

A Sociological Perspective on Stress, Health, and Coping, and an Examination of a
Proposed Coping Framework: The Coping Repertoire Approach

by

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ABSTRACT

Coping is understood to be a protective measure against internal or external demands perceived as stressful. As such, mental health outcomes are partially dependent on the choice of coping strategies one employs. The seminal work of Folkman and Lazarus (1984) provides the conceptual categories and theory which frames the stress-coping relationship, while Keyes' (2005) 'complete state model of health' guides the conceptualization and interpretation of health and well-being. The study's data come from the Survey on Health and Well-Being (Peter, 2008), with a sample size of 1,245 undergraduate students. Using multiple regression, this project explores the hypothesis that coping will moderate the stress-health relationship, or that stress will modify the coping-health relationship. Furthermore, discriminant analysis was used to determine whether a new coping 'repertoire' classification could be derived from the Ways of Coping subscales. Results did not reveal an interaction effect between stress and coping. Findings were supportive of the proposed six category coping 'repertoire' classification.

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TABLE OF CONTENTS

Abstract	ii
Acknowledgements	iii
List of Tables	vi
List of Figures	vii
Chapter One: Introduction and Review of the Literature	1
1.1 Stress and its Measurement.....	5
1.2 Coping.....	11
1.2.1 Gender Differences and Coping.....	15
1.2.2 Other Concepts Related to Coping	17
1.2.3 Other Instruments to Measure Coping.....	19
1.2.4 Coping Traits vs. Coping Styles	21
1.3 Mental Health and Well-Being	22
1.4 Research Designs	26
1.4.1 Test of Coping as a Moderator Variable.....	28
1.5 Contributions from a Sociological Perspective.....	29
1.6 Chapter Summary	32
Chapter Two: Methodology	33
2.1 Sample.....	33
2.2 Measures	36
2.3 Statistical Models.....	40
2.3.1 Model #1 – Coping as a Moderator of the Stress-Health Relationship	41
2.3.2 Model #2 – Coping ‘Repertoire’ Classification.....	42
2.4 Hypotheses	46
Chapter Three: Results	50
3.1 Bivariate Analyses	50
3.2 Multivariate Analyses	53
3.2.1 Test of Model #1 – Coping as a Moderator of the Stress-Health Relationship	53
3.2.2 Test of Model #2 – Coping ‘Repertoire’ Classification.....	59
3.3 Summary of Findings.....	67

Chapter Four: Discussion & Conclusion	72
4.1 The Effects of Coping and Stress on Health.....	72
4.1.1 Classifying Coping Styles.....	72
4.1.2 Relationship Between Stress and Coping	74
4.2 Gender Differences	76
4.3 Discussion of Other Findings.....	77
4.3.1 Subjective vs. Objective Measure of Stress.....	77
4.3.2 Benefits of Using Keyes' Model of Mental Health	78
4.4 Limitations	79
4.5 Future Research Implications	81
4.6 Implications for Policy.....	82
4.7 Conclusion	83
Appendices	
Appendix A: Univariate output (all variables).....	86
Appendix B: All items used to calculate mental health index	87
Appendix C: Model #1 multiple regressions excluding highly correlated terms	89
Appendix D: Additional SPSS output from the Discriminant Analysis.....	90
References	94

LIST OF TABLES

Table 1.1: Description of the Ways of Coping Scales	14
Table 1.2: Definitions of High Scorers on Theory-Guided Dimensions of Well-Being ...	24
Table 1.3: Definitions of Keyes' Five Factors of Social Well-Being.....	26
Table 2.1: Demographics of the Overall Sample.....	34
Table 2.2: Ways of Coping Subscales with Associated Reliability Statistics	39
Table 2.3: Varimax Rotated Component Matrix for Emotion-Focused and Avoidant Subscales.....	44
Table 3.1: Descriptive Statistics and t-tests for Major Independent Variables Split by Gender.....	50
Table 3.2: Correlation Matrix with Dependent and all Major Independent Variables	52
Table 3.3: Simple Regression Models for Each Coping Style Including Sex, Stress, and Interaction Terms	54
Table 3.4: Overall 3-step Regression Model Including all Coping Styles and Their Interaction Terms with Stress	56
Table 3.5: Regression Model Including Stress and all Coping Subscales (males only)....	57
Table 3.6: Regression Model Including Stress and all Coping Subscales (females only).	57
Table 3.7: Standardized Canonical Discriminant Function Coefficients.....	60
Table 3.8: Predicted Group Membership Classification Results	62
Table 3.9: ANOVA Output; Differences in Stress Levels by Coping Categories.....	63
Table 3.10: ANOVA Output; Differences in Health Levels by Coping Categories.....	63
Table 3.11: ANOVA Output; Differences in Health Levels by Coping Categories (Controlled for High & Low Stress)	64
Table 3.12: Regression Model Including Sex and Adaptive Coping Scale on Subjective Stress.....	65
Table 3.13: Regression Model Including Sex, Stress, and Adaptive Coping Scale on Mental Health.....	66
Table 3.14: Regression Model with Dummy-Coded Coping Categories and Stress on Mental Health.....	67
Table 4.1: Summary of hypotheses and whether evidence indicates support or rejection.....	79

LIST OF FIGURES

Figure 1.1: Levels of Psychosocial Functioning.....	25
Figure 2.1: Model #1 – Coping Styles as a Moderator of the Stress-Health Relationship (Split by Gender).....	42
Figure 2.2: Model #2 – Direct Effects of Coping Style on Health, and Stress as a Modifier of the Coping-Health Relationship	46
Figure 3.1: Graph of Canonical Discriminant Functions and Group Centroids	61
Figure 3.2: Mean Health Scores by Coping Categories for all Respondents, and Separated by High and Low Stress Levels	65

CHAPTER ONE: INTRODUCTION AND REVIEW OF THE LITERATURE

Mental health is essential for living a full and productive life, and is recognized as one of the crucial components of overall health (Health Canada, 2009). A flourishing individual, according to the complete state model of health proposed by Corey Keyes (2005), is one who rates positively in terms of their emotional, psychological, and social health while simultaneously remaining free of mental disease. However, only one in five adults can be classified as flourishing (Keyes, 2006), while a similar proportion will be diagnosed with a mental health disorder at some point in their lives (CMHA, 2011). Clearly, there is a great need for research into the factors that ameliorate mental health outcomes.

Stress and coping are interrelated concepts that are significant and substantial correlates of mental health. A large literature spanning four decades shows effective coping precipitates positive health outcomes whereas ineffective or maladaptive coping exacerbates mental disease and may lead to declines in overall health (Lazarus, 1993; Park, 2011). Furthermore, stress is universally understood to have a negative impact on mental health due to the taxing demands it places on the biological, psychological, and social systems of the individual. While the direct relationships of stress and coping on health are fairly well understood, the connection between stress and coping is not as clear. Theoretically, coping is a protective measure against taxing internal and/or external demands (Lazarus & Folkman, 1984). Following this premise, it is reasonable to expect that stress levels predict coping behavior, or that coping behavior modifies the stress-health relationship in some way. However, this has not generally been the case in

empirical studies. The confusing stress-coping connection motivates one of the research efforts in the current project.

A second major focus of this study centers on classifying coping behaviors. Conceptual clarity and consistency has been a large hurdle for coping researchers since the early 1980s. The distinction between problem-focused and emotion-focused coping is perhaps the most influential contribution in the literature by (Lazarus & Folkman, 1984). While problem- and emotion-focused coping usefully describe two overarching psychological aspects of coping behavior – to manage external environmental stress or to mitigate the effects of internal psychological stress – the distinction is less applicable for categorizing populations. Problem-focused and emotion-focused coping do not constitute mutually exclusive categories, nor are they exhaustive in describing all coping behaviors. Indeed, avoidance has been empirically demonstrated as a third, often contrary force to the generally positive effects of problem- and emotion-focused coping. To advance the literature, this project develops a classification scheme to account for a wide range of coping strategies. This classification scheme is framed in the context of coping ‘repertoires’, which reflects the more realistic premise that individuals may select from a set of coping techniques at their disposal.

Finally, this project examines gender to detect any significant differences in stress, coping style, or health outcomes. The classical literature suggests that males are more prone to utilize and benefit from problem-focused coping, while females tend to favor emotion-focused strategies (Lazarus & Folkman, 1984). More recent research has questioned this assumption by testing two competing hypotheses: the situational hypothesis and the dispositional hypothesis (Tamres, Janicki & Helgeson, 2002). The

dispositional hypothesis asserts that males and females exhibit different coping patterns attributable to their biological make-up or histories of socialization. The situational hypothesis posits that males and females share similar coping patterns when controlling for types of stressful situation. This project generates evidence relevant to the dispositional/situational debate.

Originally, this study focused on answering the questions: “Do different coping styles moderate the effects of stress on mental health, and are there gender differences in this connection?” Exhaustive analyses showed conclusively that coping styles had no moderating effect in this sample for either males or females causing the project’s focus to abruptly shift. The research question shifted to: “What empirical evidence is there for differentiating coping styles into problem-focused, emotion-focused, and avoidant subgroups?”. With this question answered, the project moved to developing an evidence-based, mutually exclusive, and exhaustive classification scheme based on scores to the coping subgroups. The result is an empirically and theoretically defensible framework for classifying coping styles that lends itself to future research opportunities.

Data for this project were taken from the Survey on Health and Well-Being (Peter, 2008) conducted at the University of Manitoba in Fall of 2008. The sample consists of 1,245 students enrolled in introductory Sociology courses who voluntarily completed the survey during regular course hours. Analyses consisted of a series of multiple regression models as prescribed by Baron and Kenny (1986) to determine whether a moderating effect of coping on stress could be found. When no proof of any interaction effects could be generated, the project shifted focus to determine whether empirical evidence supported the aforementioned classification framework of coping

styles. Principal Component Analysis showed that the Ways of Coping subscales (Folkman & Lazarus, 1988) could indeed be differentiated as problem-focused, emotion-focused, and avoidant strategies. Furthermore, individuals prone to use a particular coping strategy were said to possess that technique as part of their coping 'repertoire'. Depending on the combination of techniques in one's repertoire, individuals were placed into one of six categories of coping styles. The placement of individuals in these categories was verified by discriminant analysis, and evidence for the validity of the categories overall was generated through ANOVA and multiple regression analyses.

The remainder of the thesis is arranged as follows. This chapter concludes with a review of the stress, coping, and health literature, elucidating the major concepts and theories that frame the empirical research. This section also highlights the potential sociological contributions from the current project. Chapter two describes the project's methodology including the univariate sample statistics, the techniques used for the bivariate and multivariate analyses, and the hypotheses developed to guide the research. Chapter three reports all bivariate and multivariate findings from the statistical analyses. Chapter four discusses the findings in the context of the stress-coping literature, and concludes with suggestions for future areas of research.

LITERATURE REVIEW

In this section, the important literature on stress, coping, and mental well-being is reviewed. In addition to discussing the major concepts in the stress and coping literature, specific attention is paid to the theoretical connections between stress and health, and the mediating effects of coping on that relationship. Since much of the stress and coping

literature is produced within the discipline of psychology, relevant aspects of sociological and social-psychological theory will be highlighted whenever possible.

1.1 Stress and its Measurement

In the research literature, stress is a complex and multi-faceted concept with myriad definitions and corresponding measurement instruments. One basic definition characterizes stress in terms of stimulus and response and considers stressful stimuli as “events impinging on the person” (Folkman & Lazarus, 1984). Building on this definitional platform, Thoits (1995) defines stress as “any environmental, social, or internal demand which requires the individual to readjust his/her usual behavior patterns”. Furthermore, she identifies three major types of stressors: (1) *Major life events* such as divorce or the birth of a child; (2) *Chronic strains* such as severe injury, the difficulties of medical school, or living in poverty; (3) *Daily hassles* which includes persistent though mundane events such as traffic jams, daily chores, and the like. This threefold categorization has gained wide recognition among stress researchers. However, there is much debate as to the relative importance and validity of each type of stress.

One of the most energetic debates in the literature is whether stress should be measured as an “objective” fact of *a priori* knowledge or as a “subjective” rating as defined by the individual. In practice, the dominant approach to stress measurement has relied on the normative judgments of researchers about the imposed demands of life (Lazarus, 1990). Examples include the death of a loved one or the loss of a job. In other words, past events can be tallied through a self-report questionnaire and summed to produce an ostensibly objective indicator of stress. The opposing view is to say that psychological stress “depends on an appraisal by the person that the person-environment

relationship at any given moment is one of harm, threat, or challenge” (Lazarus, 1990: 4). This is in line with Lazarus and Folkman’s (1984) earlier writings on the importance of subjective appraisal in the stress process.

The idea of ‘major life events’ has provided the basis for stress measurement in a legion of studies over the past several decades. Perhaps the earliest scale of this type is the *Social Readjustment Scale* (Holmes & Rahe, 1967), which assumes a normative subjectivity about the perceived stressfulness of various uncommon though impactful life events. Similar measures include: *The Adolescent Perceived Events Scale* (Compas, Davis, Forsythe & Wagner, 1987); *The Health and Daily Living Form* (Moos, Cronkite, Billings & Finney, 1982); *The Adolescent Life Event Scale* (Brooks-Gunn & Warren, 1989) to name a few. Such instruments have flourished not necessarily because of their strong theoretical grounding – indeed, most if not all life event scales are loosely based on theory if not entirely atheoretical – but instead, because statistical correlations have been consistently shown between life events and personal illness (Lazarus, 1990).

The logic underlying ‘life events’ or ‘eventful changes’ as a measure of stress tacitly entails that individuals are displaced from their homeostatic positions by major events. Such displacement disturbs their natural systemic equilibrium thus producing unwanted stress (Pearlin, Menaghan, Lieberman & Mullan, 1981). Consider one who suddenly loses his or her job through a round of lay-offs. Job loss often creates a situation of financial insecurity which may further impinge upon feelings of personal worth and adequacy, forcing the now unemployed person to strive toward a newly defined subjective and/or objective version of normalcy. It has also been proposed that the impact of a single major event is perhaps best understood as triggering a series of many smaller

hassles that cumulate to form an overall measure of stress (Kanner, Coyne, Schaefer & Lazarus, 1981). In addition, Pearlin and colleagues (1981) suggest that major stressful events may intensify the effects of already occurring hassles or chronic life strains.

Despite their wide use, there is some debate on whether major life events constitute a valid technique for stress measurement. Schroeder and Costa Jr. (1984) argue that numerous studies have produced inflated results due to a contamination between instruments that measure stress via life events, and instruments that measure health or other stress-dependent variables. Specifically, the authors cite examples of previous studies where items such as “major personal illness or injury” likely contaminated dependent constructs such as concurrent health (p. 854). Their results show that after removing the so-called effects of contamination, correlations between stress and health dropped beneath adequate significance levels, leading them to conclude that either illness is not correlated with stress, or life events do not constitute an appropriate measure of stress. Lazarus (1990) summarizes the more generally accepted criticisms in saying that major life events are, by definition, relatively rare, thus causing inaccuracy and inconsistency in measurement. Second, stress caused by life-events presumably arises from an individual’s reaction to change, although stress can also originate through chronic and persistent strains. Third, there is potential danger in assuming that all life events have a globally shared significance. And finally, life events measurement tends to downplay the complexity, and process-oriented approach to understanding stress adopted by many modern researchers. These criticisms notwithstanding, there continues to be a wide acceptance and reliance on life-event scales by the research community as a valid stress measure. This is unlikely to diminish or wane in the near future, especially

considering the great complexity faced by the stress-as-process researchers in developing more advanced instruments to collect data relevant to their proposed paradigm.

Chronic strains represent a second, distinct source of measurable stress that stems from a consistent, long-term state of discomfort not necessarily attributable to discrete events. Such stress can arise due to debilitating illness or injury, financial despair, or the disparities that exist due to social roles originating from gender, race, and other socialized attributes (Thoits, 1995). A study by Wolf (1994) highlights the problems associated with the taxing lifestyles endured by students over the course of four years in medical school. Excessive demands on students' abilities to memorize information, excel during examinations, and handle the costs associated with a medical degree prompted many students to forgo interpersonal relationships and to ultimately experience isolation and alienation from family and peers. In addition, many students reported developing cynical and hedonistic orientations leading to elevations in depression and anxiety. In a similar way, Herman-Stahl, Stemmler and Petersen (1995) focused on the strains associated with adolescent social development. They concluded that health outcomes were largely a function of a youth's ability to engage in problem-solving coping as opposed to strategies based mainly on avoidance.

Other studies have investigated the hypothesis that stress due to chronic strains is greatly modified by other major life events. For instance, Pearlin and colleagues (1981) found that unwanted job disruptions played a significant role in exacerbating other role strains. As the authors explain:

...evidence of increased strains can be discerned in marriage, in parenthood, and, among those who are occupationally reestablished, in work life. However, there is one area that is

especially likely to be affected by disrupted work; this, of course, is the economic problems of households (Pearlin, et. al, 1981: 343-344).

This speaks to the complexity that is often hidden within the process of stress experienced in everyday life. In turn, it shows the importance and viability of the phenomenological approach to understanding the stress appraisal process espoused by Lazarus & Folkman (1984). For instance, otherwise trivial daily interactions may be perceived more negatively when under the looming threat of financial pressure.

The third major conceptualization of stress regards the seemingly minor, though persistent, *hassles* that we as individuals endure on a daily basis. Kanner and his colleagues (1981) define hassles as: “the irritating, frustrating, distressing demands that to some degree characterize everyday transactions with the environment” (p. 3). Many researchers have come to accept that daily hassles are a necessary component of the stress process. The following quote illustrates this point:

To equate environmental stress stimuli with major catastrophe or change is, in our view, to accept a very limited definition of stress. Our daily lives are filled with far less dramatic stressful experiences that arise from our roles in living... Although daily hassles are far less dramatic than major changes in life..., they may be even more important in adaptation and health (Lazarus & Folkman, 1984: 13).

Indeed, daily hassles and corresponding chronic strains have been lauded in many studies as providing a more valid and responsive measurement of stress in relation to psychological health. However, to incorporate this methodology requires an exponential increase in data collection resources, as in the ten monthly data collection points utilized by Kanner et al. (1981), and the similar four month study on major versus minor life events by Monroe (1983).

While the debate is by no means resolved, evidence is beginning to mount that daily hassles are stronger statistical indicators of stress (i.e. depressive symptoms) than major life events. Studies using structural equation modeling have shown hassles to: 1) associate more strongly with stress than life events; 2) interact with the causal path between life event stress and psychological symptoms (Lazarus, 1990). A study by Wagner, Compas and Howell (1988) found evidence to support the hypothesis that negative daily events mediated the relationship between major life events and stress. Kessler (1997) also points to a number of studies suggesting that “enduring stressful sequelae of stressful events account for most of the effects of life events on major depression” (p. 196). One point of criticism should be noted, however, which is that the vast majority of studies invariably have utilized psychological symptomatology, especially depression, as the dependent variable of choice. The current study plans to make a contribution to the literature by examining stress, as measured by major life events, in relation to well-being as measured by the positive constructs of emotional, psychological, and social health.

As previously mentioned, the subjective appraisal process is paramount to measuring and understanding the individual’s response to stress (Lazarus, 1990). It also relates directly to one of the most famous theorems in sociology which states: “If men define situations as real, they are real in their consequences” (Thomas & Thomas, 1928). The aptly named Thomas Theorem speaks to the importance of subjective interpretation to real-world outcomes, including the degree of stress a person experiences. As much as possible, this project will emphasize subjectively defined measurements of stress.

1.2 Coping

An essential and oft-quoted definition of coping is given as one's "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984: 141). Crucial to the comprehension of this definition is that coping is "process-oriented rather than trait-oriented", is limited to conscious efforts to *manage* stress and not necessarily attain situational mastery, and is not to be confounded with the resultant outcomes due to stress. While the research literature contains a good deal of emphasis on individual psychology, socio-cultural factors also play a role in constraining the types of coping responses that are possible in a given situation. For example, Lazarus & Folkman (1984: 166-167) describe a group of low-income mothers who found little support from local agencies in dealing with the difficulties of childcare. Several of these mothers interpreted their lack of success as an indication of their own personal failure, and all were forced to devise new strategies within attainable parameters. Though the overall processes described here are by no means fully understood, it is certainly known that coping methods represent potentially important mediators and moderators of the impacts of stress on social adjustment and psychopathology (Compas, Connor-Smith, Saltzman, Thomsen & Wadsworth, 2001).

To examine the relationship between stress, coping, and health outcomes, a number of generally accepted conceptualizations of coping techniques have been established by the research community. One of the broadest distinctions of coping strategies is between problem-focused and emotion-focused forms (Lazarus & Folkman, 1984; Thoits, 1995). Problem-focused coping can be understood as those efforts directed

at “defining the problem, generating alternative solutions, weighting the alternatives in terms of their costs and benefits, choosing among them, and acting” (Lazarus & Folkman, 1984: 152). Emotion-focused coping, on the other hand, consists of “cognitive processes directed at lessening emotional distress and includes strategies such as avoidance, minimization, distancing, selective attention... and wresting positive value from negative events” (p. 150). Other similar classification schemes exist such as the distinction between ‘approach’ coping, where a problem is faced squarely, and ‘avoidance’ coping, where attention is diverted away from a problem (Steiner, Erickson, Hernandez & Pavelski, 2002). Furthermore, some researchers have differentiated between problem-focused, emotion-focused, and avoidant coping as three distinct concepts (e.g. Tennen, Affleck, Armeli & Carney, 2000).

Generally speaking, much of the literature agrees that problem-focused coping typically correlates negatively with internalizing and externalizing disorders whereas emotion-focused coping tends to be positively correlated (Hampel & Petermann, 2006). However, there is good evidence to suggest that particular coping strategies are not beneficial in all circumstances and, indeed, a strategy may be helpful in one situation yet harmful in another (Thoits, 1995). It has been found that the vast majority of individuals incorporate a variety of problem and emotion-focused coping techniques. Thoits contends that more severe stressors will tend to invoke a greater range of strategies. Additional support for this position is provided by Folkman and Lazarus (1980) who report that less than 2% of their middle-aged community sample used a single coping strategy. The combination of adaptive problem and emotion-focused coping has been defined by some as ‘approach’ coping, which describes direct efforts to squarely face sources of stress.

The converse is ‘avoidant’ coping, referring to conscious decisions to avoid, ignore, or otherwise postpone direct confrontation of a stressful situation. Research has shown approach coping has adaptive, positive effects on mental health, whereas avoidant coping tends to produce maladaptive, harmful effects (Steiner, Erickson, Hernandez, & Pavelski, 2002).

Some confusion exists in the literature concerning the definitions of certain categories of coping, especially between emotion-focused and avoidant coping. Tamres, Janicki, and Helgeson (2002) lodge the criticism that study results are often difficult to compare because different researchers operationalize coping strategies in different ways. In their study of stress and sociotropy, Connor-Smith and Compas (2002) emphasize the distinction between engagement coping (consciously dealing with a situation or with emotions) and disengagement coping (distancing oneself from a stressor or related feelings). Their results showed that primary engagement coping (equatable to problem-focused coping) and secondary engagement coping (similar to emotion-focused coping) led to positive mental health outcomes, whereas avoidance was strongly correlated with health decline.

Finer distinctions have also been drawn between the conceptual categories of coping strategies. The Ways of Coping Questionnaire (Folkman & Lazarus, 1988) is originally a 66-item scale subdivided into eight categories which include the following labels: Confrontive Coping, Distancing, Self-Controlling, Seeking Social Support, Accepting Responsibility, Escape-Avoidance, Planful Problem Solving, and Positive Reappraisal (see Table 1.1 for a further description). Folkman & Lazarus describe these eight as empirically derived scales that result from factor analysis of several datasets.

This contrasts with earlier scales described as rationally derived, which includes the now obsolete Ways of Coping Checklist. Rationally derived scales rely on the face validity of their items where items are “classified on the basis of raters’ judgments as being ‘problem-focused’ or ‘emotion-focused’” (Folkman & Lazarus, 1988: 5). Such scales were initially helpful in providing a foundation for elucidating the major concepts in coping research. However, these eventually gave way to more statistically sound and sophisticated classifications.

Table 1.1: Description of the Ways of Coping Scales (Folkman & Lazarus, 1988: 7)

Confrontive Coping	Describes aggressive efforts to alter the situation and suggests some degree of hostility and risk-taking
Distancing	Describes cognitive efforts to detach oneself and to minimize the significance of the situation
Self-Controlling	Describes efforts to regulate one’s feelings and actions
Seeking Social Support	Describes efforts to seek informational support, tangible support, and emotional support
Accepting Responsibility	Acknowledges one’s own role in the problem with a concomitant theme of trying to put things right
Escape-Avoidance	Describes wishful thinking and behavioral efforts to escape or avoid the problem.
Planful Problem Solving	Describes deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem
Positive Reappraisal	Describes efforts to create positive meaning by focusing on personal growth. It also has a religious dimension.

The dominant view in the current literature states that coping occurs in a dynamic relationship between individuals and their physical and social environment. This dynamism involves the personal, emotional, and psychological resources of the

individual within the constraints of external factors, such as socio-economic status and the quality of interpersonal relationships. Lazarus (1993) argues that people will use most, if not all, available coping strategies throughout a particular coping process. This view conveys a degree of complexity, and assumes the coping process to occur over a period of time. He further adds that emotion-focused coping predominates when stressful conditions are appraised as resistant to change, while problem-focused coping is primarily useful when a situation is deemed controllable. An illuminating example can again be drawn from Wolf's (1994) study of students coping with the stresses of medical school. As might be predicted, first year students would often turn to emotion-focused strategies and away from social supports when dealing with the psychological shock involved with the initial demands of their schooling. Over the course of four years, as was found in a retrospective study, problem-focused coping was used most frequently by graduating students.

1.2.1 Gender Differences and Coping

Gender is one of the most studied social-structural variables in terms of influencing coping responses to stress. Researchers have hypothesized that differences between male and female coping strategies arise due to biological factors, discrepancies in status, role differences, and differences in the class of stressors experienced by either sex. There has been a tendency for research to reflect the stereotypical notion that men benefit from problem-focused coping while women mainly use emotion focused strategies (Eschenbeck, Kohlmann & Lohaus, 2007). However, in fact there is a complexity in the stress and coping literature attributed to gender. Sociologically this

implies the possibility that coping responses are contingent upon gendered socialization within structures such as the workplace and the family.

One explanation for coping differences between males and females is that each gender tends to be exposed to different types of stressful situations. For instance, men are more likely to suffer ill-effects from unemployment and physical violence, whereas women are more likely to endure poverty, sexual harassment, and the burdens of caregiving (Helgeson, 2011). Since the adaptive effects of coping vary with the controllability of the situation, it is reasonable to conclude that problem-solving will most benefit men, and emotion regulation will most benefit women. However, this limited conclusion fails to consider how men and women would act when placed in similar situations.

In a review by Tamres, Janicki, and Helgeson (2002), the authors explore two competing hypotheses to explain gender differences: The *dispositional hypothesis* and the *situational hypothesis*. The dispositional hypothesis refers to the underlying theory that there are “characteristic differences between men and women and these differences are reflected in their coping choices”. The situational hypothesis attributes coping differences to the “different roles that men and women assume in society and the different stressors [they] face” (p. 5). Interestingly, Tamres et al. found that, after controlling for types of stressful situations, there is no evidence to suggest that men were more prone to problem-solving. In fact, women were likely to use more problem-focused and emotion-focused coping in nearly all circumstances, and men were shown to engage in more avoidance or withdrawal in some situations (p. 21). Their strongest finding was that women are much more likely to seek social support, although, because of conceptual inconsistencies, it is

difficult to determine whether this is an act of problem-solving, emotion-focused coping, or both. This finding is echoed by Eschenbeck, Kohlmann, and Lohaus (2007) who report that adolescent females seek social support more often than males.

Most research has had difficulty parsing out whether observed sex differences in coping styles are innate, or learned through socialization. Some research suggests that adolescent males and females differ in their stress-related physical symptoms with girls reporting more headaches and boys reporting more substance abuse and antisocial behavior (Wilson, Pritchard, & Revalee, 2005). In addition, research with infants and toddlers shows that females are more emotionally expressive (Tamres et al., 2002). However, it is widely accepted that coping strategies are learned throughout the life course (Folkman & Lazarus, 1984: 171-173) and can potentially change at any point from childhood to old age. Furthermore, recent research is beginning to explore whether concepts like status, masculinity/femininity, and role expectations are more accurate predictors than sex (Helgeson, 2011). This suggests that biological differences in coping, whether extant or not, pale in comparison to socialized norms and gender roles, and to the structural significance of gender in everyday social life.

1.2.2 Other Concepts Related to Coping

In addition to the coping strategies that are available to individuals during stressful situations, it is important to consider other potential moderating factors such as coping styles, social resources, and personality traits. Although these take on a secondary role in the framing of most research, they do provide an additional layer of statistical and theoretical complexity. For instance, coping style refers to “broad, pervasive,

encompassing ways of relating to particular types of people... or to particular types of situations” (Folkman & Lazarus, 1984: 120). Research by Compas, Malcarne, and Fondacaro (1988) has touched upon the need for studying “cross-situational consistency or variability” in the coping efforts of adolescents, stating that inconsistent research instruments often make longitudinal analysis difficult. It appears that coping style, separate from actual coping efforts, is thought to affect overall stress-contingent health outcomes.

Social support represents another potential modifier to stress-related health outcomes that may in fact also have certain direct effects. It appears that family-based and peer-based social support may serve two main functions to individuals coping with stress. As noted by Compas (1987), “social support is typically viewed as a form of coping or a factor that facilitates coping” (p. 395). First, close relationships with others are a potential resource where an individual can turn to for advice, where solutions to problems can be constructed, and where self-disclosure and emotional release can occur (Herman-Stahl & Petersen, 1996). In this sense, social supports provide an immediate buffer against the direct consequences of stress. Secondly, being attached to others in a social network is generally considered essential for people to feel good about themselves and their own lives (Lazarus & Folkman, 1984). It is from here that individuals are socialized to develop self-esteem, feelings of belongingness, to learn appropriate social skills, and where a sense of stability is supplied (Herman-Stahl & Peterson, 1996). Of course, the possibility always exists that dysfunctional social networks can bring about additional stress and exacerbate negative outcomes, which points to the importance of

quality and not quantity of social support in this aspect of the research (Billings & Moos, 1981).

Personality traits comprise a third modifying factor that has received attention in the coping literature. In particular, the level of optimism exhibited by individuals has been a key concept in numerous studies. One hypothesis states that optimistic people will tend to develop more extensive and supportive social networks, which will in turn lead to more positive outcomes in coping with stress (Brissette et al., 2002). A second possibility is that optimists gravitate towards more effective coping mechanisms. It has been found that optimism is correlated with active, problem-focused coping efforts, in addition to a correlation with having a more diverse palette of coping responses. Additionally, optimism has been found to be “inversely correlated with emotional expression and disengagement with goals” (Herman-Stahl & Petersen, 1996).

1.2.3 Other Instruments to Measure Coping

The Ways of Coping Questionnaire (Folkman & Lazarus, 1988) remains one of the most widely used coping measurement instruments despite the proliferation of competing instruments. In a meta-analysis of studies between 1990 and 2000 by Tamres, Janicki, and Helgeson (2002), the authors found that roughly one in every five studies of gendered coping behavior utilized the Ways of Coping scales. The continued popularity of the Ways of Coping Questionnaire into the 21st century is verified by Ironson and Kremer (2011) who note that the Ways of Coping Questionnaire and the COPE scale (Carver, Scheier & Weintraub, 1989) are by far the most widely used coping research instruments.

One major reason for the longevity and acceptance of the Ways of Coping Questionnaire is soundness of its conceptual categories. The distinction between emotion-focused and problem-focused coping has permeated virtually every related study since the mid-1980s. For instance, the COPE inventory (Carver, et al., 1989) included a subscale entitled ‘active coping’ which they describe as being “very similar to what Folkman and Lazarus (1984) and others term problem-focused coping” (p. 268). Furthermore, additional subscales are delineated by their inclusion in either the emotion-focused or problem-focused subsets¹.

The main contribution of the COPE inventory was the creation of 13 theoretically based subscales of coping behavior. The biggest criticism lodged by Carver and his colleagues against earlier coping scales, including the Ways of Coping, is that they were derived empirically and not theoretically (Carver, et al., 1989). That is to say, earlier scales included an array of potential coping responses, but item groupings were assigned based on the results of *a posteriori* factor analysis. The obvious weakness of this approach is the high likelihood of future empirical studies arriving at different subscale classifications. This point is repeated by Endler and Parker (1990a) who argue out that many empirical studies suffer from low indicators of internal reliability, so that researchers are faced with the prospect of conducting their own factor analysis with the intention of defining new categories. In contrast, subscales of COPE were designated *a priori*, with each scale comprised of four individual items. While this likely represents an improvement to coping research, it is not without its psychometric weaknesses. Namely,

¹ With the exception of 3 scales which fall outside of the Emotion-Focused/Problem Focused dichotomy. These are entitled ‘focusing on and venting of emotions’, ‘behavioral disengagement’, and ‘mental disengagement’.

each COPE subscale is composed of only four individual items, and secondly, factor analysis typically reveals low to moderate levels of internal reliability (Endler & Parker, 1990a).

One final coping measurement instrument is the Coping Inventory for Stressful Situations (Endler & Parker, 1990b). It is described by Parker and Endler (1992) as a “reliable and valid multidimensional coping measure” which arose in response to the relatively ‘unreliable’, ‘unstable’, and ‘unsubstantiated’ scales previously developed. Through a series of survey experiments with undergraduate students, factor analysis of the CISS generated three distinct categories labeled task-oriented coping, emotion-oriented coping, and avoidance-oriented coping. While the authors indicate that the CISS subscales have very high reliability statistics (alpha coefficients ranging from 0.83 to 0.90), their proposed instrument does little to expand the theoretical bounds of the coping literature given the inadequate sample.

1.2.4 Coping Traits vs. Coping Styles

Two broad formulations of coping are typically utilized in the research literature: coping traits and coping styles. Coping traits refer to the strategies actually employed by individuals in specific situations to deal with the effects of stress. Coping styles are described by Carver and colleagues (1989) as “framed in terms of what the person *usually* does when under stress” (p. 270). In other words, these formulations distinguish between what a person did during a specific *coping episode* as compared to a specific *period of time*.

In practice, measurement of traits or styles is primarily a function of scope and degree. For example, coping traits of adolescents were studied by Compas, Malcarne and

Fondacaro (1988) who asked their subjects to describe a stressful interpersonal event in addition to a stressful academic event, who were then instructed to write down ways they could have handled these events, and the strategies they actually used. In comparison, a study of high school students by Steiner et al. (2002) utilized a general measure of stress, and classified their subjects into one of four categories based on their proclivity for employing different coping strategies². Using this method they were able to focus on the coping styles of their study participants.

1.3 Mental Health and Well-Being

In the past few decades, there has been a good deal of progress made in the theorizing and conceptualization of health. The current project focuses on the advancements in the field made by Carol Ryff (see Ryff, 1989) and Corey Keyes (see Keyes, 1998). Both authors have advanced the measurement of health by proposing theoretically grounded, multidimensional instruments that include the social, emotional, and psychological aspects of mental well-being. This represents an improvement over the common portrayal of well-being as the absence of negative psychological conditions such as symptoms of depression or anxiety (Keyes, 1998). The proposed alternative is to operationalize health as a series of positive indicators that are separate from mental pathology.

The main argument offered by Ryff (1989) is that previous psychological instruments to measure well-being were too narrow in scope, and were lacking in substantial undergirding theory. She argues that many of the recent major empirical

² Subjects could score high or low in approach and/or avoidance coping. They were classified as either: Avoidant (high avoidance, low approach), Approach (high approach, low avoidance), Broad (high approach, high avoidance), or Narrow (low approach, low avoidance).

findings prior to 1989, such as the independence of positive and negative affect, were essentially serendipitous results from studies designed for other purposes. A similar argument is lodged against the Life Satisfaction Index (Tobin & Neugarten, 1961) which, though it was designed to differentiate persons who were successfully aging from those who were not, became one of the most widely used instruments to measure psychological well-being. The overall point being that the literature on psychological well-being originated from an atheoretical position, and much of the work continued to suffer from a paucity of theoretical development.

The core issue is that researchers in psychology concentrate on measuring individual levels of happiness. Ryff's (1989) contention is that true life satisfaction is more based on whether one achieves to their true life's potential, of which happiness is merely a short-term emotional state. With this as her theoretical starting point, Ryff proceeds to operationalize six dimensions of personal well-being: Self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (see Table 2.2 for definitions). Empirical testing on a sample of 321 adults shows each dimension possesses adequate psychometric properties thus serving as a starting point for future empirical studies.

Table 1.2: Definitions of High Scorers on Theory-Guided Dimensions of Well-Being (Ryff, 1989: 1072)

Self-Acceptance	Possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self including good and bad qualities; feels positive about the past.
Positive Relations With Others	Has warm, satisfying, 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.
Autonomy	Is self-determining and independent; able to resist social pressures to think and act in certain ways; regulates behavior from within; evaluates self by personal standards.
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.
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.
Personal Growth	Has a feeling of continued development; sees self as growing and expanding; is open to new experiences; has sense of realizing his or her potential; sees improvement in self and behavior over time.

Sociologist Corey Keyes (1998, 2005, 2006) also begins with the question of “what constitutes a well-lived life?”. His central point of contention is with the predominantly psychiatric notion that “measures of mental illness and health form a single bipolar dimension” (Keyes, 2005: 539). In other words, an individual diagnosed with depression or anxiety is deemed mentally unhealthy, while another without diagnosed pathology is presumed healthy. Keyes argues that indicators of mental illness are insufficient in determining whether an individual is healthy, and suggests that they be taken together with positive indicators of mental health to formulate a complete picture. In Keyes’ view, the complete state model of mental health includes a hierarchical

arrangement of conditions ranging from “mental illness and languishing” to “completely mentally healthy” (see Figure 1.1).

Figure 1.1: Levels of psychosocial functioning (Keyes, 2005: 541)



At the two extremes of Keyes’ model are conditions labeled languishing and flourishing. Languishing is “a state of emptiness in which individuals are devoid of emotional, psychological, and social well-being” whereas flourishing is described as “a state of mental health in which people are free of... mental disorders such as major depression and filled with high levels of emotional, psychological, and social well-being” (Keyes, 2006: 7). A languishing individual is not necessarily mentally ill, and a person diagnosed with mental illness does not necessarily function worse than one without illness. This creates a dual continua between high and low levels of mental health, and the presence or absence of mental illness.

For Keyes, mentally healthy individuals are those who rate positively in terms of emotional, psychological, and social well-being. To expand on this concept, emotional well-being is measured by the presence of six different symptoms of positive affect. These symptoms are: a) cheerful; b) in good spirits; c) extremely happy; d) calm and peaceful; e) satisfied; and f) full of life (Keyes, 2005). Psychological well-being is measured by Ryff’s (1989) instrument previously discussed. And social well-being is operationalized by Keyes’ (1998) five-factor scale which measures the degree to which individuals experience social integration, social acceptance, social contribution, social

actualization, and social coherence (see Table 1.3 for definitions). Together, this series of instruments can be used to indicate overall levels of psychosocial functioning.

Table 1.3: Definitions of Keyes' Five Factors of Social Well-Being (Keyes, 1998: 122-123)

Social Integration	The evaluation of the quality of one's relationship to society and community.
Social Acceptance	The construal of society through the character and qualities of other people as a generalized category.
Social Contribution	The evaluation of one's social value which includes the belief that one is a vital member of society, with something of value to give to the world.
Social Actualization	The evaluation of the potential and the trajectory of society. The belief that society has potential which is being realized through its institutions and citizens.
Social Coherence	The perception of the quality, organization, and operation of the social world which includes a concern for knowing about the world.

1.4 Research Designs

Two approaches to concept construction are prevalent in the literature: 1) Studies that rely exclusively on a priori assumptions; 2) Studies, to borrow a phrase from Wagner and colleagues (1988), which incorporate an "empirical, idiographic approach" to how concepts are constructed. Both approaches have been used successfully to create useful models for examining the stress and coping process. The idiographic approach fits more naturally with the tenets of phenomenology, while *a priori* studies tend to rely heavily on the validity of extant empirically derived scales. This philosophical difference has proven to have real impacts on such crucial conceptual distinctions as: 1) What constitutes a major life event vs. a daily hassle? 2) Whether a particular event is deemed stressful and

to what extent? These examples speak to the importance of being mindful of the dynamic and fluid nature of real-life coping. Strong research should attempt to approximate this dynamism. The following studies illustrate the strengths and weaknesses of both *a priori* and idiographic research designs.

An example of *a priori* research is the study of daily hassles and major life events by Kanner et al. (1981). Daily hassles were operationalized by a 117-item scale meant to measure the persistent difficulties faced in day to day urban life. Examples include “misplacing and losing things, declining physical abilities, not enough time for family, concerns about owning money, and pollution” (p. 8). Additionally, a separate scale was used to measure stress due to major undesirable life events. Such scales rely on their face validity to generate useful data, and benefit greatly from refinement over numerous trials in research projects. However, a deficiency of these measures is the arbitrariness of their distinction as “major” or “hassle” type events. In using such instruments, researchers make the precarious assumption that listed events are in fact stressful. Thus, the ability to capture the subjective sentiments of respondents is greatly reduced.

An alternative, idiographic, approach was used by Wagner, Compas and Howell (1988) to differentiate between “major events” and “minor hassles”. The study was idiographic in the sense that conceptual distinctions were derived entirely from data ascertained from the respondents. As well as including a self-report measure of 210 different life-events, respondents were also asked to rate stressful events in terms of their impact. Those events rated by subjects as a 6 (much impact), and as occurring ‘several times a year’ or less, were considered major. Conversely, events occurring at least ‘once a month’ were categorized as hassles. This reliance on subjective classification is a more

theoretically accurate and robust method of concept creation. Though there still remains an element of arbitrary decision-making, it allows for a more flexible, phenomenological ‘reality’ framework for conducting research.

1.4.1 Test of Coping as a Moderator Variable

A moderator is defined as a “third variable that affects the zero-order correlation between two other variables” (Baron & Kenny, 1986). In terms of statistical analysis, a moderator can be represented as an interaction between a key independent variable and an appropriate specifying variable. A prime example comes from the work of Connor-Smith and Compas (2002) who tested the moderating effects of coping strategies on the relationship between sociotropy and mental health. The authors’ analysis included sociotropy, coping strategies and cross-products between the two regressed on depression as the dependent variable. Their key findings hinged upon the significance and direction of the cross-product terms in the regression output as they explain here:

In these models, a significant interaction term with a negative beta would suggest that an effective coping strategy is buffering the relationship between sociotropy and anxiety/depression. A significant interaction term with a positive beta would indicate that an ineffective coping strategy is augmenting the relationship (Connor-Smith & Compas, 2002: 47).

This method provides a clear and concise framework to model the relationship between stress, coping, and health outcomes in the current study. Moreover, results from this project can be compared very closely to the work of Connor-Smith and Compas, which will serve to affirm or dispute their findings.

1.5 Contributions from a Sociological Perspective

The stress and coping literature is mainly derived from the psychological tradition. Moreover, a majority of the relevant theoretical development spanning the past several decades is attributable to the work of clinical psychologists. While the current research project necessarily takes many cues from the psychological literature, there are several key areas in which it will make a distinctive sociological contribution.

Gender – Historically, the effects of gender on stress and coping have not been a primary focus in this area of research. When the subject has been addressed, it is quite common to see references to Folkman and Lazarus' (1984) somewhat stereotypical assertion that males tend to endorse problem-focused coping whereas females endorse emotion-focused coping. Indeed, this purported fact appears to be a widely accepted truism in the literature, although it is not supported by a substantial amount of empirical data. A recent study by Dyson and Renk (2006) found very few differences between male and female college students in terms of stress, coping strategies, or depressive symptomatology. They did report, however, that coping preferences could be differentiated by scores in masculinity and femininity. Their work suggests that socialized gender traits have an impact that biology cannot adequately address. The theme of gender socialization can also be found in the work of Tamres and colleagues (2002) who argue that biological explanations for gender differences do not hold the same explanatory power for coping differences as situational differences do. One aspect of the current project is to examine the degree to which males and females use different coping strategies, and to examine the effects of each strategy when controlling for gender. It is expected that results will support the socialization-based coping approach.

Stress Measurement – Another longstanding concept in the literature is the idea of objective stress measurement. Whether the unit of measurement is major life events, chronic strains, or daily hassles, an entrenched belief is that tallying stressful episodes in one’s life is a viable proxy for the amount of stress one experiences. The current project will address two separate issues in this regard. First, it will ask whether major life events serve as a useful indicator of stress. Although it is often asserted that major life events are valid for this purpose, there is research that questions the empirical basis for this belief. For instance, Hardt and Johnson’s (2010) results show that major life events fail to significantly predict depressive symptoms when controlling for minor life events. Others have argued that major life events do not properly align with actual experienced stress because the events are too rare, and *a priori* lists do not necessarily fully capture the experience of real life (Wagner, Compas, & Howell, 1988). Secondly, this project will investigate whether subjectively perceived stress is a better measure than ‘objectively’ stressful situations encountered. Lazarus (1990) criticizes ‘objective’ stress-measurement in part by saying that “life events can have difference significances for persons with divergent cognitive and motivational agendas and coping resources and styles” (p. 5). This speaks to the potential importance of the phenomenological world in determining the degree of stressfulness associated with a major life event for any given individual. The current project will provide evidence to address the effectiveness and validity of major life events as a stress measure. Additionally, this evidence will speak to the theoretical connection between stress, coping, and health. If the connection holds true, empirically we should see some type of relationship between coping and stress which in turn has an effect on mental health. Finally, a comparison will be made between

‘objectively’ and ‘subjectively’ measured stress to determine whether they are representative of a similar concept.

Health Measurement – As mentioned, the concept of health and well-being in the current study has been expanded to include psychological, emotional, and social components. Mental health, as measured for this project, aligns with a more robust social-psychological framework that has not typically been used by other researchers in this field (e.g. Keyes, 2005; Keyes, 2006; Ryff, 1989).

Coping Types vs. Coping ‘Repertoires’ – A final sociological emphasis of this study examines the idea of categorizing individuals by the coping strategies available in their ‘repertoire’ of coping tools, instead of using the common classifications of problem-focused, emotion-focused, and avoidant coping. This project will argue that it makes little sense to talk about people as having “problem-focused” or “emotion-focused” styles. Instead, it is more beneficial to categorize individuals as having ‘adaptive’ styles, ‘maladaptive’ styles, or some combination of the two. The sociological contribution of this revised classification is twofold. First, it broadens the conceptualization of coping beyond a measurement of individual coping strategies to recognize new categories that differentiate by their effectiveness in promoting positive health outcomes. These new categories are more relevant to the actual experience of coping, and they more fully recognize the coping tools developed (or not developed) through socialization. The revised conceptualization emphasizes that individual coping strategies do not exist in isolation, but instead operate in combination with the full range of strategies available to each individual. Second, this study criticizes the inertia carried by many concepts in the literature. It is nearly impossible to engage in coping research without encountering the

problem-focused/emotion-focused distinction which has had the consequence of reifying these groups in actual populations. If the empirical data do not match widely held theoretical notions, perhaps it is warranted to consider new methods of classification.

1.6 Chapter Summary

This chapter has presented a framework for the research project by reviewing the relevant stress, coping, and health literature, identifying several areas of weakness in the literature, and proposing a strategy to address those weaknesses. Furthermore, it was demonstrated how a sociological perspective can contribute to this area of research, though it has not been traditionally used in the past. The following chapter explains the methodology employed to conduct the research, and lists the hypotheses generated to guide analysis of the results.

CHAPTER TWO: METHODOLOGY

2.1 Sample

This study uses data from the Survey on Health and Well-Being (Peter, 2008), administered at the University of Manitoba in September and October of 2008. The sample size consists of 1,245 introductory sociology students³ who voluntarily completed a paper-version of the survey during their usual course time-slot. Respondents were typically young adults (mean age=20.2 years) with an age range of 17 to 45 years. The gender split is somewhat skewed, with 62% indicating they are female, and 38% male. This gender bias is appropriate for introductory sociology courses at the University of Manitoba⁴. About 54% of the sample reported that they were studying in their first year at university, and 46% said they had completed at least one year of university. Some 80% of first year students reported that their final high school average grade was B+ or higher (76% - 100%), while 72% of students beyond their first year said their current GPA falls between C+ and B+ (2.5 – 3.5GPA). See Table 2.1 for all demographic statistics.

Regarding their personal relationships and home-life, just under half of the sample was single at the time of taking the survey and approximately half were in a relationship with a boyfriend, girlfriend, partner, or spouse. When asked about household status (or family's household status if they had recently moved out of their parent's home), just under 90% listed themselves as coming from average, or above average socioeconomic conditions. On a ten-point scale, 51.7% of respondents rated themselves as an 8, 9 or 10

³ The total number of students enrolled in 2008 was 1,584 making for a response rate of 79%.

⁴ A 2003 report by the Council on Post-Secondary Education (see Dan Smith the in reference list) indicated that enrollment in the Faculty of Arts for the University of Manitoba in that year was 59.9% female and 40.1% male.

in terms of household status. Conversely, about 2% indicated their household to be in the bottom third of the socioeconomic ladder. It should be noted that roughly a quarter of respondents did not answer this question.

Table 2.1: Demographics of the Overall Sample (n = 1,245)

Item	Statistic
Gender (n=1236)	
Male	37.6%
Female	62.4%
Age (n=1228)	
17-19	59.9%
20-24	32.5%
25+	7.6%
<i>Mean</i>	20.17
<i>SD</i>	(3.56)
SES Ladder (n=928)	
Bottom 30%	2.1%
Middle (4-7)	46.1%
Top 30%	51.7%
<i>Mean</i>	7.31
<i>SD</i>	(1.54)
Relationship Status (n=1234)	
Single	45.4%
Have a boyfriend / girlfriend / partner / spouse	46.3%
Recently broke up	7.7%
Other	0.6%
Ethnic Identity (n=1228)	
Caucasian / White	66.3%
Asian	16.6%
Aboriginal / First Nations / Metis / Inuit	5.7%
Black	3.5%
Latin / Central / South American	1.1%
Mixed Heritage	5.6%
Other	0.8%
Born in Canada (n=1237)	
Yes	86.0%
No	14.0%
Current Living Arrangement (n=1233)	
With parents / guardian	67.3%
With roommate	12.5%
Live alone	6.6%
With spouse / partner / boyfriend / girlfriend	6.4%
Other	7.2%

Average Grade (n=1164)

A or A+	34.9%
B or B+	41.1%
C or C+	20.3%
D or lower	3.6%

Note: Total percentages might not equal 100 due to rounding

In terms of ethnicity, two-thirds of the sample described themselves as white or Caucasian, 17% as Asian, and 6% as Aboriginal, First Nations, Métis or Inuit. The remaining respondents were listed as black, Latin-American, mixed heritage, or other. Furthermore, 86% of respondents said they were born in Canada. Regarding religious beliefs⁵, about two-thirds said they were raised in Christian households, 20% in non-religious or atheist households, and the remainder in Jewish, Buddhist, Muslim, Sikh, Hindu, Aboriginal or other religions. However, only a quarter of the sample attends religious services on at least a monthly basis.

In general, this sample consists of mostly young adults that perceive themselves as having above average education, income, and status as compared to the general Canadian population. Many are still single, or involved in dating relationships, and are comfortably able to pursue their post-secondary education. Based on this demographic information, findings should be treated with caution, especially when generalizing to other non-university populations. Though the sample is not consistent with Canadian young adults en masse, it appears fairly typical of what should be expected in an undergraduate university setting.

⁵ Not shown in table 2.1.

2.2 Measures

Mental Health - A mental health index was created that incorporates the emotional, psychological, and social well-being of respondents ($\alpha = .94$). This triumvirate of variables allows for a more robust conceptualization of mental health than has often been the case in coping research. Additionally, it serves to address the methodological objections of Schroeder and Costa (1984) regarding the contaminating effects of using mental illness, or absence of mental illness, as an indicator of health in relation to stress as an independent variable. Overall scores are calculated through a summation of each individual scale, with higher scores indicating a better state of mental health. Scores were then centered on the mean where positive scores coincide with above average mental health and negative scores represent below average mental health.

Emotional health was measured using the Positive Affect, Negative Affect Scale, or PANAS for short (Watson, Clark, & Tellegen, 1988). Positive and negative affect have been found to be conceptually distinct, and not merely opposite measures of a singular concept. For the current study, only negative affect questions were used, reverse coded to match the overall scale of mental health. In previous research, negative affect has been described as having a “general dimension of subjective distress and unpleasurable engagement... with low negative affect being a state of calmness and serenity” (Watson, Clark, & Tellegen, 1988: 1063). Respondents were asked how often in the past 30 days they had experienced each of ten different aversive mood states including feeling distressed, upset, guilty, and hostile. All questions were 5-point Likert scales with valid answers of: *None of the time, rarely, some of the time, most of the time, and all of the time.*

A second component of emotional health is measured by the Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985). A short five-item instrument, with 7-point Likert scale questions, the Satisfaction with Life Scale serves as a measure of subjective well-being that centers on the respondent's own judgments. Overall scores on emotional health are a summation of scores from the PANAS and the SLS.

A scale measuring psychological well-being was adapted from work by Carol Ryff (1989), who developed a theory-guided instrument based on six dimensions of well-being. These include: Self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (see Table 1.2 for a full description). The instrument is comprised of 24 questions, each measured as 7-point Likert scales with endpoints of *Strongly Disagree* and *Strongly Agree*. Negatively worded questions were reverse-coded to match conceptually with positively worded questions.

The final component of mental health in the current study is that of social well-being. The instrument chosen to measure this concept is adopted from work by Corey Keyes (1998). His social well-being scale is theoretically based on five dimensions of social wellness: Social integration, social acceptance, social contribution, social actualization, and social coherence (see Table 1.3 for a full description). These five dimensions are incorporated into a 20-item instrument, each measured as a 7-point Likert scale. Negatively worded questions were reverse-coded to be summed consistently with positively worded questions.

Stress – The concept of stress was operationalized based on the Student Life Events Inventory (Makepeace, 1983). Respondents were asked to indicate whether they

had experienced a list of 21 potentially stressful events over the past 6 months, with additional space to specify events not included in the checklist. The instrument covers a wide range of generally stressful events such as relationship issues, financial issues, and health issues, in addition to student specific concerns such as being put on academic probation, and experiencing problems with school. For each event the respondent endorsed, they were then prompted to indicate, on a 5-point Likert scale, how subjectively stressful they perceived the event to be. Valid responses ranged from 0 - *No stress at all* to 4 - *A lot of stress*. This subjective portion of the instrument was summed to create a scale that gauges the extent of stress experienced by each survey respondent. Again, this variable was centered on the mean score where positive scores indicate above average stress and negative scores indicate below average stress levels.

Coping Strategies –The revised Ways of Coping scale (Folkman & Lazarus, 1988) was used to measure the types of coping strategies used by respondents. A 42-item instrument, the Ways of Coping utilizes 5-point Likert scale questions to determine the extent that respondents employ eight distinct coping strategies. These strategies include: Problem-focused coping, wishful thinking, detachment, seeking social support, focusing on the positive, self blame, tension reduction, and keep to self. These particular subscales are recommended by Folkman & Lazarus (1988) for use with samples of college undergraduates. Respondents were asked whether each coping technique is used: 0 – *Never*, 1 – *Rarely*, 2 – *Sometimes*, 3 – *Often*, and 4 – *Always*, and the scores were summed to calculate each total. Subscales are calculated independently of each other and centered on their own mean scores, with higher scores indicating above average use of a coping strategy.

All subscales but one showed moderate to good inter-item correlations and alpha levels. Items comprising the subscale Tension Reduction were completely uncorrelated, and the alpha coefficient was calculated at .19. As a result, it was dropped from any further analysis. Alphas for the remaining seven subscales ranged from .61 to .80 indicating satisfactory internal reliability. In addition, factor analysis of each scale showed adequate factor loadings for all individual items. Scale items as well as factor loadings and alpha coefficients can be seen in Table 2.2.

Table 2.2: Ways of Coping subscales with associated reliability statistics

Item	Factor Loading
Problem-Focused Coping ($\alpha = .796$)	
Come up with a couple of different solutions to the problem	.707
Know what has to be done, so I double my efforts to make things work	.679
Make a plan of action and follow it	.666
Try to analyze the problem in order to understand it better	.653
Try to see things from the other point of view	.606
Change something so things turn out all right	.568
Stand my ground and fight for what I want	.552
Draw on my past experiences	.539
Go over in my mind what I will say or do	.507
Try not to act too hastily	.467
Try to keep my feelings from interfering with other things too much	.347
Wishful Thinking ($\alpha = .761$)	
Wish that I could change what is happening or how I feel	.765
Have fantasies or wishes about how things may turn out	.747
Hope that a miracle will happen	.730
Daydream or imagine a better time or place	.713
Wish that the situation will go away or somehow be over with	.625
Detachment ($\alpha = .698$)	
Try to forget the whole thing	.706
Go on as if nothing is happening	.669
Wait to see what will happen before doing anything	.636
Accept it since nothing can be done	.625
Go along with fate	.580
Feel that time will make a difference - the only thing to do is wait	.569
Seeking Social Support ($\alpha = .784$)	
Ask a relative or friend I respect for advice	.823
Talk to someone about how I am feeling	.814
Talk to someone to find out more about the situation	.754
Accept sympathy and understanding from someone	.699
Talk to someone who can do something concrete about the problem	.685
Let my feelings out somehow	.670
Pray	.260

Focus on the Positive ($\alpha = .663$)	
Rediscover what is important in life	.753
Change or grow as a person in a good way	.730
Try to look on the bright side of things	.677
Become inspired to do something creative	.669
Self Blame ($\alpha = .612$)	
Criticize or lecture myself	.789
Make a promise to myself that things will be different next time	.743
Realize that I brought the problem on myself	.721
Keep to Self ($\alpha = .623$)	
Try to keep my feelings to myself	.810
Keep others from knowing how bad things are	.804
Avoid being with people in general	.649

2.3 Statistical Models

All analyses were conducted using Statistical Package for the Social Sciences (SPSS) version 16.0 for Windows. Data were available in the correct format for SPSS, which had been subjected to an appropriate ‘cleaning’ process designed to eliminate missing or otherwise unusable responses. Whenever possible, steps were taken to preserve data when it was reasonable to do so. For all coping subscales, respondents missing a single response had their invalid data replaced by the average of valid responses. This typically resulted in preserving an additional 2% of cases for each subscale. In total, after list-wise deletion of cases with missing data on any variable included in the multiple regression models, 931 respondents (75% of all respondents) were usable for the final analysis.

Univariate descriptive output was initially produced for all variables to examine whether they approximated a normal distribution (see Appendix A). No problems were detected regarding the skewness or kurtosis for any of the variables. Secondly, a bivariate correlation matrix (see Table 3.2) was created to determine if collinearity might be a concern when running multiple regression models. One pair of variables, Focus on the

Positive and Problem-Focused Coping correlated at $r = .606$, a value above the normal threshold for both to be included as independent variables in a regression model. Since both variables were kept in the analyses, it should be noted that R^2 values will be somewhat artificially inflated merely due to correlational issues⁶. Thirdly, Principle Component Analysis was run and alpha coefficients were calculated to ensure that each subscale measured a single concept with a suitable degree of reliability (Table 2.2). Indeed, each of the seven valid subscales loaded on a single factor in addition to having adequate alpha levels. All diagnostic results are shown in chapter three.

2.3.1 Model #1 – Coping as a Moderator of the Stress-Health Relationship

Once all of the diagnostic statistics had been verified, a series of regression models were created using the Linear Regression module in SPSS to test whether any of the seven coping styles moderate the stress-health relationship. The first step regressed the variables Sex and Perceived Stress on mental health as the dependent variable. The second step added each of the seven coping subscales⁷ as independent variables. The third regression included all previous variables in addition to the interaction terms⁸ (cross-products) between stress and each of the coping subscales. As a final step, the third regression was split between males and females to determine whether any significant differences exist between genders. Logically, this process will provide evidence to show the main effects of stress and coping on health, and more importantly whether any of the coping styles tend to amplify or buffer the effects of stress on health. This series of

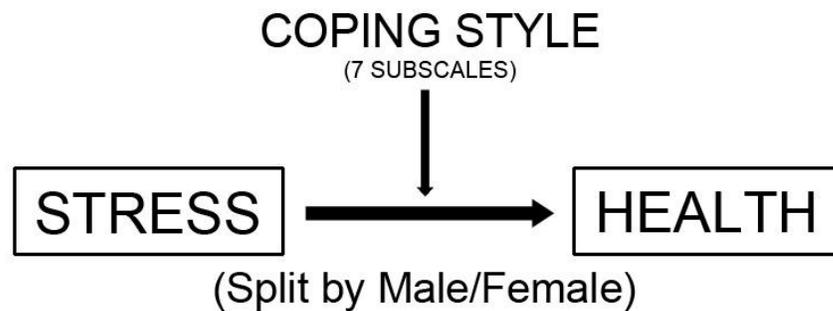
⁶ Two alternate regression models were run to investigate the decrease in R^2 when either the 'Focus on the Positive' or 'Problem-Focused Coping' subscales were left out (see Appendix C). Both models showed a drop in R^2 of .043 and .054 respectively. Since this result was relatively negligible, it was decided to keep both in the final model.

⁷ As mentioned, Tension Reduction was excluded because it failed to meet a reasonable standard of inter-item correlation. Alpha coefficient was calculated to be .19.

⁸ i.e. Stress score multiplied by coping subscale score.

models follows a similar methodology used by Connor-Smith and Compas (2002) to examine whether coping moderates the relationship between sociotropy and mental health. It also follows Baron and Kenny’s (1986) prescribed methodology to uncover a moderator relationship using interaction terms. This model is represented by the diagram shown in Figure 2.1.

Figure 2.1: Model #1 – Coping styles as a moderator of the stress-health relationship (split by gender)



2.3.2 Model #2 – Coping ‘Repertoire’ Classification

A second series of tests were run to examine stress, coping style, and health in a different causal order, and using a more complex categorization scheme. In this case, ANOVA calculations were run to examine whether different categorizations of coping strategies showed a significant degree of variance in terms of stress and health levels. Six different categories were created based on above average scores⁹ for the coping subscales. Any respondent who reported an above average score was considered to have that coping technique in their coping “repertoire”. Whether a respondent had zero, some, or all coping techniques as part of their repertoire, they were placed in one of six mutually exclusive categories as follows:

⁹ Since all scales were centered on their mean, scores greater than 0 were considered above average.

1. **Adaptive Coping:** Scored >0 on Problem-Focused Coping and any combination of Focus on the Positive or Seeking Social Support.¹⁰
2. **Pure Emotion-Focused:** Scored >0 on Focus on the Positive and/or Seeking Social Support only.
3. **Broad Coping:** Scored >0 on Problem-Focused Coping, one or both emotion-focused subscales, and at least one avoidant subscale.
4. **Narrow Coping:** Scored ≤ 0 on all subscales.
5. **Mixed Avoidant:** Scored >0 on Problem-Focused Coping or an emotion-focused subscale and at least one avoidant scale (Detachment, Keep to Self, Self Blame, Wishful Thinking).
6. **Pure Avoidant:** Scored >0 on at least one avoidant subscale and ≤ 0 on all problem-focused or emotion-focused subscales.

Scales are presented in descending order from highest mean health outcome to the lowest. This categorization method was adapted from the work of Steiner and colleagues (2002) who used a fourfold typology consisting of Broad, Narrow, Approach, and Avoidant coping. Similarly, their work featured ANCOVA calculations to determine significant differences in coping usage in relation to various negative psychological and health outcomes. While these typologies are conceptually consistent with previous coping research, an additional step was taken to ensure empirical validity. Discriminant analysis was used to determine whether the Ways of Coping subscales would accurately predict individuals' placement in each category. Results strongly supported the six category delineation, which can be seen in the results section.

Analysis was also conducted to verify the empirical split between emotion-focused coping and avoidant coping, as these concepts tend to share similar attributes.

¹⁰ This category also contains 10 respondents who scored >0 on Problem-Focused Coping only. It was not feasible to retain a category with such a small number of cases. Due to the similarities in empirical health outcomes between Pure Problem-Focused coping and Adaptive Coping, as well as the conceptual similarities between them, it was decided to combine both categories into one.

Principal Component Analysis using Varimax rotation showed a clear two factor solution for the six remaining subscales when Problem-Focused Coping was removed. Both components with Eigenvalues greater than 1¹¹ accounted for 34.5% and 26.7% of variance respectively. The rotated component matrix is shown in Table 2.3.

Table 2.3: Varimax rotated component matrix for emotion-focused and avoidant subscales.

Item	Component	
	1	2
Detachment	.696	.008
Focus on the Positive	.173	.720
Keep to Self	.686	-.502
Self Blame	.727	.176
Seeking Social Support	.004	.884
Wishful Thinking	.746	.145

The components in Table 2.3 can unambiguously be labeled as Avoidant Coping (component 1) and Emotion-Focused Coping (component 2). Empirically, the groupings align as expected in theory. As a further proof of conceptual clarity, both emotion-focused coping styles correlate positively with health while the inverse is true for avoidant styles. As such, it was decided to count emotion-focused coping and problem-focused coping as adaptive techniques. Conversely, avoidant techniques were counted as maladaptive, working in direct opposition to the positive effects of the other coping styles.

Three separate ANOVA outputs were created to test whether: 1) Different levels of stress could be attributed to each coping category; 2) Different health outcomes could be attributed to each coping category; 3) Any interaction effect would become apparent if the coping-health output was split by level of stress. The first ANOVA simply demonstrates any significant differences between coping categories in terms of stress.

¹¹ Initial Eigenvalues = 2.072 and 1.601

The second determines whether differences are statistically significant in terms of health. Finally, the third ANOVA shows categorical health differences for individuals with high and low levels of stress¹². The mean scores from the third ANOVA were graphed on a line-chart to more clearly show whether there are any meaningful differences in coping effectiveness at high and low levels of stress. This is simply another method of searching for a potential interaction effect between stress and coping as it pertains to mental health.

Three regression equations constitute the final method of testing model #2. For this series of tests, a variable was created to count the number of adaptive or maladaptive coping strategies predominantly used by each individual. Scores above the mean (> 0) for each adaptive strategy were counted as +1 and scores above the mean for maladaptive coping strategies were counted as -1¹³. Average or below average scores have no value and were not counted. Since there are three adaptive strategies and four maladaptive strategies, potential scores range from -4 to +3. The first regression included gender and the adaptive coping scale with perceived stress as the dependent variable. The second regression incorporated gender, the adaptive coping scale, and stress with health as the dependent variable. For the third regression, all seven coping categories were dummy coded to represent above average and below average coping scores¹⁴. Using adaptive coping as the reference variable, this final regression brings to light the increasingly negative correlation between less effective coping ‘repertoires’ and mental health. Figure 2.2 provides a visual representation of the overall model being tested.

¹² High stress includes all scores above the mean; Low stress includes the mean score and lower.

¹³ For example, if a respondent scored above the average on Problem-Focused Coping (+1), Seeking Social Support (+1), and Detachment (-1), they would receive a value of 1 on the adaptive coping scale.

¹⁴ 0 = Mean or below mean; 1 = Above the mean

Figure 2.2: Model #2 – Direct effects of coping style on health, and stress as a modifier of the coping-health relationship



2.4 Hypotheses

Based on the literature review, a number of hypotheses can be formulated in relation to the proposed methodology. Firstly, it can safely be predicted that stress will have an adverse effect on health outcomes. Indeed, the stress and coping literature is predicated on this understanding. Regarding the relationship between coping and health, it can be predicted that problem-focused coping will be associated with positive health outcomes. This is ostensibly due to the idea that stressful life-events, and their corresponding effects, can be managed by taking active steps to face the issues, and ultimately work towards their resolution. In addition, emotion focused coping, especially when directed at positively regulating and managing emotion states, is predicted to also have a positive effect on mental health. Conversely, avoidance coping is likely to have a negative correlation with mental health. In terms of coping styles as a moderator of stress, it is hypothesized that one or several of the interaction terms between coping and stress will have a significant relationship with health. Finally, it is expected there will be some differences in terms of gender coping patterns. Males are expected to draw a greater benefit from problem-focused coping, while females benefit more from emotion focused

strategies. Additionally, males are predicted to exhibit more avoidance behavior and will likely suffer more ill effects to health because of it. Stated formally:

H1: Stress will be negatively correlated with mental health.

H2: Problem-focused and emotion-focused coping will correlate positively with health while avoidance will correlate negatively.

H3: One or several of the interaction terms between stress and coping style will be significantly correlated with mental health thus indicating a moderating effect on stress.

H4: Males will tend to use more problem-focused and avoidance strategies whereas females will tend to favor emotion-focused strategies.

H5: Males will tend to receive greater health benefits from problem-focused coping and more harm from avoidance strategies. Females will show stronger positive effects due to emotion-focused coping strategies.

These five hypotheses were derived from the literature review, and they all theoretically align with the stress and coping literature and with results from past research. As such, evidence relating to these hypotheses is directly comparable with the existing body of literature. Hypothesis three (H3) may result in a rather novel finding if any evidence is found in its support. A significant interaction term could suggest a non-linear relationship between stress and that particular coping strategy which would be sufficient cause to warrant further investigation into the exact nature of the relationship. However, upon completion of the initial statistical testing, a number of additional hypotheses became warranted to investigate a new area of inquiry.

A failure to achieve statistical significance between the stress and coping variables - which will be further explained in the results and discussion sections – created a need to reconsider how each variable was conceptualized, and led to novel

classification scheme for coping styles. Specifically, instead of merely looking at the linear coping subscale scores for each individual, individuals were assigned to one of six categories based on their relative scores for all seven subscales. In other words, individuals were assigned to mutually exclusive groups based on the extent of their coping ‘repertoires’. This takes into account whether an individual chooses to cope using adaptive tools, maladaptive tools, or a combination of both. It is also possible for a person to exhibit an inability, or an unwillingness, to use any of the coping strategies, preferring a generally apathetic approach to coping with stress. This reformulation shed new light on the stress-coping problem, and helped to develop a clearer understanding of that relationship. Furthermore, the correlation between subjectively perceived stress and ‘objective’ stress (i.e. the raw count of stressful events experienced without accounting for a subjective rating) was measured. A substantial discrepancy between the subjective and objective versions of the variable would suggest that it is worthwhile to distinguish between the two, and, pending further verification, subjective stress is potentially a more accurate and valid measure of the concept. As a result of these considerations, several additional hypotheses were added to the research project:

H6: Subjective stress will be significantly and substantively different than if measured in the ‘objective’ sense.

H7: Individuals can be classified into distinct coping categories that can be verified empirically as well as conceptually.

H8: Using the newly formulated coping categories, some relationship between stress and coping will become apparent in the directional sequence prescribed by Model #2 (Figure 2.2).

The purpose of exploring these three new hypotheses is to explain why the theoretical connection between stress and coping failed to appear in the data.

Additionally, and perhaps more importantly, the work will contribute a new method of stress measurement, and a new way to think about the coping patterns of individuals to the body of literature. Moreover, the initial results point to a general flaw in coping research. Earlier studies maintain the assumption that the function of coping is to manage stressful situations to produce more beneficial health outcomes (e.g. Billings & Moos, 1981; Lazarus & Folkman, 1984; Connor-Smith & Compas, 2002). While there is a mountain of literature to support this claim theoretically, it is quite often the case in practice that related empirical work glosses over or completely excludes this vital relationship. All results used to test the aforementioned hypotheses, and the pursuant discussion, is presented in the following chapters.

CHAPTER THREE: RESULTS

The following section presents the bivariate results from the t-test (split by gender) and Pearson's correlation analyses. Afterwards, the multivariate results of the multiple regression analyses are displayed.

3.1 Bivariate Analyses

Descriptive statistics for the full sample separated by gender are presented in Table 3.1. Means and standard deviations are displayed for all the major independent variables, along with a 2-tailed test of significance (t-test) which points to any statistical differences between males and females. Because each variable was centered by subtracting its mean, overall means are equal to 0 and are not shown.

Table 3.1: Descriptive statistics and t-tests for major independent variables split by gender

	M (male) n=771	SD (male) n=771	M (female) n=463	SD (female) n=463	Sig. (2-tailed)
Health	-1.59	30.07	2.22	29.86	.059
Stress	-2.21	7.29	1.30	8.47	.000
Detachment	-.09	3.84	.07	3.45	.453
Focus on the Positive	-.01	2.79	-.01	2.60	.984
Keep to Self	.35	2.18	-.22	2.43	.000
Problem-Focused	-.16	6.12	.09	5.43	.448
Self Blame	.03	2.45	-.02	2.20	.712
Seeking Social Support	-1.64	5.31	.97	4.76	.000
Wishful Thinking	-.58	3.92	.35	3.67	.000

Note: Due to centering, overall means for each variable are equal to 0.

The results reveal several significant differences between males and females. First, females on average report higher levels of subjective stress than do males (females = 1.30, males = -2.21, sig = .000). At the same time, however, females also appear to rate slightly better in terms of mental health, though this result falls just outside of the standard 95% confidence interval (females = 2.22, males = -1.59, sig = .059).

Regarding coping strategies, males are significantly more likely to resort to avoidant behavior, scoring higher on the Keep to Self subscale (males = .35, females = -.22, sig = .000). Fittingly, females are more likely to seek social support (females = .97, males = -1.64, sig = .000) and they also score higher on the Wishful Thinking subscale (females = .35, males = -.58, sig = .000). It is interesting to note that there is no discernable difference between genders in terms of problem-focused coping.

Table 3.2 shows the correlation matrix of the dependent and all major independent variables. As expected, all variables are significantly correlated with mental health. Focusing on the positive, problem-focused coping, and seeking social support are strongly related to better health. Avoidance and maladaptive emotional coping styles associate with lower levels of mental health. Perceived stress has a moderately strong positive correlation with three different coping styles: Wishful thinking ($r = .255$), self blame ($r = .224$) and keeping to self ($r = .157$). This suggests that respondents with high stress levels are more inclined to resort to social avoidance or maladaptive emotional management. It is also possible that these coping styles partially contribute to higher levels of unwanted stress which in turn tends to worsen mental health.

The three coping styles positively correlated with mental health (focus on the positive, problem-focused coping, and seeking social support) also correlate strongly with each other ($r > .40$) while having weak or negative associations with other coping strategies. It is quite clear that there is a link between problem-solving minded individuals and thinking positively. Additionally, social networks are bolstered through optimism and problem-directed actions, or stronger social networks contribute to more developed individual skills in those areas. Conversely, detachment, a form of avoidant

Table 3.2: Correlation matrix with dependent and all major independent variables

	Health	Stress	Detachment	Focus on the Positive	Keep to Self	Problem-Focused	Self Blame	Seeking Social Support	Wishful Thinking
Health	-								
Stress	-.246**	-							
Detachment	-.186**	.039	-						
Focus on the Positive	.457**	.023	.100**	-					
Keep to Self	-.389**	.157**	.346**	-.073*	-				
Problem-Focused	.424**	.088**	.045	.606**	-.020	-			
Self Blame	-.224**	.224**	.253**	.212**	.373**	.285**	-		
Seeking Social Support	.330**	.121**	.020	.405**	-.390**	.446**	.109**	-	
Wishful Thinking	-.325**	.255**	.410**	.034	.300**	.132**	.419**	.175**	-

* p < .05; ** p < .01

coping, correlates negatively with mental health while positively correlating with keeping to self, self blame and wishful thinking. Clearly this subset of coping styles can be considered maladaptive in terms of health effects. Furthermore, pessimistic individuals are more likely to avoid social contact with others and to exhibit detachment from their own thoughts and emotions. While the causal direction of these relationships is unclear, it can be stated confidently that negativity in one area breeds further negativity.

3.2 Multivariate Analyses

3.2.1 Test of Model #1 – Coping as a Moderator of the Stress-Health Relationship

Regression analyses were used to test the hypothesis stating that problem-focused and emotion focused coping will correlate positively with health, while avoidance will correlate negatively. Also, multiple regression was used to provide evidence of a moderator relationship between stress and coping. Coping would be shown to moderate the relationship between stress and health if a significant interaction term exists. An interaction term with a negative beta suggests that it buffers the relationship between stress and mental health. A positive beta is evidence of an amplifying effect between stress and coping which is attributable to that particular coping style (Baron & Kenny, 1986). Presumably, adaptive coping styles (e.g. problem-focused, seeking social support) are more likely to have a buffering effect whereas maladaptive coping (e.g. detachment, self blame) will amplify the negative effects of stress on health.

Moderation is tested in several steps. First, simple regressions are run for each coping style while controlling for sex, stress, and the interaction term between stress and coping style. Assuming any of the interaction terms are statistically significant in the simple models, a complete model including sex, stress, and the seven coping styles plus

their interaction terms will show whether the moderating effect retains its independence when controlling for all other variables. Results are shown in Tables 3.3 and 3.4.

Table 3.3: Simple regression models for each coping style including sex, stress, and interaction terms (dependent variable = mental health).

Item	R ²	β	t
<i>Detachment Coping</i>			
Sex	.106	-.113	-3.57**
Stress		-.254	-7.95**
Detachment		-.181	-5.82**
Detachment x Stress		-.028	-.89
<i>Focus on the Positive</i>			
Sex	.290	-.103	-3.65**
Stress		-.272	-9.64**
Focus on the Positive		.467	16.85**
Focus on the Positive x Stress		.006	.209
<i>Keep to Self</i>			
Sex	.192	-.056	-1.84
Stress		-.203	-6.52**
Keep to Self		-.355	-11.62**
Keep to Self x Stress		.011	.349
<i>Problem-Focused</i>			
Sex	.272	-.114	-4.00**
Stress		-.305	-10.53**
Problem-Focused		.448	15.91**
Problem-Focused x Stress		-.017	-.61
<i>Self Blame</i>			
Sex	.099	-.097	-3.05**
Stress		-.215	-6.60**
Self Blame		-.163	-5.01**
Self Blame x Stress		-.029	-.87
<i>Seeking Social Support</i>			
Sex	.187	-.022	-.707
Stress		-.288	-9.50**
Seeking Social Support		.350	11.40**
Seeking Social Support x Stress		-.034	-1.124
<i>Wishful Thinking</i>			
Sex	.148	-.123	-3.96**
Stress		-.184	-5.56**
Wishful Thinking		-.278	-8.83**
Wishful Thinking x Stress		-.047	-1.47

* p < .05; ** p < .01

The strongest models were for the Focus on the Positive coping style ($R^2 = .290$) and Problem-Focused coping ($R^2 = .272$) explaining 29% and 27% of the variance in mental health respectively. Both these coping styles and Seeking Social Support comprise the adaptive coping strategies seeing as they predict a positive effect on mental health. All other coping strategies tend to be maladaptive, causing mental health to decline in the sample. The strongest of the maladaptive coping models are Keep to Self ($R^2 = .192$) and Wishful Thinking ($R^2 = .148$). It's interesting to note that the adaptive strategies appear to have a much stronger positive effect than the negative effect attributed to maladaptive coping.

Regarding the potential moderating effects of coping on the relationship between stress and health, there was no evidence to suggest that this is in fact the case. In all seven models, none of the interaction terms were statistically significant in the regression equation. This suggests that all coping styles, whether adaptive or maladaptive, will tend to have a consistent effect on mental health regardless of whether the person reports experiencing high or low levels of perceived stress. Bearing in mind this result, the overall regression model (Table 3.4) was assembled in three steps to make clear the usefulness of coping styles as predictors of health, and the relative insignificance of the stress-coping interaction terms.

Table 3.4: Overall 3-step regression model including all coping styles and their interaction terms with stress.

Step / Item	R ²	β at entry	t
1. Sex	.07	-.11	-3.41**
Stress		-.27	-8.29**
2. Detachment	.49	-.03	-1.16
Focus on the Positive		.27	8.83**
Keep to Self		-.15	-4.86**
Problem-Focused		.31	9.86**
Self Blame		-.16	-5.63**
Seeking Social Support		.06	1.87
Wishful Thinking		-.20	-6.70**
3. Detachment x Stress	.49	-.01	-.47
Focus on the Positive x Stress		.00	-.01
Keep to Self x Stress		.03	.80
Problem-Focused x Stress		-.04	-1.26
Self Blame x Stress		.02	.63
Seeking Social Support x Stress		.02	.76
Wishful Thinking x Stress		-.02	-.53

* p < .05; ** p < .01

Note: Mental health is the dependent variable.

From the overall regression model, there are a number of significant results to interpret. The first step ($R^2 = .07$) accounts for 7% of the variance in mental health. It shows that females tend to rate lower in terms of mental health as do individuals who report higher levels of perceived stress. Adding the seven ways of coping subscales in step two contributes an additional 42% to explained variance in mental health ($R^2 = .49$). After controlling for all seven coping variables, two of the subscales, Detachment and Seeking Social Support, drop below normal levels of statistical significance. Of the remaining five scales, Problem-Focused coping ($\beta = .31$) and Focus on the Positive ($\beta = .27$) have the strongest effects overall in positive relation to health. Wishful Thinking ($\beta = -.20$) is the strongest of the maladaptive coping indicators, followed by Self Blame ($\beta = -.16$) and Keeping to Self ($\beta = -.15$). In the third step, it is clear that the inclusion of the stress x coping cross-products contributes virtually no additional information to the

statistical model. The R-square remains unchanged from step two to step three ($R^2 = .49$). Predictably, none of the interaction terms reached statistical significance after controlling for all other independent variables.

Table 3.5: Regression model including stress and all coping subscales (males only).

Item	R^2	B	β	t
Males	.44			
(Constant)		-2.21	-	-1.63
Stress		-.67	-.17	-3.73**
Detachment		-.16	-.02	-.42
Focus on the Positive		3.07	.28	5.11**
Keep to Self		-1.28	-.10	-1.76
Problem-Focused		1.65	.34	5.99**
Self Blame		-2.16	-.18	-3.34**
Seeking Social Support		.52	.09	1.67
Wishful Thinking		-1.75	-.23	-4.49**

* $p < .05$; ** $p < .01$

Note: Mental health is the dependent variable.

Table 3.6: Regression model including stress and all coping subscales (females only).

Item	R^2	B	β	t
Females	.52			
(Constant)		2.47	-	2.78**
Stress		-.65	-.18	-6.06**
Detachment		-.40	-.04	-1.36
Focus on the Positive		3.13	.26	7.14**
Keep to Self		-2.32	-.19	-4.81**
Problem-Focused		1.64	.29	7.57**
Self Blame		-2.14	-.15	-4.48**
Seeking Social Support		.21	.03	.88
Wishful Thinking		-1.41	-.17	-4.84**

* $p < .05$; ** $p < .01$

Note: Mental health is the dependent variable.

Gender differences in coping and coping related health outcomes have been reported in numerous studies (e.g. Tamres, Janicki & Helgeson, 2002; Eschenbeck,

Kohlmann, & Lohaus, 2007; Helgeson, 2011). For this reason, and because sex was a significant predictor of mental health in the overall model, it was decided to run a final regression analysis separated by males and females.

Both the male and female regression models are strong predictors of mental health (male $R^2 = .44$; female $R^2 = .52$) explaining 44% and 52% of the variance in the dependent variable. Two notable differences exist between the models. Firstly, the coping subscale Keep to Self has a statistically significant negative effect on health for females ($\beta = -.19$; $p < .01$), but a non-significant effect for males. In other words, avoiding social contact or keeping others from knowing the extent of one's stress levels tends to negatively impact the overall mental health of females, but not necessarily that of males. Secondly, the intercept (constant) is statistically significant for females with an unstandardized Beta value of 2.47. The intercept for males is listed at $B = -2.21$, though this result is not significantly different from zero. This is consistent with the bivariate results shown in Table 3.1, and indicate that females are likely to rate higher than males in terms of their mental health even if they prescribe to similar types of coping strategies.

It is an interesting finding as well that both regression models show virtually identical results for six of the seven coping subscales. The *dispositional hypothesis*, as described by Tamres, Janicki, and Helgeson (2002), contends that males and females are predisposed to think, act, and feel in fundamentally different ways which will be reflected in their choice of coping styles and the contingent outcomes. The output suggests that this is not indeed the case. It would be more accurate to say that males and females in this sample similarly benefit from certain coping strategies (e.g. Focus on the Positive, Problem-Focused coping) and experience negative effects from other types of coping

(e.g. Self Blame, Wishful Thinking). This argument is strengthened by the relative uniformity of the sample. Being undergraduate university students in a liberal arts program, it is reasonable to assume that a majority share many common stressors such as homework deadlines and relationship issues particular to young adults in addition to similarities in social and economic status. It is therefore understandable why coping strategies in turn generate outcomes that are unaffected by gender. This will be further addressed in the discussion section.

3.2.2 Test of Model #2 – Coping ‘Repertoire’ Classification

Model 2 differs from the previous model in that it presumes individuals to have a particular coping style, or predisposition to certain coping techniques that impacts both overall stress levels which in turn affects mental health. This will be tested first by three separate ANOVA outputs measuring stress differences between coping categories, health differences between coping categories, and finally health differences between coping categories when controlling for stress level. As additional evidence, three regressions will show the effects of: 1) Gender and adaptive coping on stress; 2) Gender, stress and adaptive coping on mental health; 3) Coping categories (dummy coded) and stress on mental health. From either the ANOVA outputs or the regressions, the results display the main effects of coping style on stress, the main effects of coping on health, and the main effects of stress on health.

As an initial step before proceeding with the ANOVA and regression calculations, a Pearson’s correlation was used to examine the relationship between stress measured ‘subjectively’, and stress measured ‘objectively’. Operationally speaking, the objective scale is simply a count of stressful events as measured on the checklist. The subjective

scale included an additional measure to gauge the level of perceived stress associated with any given event. Pearson's r was calculated to be .887 which suggests an extremely high positive correlation between the variables. This suggests that the major life events included on the checklist are normatively stressful, an assertion that is verified by the low variance apparent in respondent's perceived stress levels.

As described in section 2.3.2, a six category classification scheme was created to distinguish respondents by their repertoire of coping skills. This scheme is a modified version of the fourfold typology employed by Steiner and colleagues (2002), though it expands on the complexity. Since this exact approach is untested in the coping literature, a discriminant analysis was used to buttress the proposed methodology with additional empirical support. Results are shown below.

Table 3.7: Standardized canonical discriminant function coefficients.

Item	Function 1	Function 2
Detachment	-.026	.238
Focus on the Positive	.308	.011
Keep to Self	-.080	.551
Problem-Focused	.695	.070
Self Blame	-.051	.258
Seeking Social Support	.466	-.090
Wishful Thinking	.035	.454

Eigenvalues: Function 1 = 1.820 (71.0%); Function 2 = .658 (25.7%)

From Table 3.7, we see that two standardized functions sufficiently explain the variance in the six coping categories using the Ways of Coping subscales as predictors. The functions explain 71.0% (eigenvalue=1.820) and 25.7% (eigenvalue=.658) respectively. Judging from the strength of the coefficients, it is clear that Focus on the Positive (.308), Problem-Focused Coping (.695), and Seeking Social Support (.466) align

with function 1, while the other four variables align with function 2 (coefficients range from .238 to .551). For ease of interpretation, function 1 was labeled as “adaptive coping” and function 2 as “avoidant coping”.

Figure 3.1: Graph of canonical discriminant functions and group centroids.

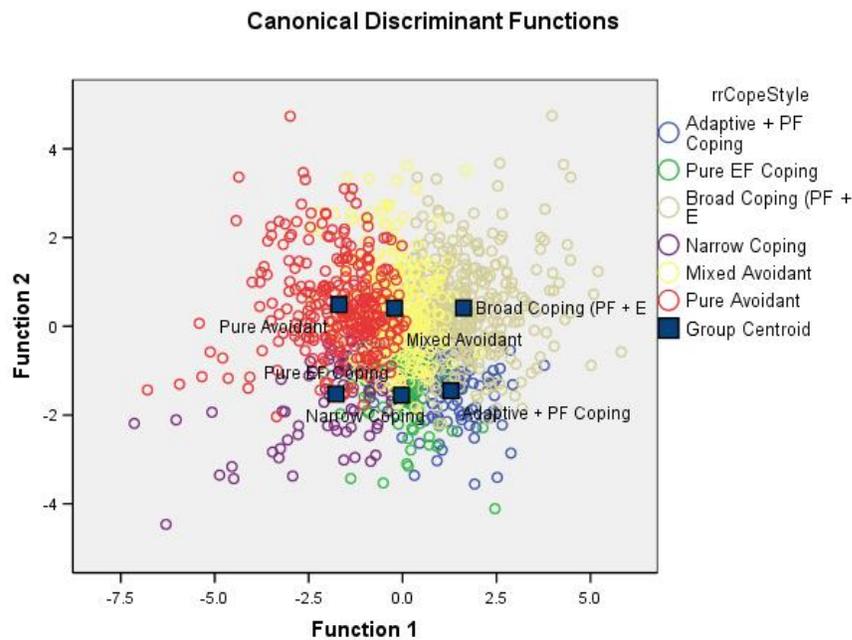


Figure 3.1 shows the alignment of each group centroid (mean) on the two major axes, adaptive (function 1) and maladaptive (function 2) coping. There are two distinct groupings of categories, with pure avoidant, mixed avoidant and broad coping aligned at a similarly high level of maladaptive coping, while narrow coping, pure emotion-focused coping, and adaptive coping share low levels of maladaptive coping traits. Furthermore, the pure avoidant coping style (high maladaptive, low adaptive) rests opposite to adaptive coping (low maladaptive, high adaptive) as would be reasonably expected. Also, broad coping (high maladaptive, high adaptive) is exactly opposite to narrow coping (low

maladaptive, low adaptive) which again is reasonable. These four traits taken together replicate the classification of Steiner et al. (2002), however two additional categories, mixed avoidant and pure emotion-focused coping, are added.

Table 3.8: Predicted group membership classification results (%).

Item	1	2	3	4	5	6
1. Adaptive Coping	94	1	4	1	1	0
2. Pure Emotion-Focused	6	84	0	9	1	0
3. Broad Coping	14	0	70	0	15	1
4. Narrow Coping	1	14	0	71	7	7
5. Mixed Avoidant	4	15	7	1	59	14
6. Pure Avoidant	0	1	0	13	23	63

Note: 68.6% of original grouped cases correctly classified (highlighted).

The final piece of output from the discriminant analysis, shown in Table 3.8, displays the percentage of cases which were accurately predicted by the ways of coping subscales. The most accurately predicted categories were adaptive coping (94%) and pure emotion-focused (84%) while the weakest were mixed avoidant (59%) and pure avoidant (63%). Overall, 68.6% of originally grouped cases were correctly classified which suggests moderate to strong support for the six category scheme. Looking at the off-diagonal scores, the strongest areas of overlap is between mixed avoidant and pure avoidant (14% and 23%). This is not surprising as both categories include avoidant coping as one of the constructs, and it likely indicates that many pure avoidant types scored marginally below the cutoff on at least one adaptive coping scale.

Table 3.9: ANOVA output; differences in stress levels by coping categories.

Item	N	Mean	Std. Deviation	S.E.
Adaptive & Problem-Focused	109	-1.62	6.9	(.66)
Pure Emotion-Focused	79	-2.12	7.0	(.79)
Broad Coping	339	1.64	8.8	(.48)
Narrow Coping	86	-3.18	5.8	(.63)
Mixed Avoidant	308	.75	8.7	(.50)
Pure Avoidant	288	-.58	7.9	(.46)

F = 8.209 Sig. = .000

Table 3.9 shows that there are modest but statistically significant differences in stress levels between the six coping categories ($F=8.209$; $sig.=.000$). Theoretically it is unclear what differences to expect from this analysis, which makes interpretation somewhat difficult, especially considering the relatively small effect size. A post-hoc analysis using Tukey's HSD¹⁵ test showed very few individual categories to be statistically different from the other categories. This result gives weak evidence - or perhaps no evidence at all - to support the notion that different coping styles result in varying stress levels.

Table 3.10: ANOVA output; differences in health levels by coping categories.

Item	N	Mean	Std. Deviation	S.E.
Adaptive & Problem-Focused	91	30.9	20.7	(2.2)
Pure Emotion-Focused	61	14.1	21.2	(2.7)
Broad Coping	281	11.1	26.5	(1.6)
Narrow Coping	57	-2.3	25.3	(3.4)
Mixed Avoidant	242	-7.7	27.1	(1.7)
Pure Avoidant	227	-17.8	27.1	(1.8)

F = 65.173 Sig. = .000

Table 3.10 shows that there is a strong and consistent pattern of differences in mental health between coping categories. This result is statistically significant ($F=65.173$; $sig.=.000$) with Tukey's HSD post-hoc test showing statistical significance between

¹⁵ Honestly Significant Difference.

nearly every pair of categories. Categories have been arranged in descending order of mean scores to emphasize the linear decline in effectiveness from adaptive to avoidant coping in terms of producing positive health outcomes. There is strong evidence here to suggest that it makes logical and empirical sense to categorize coping styles in this manner. As well, it is reasonable to conclude that the differences seen here are empirically valid, and share some meaningful theoretical connection with real world phenomena.

Table 3.11: ANOVA output; differences in health levels by coping categories (controlled for high & low stress)

Item	N	Mean	Std. Deviation	S.E.
Low Stress^a				
Adaptive & Problem-Focused	60	33.8	20.6	(2.7)
Pure Emotion-Focused	42	17.0	21.5	(3.3)
Broad Coping	153	16.7	26.3	(2.1)
Narrow Coping	40	-0.7	23.7	(3.7)
Mixed Avoidant	138	-2.2	26.7	(2.3)
Pure Avoidant	145	-14.3	26.8	(2.2)
High Stress^b				
Adaptive & Problem-Focused	27	22.8	20.0	(3.9)
Pure Emotion-Focused	19	7.7	19.8	(4.5)
Broad Coping	119	4.6	25.8	(2.4)
Narrow Coping	13	-5.1	25.0	(6.9)
Mixed Avoidant	100	-14.1	25.6	(2.6)
Pure Avoidant	78	-23.9	27.3	(3.1)

^a F = 42.731 sig. = .000 ^b F = 21.927 sig. = .000

Similar to the tests of coping as a moderator variable in model 1, Table 3.11 displays an elaborated ANOVA testing health differences between coping styles when controlling for high and low levels of stress¹⁶. This represents a final attempt to observe an interaction of any sort between stress and coping. To make clear the directionality of the output from tables 3.10 and 3.11, results were graphed in a line chart as shown in

¹⁶ i.e. Scores above the mean versus mean score or scores below the mean.

Figure 3.2. Two things are clear from this graph. First, the coping categories as defined have nearly a linear relationship between their mean health scores. Secondly, there is essentially a parallel relationship between health scores at high and low levels of stress. This again confirms that coping and stress generate independent effects on health in this sample.

Figure 3.2: Mean health scores by coping categories for all respondents, and separated by high and low stress levels.

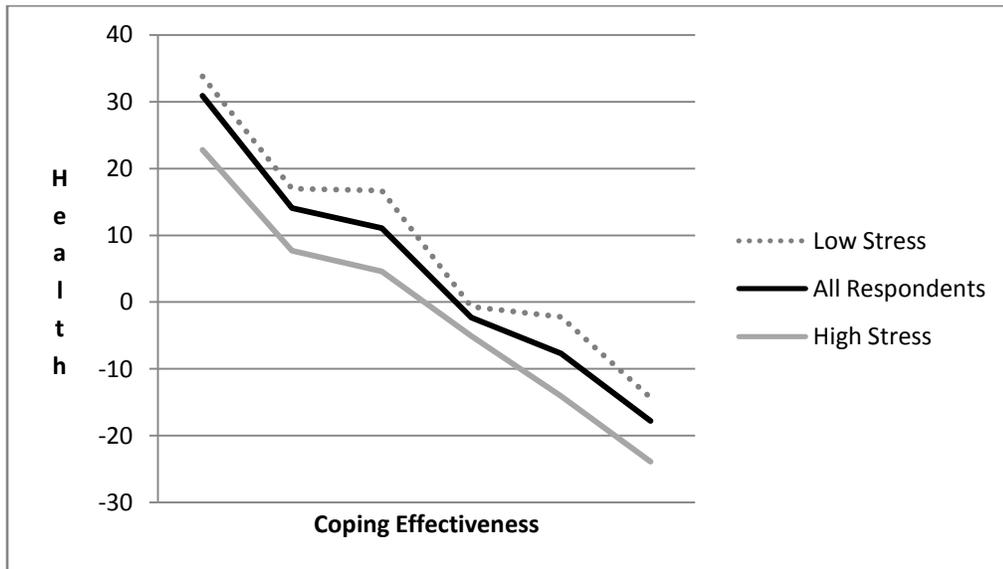


Table 3.12: Regression model including sex and adaptive coping scale on subjective stress.

Step	β	t
Sex	-.198	-7.0**
Adaptive Coping Scale	.077	2.7**

$R^2 = .049$ * $p < .05$ ** $p < .01$

Note: Stress is the dependent variable.

From Table 3.12, we can see that neither sex nor the adaptive coping scale are particularly strong predictors of perceived stress. Though both variables are significant predictors of stress, total variance explained is less than 5% ($R^2 = .049$) which indicates a

weak overall regression model. This result runs contrary to what would be expected from the theoretical literature. Since it is generally assumed that the purpose of coping is to mitigate the effects of stress, it is reasonable to expect a stronger relationship between the variables. This issue will be further discussed in the following section.

Table 3.13: Regression model including sex, stress, and adaptive coping scale on mental health.

Step	β	t
Sex	-.060	-2.2*
Stress	-.192	-7.0**
Adaptive Coping Scale	.512	18.8**

$R^2 = .328$ * $p < .05$ ** $p < .01$

Note: Mental health is the dependent variable.

As shown in Table 3.13, sex, stress, and adaptive coping are strong predictors of mental health. The combined model explains 32.8% of total variance in mental health ($R^2 = .328$), and all three independent variables are significant predictors. Recall that the adaptive coping scale was calculated by summing adaptive techniques (problem-focused coping, seek social support, and focus on the positive) while subtracting maladaptive coping strategies (detachment, keep to self, self blame, and wishful thinking). The standardized beta for this variable is very strong ($\beta = .512$) which suggests that having adaptive coping strategies in one's 'repertoire' while minimizing maladaptive strategies is one of the most clear indicators of expected outcomes for mental health. In addition, stress has a significant, negative effect on mental health ($p < .01$). Being female also has a small but statistically significant ($p < .05$) negative effect on health.

Table 3.14: Regression model with dummy-coded coping categories and stress on mental health.

Step	B	β	<i>t</i>
(Constant = Adaptive Coping)	29.3		
Emotion-Focused	-17.5	-.145	-4.2
Broad Coping	-16.5	-.251	-5.4
Narrow Coping	-34.5	-.267	-8.0
Mixed Avoidant	-35.5	-.517	-11.4
Pure Avoidant	-47.3	-.675	-15.0
Stress	-.913	-.252	-9.1

$R^2 = .312$ All terms significant at $p < .01$
 Note: Dependent variable = mental health

For the final regression equation seen in Table 3.14, the six coping categories were dummy coded and arranged in terms of their effectiveness on producing positive health outcomes. For ease of interpretation, adaptive coping (i.e. combination of problem-focused and emotion-focused coping) was used as the reference variable since it results in the highest levels of mental health. The output suggests that any problem-focused or emotion-focused coping strategies will tend to result in above average mental health. Conversely, avoidant coping generally leads to worse mental health situations, especially when the individual fails to incorporate any problem- or emotion-focused strategies as part of their overall style. This is an especially important finding considering roughly a quarter of individuals in the sample are categorized as having a pure avoidant coping style. If this result could be sufficiently validated by additional research, there could be important implications for future studies in addition to academic institutional student policies.

3.3 Summary of Findings

The output must be summarized in two separate sections, since the second part of the analysis resulted from the conspicuous absence of any significant stress-coping

interactions in the first model. It was difficult to ascertain the need for model #2 without first observing the original set of results from model #1. As such, the full complement of results can only be fully appreciated by understanding the entire series of events that unfolded throughout the research process.

Model #1 – The purpose of this model was to examine the evidence in support of five hypotheses: 1) Stress will correlate negatively with health; 2) Problem- and emotion-focused coping will correlate positively with health and avoidance will correlate negatively; 3) There will be an observable interaction between stress and coping in terms of health; 4) Males will favor problem-focused and avoidant coping while females will favor emotion-focused strategies; 5) Males will receive greater health benefits from problem-focused coping and more harm from avoidance while females will benefit more from emotion-focused strategies.

The data generally supports hypotheses #1 and #2. As theoretically expected, stress has a negative bivariate correlation with mental health. Moreover, the inverse relationship holds in all regression equations when controlling for gender and coping style. Regarding the effects of copings styles, problem-focused coping and focus on the positive had significant positive effects on health whereas keeping to self, self blame, and wishful thinking had negative effects. The effects of seeking social support and detachment were statistically insignificant. It should be pointed out that no coping style had an opposite effect than would be predicted.

The evidence was marginally supportive to unsupportive of hypotheses #4 and #5. Bivariate comparisons revealed that males and females were quite similar in their coping patterns with little statistical variation between them. Males did tend to score

significantly higher on the Keep to Self subscale while females scored higher on Seeking Social Support. However, females also tended to cope more so by wishful thinking, a type of avoidant strategy. Regarding health outcomes due to choice of coping strategy, again, males and females were almost indistinguishable. The one notable difference was that the female sample showed a significant negative effect from keeping to self, while the difference was not significant for males. This result speaks highly in favor of the situational hypothesis for gendered coping behavior. That is, males and females cope in similar ways and experience similar effects when faced with similar situations. There is little evidence in favor of the dispositional hypothesis which proposes that males and females have a predisposition to cope in different ways because they tend to derive gender specific benefits.

Hypothesis #3 really was the focal point of the current project. While evidence for the other hypotheses would add to other fairly well-established bodies of empirical literature, the question of stress-coping interaction could potentially open new lines of discussion. However, it was shown conclusively that there is no moderating effect, or any interaction whatsoever, between stress and coping in this sample. This is an unexpected finding as the very purpose of coping is indeed to mitigate the negative effects of stress. It was this lack of a statistical relationship that prompted a second model to be posited with a new set of hypotheses.

Model #2 – This model was developed in order to test three new hypotheses stemming from the findings (or lack thereof) in Model #1. 6) Subjective stress will be significantly and substantively different than stress as an ‘objective’ measure; 7) Individuals can be classified into distinct coping categories that can be verified

empirically as well as conceptually; 8) With these new categories, some relationship between stress and coping will become apparent. Note that hypothesis #6 tests a concept that is secondary to the overall findings, but it is an interesting theoretical proposition nonetheless.

Regarding hypothesis #6, the results are unresponsive that there is any significant difference between stress measured as an objective count of major life events, or as a subjective scale of perceived stress associated with said life events. A Person's r of .887 suggests that the events included on the checklist have a normative valuation of being stressful. This claim is further validated by the relative lack of variability in the perceived stress rating scales.

Related to hypothesis #7, six mutually exclusive coping categories were proposed as a novel method of grouping respondents: Adaptive coping, pure emotion-focused, broad coping, narrow coping, mixed avoidant, and avoidant. Evidence from an ANOVA calculation with Tukey's HSD test showed each group to be unique in their direct effects on mental health. Additionally, health outcomes could be graphed linearly suggesting that this method of categorization represents a useful ordinal ranking of coping styles. Additional empirical studies are necessary to verify the validity of this claim.

Regarding the final hypothesis, there is minimal evidence to support the idea that coping and stress are empirically related in this sample. Multiple regression showed that coping is a statistically significant predictor of stress, but the effect is so small that it is hardly a substantive finding. Instead, it seems more accurate to say that coping and stress influence mental health almost entirely independent of each other. This begs an important question. What exactly are individuals coping with? It is a widely held assumption that

coping occurs as part of the process to mitigate the potentially damaging effects of stress on mental health. How is it possible to explain the missing connection between these vitally important variables? The most likely answer is that major life events, while stressful, are not the cause of immediate stress that invokes coping behavior on a day-to-day, or moment by moment basis. This line of discussion, and the implications for future study in this area, will be addressed in the final chapter.

CHAPTER FOUR: DISCUSSION & CONCLUSION

In this chapter, results from the research will be discussed in light of previously published literature on stress, coping, and health. Additionally, elements in the current project's methodology will be highlighted to both guide and caution the reader as to the extent that findings can be generalized and interpreted. Finally, the implications of findings on future research projects, as well as practical applications to policy development will be discussed.

4.1 The Effects of Coping and Stress on Health

Based on this study's results, there is virtually no question that stress and coping are strong general indicators of one's overall levels of mental health. However, several more specific questions require attention. First, what classification of coping styles (e.g. problem-focused vs. emotion-focused; approach vs. avoidance, etc.) lends itself to the most adequate interpretation of the current findings? Second, how is the marginal relationship between stress and coping in this sample to be explained? Answering these two major questions will help build the theoretical base for stress-coping research, and may lead to new insights for methodologies to reliably and accurately measure individual's levels of stress and coping.

4.1.1 Classifying Coping Styles

Since the original conception of problem-focused and emotion-focused coping by Folkman & Lazarus (1984), there have been numerous attempts at modifying and improving upon the method of classification. For instance, Herman-Stahl and Peterson

(1995) emphasized the distinction between approach and avoidant coping¹⁷. Approach coping involves purposive behavior aimed at resolving stressful situations or regulating emotions while avoidant coping describes individuals who seek to disengage from stressors through denial or escapism. Yet other researchers have adhered to the problem-focused/emotion-focused paradigm while adding more precise conceptual categories such as problem-focused, emotion-focused, and avoidance (Tennen, Affleck, Armeli & Carney, 2000) or by dissecting existing categories such as active coping, planning, and restraint as aspects of problem-focused coping (Carver, Scheier, & Weintraub, 1989).

Regardless of the specifics, all classification schemes share a common thread where certain coping behaviors are labeled as ‘effective’, ‘adaptive’, ‘functional’ or otherwise beneficial to mental health, while others are described as ‘ineffective’, ‘maladaptive’, or ‘dysfunctional’ denoting their negative effects. It is this distinction, between adaptive and maladaptive coping, that was most interpretable in the current study. It was clear from the results that both problem-focused and emotion-focused strategies had positive, adaptive effects on health while avoidant strategies were maladaptive. However, a truly adaptive coping style requires both problem-focused and emotion-focused techniques with an absence of avoidant behaviors.

When it comes to defining coping styles, some caution must be exercised. Historically, there has been some confusion about how to properly determine coping styles, and it is debatable whether this constitutes a productive arena of thought. Lazarus (1993) argues that “broad coping styles do not adequately explain or predict intraindividual variations on the way given sources of stress are dealt with in specific contexts” (p. 241). In other words, the truly interesting and relevant part of the stress-

¹⁷ Sometimes referred to as approach and withdrawal.

coping process happens within short-term interactions, and only through accumulation of events can the connection to health be appreciated. On the other hand, Steiner and colleagues (2002) found significant differences in levels of internalizing/externalizing disorders and overall health among four separate typologies of coping styles suggesting that individuals who engage in various coping behaviors over time experience disparate long-term results.

Assuming the theoretical soundness of coping styles as a construct, the next issue is determining the criteria by which to separate categories. It makes little sense to use a dualistic approach (i.e. problem-focused style vs. emotion-focused style) for several reasons. Firstly, there are very few individuals in this sample that can be described as having solely a problem-focused or emotion-focused style, a result that agrees with past research (see Folkman & Lazarus, 1984; Steiner et al., 2002). A dichotomous typology also ignores the potential for individuals to employ many coping strategies or none at all. Secondly, the data empirically support the distinction between problem-focused, emotion-focused, and avoidant coping among the Ways of Coping subscales. Moreover, when these subscales were used to determine coping styles based on the 'repertoire' of each individual, a negative linear relationship was noted from the most effective style ('adaptive coping') to the least effective style ('pure avoidant coping') in terms of mental health. This suggests the exciting possibility of a valid, six-fold typology of coping styles based on the relative use or non-use of Lazarus and Folkman's coping strategies.

4.1.2 Relationship Between Stress and Coping

Findings from the dataset revealed a marginal to non-existent relationship between the stress and coping variables. This is a peculiar finding considering that the very reason

for coping resources is to mitigate the negative consequences of stress. In an early theoretical paper, Pearlin, Menaghan, Lieberman, and Mullan (1981) describe it in this way:

We distinguish coping behavior according to its functions, of which there are at least three: The modification of the situations giving rise to stressful problems; the modification of the meaning of problems in a manner that reduces their threat; and the management of stress symptoms (p. 341).

Coping is essentially contingent on there being sources of stress in one's life. However, this crucial theoretical connection is rarely observed in empirical research, and it is not statistically visible in the current research. By no means is this a revelatory finding in stress-coping research but instead reflects a more pervasive issue in the literature as the following quote illustrates:

Research workers usually examine the direct effects of coping on health and/or the moderating effects of coping on the relationship between stress and health, without assessing the relationship between coping and... the environmental factors which caused stress in the first place (Cooper, 1988: 18).

Despite the logical contingency of coping on environmental stress, it is rarely discussed in academic research papers, and indeed there is little evidence that the two are statistically correlated. What factors could account for this discrepancy? The most obvious is the use of major life events as a measure of stress. Major life events have likely persisted as an indicator of stress in many studies because it is easy to administer in self-report surveys, and because results typically show strong correlations with health. However, it has been repeatedly argued that minor life events, or daily hassles, must be accounted for to accurately get a sense of the ongoing stress endured by individuals (Lazarus, 1990). Kanner, Coyne, Schaefer, and Lazarus (1981) concluded that hassles

were a considerably better predictor of psychological stress than major events, a finding that was validated by Monroe (1983). While it is clear that major life events do measure some type of perceived stress, as can be deduced from the negative correlation with health, it is not likely that they measure the stressful events that prompt purposive coping behavior. In this sense, it is easy to side with Richard Lazarus' argument that stress and coping ought to be measured in a processual manner so that the coping response can be matched with the stimulus. However, achieving such a level of detail in research greatly magnifies the burden on researchers and research subjects. Until more detailed data can be gathered, it will be necessary to recognize the limitations of real world research, which in turn limits the ability of researchers to draw valid conclusions.

4.2 Gender Differences

Very few notable differences in coping behavior exist between males and females in the sample, though females reported somewhat higher levels of stress overall. This is contrary to expectations from the foundational literature which posits that males tend to favor problem-focused coping strategies and females tend towards emotion-focused strategies (Folkman & Lazarus, 1984). However, it is very much in line with more recent findings. For example, Dyson and Renk (2006) also reported few gender differences in a sample of university undergraduates citing advancements in male-female equality and the shared university experience as likely explanations. It is very likely that undergraduate students, as a subset, share many more commonalities than do males and females in the general population. This is especially magnified by the fact that participants in the current sample are all undergraduate students in the same introductory course.

Another point to consider is what the data suggest about male and female predispositions toward coping. The data strongly support the idea that males and females placed in similar situations will respond in similar ways, also called the situational hypothesis. This is consistent with one of the major conclusions in the meta-analysis by Tamres, Janicki, and Helgeson (2002) that when controlling for specific stressors, men's and women's coping styles are roughly equivalent. Helgeson (2011) asserts that one possible explanation for gender differences in general population samples is the different types of stressors faced by men and women. For instance, women are more often the victims of physical and sexual violence while men endure greater emotional and psychological effects related to unemployment. Unfortunately it is impossible to test this proposition using the current data. It is safe to conclude, however, that the data evidences socialization as an important aspect of developing a coping repertoire. It is therefore unsurprising that a sample of individuals undergoing a similar socialization process should also have roughly equivalent patterns of coping behavior.

4.3 Discussion of Other Findings

4.3.1 Subjective vs. Objective Measure of Stress

The current study provides little evidence that measuring the subjective intensity of stress differs significantly from measuring the objective frequency of stressful events. Both variables were highly correlated ($r = .887$) which suggests that the major life events checklist contains normatively stressful indicators. Again, the issue needs to be raised whether major life events constitute a valid measure of actual stress, or whether they act as catalysts or modifiers of more proximal events such as daily hassles. There is strong evidence that subjective appraisals of recent events more accurately capture emotional

reactions than do objective measures of events in the distant past (Lazarus, 1990). This is likely due to difficulties in accurately reporting events, or reporting feelings of those events, from one month or longer in the past. Also, if it is true that major life events indirectly cause stress levels to increase – which appears a likely possibility – then accessing data on the immediate sources of stress would require short-term, longitudinal studies of daily hassles. As mentioned, while this is certainly possible, there are many real-world tradeoffs such as cost, and additional burden to study participants and researchers.

4.3.2 Benefits of Using Keyes' Model of Mental Health

Looking forward, there are a number of benefits in using Corey Keyes' (1998; 2006) complete model of mental health as the dependent variable in this study. First, it works towards resolving one of the major criticisms of the coping literature, namely, that concepts such as stress, coping, and well-being have often been confounded in past research. The issue has been repeatedly raised that indicators of mental health, such as depression, have also been used as indicators of stress; sometimes within the same study (Cooper, 1988; Schroeder & Costa, 1984). This inability to properly define causal relationships, and directionality between stress, coping, and health, has often led to difficulties in data interpretation, and a general lack of consistency throughout the literature. Having a theoretically based and logically coherent measure of mental health moves towards clearly delineating health as a dependent variable from stress and coping as independent variables. There is the additional benefit of employing Keyes' dual continua model (i.e. flourishing vs. languishing) in continued exploration of stress, coping, and health, using this dataset in the future.

Table 4.1: Summary of hypotheses and whether evidence indicates support or rejection

Hypothesis	Reject	<i>Some Support</i>	<i>Strong Support</i>
H1: Stress will be negatively correlated with mental health.			✓
H2: Problem-focused and emotion-focused coping will correlate positively with health while avoidance will correlate negatively.			✓
H3: One or several of the interaction terms between stress and coping style will be significantly correlated with mental health.	✓		
H4: Males will tend to use more problem-focused and avoidance strategies whereas females will tend to favor emotion-focused strategies.	✓		
H5: Males will tend to receive greater health benefits from problem-focused coping and more harm from avoidance strategies. Females will show stronger positive effects due to emotion-focused coping strategies.	✓		
H6: Subjective stress will be significantly and substantively different than if measured in the 'objective' sense.	✓		
H7: Individuals can be classified into distinct coping categories that can be verified empirically as well as conceptually.		✓	
H8: Using the newly formulated coping categories, some relationship between stress and coping will become apparent in the directional sequence prescribed by Model #2.	✓		

4.4 Limitations

The first major methodological limitation of this study regards the sampling strategy. While the sample size is quite large ($n = 1,245$), it is essentially a convenience sample of Manitoban undergraduate students in introductory Sociology courses. With this in mind, results and conclusions from the current study should not be generalized to the wider population of Canadians. However, with some caution it may be possible to generalize findings to university students across Canada, and perhaps to Canadian young adults. University of Manitoba is a relatively inclusive school in comparison to others

across Canada, meaning that, while we can expect above average indicators of socioeconomic status, the sample is likely to be less homogenous than one derived from a more exclusive program. Since there is a good deal of uncertainty in making generalizations from university samples to larger populations, it is best to retain narrow interpretations until conclusions can be validated by additional studies.

Another limitation to consider is the weakness of the stress variable, as previously discussed. It was hypothesized in the current study, as in the general body of stress-coping literature, that stress and coping would be linked empirically as they are theoretically. However, this connection was not apparent in the data. Results depicting the true effects of coping and stress on mental health would be much more interpretable if a validated measure of stress could be implemented. This is equally a criticism of the current study and of the wider body of research. Theoretically based instruments must eventually replace the largely atheoretical and empirically derived instruments commonly in use today.

Finally, a note on the discriminant analysis results. Typically, this technique is used by researchers to distinguish between variables with two or three nominal categories (Tabachnick & Fidell, 2007). Though it is possible to incorporate additional categories, the interpretation becomes exponentially more complex and difficult to interpret. The results of the discriminant analysis were judged to be supportive of a six category typology of coping styles with a moderately strong degree of certainty. Part of the determination also rested on the linear decline in effectiveness between categories that was visible in the accompanying multivariate analyses. Essentially, several components of the output consistently aligned to suggest that the categorization scheme was valid.

More detailed output from the discriminant analysis is included in Appendix D for readers to draw their own conclusions.

4.5 Future Research Implications

It is clear that one of the major challenges of future research will be to resolve the missing empirical connection between stress and coping. This correlation must exist, because if it did not, it represents a major contradiction to widely accepted coping theory. One possibility is to use daily or weekly diaries to collect data over several time-points while emphasizing the subjective rating of immediately stressful hassles. It is perhaps also desirable to verify subjective stress claims with corroborating biological evidence (i.e. cortisol levels), though this might be beyond the scope of social scientific research. Whatever the solution may be, until one is achieved there will continue to be difficulties with modeling stress, coping, and health beyond their direct relationships. As a result, more complex modeling techniques such as structural equation modeling are unlikely to be warranted until conceptual validity improves.

The concept of a coping ‘repertoire’ is an interesting idea that deserves further research and exploration. Such an approach potentially opens new fertile territory to discuss coping styles, and moreover, to do so from a sociological or social-psychological perspective. A coping ‘repertoire’ adds a layer of complexity to analysis that is overlooked by existing scales such as Ways of Coping. Instead of asking, “what are the effects of problem-focused/emotion-focused/avoidant strategies on health?”, the repertoire approach asks, “what coping tools does this individual have at their disposal, and how effective at mitigating stress is one set of tools compared to another?”. Using this method, coping styles become more than simply a preponderance to favor one or

several coping strategies. In this simplistic context, coping styles are labeled “controversial” because they “lock” individuals into a fixed coping state (Carver et al., 1989). However, a coping repertoire implies no such thing. In fact, it recognizes that an individual may employ every possible coping strategy (Broad Coping), or no coping strategies at all (Narrow Coping). Thus, a certain degree of flexibility is maintained while each coping category is associated with a meaningful effect on health. In addition, having an adaptive coping style, for example, does not necessarily preclude also having some maladaptive coping traits. The negative traits simply fall below the threshold of where they would have an appreciable effect on health. Returning to the original point, coping styles as repertoires recognizes the grand picture of coping strategies socialized throughout a lifetime. While the tradeoff comes in not knowing what outcomes resulted from actions taken in specific situations, such a precise level of predictive ability has never been the goal of Sociology.

4.6 Implications for Policy

The types of coping strategies one uses has a clear and direct effect on mental health. Those who learn to incorporate a full range of problem-focused and emotion-focused coping techniques into their repertoire can expect substantially better mental health outcomes than those who default to avoidance, self-blame, and social detachment. This information should be of importance to University administration and support staff whose job is to guide students through their academic careers. An indelible aspect of University culture among young students is to develop a sense of independence and autonomy as adults. Learning to effectively cope with stress is absolutely an essential

component of healthy self-regulation. Educators can use this knowledge of the coping-health relationship in a number of ways to better guide students:

- Instruments like the Ways of Coping questionnaire can potentially diagnose patterns of coping in individual students that predict better or worse mental health outcomes throughout a University program.
- Students should be encouraged to adopt active, approach-oriented, and purposive coping strategies aimed at problem-solving and emotion regulation whenever possible.
- Conversely, students should be warned about the health risks associated with coping by avoidance tactics, with having a pessimistic and defeatist attitude, and with formulating unrealistic, negative perceptions about the self.

Of course, this is not to suggest that every stressful situation is resolvable through directed action in the short term. Research suggests that avoidant coping may have psychological benefits in times of overwhelming stress such as when a loved one dies, or when first confronted with a major illness (Lewis & Frydenberg, 2002). However, if the goal is to attain the most positive long-term health results, having a repertoire of adaptive coping techniques with an absence of avoidance tactics is likely the most valid strategy.

4.7 Conclusion

If any single message had to be understood from this study, it is that mental health, with coping as a significant indicator, is largely predicated on social connections with others. Though it is inconceivable that social life can be lived without tension and stress-inducing situations, we do ourselves no favors by expending valuable energy on avoidance, self-blame, and pessimism. In fact, it ironically appears that an apathetic disposition towards coping is more beneficial to health than coping using maladaptive efforts. Humans are intensely social creatures, and our social and personal experiences are best fulfilled when we employ an honest and positive tack when confronting others.

Despite the preceding optimistic proclamation, coping in the real world is a subtle and challenging affair. Only a small minority of individuals can be classified as having healthy and productive coping styles while the majority has adopted non-coping or harmful avoidance coping styles. While explanations for this empirical fact can be attempted from competing psychological, sociological, and biological perspectives, one clear point to be made is that most individuals are sacrificing their overall state of future mental health because of an inability, or unwillingness to effectively cope in the present. In other words, there is a clear disconnect between the assumed desire to be mentally healthy, and the necessary means to attain that state of health. In a more general sense, it seems accurate to say that most people do not take the long-term into account when deciding on short-term actions. This maxim has been validated by the widespread spending and investing habits leading to the most recent economic downturn, it is apparent in our consumption practices in the face of global warming, and it likely describes our ineffective coping practices even when personal health is the price. Perhaps we are fated to follow the path of least resistance, wherever it may lead.

In conclusion, the current study has generated several findings of value to the research community. However, this is merely a staging area for future research endeavors. To further validate the ‘repertoire’ categorization of coping styles would be a positive advancement in coping research methodology. Additionally, to expand the conceptualization of mental health to Keyes’ full flourishing-languishing model would be a theoretical improvement for modeling stress, coping and health. Finally, and most importantly, an empirical connection must be discovered between stress and coping to truly make a big leap in our understanding of the topic. While the current state of stress-

coping research is useful in its application, this project points to certain theoretical advancements that if made, will uncover exciting new territories within the discipline.

Appendix A: Univariate output (all variables)

Item	n	Mean	Median	Mode	S.D.	Skewness	Kurtosis
Mental Health Index	959	.00	1.97	<i>a</i>	29.97	-0.25	0.09
Stress	1209	.00	-1.84	-7	8.23	1.22	1.65
Sex ¹	1236	n/a	n/a	0	n/a	0.51	-1.74
WOC Detachment	1241	.00	.62	1	3.60	0.03	0.57
WOC Focus on the Positive	1243	.00	.24	-1	2.67	-0.07	0.37
WOC Keep to Self	1242	.00	.46	0	2.36	0.09	-0.14
WOC Problem-Focused	1239	.00	.25	0	5.70	-0.28	1.28
WOC Self Blame	1242	.00	.13	0	2.30	0.20	0.04
WOC Seek Social Support	1243	.00	.00	3	5.14	-0.25	-0.14
WOC Tension Reduction ²	1241	.00	.12	0	1.97	0.11	0.23
WOC Wishful Thinking	1241	.00	.13	0	3.79	0.01	-0.14

¹ Female = 0 ; Male = 1

² Variable excluded from final analysis.

a Multiple modes

Appendix B: All items used to calculate mental health index

Item	Response Categories
<p><i>In the past 30 days, how often have you felt...</i></p> <p>Interested Distressed Excited Upset Strong Guilty Scared Hostile Enthusiastic Proud Irritable Alert Ashamed Inspired Nervous Determined Attentive Jittery Active Afraid</p>	<p><i>All of the time</i> <i>Most of the time</i> <i>Some of the time</i> <i>Rarely</i> <i>None of the time</i></p>
<p><i>How strongly do you agree or disagree with the following statements?</i></p> <p>My attitude about myself is probably not as positive as most people feel about themselves I think it is important to have new experiences that challenge how you think about yourself and the world I live life one day at a time and don't really think about the future When I look at the story of my life, I am pleased with how things have turned out I like most parts of my personality It is difficult for me to voice my own opinions on controversial matters My daily activities often seem trivial and unimportant to me I am not interested in activities that will expand my horizons I enjoy making plans for the future and working to make them a reality I have been able to build a living environment and a lifestyle for myself that is much to my liking I have a sense of direction and purpose in life I feel like many of the people I know have gotten more out of life than I have I am quite good at managing the many responsibilities of my daily life I judge myself by what I think is important, not by the values of what others think is important I enjoy personal and mutual conversatinos with family members and friends Maintaining close relationships has been difficult and frustrating for me I tend to be influenced by people with strong opinions I do not fit in very well with the majority of people around me The demands of everyday life often get me down When I think about it, I haven't really improved much as a person over the years I have not experienced many warm and trusting relationships with others</p>	<p><i>Strongly agree</i> <i>Moderately agree</i> <i>Slightly agree</i> <i>Neither agree or disagree</i> <i>Slightly disagree</i> <i>Moderately disagree</i> <i>Strongly disagree</i></p>

I know that I can trust my friends, and they know they can trust me
 I tend to worry about what other people think of me
 For me, life has been a continuous process of learning, changing, and growth

How strongly do you agree or disagree with the following statements?

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

Strongly, moderately, slightly agree
Neither agree or disagree
Strongly, moderately, slightly disagree

How strongly do you agree or disagree with the following statements?

I don't feel I belong to anything I'd call a community
 I believe that people are self-centred
 My behaviour has some impact on other people in my community
 The world is too complex for me
 I feel that people are not trustworthy
 I don't have the time or energy to give anything to my community
 I don't think social institutions like law and government make my life better
 Most cultures are so strange that I cannot understand them
 Society isn't improving for people like me
 I believe that people are kind
 My daily activities do not produce anything worthwhile for my community
 I think that people are unreliable
 I think the world is becoming a better place for everyone
 I think I have something valuable to give to society
 I see society as continually evolving and improving
 I feel close to other people in my community
 I think it's worthwhile to understand the world we live in
 If I had something to say, I don't think my community would take me seriously
 I cannot make sense of what's going on in the world
 I see my community as a source of comfort

Strongly agree
Moderately agree
Slightly agree
Neither agree or disagree
Slightly disagree
Moderately disagree
Strongly disagree

Appendix C: Model #1 multiple regressions excluding highly correlated terms

(Focus on Positive excluded)

Step	R2	β	t
Sex	.445	-.07	-2.71**
Stress		-.19	-7.17**
Detachment		.00	.08
Keep to Self		-.16	-4.95**
Problem-Focused		.446	15.63**
Self Blame		-.14	-4.73**
Seeking Social Support		.11	3.36**
Wishful Thinking		-.24	-7.97**

* $p < .05$; ** $p < .01$

(Problem-Focused excluded)

Step	R2	β	t
Sex	.434	-.05	-2.04*
Stress		-.18	-6.73**
Detachment		-.07	-2.32*
Keep to Self		-.13	-3.89**
Self Blame		-.11	-3.85**
Seeking Social Support		.145	4.46**
Wishful Thinking		-.18	-6.01**
Focus on the Positive		.42	14.91**

* $p < .05$; ** $p < .01$

Appendix D: Additional SPSS output from the Discriminant Analysis

Group Statistics

rrCopeStyle		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
1 Adaptive + PF Coping	oWOC_Detach	7.65	2.589	111	111.000
	oWOC_FocusPositive	9.75	2.169	111	111.000
	oWOC_KeepSelf	3.14	1.417	111	111.000
	oWOC_Prob	29.51	2.292	111	111.000
	oWOC_SelfBlame	4.37	1.205	111	111.000
	oWOC_Support	17.86	3.532	111	111.000
	oWOC_Wishful	7.86	2.270	111	111.000
2 Pure EF Coping	oWOC_Detach	8.16	2.470	79	79.000
	oWOC_FocusPositive	8.87	2.215	79	79.000
	oWOC_KeepSelf	3.20	1.353	79	79.000
	oWOC_Prob	23.11	2.698	79	79.000
	oWOC_SelfBlame	4.19	1.545	79	79.000
	oWOC_Support	17.68	2.734	79	79.000
	oWOC_Wishful	7.74	2.492	79	79.000
3 Broad Coping (PF + EF + A)	oWOC_Detach	11.38	3.615	355	355.000
	oWOC_FocusPositive	10.79	2.314	355	355.000
	oWOC_KeepSelf	5.54	2.290	355	355.000
	oWOC_Prob	31.10	3.588	355	355.000
	oWOC_SelfBlame	6.84	2.322	355	355.000
	oWOC_Support	18.23	4.439	355	355.000
	oWOC_Wishful	12.24	3.517	355	355.000
4 Narrow Coping	oWOC_Detach	7.89	2.608	87	87.000
	oWOC_FocusPositive	6.53	2.172	87	87.000
	oWOC_KeepSelf	3.61	1.313	87	87.000
	oWOC_Prob	19.45	5.238	87	87.000
	oWOC_SelfBlame	3.71	1.731	87	87.000
	oWOC_Support	11.33	3.510	87	87.000
	oWOC_Wishful	7.25	2.865	87	87.000
5 Mixed Avoidant	oWOC_Detach	10.69	3.507	312	312.000
	oWOC_FocusPositive	8.49	2.148	312	312.000
	oWOC_KeepSelf	6.28	2.072	312	312.000
	oWOC_Prob	24.98	3.984	312	312.000
	oWOC_SelfBlame	6.32	2.027	312	312.000
	oWOC_Support	14.94	4.586	312	312.000
	oWOC_Wishful	11.88	3.459	312	312.000
6 Pure Avoidant	oWOC_Detach	11.27	3.356	293	293.000
	oWOC_FocusPositive	6.81	1.831	293	293.000
	oWOC_KeepSelf	6.86	1.935	293	293.000
	oWOC_Prob	21.20	4.164	293	293.000
	oWOC_SelfBlame	5.87	2.218	293	293.000
	oWOC_Support	10.39	3.497	293	293.000
	oWOC_Wishful	11.21	3.673	293	293.000
Total	oWOC_Detach	10.39	3.587	1237	1237.000
	oWOC_FocusPositive	8.75	2.663	1237	1237.000
	oWOC_KeepSelf	5.54	2.359	1237	1237.000
	oWOC_Prob	25.74	5.692	1237	1237.000
	oWOC_SelfBlame	5.87	2.293	1237	1237.000
	oWOC_Support	14.99	5.141	1237	1237.000
	oWOC_Wishful	10.87	3.787	1237	1237.000

Tests of Equality of Group Means

	Wilks' Lambda	F	df 1	df 2	Sig.
oWOC_Detach	.851	43.039	5	1231	.000
oWOC_FocusPositive	.641	138.006	5	1231	.000
oWOC_KeepSelf	.698	106.750	5	1231	.000
oWOC_Prob	.451	299.539	5	1231	.000
oWOC_SelfBlame	.804	59.935	5	1231	.000
oWOC_Support	.615	153.821	5	1231	.000
oWOC_Wishful	.778	70.192	5	1231	.000

Pooled Within-Groups Matrices

		oWOC_Detach	oWOC_FocusPositive	oWOC_KeepSelf	oWOC_Prob	oWOC_SelfBlame	oWOC_Support	oWOC_Wishful
Correlation	oWOC_Detach	1.000	.093	.202	-.006	.111	.063	.288
	oWOC_FocusPositive	.093	1.000	.027	.319	.123	.077	-.075
	oWOC_KeepSelf	.202	.027	1.000	.116	.261	-.350	.116
	oWOC_Prob	-.006	.319	.116	1.000	.203	.063	.017
	oWOC_SelfBlame	.111	.123	.261	.203	1.000	.058	.267
	oWOC_Support	.063	.077	-.350	.063	.058	1.000	.212
	oWOC_Wishful	.288	-.075	.116	.017	.267	.212	1.000

Log Determinants

rrCopeStyle	Rank	Log Determinant
1 Adaptive + PF Coping	7	9.742
2 Pure EF Coping	7	9.872
3 Broad Coping (PF + EF + A)	7	14.663
4 Narrow Coping	7	10.696
5 Mixed Avoidant	7	14.284
6 Pure Avoidant	7	13.402
Pooled within-groups	7	13.921

The ranks and natural logarithms of determinants printed are those of the group covariance matrices.

Test Results

Box's M	828.549
F	Approx. 5.794
	df 1 140
	df 2 457236.5
	Sig. .000

Tests null hypothesis of equal population covariance matrices.

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.820 ^a	71.0	71.0	.803
2	.658 ^a	25.7	96.6	.630
3	.066 ^a	2.6	99.2	.249
4	.016 ^a	.6	99.9	.126
5	.004 ^a	.1	100.0	.061

a. First 5 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 5	.197	1999.393	35	.000
2 through 5	.555	724.594	24	.000
3 through 5	.920	103.106	15	.000
4 through 5	.981	24.126	8	.002
5	.996	4.555	3	.207

Standardized Canonical Discriminant Function Coefficients

	Function				
	1	2	3	4	5
oWOC_Detach	-.026	.238	-.212	.714	.542
oWOC_FocusPositive	.308	.011	.305	.479	-.029
oWOC_KeepSelf	-.080	.551	.394	-.660	.597
oWOC_Prob	.695	.070	-.729	-.300	.067
oWOC_SelfBlame	-.051	.258	.089	.284	-.414
oWOC_Support	.466	-.090	.839	-.318	.316
oWOC_Wishful	.035	.454	.007	-.060	-.719

Structure Matrix

	Function				
	1	2	3	4	5
oWOC_Prob	.803*	.190	-.513	-.192	.047
oWOC_FocusPositive	.551*	.061	.139	.447	.087
oWOC_KeepSelf	-.168	.759*	.006	-.359	.411
oWOC_Wishful	.092	.637*	.159	.036	-.533
oWOC_SelfBlame	.140	.560*	.108	.155	-.362
oWOC_Support	.564	-.151	.672*	-.021	-.033
oWOC_Detach	.016	.505	-.034	.621*	.426

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

Variables ordered by absolute size of correlation within function.

*. Largest absolute correlation between each variable and any discriminant function

Functions at Group Centroids

rrCopeStyle	Function				
	1	2	3	4	5
1 Adaptive + PF Coping	1.285	-1.453	-.355	-.235	.049
2 Pure EF Coping	-.028	-1.554	.671	.147	.101
3 Broad Coping (PF + EF + A)	1.622	.413	-.073	.104	-.008
4 Narrow Coping	-1.770	-1.525	-.207	.157	-.146
5 Mixed Avoidant	-.214	.407	.247	-.136	-.047
6 Pure Avoidant	-1.690	.488	-.159	.022	.057

Unstandardized canonical discriminant functions evaluated at group means

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