp3	I am able to openly express who I am in my leisure time.
	Emp4	The things I do in my leisure help me gain confidence.
	Emp5	My leisure participation enhances my self-concept.
	Emp6	Opportunities to express myself in leisure enhance my self-concept.
Emotional support (alpha=.74)	Emot1	My leisure companions listen to my private feelings.
	Emot2	For me, leisure is a means of developing friendships.
	Emot3	I lack emotional support from my leisure companions.*
	Emot4	I feel emotionally supported by my leisure companions.
Esteem support (alpha=.68)	Est1	My leisure companions help me feel good about myself.
	Est2	My leisure companions hold me in high esteem.
	Est3	I'm respected by my leisure companions.
	Est4	I feel that I'm valued by my leisure companions.
Tangible aid (alpha=.86)	Tang1	When I need to borrow something, my leisure companions will lend it to me.
	Tang2	If I need extra hands for doing tasks, I can turn to my leisure companions.
	Tang3	My leisure companions would lend me money if necessary.
	Tang4	Most of my leisure companions are happy to take care of my house (apartment), children, or pets when I am away.
Informational support (alpha=..82)	Inf1	My leisure companions give me advice when I am in trouble.
	Inf2	My leisure companions often provide me with useful information.
	Inf3	I can talk to my leisure companions when I am not sure what to do.
	Inf4	My leisure companions assist me in deciding what to do.

* Reversely coded question

Leisure Coping Strategies (total alpha=.93)

Sub-dimensions	Variable Names	Items
Leisure companionships (alpha=.91)	Compan1	My leisure allowed me to be in the company of supportive friends
	Compan2	Socializing in leisure was a means of managing stress.
	Compan3	I dealt with stress through spending leisure time with my friends.
	Compan4	Engaging in social leisure was a stress-coping strategy for me.
	Compan5	One of my stress-coping strategies was participation in social leisure.
Leisure palliative coping (alpha=.84)	Pallia1	I engaged in a leisure activity to temporarily get away from the problem.
	Pallia2	Escape through leisure was a way of coping with stress.
	Pallia3	Leisure was an important means of keeping myself busy.
	Pallia4	Engagement in leisure allowed me to gain a fresh perspective on my problem(s).
	Pallia5	By escaping from the problem through leisure, I was able to tackle my problem(s) with renewed energy.
	Pallia6	I took a brief break through leisure to deal with the stress.
Leisure mood enhancement (alpha=.81)	Mood1	My leisure helped me feel better.
	Mood2	I gained a positive feeling from leisure.
	Mood3	I maintained a good mood in leisure.
	Mood4	My leisure involvements failed to improve my mood.*
	Mood5	Leisure made me feel miserable.*
	Mood6	Leisure helped me manage my negative feeling.

* Reversely coded question

Note: Alpha scores were calculated on the basis of the participants' actual strategies for coping with weekly hassles.

Gender Role Orientation Scales

Dimensions	Sub-dimensions	Items
Femininity (alpha=.86)	Good person (alpha=.75)	Helpful
		Intelligent
		Patient
		Fair
		Generous
		Loyal
		Sense of humor
		Responsible
		Good listener
		Loves life
		Friendly
		Optimistic
		Happy
		Not selfish
		Caring
		Healthy
	Attractive in style and manner (alpha=.88)	Wears heels
		Wears makeup
		Wears dresses
		Wears perfume
		Woman
		Manicured nails
		Wears jewelry
		Dates men
		Elegant
	Not aggressive (alpha=.52)	Not aggressive
		Shy
		Passive
		High-pitched voice
		Cries easily
	Gentle (alpha=.68)	Gentle
		Sensitive
		Soft
		Delicate
	Social (alpha=.69)	Flirts
		Talkative
		Gossips
		Socializes
		Social events
	Neat (alpha=.71)	Neat hair
		Neat
		Well dressed
		Poised
		Good manners

Gender Role Orientation Scales (continued)

Dimensions	Sub-dimensions	Items
Femininity	Family oriented (alpha=.56)	Likes to cook
		Likes kids
		Family oriented
		Traditional
	Artistic/expressive (alpha=.48)	Likes art
		Likes dancing
		Creative
Masculinity (alpha=.83)	Good person (alpha=.74)	Happy
		Loves life
		Sense of humor
		Friendly
		Smiles
		Good manners
		Social
		Healthy
	Aggressive (alpha=.78)	Aggressive
		Arrogant
		Loud
		Rough
		Demanding
		Body-building
		Dominant
		Tough
	Emotional strength (alpha=.67)	Independent
		Emotionally strong
		Brave
		Not afraid
		In control
	Ambitious (alpha=.49)	Ambitious
		Concern with work
		Logical
		Strong conviction
	Athletic (alpha=.61)	Likes outdoors
		Competitive
		Active
		Likes sports
	Interest in women (alpha=.92)	Dates women
		Man
	Male bonding (alpha=.50)	Men friends
		Likes cars
		Drinks

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Mental Health (total alpha=.86)

Dimensions	Items
Anxiety (alpha=.92)	Very nervous person
	Bothered by nervousness
	Felt tense or high-strung
	Anxious, worried
	Difficulty trying to calm down
	Nervous or jumpy
	Restless, fidgety, impatient
	Rattled, upset, flustered
	Hands shake when doing things
	Relax without difficulty*
Depression (alpha=.83)	Moody, brooded about things
	Low or very low spirits
	Felt downhearted and blue
	Felt depressed
	Strain, stress, pressure
Loss of behavioral or emotional control (alpha=.74)	Control behavior, thoughts, feelings*
	Concern about losing control of mind
	Felt emotionally stable*
	Nothing turns out as wanted
	Felt like crying
	Better off if dead
	Down in the dumps
	Think about taking own life*
	Nothing to look forward to
Obsessive-compulsive (alpha=.78)	Trouble remembering things
	Worried about sloppiness or carelessness
	Felt blocked or stymied in setting things done
	Had to do things very slowly in order to be sure that you were doing them right
	Had check and double-check what you do
	Difficulty making decisions
	Mind went blank
	Trouble concentrating
Interpersonal sensitivity (alpha=.78)	Felt critical of others
	Felt easily annoyed or irritated
	Temper outbursts you could not control
	Your feelings were easily hurt
	Felt that others do not understand you or are unsympathetic
	Felt that people are unfriendly or dislike you
	Felt inferior to others

* reversely coded items

Note: Alpha scores were calculated for the participants' responses at Time 2.

Psychological Wellbeing (total alpha=.77)

Dimensions	Items
Self-acceptance (alpha=.67)	I like most aspects of my personality.
	When I look at the story of my life, I am pleased with how things have turned out.
	In many ways, I feel disappointed about my achievements in life.*
Positive relations with others	I have not experienced many warm and trusting relationships with others.*
(alpha=.58)	Maintaining close relationships has been difficult and frustrating for me.*
	People would describe me as a giving person, willing to share my time with others.
Autonomy (alpha=.63)	I tend to be influenced by people with strong opinions.*
	I judge myself by what I think is important, not by the values of what others think is important.
	I have confidence in my opinions, even if they are contrary to the general consensus.
Environmental mastery (alpha=.69)	In general, I feel I am in charge of the situation in which I live.
	The demands of everyday life often get me down.*
	I am quite good at managing many responsibilities of my daily life.
Purpose in life (alpha=.16)	I live life one day at a time and don't really think about the future.*
	I sometimes feel as if I've done all there is to do in life.*
	Some people wander aimlessly through life, but I am not one of them.
Personal growth (alpha=.44)	I think it is important to have new experiences that challenge how you think about yourself and the world.
	For me, life has been a continuous process of learning, changing, and growth.
	I gave up trying to make big improvements or changes in my life a long time ago.*

* Reversely coded items

Note: Alpha scores were calculated for the participants' responses at Time 2.

Event Appraisals

Dimensions	Items
Relevance of an event (alpha=.65)	This event really concerned me. This event was very important to me. This event was relevant to my life.
Undesirability of an event (alpha=.81)	This event was welcome.* This was an undesirable event to me. I was looking forward to this event.*
Controllability of an event (alpha=.79)	I had control over whether or not this event happened. I had no control over the occurrence of this event.* I was not able to control the occurrence of this event.*
Anticipation of the occurrence of an event (alpha=.87)	This was an unexpected event.* I did not anticipate this event.* I anticipated the occurrence of this event.
Length of an event (alpha=.84)	This has been or will be a long-lasting problem. This problem has lasted or will last for a long time.
Changeability of an event (alpha=.31)	There was no possibility that this event would be changed for improvement. There was a chance that this situation would change for the better.
Self-esteem (alpha=.90)	This event made me feel good about myself. This event made me proud of myself.
Sense of loss (alpha=.84)	I felt a sense of loss as a result of this event. Something I cared about was gone. Someone or something I loved was gone.
Optimism (alpha=.44)	I felt optimistic about this event. This situation was hopeless.*
Self-efficacy (alpha=.86)	I believed I had the ability to manage this problem. I was confident about my skills to deal with this event. I felt competent to manage this situation.
Self-identity (alpha=.80)	This event provided me with an opportunity to express who I am. This event helped me understand my values. This situation enabled me to realize who I am.
Threat or danger (alpha=.87)	I felt threatened or in danger. I was in danger or threatened by this event.
Self-blame (alpha=.90)	There was a problem because of me. I blamed myself for this bad situation. This event was my fault.
Blame for others (alpha=.75)	Other individuals were trying to take advantage of me. This event could have been prevented if other people were more careful. Someone else was to blame for this bad situation.

* Reversely coded items

Note: Alpha scores were calculated on the basis of the participants' appraisals of weekly hassles.

Coping Orientation for Problem Experiences (COPE) Inventory (Carver et al., 1989)

Dimensions	Items
Active coping (alpha=.84)	I took additional action to try to get rid of the problem.
	I concentrated my efforts on doing something about it.
	I did what has to be dome, one step at a time.
	I took direct action to get around the problem.
Planning (alpha=.91)	I tried to come up with a strategy about what to do.
	I made a plan of action.
	I thought hard about what steps to take.
	I thought about how I might best handle the problem.
Suppression of competing activities	I put aside other activities in order to concentrate on the problem.
(alpha=.87)	I focused on dealing with the problem, and if necessary let other things aside a little.
	I kept myself from getting distracted by other thoughts or activities.
	I tried hard to prevent other things from interfering with my efforts at dealing with the problem.
Restraint coping (alpha=.81)	I forced myself to wait for the right time to do something.
	I held off doing anything about it until the situation permitted.
	I made sure not to make matters worse by acting too soon.
	I refrained myself from doing anything too quickly.
Seeking social support for instrumental reasons	I asked people who have had similar experiences what they did.
(alpha=.89)	I tried to get advice from someone about what to do.
	I talked to someone to find out more about the situation.
	I talked to someone who could do something concrete about the problem.
Seeking social support for emotional reasons	I talked to someone about how I feel.
(alpha=.92)	I tried to get emotional support from friends or relatives.
	I discussed my feelings with someone.
	I got sympathy and understanding from someone.
Positive reinterpretation and growth	I looked for something good in what is happening.
(alpha=.79)	I tried to see it in a different light to make it seem more positive.
	I learned something from the experience.
	I tried to grow as a person as a result of the experience.
Acceptance (alpha=.79)	I learned to live with it.
	I accepted that this has happened and that it can't be changed.
	I got used to the idea that it happened.
	I accepted the reality of the fact that it happened.
Turning to religion (alpha=.93)	I seeked God's help.
	I put my trust in God.
	I tried to find comfort in my religion.
	I prayed more than usual.

Coping Orientation for Problem Experiences (COPE) Inventory (Carver et al., 1989; continued)

Dimensions	Items
Focus on and venting of emotions (alpha=.92)	I got upset and let my emotions out.
	I let my feelings out.
	I felt a lot of emotional distress and I found myself expressing those feeling a lot.
	I got upset, and was really aware of it.
Denial (alpha=.71)	I refused to believe that it has happened.
	I pretended that it hasn't really happened.
	I acted as though it hasn't even happened.
	I said to myself "this isn't real."
Behavioral disengagement (alpha=.81)	I gave up the attempt to get what I want.
	I just gave up trying to reach my goal.
	I admitted to myself that I can't deal with it, and quit trying.
	I reduced the amount of effort I'm putting into solving the problem.
Mental disengagement (alpha=.57)	I turned to work or other substitute activities to take my mind off things.
	I went to movies or watched TV to think about the problem less.
	I daydreamed about things other than the problem.
	I slept more than usual.
Alcohol-drug disengagement	I drunk alcohol or took drugs in order to think about the problem less.

Note: Alpha scores were calculated on the basis of the participants' actual strategies for coping with weekly hassles.

Coping Outcomes

Dimensions	Items
Coping effectiveness (alpha=.76)	My coping response was ineffective.*
	I coped well with this event.
	Things have worked out after all.
Satisfaction with coping outcomes (alpha=.75)	I am satisfied with my response to this event.
	This problem has been resolved satisfactorily.
	The situation has become worse.*
Stress reduction (alpha=.84)	My feelings of stress were reduced.
	My coping strategies contributed to stress reduction.
	The things I did to cope with this event helped me reduce my feelings of stress.

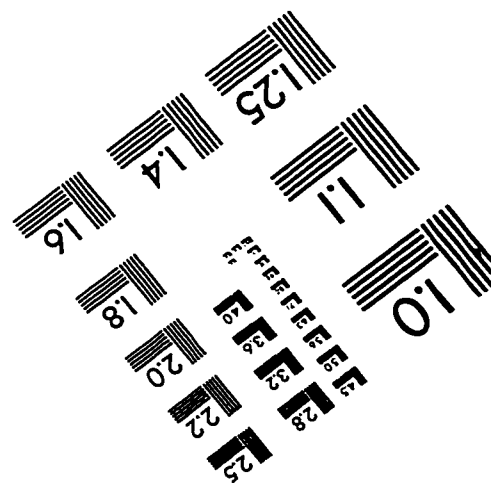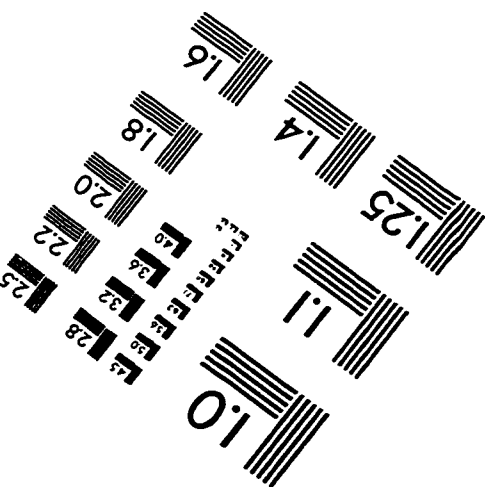Note: Alpha scores were calculated on the basis of the participants' responses to coping with weekly hassles.
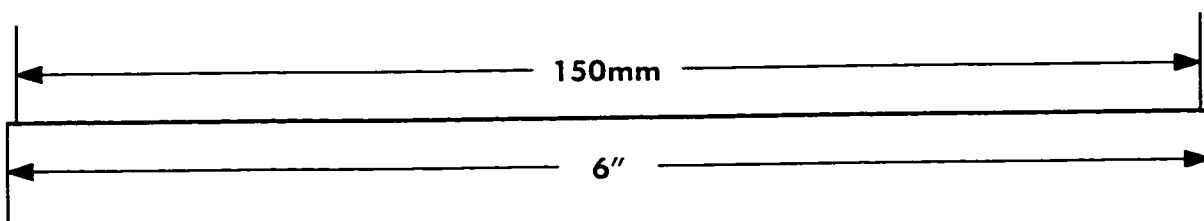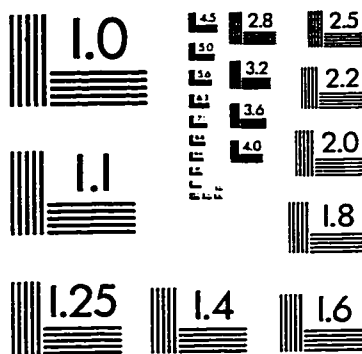
Appendix 9
Descriptive Statistics of Key Variables

Variables	Range	Minimum	Maximum	Mean	Standard deviation
Self-determination	1-7	4.50	7.00	5.94	.56
Empowerment	1-7	4.50	6.83	5.78	.57
Emotional support	1-7	3.50	7.00	5.49	.76
Esteem support	1-7	4.50	7.00	5.71	.58
Tangible aid	1-7	3.75	7.00	5.58	.83
Informational support	1-7	4.25	7.00	5.50	.68
Leisure companionship	1-7	1.00	7.00	4.99	1.18
Leisure palliative coping	1-7	1.00	7.00	4.63	1.07
Mood enhancement	1-7	2.00	7.00	5.39	.87
Anxiety*	0-4	.00	3.70	1.16	.85
Depression*	0-4	.00	3.00	.95	.73
Loss of control*	0-4	.44	2.78	.96	.43
Obsessive-compulsive*	0-4	.00	3.50	1.04	.60
Interpersonal sensitivity*	0-4	.00	2.57	.76	.55
Self-acceptance*	1-5	2.00	5.00	4.10	.63
Positive relations with others*	1-5	2.33	5.00	4.33	.54
Autonomy*	1-5	1.67	5.00	3.76	.72
Environmental mastery*	1-5	1.33	5.00	3.88	.72
Purpose in life*	1-5	2.67	5.00	4.07	.56
Personal growth*	1-5	2.33	5.00	4.33	.60
Physical symptoms*	0-4	.08	2.42	.87	.44
Major life event stress	0-4	.12	2.59	.93	.44
Academic stress	1-10	1.00	10.00	4.73	2.36
Interpersonal stress	1-10	1.00	10.00	5.25	2.46
Competence stress	1-10	1.00	9.00	4.37	2.57
Environmental stress	1-10	1.00	9.00	4.23	2.46
Relevance	1-7	1.00	7.00	4.65	1.15
Undesirability	1-7	1.00	7.00	5.28	1.43
Controllability	1-7	1.00	7.00	4.16	1.61
Anticipation	1-7	1.00	7.00	4.51	1.69
Length	1-7	1.00	7.00	3.08	1.71
Changeability	1-7	1.50	7.00	4.51	1.14
Self-esteem	1-7	1.00	7.00	3.02	1.53
Sense of loss	1-7	1.00	7.00	2.64	1.50
Optimism	1-7	1.00	7.00	4.47	1.24
Self-efficacy	1-7	1.00	7.00	4.76	1.11
Self-identity	1-7	1.00	7.00	3.49	1.47
Threat	1-7	1.00	7.00	2.18	1.42
Self-blame	1-7	1.00	7.00	3.48	1.77
Blame for others	1-7	1.00	6.33	2.62	1.41
Coping effectiveness	1-7	1.67	7.00	4.83	1.07
Coping satisfaction	1-7	1.00	7.00	4.83	1.10
Stress reduction	1-7	1.00	7.00	4.80	1.02

Variables	Range	Minimum	Maximum	Mean	Standard deviation
Threat emotions	1-5	1.00	5.00	2.16	1.05
Harm emotions	1-5	1.00	5.00	1.73	.81
Challenge emotions	1-5	1.00	5.00	2.26	.102
Benefit emotions	1-5	1.00	5.00	2.22	1.08
Active coping	1-5	1.00	5.00	2.85	1.07
Planning	1-5	1.00	5.00	3.10	1.11
Suppression of competing activities	1-5	1.00	5.00	2.70	1.11
Restraint coping	1-5	1.00	5.00	1.99	.90
Instrumental social support	1-5	1.00	5.00	2.07	1.12
Emotional social support	1-5	1.00	5.00	2.43	1.17
Positive reinterpretation	1-5	1.00	5.00	2.56	.96
Acceptance	1-5	1.00	5.00	2.93	.96
Venting of emotions	1-5	1.00	5.00	2.02	1.11
Turning to religion	1-5	1.00	5.00	1.52	.95
Mental disengagement	1-5	1.00	4.25	1.71	.68
Behavioral disengagement	1-5	1.00	4.50	1.35	.61
Denial	1-5	1.00	4.75	1.24	.48
Alcohol/drug disengagement	1-5	1.00	5.00	1.14	.50
Femininity	1-5	2.61	4.16	3.51	.32
Masculinity	1-5	2.49	4.50	3.41	.38

* Values represent the participants' responses at Time 2.

IMAGE EVALUATION
TEST TARGET (QA–3)

150mm

6"