

STABLE, SITUATIONAL AND INTERPERSONAL INFLUENCES IN STRESS AND  
COPING: A DAILY PROCESS STUDY

by

Dayna Lee-Baggley

B.Sc., The University of Calgary, 2000  
M.A., The University of British Columbia, 2002

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

THE FACULTY OF GRADUATE STUDIES

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

January, 2006

© Dayna Lee-Baggley, 2006

## ABSTRACT

Previous studies attempting to understand individual differences in responding and adapting to stress suggest that situational factors (i.e., stressor type and appraisals) and dispositional factors (i.e., personality traits) influence coping responses. However, our understanding of the role of dispositional and situational influences in stress and coping is limited due to the lack of studies that examine both simultaneously. Contemporary conceptualizations of the role of personality in the prediction of behavior highlight the need to examine both situational variability and dispositional tendencies (e.g., Mischel & Shoda, 1995). In the current study, the role of both process variables (i.e., situation) and stable factors (i.e., dispositions) in adaptation to stress were examined.

The study employed a daily process methodology involving repeated assessments in a naturalistic setting. Stress, appraisals, coping, and mood were reported twice a day for seven days by 350 undergraduate students. Multilevel analyses indicated that stressor type, appraisals, and the Big Five traits of personality predicted unique variance across a range of coping strategies. Furthermore, the findings demonstrated that a broad range of appraisals, in addition to controllability, predicted coping responses over and above stressor type. The Big Five traits of personality were found to be associated with stressor type and appraisals. The study also highlighted the importance of interpersonal influences by demonstrating the utility of incorporating interpersonal factors into multiple stages of the stress and coping process. Finally, the study provided evidence of the effects of coping strategies on outcomes (i.e., negative mood) beyond the influence of stressor type, appraisals, and dispositional factors using within-person analyses.

Overall, the results support incorporating both personality traits and situational factors into models of coping in order to understand the stress process. Similar to the broader literature on personality and behavior, the field of stress and coping is likely to benefit from models that integrate both dispositional and situational influences in the prediction of behavior. The current study suggests that understanding individual differences in adaptation to stress involves consideration of the multiple, situational, dispositional, and interpersonal factors that impact the stress and coping process.

## Table of contents

Abstract.....	ii
Table of Contents.....	iv
List of Tables.....	vii
List of Figures.....	viii
Acknowledgements.....	ix
1. Introduction.....	1
1.1 The Transactional Model of Stress and Coping.....	2
1.2 Coping Responses.....	4
1.2.1 Situational influences in coping responses .....	7
1.2.2 Stressor type.....	7
1.2.3 Cognitive appraisals.....	8
1.2.4 The role of personality in coping responses.....	12
1.2.5 Unique and interactive influences of personality, stressor type, and appraisals in coping responses .....	18
1.3 Role of Personality in Stressor Type and Appraisals .....	22
1.3.1 Role of personality traits in stressor type.....	23
1.3.2 Role of personality traits in appraisals.....	25
1.4 Outcomes of Coping.....	27
1.5 Methodological Issues in Studying Stress and Coping.....	30
1.6 Current Study.....	33
1.7 Hypotheses.....	35
1.7.1 Role of stressor type and appraisals in coping responses.....	35

1.7.2	The role of personality in coping responses .....	36
1.7.3	Interactive effects of personality and situational variables in predicting coping responses.....	38
1.7.4	Role of personality in stressor type and appraisals .....	38
1.7.5	Outcomes of Coping .....	40
2	Method.....	41
2.1	Sample.....	41
2.2	Measures.....	42
2.2.1	Personality.....	42
2.2.2	Stressor.....	43
2.2.3	Appraisals.....	43
2.2.4	Coping.....	44
2.2.5	Daily Mood.....	44
2.3	Procedure.....	45
3	Results.....	46
3.1	Factor analyses.....	46
3.1.1	Appraisals.....	46
3.1.2	Coping.....	46
3.2	Analyses of Aggregated Data.....	47
3.2.1	Descriptive statistics and zero-order correlations.....	47
3.3	Multivariate analyses.....	49
3.3.1	Influence of stressor type and appraisal variables in coping responses ...	55
3.3.2	Role of personality traits in coping responses .....	58

3.3.3 Interactions between personality and appraisals in predicting coping responses .....	61
3.3.4 Role of personality in stressor type and appraisals .....	64
3.3.5 Outcomes of coping .....	67
4 Discussion.....	71
4.1 Situational influences in coping responses .....	71
4.2 Role of personality traits in coping responses.....	77
4.3 Unique and interactive influence of appraisals, stressor type, and personality.....	84
4.4 Role of personality in stressor type and appraisals.....	89
4.5 Outcomes of coping:.....	94
4.6 The Contemporary Transactional Model of Stress and Coping.....	97
4.7 Limitations.....	97
4.8 Conclusion.....	101
Endnotes.....	103
Bibliography.....	109
Appendix A: Principal Components Analysis: Threat Appraisals.....	130
Appendix B: Principal Components Analysis: Coping.....	131
Appendix C: Equations.....	133

## List of Tables

Table 1: Intercorrelations Between Personality Scales and Aggregated Mean Scores of Situation, Appraisals, Threats, and Coping Scales.....	48
Table 2: Intercorrelations Among Coping Scales, Appraisals, Threats, and Stressor Type.....	50
Table 3: Intercorrelations Among the Aggregated Mean Scores of Coping Scales, Appraisals, Threats, and Stressor Type .....	51
Table 4: Variance for Coping, Appraisals, and Mood at the Two Levels of Scales, Analysis.....	54
Table 5: Hierarchical Linear Modeling of Stressor Type and Appraisals on Coping.....	56
Table 6: Hierarchical Linear Modeling of Personality Dimensions on Coping Controlling for Appraisals and Stressor Type.....	59
Table 7: Hierarchical Linear Modeling of the Interaction between Appraisals, Threats, Stressor Type, and Personality Dimensions on Coping .....	62
Table 8: Hierarchical Linear Modeling of Personality Dimensions on Appraisals and Stressor Type.....	65
Table 9: Hierarchical Linear Modeling of Demographics on Appraisals and Stressor Type.....	66
Table 10: Hierarchical Linear Modeling of Coping on Evening Negative Mood Controlling for Morning Negative Mood and Stressor Type.....	68
Table 11: Hierarchical Linear Modeling of Evening Coping on Evening Negative Mood Controlling for Morning Negative Mood and Appraisals...	69

## List of Figures

Figure 1: A Contemporary View of the Transactional Model of Stress and Coping.....	3
---	---



## Acknowledgements

There are many individuals who assisted with the successful completion of my graduate degree and specifically, this dissertation. First, I wish to thank my supervisor, Dr. Anita DeLongis, for her unwavering and unconditional support. I have grown both personally and academically under her mentorship. I will always be thankful for her selfless support and her desire to help me to do whatever “makes [me] happy”. Second, I wish to acknowledge the contributions of my committee members, Dr. Paul Hewitt and Dr. Jeremy Biesanz, and my internal and external defense committee members, Dr. Mark Schaller, Dr. Dan Perlman, Dr. Edith Chen, and Dr. Crystal Park. Their insightful comments and questions significantly improved this work. Special thank you to Dr. Biesanz for the many hours he spent discussing statistical issues and procedures with me.

Third, I would like to thank my volunteers who spent countless hours administering and explaining the procedure to the participants. I would also like to thank Wayne Tamagi for his invaluable assistance in building and maintaining the website used in this study and to all the participants for their time, participation, and willingness to answer the same questions twice a day for a week.

Fourth, I wish to acknowledge my parents for their encouragement and support, and for always regarding learning and education as valuable and worthy pursuits. I would like to extend my gratitude to my grad school companions, including classmates, lab mates and office mates, who made grad school bearable, even at its worst. I also wish to thank all my friends and loved ones who graciously tolerated my absences when work became all too consuming. Finally, I wish to thank Simon Sherry for his steadfastness, for always making me think, and for filling my life with laughter.

# 1 INTRODUCTION

There are clear individual differences in the ability to respond and adapt to stress. Research and anecdotes alike reveal that some people appear to respond adaptively to the stressors in their lives, evidencing minimal detrimental consequences, whereas others are plagued by stress and negative outcomes. Previous studies attempting to understand such individual variability in responding and adapting to stress suggest that situational factors, such as the type of stressor and appraisals<sup>1</sup>, influence coping (e.g., Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986a; Lazarus & Folkman, 1980, 1984; Pearlin & Schooler, 1978; Schwartz & Stone, 1993). There has also been a resurgence in interest in the role of dispositional factors, such as personality traits, in the stress and coping process (Bolger & Zuckerman, 1995; Gunthert, Cohen, & Armeli, 1999; Lee-Baggley, Preece, & DeLongis, 2005; O'Brien & DeLongis, 1996; Suls, David & Harvey, 1996; Watson & Hubbard, 1996). However, our understanding of the role of dispositional and situational influences in stress and coping is limited due to the lack of studies that examine both simultaneously. Without accounting for both influences, we may come to erroneous conclusions as to the role of each. Furthermore, previous research on the influence of situational and dispositional factors is limited due to methodological shortcomings, such as the reliance on cross-sectional, retrospective assessments of coping. Such studies may confound the results due to retrospective biases that may inflate the role of personality traits (e.g., Coyne & Gottlieb, 1996). Finally, most studies have focused on the prediction of coping responses. However, adaptation to stress may involve several processes, in addition to coping responses (e.g., Bolger & Zuckerman, 1995). These additional processes, such as exposure to stress and stress appraisals, are less commonly examined.

The current study seeks to enhance our understanding of adaptation to stress by providing novel evidence regarding the ways in which both situational and dispositional factors influence multiple aspects of the stress and coping process based on a daily process (i.e., repeated measures) design.

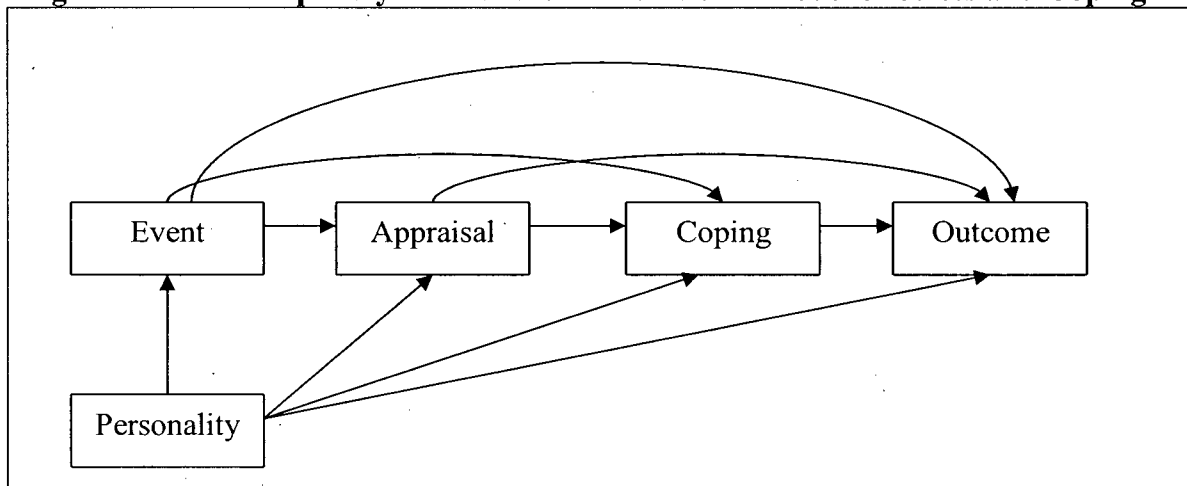
## **1.1 The Transactional Model of Stress and Coping**

The Transactional Model, proposed by Lazarus and colleagues (Aldwin, 1994; Folkman et al., 1986a; Folkman, Lazarus, Gruen, & DeLongis, 1986b; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984), has been the dominant model of stress and coping since its inception (Suls et al., 1996; Vollrath, 2001). Briefly, the Transactional Model stipulates a dynamic process of coping in which an individual appraises an event to determine whether the event exceeds his/her resources (i.e., whether the event constitutes a stressor). If the event is appraised as stressful, a coping response is initiated. This coping response impacts adaptational outcomes (e.g., mood), although whether a coping response is adaptive or maladaptive depends on its fit or match to the demands of the stressor.

Although dispositional factors were initially conceptualized as an important aspect of the Transactional Model (e.g., Lazarus & Folkman, 1984), the role of personality traits in the Transactional Model has historically been “neglected” (Lazarus, 1990, p. 42; Suls et al., 1996). Increasingly, contemporary studies of stress and coping have identified the ways in which personality traits may play a role in the Transactional Model (Bolger & Zuckerman, 1995; David & Suls, 1999). For example, dispositional factors have been associated with the likelihood of experiencing a stressful event, the appraisal of the event, coping responses, and the outcomes of coping, such as mood or

well-being (e.g., Bolger & Zuckerman; David & Suls; Gunthert et al., 1999; Lee-Baggley et al., 2005). Additionally, a distinction may be drawn between contemporary studies examining the role of personality traits in the Transactional Model and research on “dispositional coping” (e.g., Carver et al., 1989) or “coping styles” (e.g., Endler & Parker, 1990). Whereas the latter typically ignores process variables (e.g., situational factors) when examining dispositional factors, the former integrates both personality traits and process variables in understanding stress and coping. In the current study, such a contemporary view of the Transactional Model was employed. That is, the role of both process variables (i.e., situation) and stable factors (i.e., dispositions) in the Transactional Model was examined. An illustration of the contemporary Transactional Model examined in this study is provided in Figure 1. This model is herein referred to as “the contemporary Transactional Model”<sup>2</sup>.

**Figure 1: A Contemporary View of the Transactional Model of Stress and Coping**



Similar to the general literature on the prediction of behavior (e.g., Kenrick & Funder, 1988), the field of stress and coping has long debated the importance of situational and dispositional influences in coping responses (Lazarus, 1990; Mischel &

Shoda, 1998). The contemporary Transactional Model of Stress and Coping is consistent with conceptualizations of the “person-situation debate” that seek to integrate situation and personality. For example, the Cognitive Affective Processing System (CAPS) model, proposed by Mischel and Shoda (1995), suggests that “understanding and capturing the uniqueness of individual functioning” (Shoda, Mischel, & Wright, 1994, p. 683) involves integrating “both personality dispositions and processes” into a cohesive model (Mischel & Shoda, 1995, p. 263). In order to integrate dispositional and process variables, the CAPS model highlights the importance of idiographic, within-person assessments, in which individuals are followed across multiple situations and repeated instances of behavior. Additionally, the CAPS model suggests that understanding the context of behavior, especially the “psychological features” of situations (Mischel & Shoda, 1995, p. 248), is critical to identifying within-person consistency in behavior across situations. These elements (i.e., the importance of idiographic assessment, the context, and the psychological meaning of the situation) are also important aspects of the contemporary Transactional Model displayed in Figure 1. Both models suggest that assessing dispositional as well as situational influences may be necessary to fully understand individual differences in behavior, in general, and responding to and managing stress, in particular.

## **1.2 Coping Responses**

The most frequently studied aspect of the stress and coping process has been the determinants of coping responses. The most common definition of coping is “constantly changing cognitive or behavioral efforts to manage internal or external demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984,

p. 141). Although research suggests that stable and situational factors influence coping responses (e.g., David & Suls, 1999; Fleishman, 1984; Lee-Baggley et al., 2005; Parkes, 1986; Schwartz & Stone, 1993; Terry, 1991, 1994) there are some important limitations to existing research. First, few studies examine situational and stable influences concurrently. The failure to examine both influences simultaneously may lead to erroneous conclusions of the role of each, due to the overlapping or shared variance that exists between the two (Schwartz, Neale, Marco, Schiffman, & Stone, 1999; Terry, 1994). Second, the contribution of dispositional influences may be best understood when contextual factors, such as the situation, are taken into account (Lee-Baggley et al.; Mischel & Shoda, 1995). Third, existing studies that have examined both stable and situational influences in coping have not examined coping based on multiple assessments (i.e., daily process methodology). As such, these studies may provide an unreliable account of the ways in which people actually respond to stressors and consequently, an inaccurate view of the determinants of coping (Ptacek, Smith, Espe & Raffety, 1994; Schwartz et al., 1999). Because of these limitations of existing studies, more research is needed in which stable and situational influences in coping are examined simultaneously, across repeated instances, in order to understand the unique contribution of each.

Increasingly, there is interest in examining the interpersonal nature of stress and coping. This is consistent with the growing evidence of the importance of interpersonal factors in stress and coping (e.g., Taylor, Repetti, & Seeman, 1997). Historically, coping has been viewed as having two main functions: dealing with the emotions generated by the stressful event (emotion-focused) and managing the stressful situation itself (problem-focused; Folkman & Lazarus, 1980). More recently, researchers have argued for the

importance of a third function of coping, one that serves to manage, regulate, and/or preserve relationships during times of stress (Coyne & Smith, 1991; DeLongis & O'Brien, 1990; Lee-Baggley et al., 2005; O'Brien & DeLongis, 1996). This third function of coping, termed relationship focused coping, has been conceptualized as responses that involve empathy, compromise, and support provision to others (O'Brien & DeLongis, 1996).

This additional function of coping also maps onto an agentic-communal framework, a distinction that has been increasingly used in studies of stress, coping, and adaptational outcomes (e.g., Helgeson, 1994; O'Brien & DeLongis, 1996). Wiggins and Trapnell (1996) assert that the communion-agency distinction permeates through evolutionary, anthropological, sociological, and cross-cultural research and represents "the two central motivational clusters in human life" (p. 98). Helgeson (1994) has argued that the distinction between agency and communion has important implications in mental and physical well-being. At the most basic level, agency can be described as "a focus on or orientation toward the self" whereas communion "reflects a focus on or orientation toward others" (Helgeson, 1994, p.413). Within this framework, relationship focused coping can be viewed as a communally oriented coping strategy, whereas problem-focused coping may be viewed as a more agentially oriented coping strategy. Examining coping strategies with a communal or interpersonal function may assist in understanding the interpersonal impact of stress and coping and may help to contextualize the individual in his/her interpersonal environment.

### **1.2.1 Situational influences in coping responses**

Situational influences (or the context of coping) have long been held to be critical determinants of coping responses (e.g., Folkman et al., 1986a; Pearlin & Schooler, 1978). The most commonly studied situational influences of coping responses have been stressor type and appraisals. As illustrated in Figure 1, both are proposed to influence coping responses. Although important findings have been made concerning the situational influences in coping responses (e.g., Folkman et al., 1986a; Schwartz & Stone, 1993), there remain unanswered issues, especially in regards to the role of appraisals in coping, described in greater detail below.

### **1.2.2 Stressor type**

The nature of the stressor has emerged as a key situational or contextual variable in understanding coping responses. Numerous studies have found that the type of stressful event influences coping responses (Bolger & Zuckerman, 1995; Coyne & Gottlieb, 1996; Gunthert et al., 1999; Lee-Bagglely et al., 2005; Mattlin, Wethington, & Kessler, 1990; Schwartz & Stone, 1993). Researchers have often sought out groups of individuals facing distinct stressors (e.g., cardiac patients, cancer patients, Alzheimer caregivers, or distressed couples) based on the assumption that the type of stress being encountered is an important influence on coping. Others have examined heterogeneous groups and asked about any stressors they are encountering. These stressors are then classified by the researchers into distinct categories, based on the “objective” characteristics of the situation (Lee-Bagglely et al., 2005; Mattlin et al., 1990; O’Brien & DeLongis, 1996). Such work has demonstrated that different stressors elicit distinct types of coping (Coyne & Gottlieb, 1996). For example, in an ecological momentary



assessment of coping, Marco, Neale, Schwartz, Shiffman, and Stone (1999) found that work stressors were associated with more problem focused coping whereas marital stressors were associated with more emotion focused coping. Mattlin et al. (1990) found that “practical” problems (i.e., job losses, legal problems, burglaries) were associated with more problem focused coping when compared to interpersonal stressors. These studies also suggest that differential coping patterns emerge for interpersonal stressors compared to non-interpersonal stressors. O’Brien and DeLongis (1996) explicitly examined this hypothesis by examining stressors classified as communal (i.e., interpersonal) and agentic (i.e., work). They found that communal stressors were associated with more relationship focused coping and confrontative coping, and less problem solving, self-blame, and escape avoidance, compared to situations classified as agentic. Overall, these studies suggest that the type of stress may play an important role in coping and that the communal-agentic distinction may prove useful in understanding the role of stressors in coping responses.

### **1.2.3 Cognitive appraisals**

Appraisals have long been viewed as critical situational determinants of coping responses (e.g., David & Suls, 1999; Folkman et al., 1986a; Major, Richards, & Cooper, 1998). Compared to stressor type, this situational or contextual factor relies more heavily on the individual’s subjective impressions of the stressful situation. Cognitive appraisal involves an evaluative process in which the significance of the event and what might be done in regards to the event is considered (Folkman et al., 1986b). Numerous studies have supported the contention that appraisals are related to coping responses (David & Suls; Folkman & Lazarus, 1980; Folkman et al., 1986a; McCrae, 1984; Stone, Kennedy-

Moore, & Neale, 1995; Schwartz & Stone, 1993). However, there remain some unanswered questions in regards to appraisals.

First, research into the role of appraisals has focused primarily on the role of controllability. Prior research has found that stressors that are appraised as controllable are associated with the use of problem focused coping whereas stressors appraised as uncontrollability are related to the use of emotion focused coping (Carver et al., 1989; Folkman et al., 1986a; Lazarus & Folkman, 1980; Schwartz & Stone, 1993). However, although controllability has largely dominated the exploration of appraisals, several other appraisals have been found to be important determinants of coping (Folkman et al., 1986a; McCrae, 1984; Schwartz & Stone, 1993). Folkman et al. (1986a) found that the nature of the appraised threat was related to coping responses. For example, greater threat to a goal at work was associated with more self-control and problem solving coping, whereas greater threat to a loved one's well being was associated with more escape avoidance and confrontative coping and less problem solving and distancing.

The seriousness of the stressor has also emerged as an important appraisal dimension that predicts variance in coping responses above and beyond the effects of controllability (David & Suls, 1999; Schwartz & Stone, 1993; Stone et al., 1995; Terry, 1994). Although it has been hypothesized that the seriousness of the stressor would be related to a stronger emotional reaction and consequently more emotion focused coping (David & Suls; Terry, 1994), the results suggest this is not always the case. Schwartz and Stone (1993) found that seriousness uniquely predicted greater direct action, catharsis, social support, relaxation, and religion when controllability was examined simultaneously. David and Suls found that the seriousness of the stressor was

significantly related to higher reported use of catharsis and religion and lower reported use of acceptance when controllability of the stressor was held constant. Thus, although the literature has been dominated by the examination of controllability, studies suggest that a range of appraisals, in addition to controllability, may influence coping responses.

One aspect of appraisals that has yet to be examined is the distinction of appraisals based on an agentic-communal framework. As previously discussed, this distinction has proven conceptually meaningful in understanding coping (e.g., coping may serve communal and agentic functions; DeLongis & Newth, 2001) and stressors (e.g., agentic and communal differentially predict coping responses; O'Brien & DeLongis, 1996). However, appraisals have yet to be examined using this framework. Understanding appraisals based on agentic or communal motivations (i.e., whether the stressor threatens agentic or communal goals) may prove valuable in understanding the ways in which appraisals influence the stress and coping process. Furthermore, the examination of appraisals using the agentic-communal framework is another means through which to incorporate interpersonal factors into the examination of stress and coping.

Second, few studies have examined the role of appraisals above and beyond the influence of stressor type in predicting coping use. As such, it is difficult to ascertain whether the context of coping is best understood through appraisals, the external classification of the situation, or both. Appraisals and type of stress may be redundant sources of information. Alternatively, each may provide a unique insight into the context of coping. The few studies that have examined both the type of stress and appraisals in tandem support the notion that each provides meaningful and unique information in

coping responses. However, these studies have important limitations. Folkman and Lazarus (1980) found that the type of stress and appraisals were independent contributors to coping responses, although they did not compare the relative contributions of each. In retrospective studies in which type of stress and appraisals were examined simultaneously, both Parkes (1986) and Terry (1994) found that external classification of stressors and appraisals each accounted for unique variance across a range of coping strategies. However, these studies were limited by examining only a single retrospective instance of stressor type and appraisals, which does not permit within-person analyses of appraisals across different situations.

Finally, extant research has relied primarily on retrospective or laboratory-based accounts of appraisals. However, such assessments may not reflect the idiographic process of appraisals over time (e.g., Shoda et al., 1994). Furthermore, laboratory experiments of stressful situations may not be reflective of the “real-life” experience of appraisals. Assessments of appraisals based on repeated instances of naturally occurring stressors may provide a more accurate understanding of the role of appraisals in coping.

Thus, although appraisals have been held to be the major situational determinant of coping (e.g., David & Suls, 1999; Folkman et al., 1986a; Lazarus & Folkman, 1984), more work is needed to understand the unique influence of stressor type and appraisals. Current research provides only a limited understanding of the role of appraisals beyond controllability as well as the role of appraisals beyond type of stress. Finally, the majority of studies examine appraisals based on a single retrospective instance or laboratory experiment, which may not reflect the idiographic process of appraisals across different instances of stress and coping.

#### **1.2.4 The role of personality in coping responses**

Research into the role of personality in coping has had a long but erratic history (for a review see Suls et al., 1996). According to Suls et al. (1996), the “first generation” examining the role of personality in coping was based on the psychodynamic/ego psychology perspective. This perspective viewed coping and personality as relatively interchangeable, with defense mechanisms representing coping efforts. The Transactional Model (or “second generation”) sought to differentiate itself from these models and emphasized the dynamic nature of stress and coping (Lazarus, 1990). As such, this work highlighted situational influences in coping, over stable personality traits, which were argued to be more relevant to the process of coping. This was also consistent with the dominant view at the time that personality traits were “poor predictors of behavior” (Mischel, 1968; Suls et al., p.719).

However, there has been a resurgence in interest in the role of personality in the stress and coping process, dubbed the “third generation” of research (Suls et al., 1996). Critics argued that the second generation underestimated the importance of personality traits and viewed traits, inaccurately, as static entities unable to contribute to a changing process (Ben-Porath & Tellegen, 1990; Krohne, 1990). Proponents of the third generation of research asserted that traits were not “situational blind” (Ben-Porath & Tellegen, p. 15) and that “specific coping behaviors have dispositional underpinnings” (Suls & David, 1996, p. 996). As such, personality traits could add meaningfully to a process model of stress and coping. There was also increasing recognition that personality may predict behavior reasonably well, especially when measured and examined across several instances (Epstein, 1979; Kenrick & Funder, 1988; Krohne,

1990; Mischel & Shoda, 1995; Suls et al., 1996). This revival was further fuelled by the findings that a meaningful amount of variance was left unaccounted for when only situational influences were examined (e.g., Mattlin et al., 1990; McCrae, 1984; Parkes, 1986; Schwartz & Stone, 1993; Suls et al., 1996). For example, Schwartz and Stone (1993) found that 19% to 54% of variance in coping strategies could be attributed to unidentified within-person variability once demographics and situational factors were taken into account.

The third generation has also been assisted by the development of broad personality measures, such as the Big Five Model of personality, which may permit a more “systematic and comprehensive” examination of the role of personality in coping (David & Suls, 1999; Suls et al., 1996; Watson & Hubbard, 1996, p. 740). The Big Five model of personality is a taxonomy of personality dimensions that arguably represent the “minimum number of traits required to describe personality” (David & Suls, p. 276; McCrae & Costa, 1985; McCrae & John, 1992; Watson & Hubbard, 1996; see Block, 1995 for an opposing view). These personality dimensions are Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A) and Conscientiousness (C). Individuals higher in N, compared to those lower in N, are characterized by the propensity to experience negative emotions, such as fear, depression, anxiety, hostility, or guilt, and tend to be impulsive (for a review see Costa & McCrae, 1992). Individuals higher in E are described as assertive, energetic, cheerful, and sociable and tend to experience positive emotions, relative to those lower in E. Those higher in O, relative to those lower in O, tend to be creative, imaginative, flexible in their thinking, and receptive to both positive and negative emotions. Those higher in A tend to be altruistic,

acquiescent, trusting, and helpful, compared to those lower in A. Individuals higher in C, compared to those lower in C, tend to be organized, reliable, hard-working, purposeful, achievement-oriented, fastidious, and self-disciplined.

Consistent with models of N, those higher in N have been found to use more emotion-focused strategies, such as escape avoidance, self-blame, wishful thinking, relaxation, support seeking, catharsis, and less problem-focused coping, compared to those lower in N (Bolger, 1990; Bolger & Zuckerman, 1995; Bouchard, 2003; David & Suls, 1999; Endler & Parker, 1990; Gunthert et al., 1999; Hooker, Frazier, & Monahan, 1994; Lee-Baggley et al., 2005; O'Brien & DeLongis, 1996; Rim, 1986). Studies also suggest that those higher in N, relative to those lower in N, are more likely to engage in interpersonally antagonistic means of coping, such as hostile reaction, interpersonal withdrawal, and confrontative coping (Bolger & Zuckerman; David & Suls; Gunthert et al.; Lee-Baggley et al., O'Brien & DeLongis, 1996).

However, several studies have found contradictory relationships between N and coping. For example, in a study of daily interpersonal stressors, Bolger and Zuckerman (1995) found that those higher in N were more likely to report using planful problem-solving to cope than did those lower in N. Eysenck (1983) has argued that those higher in N seek to compensate for the attention they spend on their emotions by increasing their task-related effort. Bolger (1990) suggests this may lead those higher in N to engage in more problem solving.

As compared to those lower in E, research suggests that those higher in E engage in more problem solving (Hooker et al, 1994; McCrae & Costa, 1986; Rim, 1986) and employ less passive emotion-focused coping, such as self-blame, wishful thinking, and

avoidance (Hooker et al.). Individuals higher in E tend to use more active forms of emotion-focused coping (Hooker et al.; McCrae & Costa, 1986), such as support seeking (Amirkhan, Risinger, & Swickert, 1995; David & Suls, 1999; Hooker et al.; Watson & Hubbard, 1996), substitution and restraint (McCrae & Costa, 1986), and positive reappraisal (McCrae & Costa, 1986; Watson & Hubbard), compared to those lower in E. However, the relationship between scores on E and coping has been found to be qualified by context (Lee-Bagglely et al., 2005) and the methodological time frame (daily vs. cross-sectional; David & Suls). For example, Lee-Bagglely et al. found that the relationship between E and relationship focused coping, interpersonal withdrawal, self-blame, and confrontation was dependant on whether the respondent was dealing with daily interpersonal stress involving child misbehavior or marital conflict. In a study of daily stress (i.e., "daily process" study), David and Suls found that higher scores on E were positively related to a variety of emotion focused coping strategies including both passive and active emotion focused strategies and not solely the putatively adaptive emotion focused strategies found in cross-sectional studies retrospective studies (e.g., McCrae & Costa, 1986; Watson & Hubbard). Lee-Bagglely et al. suggest that daily process studies, in which the situational aspects of the stressor are taken into account, may help to clarify the relationship between E and coping responses.

Those higher in O have been found to be more likely to employ problem solving (Bouchard, 2003; Watson & Hubbard, 1996) and less likely to use distraction (David & Suls, 1999; Lee-Bagglely et al., 2005), compared to those lower in O. Those higher in O, relative to those lower in O, have also been found to positively reappraise their stressful situations (O'Brien & DeLongis, 1996; Watson & Hubbard) and to be open to the



feelings of others by engaging in more relationship focused coping (Lee-Baggley et al.; O'Brien & DeLongis, 1996). However, the relationship between O and coping has been inconsistent with some studies finding no significant relations between scores on O and coping (Hooker et al., 1994) and others finding scores on O to be only a weak predictor of coping (McCrae & Costa, 1986).

Research suggests that individuals higher in A are more likely to cope in ways that use or protect relationships, such as engaging in support seeking, responding empathically to others, and avoiding confrontation, as compared to those lower in A (Hooker et al., 1994; O'Brien & DeLongis, 1996). This is consistent with the assertion of Graziano and colleagues (Graziano, Jensen-Campbell & Hair, 1996; Jensen-Campbell & Graziano, 2001) that those higher in A are motivated to maintain positive interpersonal relationships. However, Lee-Baggley et al. (2005) found that the association between scores on A and coping was qualified by the type of stress encountered. For example, they found that the typical view of those high in A as eschewing confrontation and responding empathically was only found in certain stressful situations, depending on who was involved. That is, although those high in A were able to respond empathically and without confrontation during marital conflict they reported the reverse pattern during interpersonal stress involving their child's misbehavior. Those higher in A have also been found to be less likely to employ passive emotion-focused coping strategies, such as self-blame, avoidance, wishful thinking, or disengagement when compared to those lower in A (Hooker et al.; Lee-Baggley et al.; Watson & Hubbard, 1996). However, some studies have failed to find significant findings of the role of A in coping (David & Suls,

1999) or found only a weak relationship between A and coping (Hooker et al.; Watson & Hubbard).

Higher scores on C have been found to be positively related to the use of problem-focused coping, such as planful problem solving, active coping, and suppression of competing activities (Hooker et al., 1994; Watson & Hubbard, 1996). Individuals higher in C are also more likely to report the use of positive reappraisal (Watson & Hubbard) and the use of relationship focused coping, such as responding empathically to others during times of stress (Lee-Baggley et al., 2005; O'Brien & DeLongis, 1996), compared to those lower in C. Further, those higher in C have been found to be less likely to engage in passive emotion focused coping strategies, such as escape avoidance, self-blame, or disengagement, compare to those lower in C (Hooker et al.; O'Brien & DeLongis, 1996; Watson & Hubbard). Studies examining the role of C in daily stress, controlling for the effect of other personality traits (e.g., David & Suls, 1999; Lee-Baggley et al.), have found fewer significant results than studies that do not control for other personality dimensions (e.g., Watson & Hubbard) or use a cross-sectional retrospective methodology (e.g., O'Brien & DeLongis, 1996). This suggests that the relationship between C and coping may be especially sensitive to the methodology used to assess coping.

This review of the literature suggests that personality traits may add meaningfully to our understanding of coping. However, the role of personality traits on coping responses remains equivocal. For example, the results of cross-sectional retrospective studies (e.g., O'Brien & DeLongis, 1996; Watson & Hubbard, 1996) often provide different results compared to daily assessments of stress (i.e., "daily process" studies;

David & Suls, 1999; Lee-Baggley et al., 2005). Retrospective accounts may overestimate the role of dispositions because individuals are more likely to rely on their implicit assumptions of their own behavior rather than reporting their actual behavior (Coyne & Gottlieb, 1996; Moore, Sherrod, Liu & Underwood, 1979; Peterson, 1980). Furthermore, cross-sectional retrospective assessments of coping often ignore the context or situational influences in coping. The failure to account for the context of coping may also explain the discrepant results of personality traits across studies (Lee-Baggley et al.). Thus, although there is increasing evidence of the importance of personality in coping, studies based on repeated instances of coping (i.e., daily process designs) that consider the role of situation or context, may assist in clarifying the role of personality traits in coping responses.

#### **1.2.5 Unique and interactive influences of personality, stressor type, and appraisals in coping responses**

Although research clearly indicates that dispositional factors, such as the Big Five, and situational factors, such as stressor type and appraisals, are determinants of coping, much less is known about the unique contribution of each. The contemporary Transactional Model of Stress and Coping suggests that each influence coping responses. The absence of studies examining the unique contribution of each limits the conclusions that can be drawn from existing research. As previously discussed, failure to assess both the type of stress and appraisals, confounds the unique role of each in coping (Lazarus & Folkman, 1980). That is, it is unclear whether the type of stress and subjective appraisals provide unique information in predicting coping responses. Furthermore, studies that fail to account for the role of situation may inflate the role of personality in coping responses (Schwartz et al., 1999; Terry, 1994). For example, if those higher in E consistently report

one type of stressor as compared to those lower in E, it becomes difficult to distinguish the relative influence of personality and situational influences on coping (Schwartz et al.; Terry, 1994). Consistent with this, Terry (1994) found that the stability in coping responses was due not only to personality traits, such as Neuroticism, but also because of the similarity in the type of stress and the nature of the appraisals reported across different assessments. Additionally, without assessing stable influences in coping, situational influences may be overestimated (Carver et al., 1989; Terry, 1994). Cognitive appraisals may be driven both by the situation as well as the individual facing the stressful situation (O'Brien & DeLongis, 1996; Shoda et al., 1994).

Studies examining both stable and situational influences are also able to identify the ways in which the person and the environment may interact to predict coping (Lee-Baggle et al., 2005; O'Brien & DeLongis, 1996; Suls et al., 1996). Several studies support the contention that stable and situational influences interact to predict coping responses. In a study of daily stress, David and Suls (1999) found that O and N moderated the relationship between the appraisal of seriousness and several coping strategies. O'Brien and DeLongis (1996) found significant interactions between situation type, categorized as agentic or communal, and N, O, and C in predicting coping responses. The interactions between stressor type and the Big Five traits of personality accounted for 2% to 14% of the variance in coping strategies. Finally, in a study of daily interpersonal stress, Lee-Baggle et al. (2005) found that A, C, and E moderated the relationship between personality traits and the type of interpersonal stressor in predicting several coping strategies. These studies suggest that examining the interactions between

stable and situational influences in coping may be important to understand the role of personality in coping (Lee-Baggley et al.).

Although identifying the unique and interactive influences of stressor type, appraisal, and personality factors is warranted, only a few studies have done so and they have some important limitations. Parkes (1986) examined the additive and interactive effects of person factors (N and E), work environment, stressor type (four work related problems associated with nursing), and appraisal (importance of the stressor) in a retrospective study of nursing students. She found that individual differences, the nature of stressor, and the work environment significantly and uniquely predicted coping scores for direct coping and suppression coping. Furthermore, significant interactions between these factors emerged for both direct coping and suppression. Interactions involving personality measures and stressor type were the strongest predictors of both direct coping and suppression, accounting for 36% and 33% of the variance respectively. Terry (1994) examined the influences of personality (e.g., N, type A), stressor type (work/academic, interpersonal, health, other) and appraisals (severity, control, self-efficacy) in coping in a longitudinal study of students, in three different assessments, each several weeks apart. The results supported the contention that stressor type, appraisals, and stable personality factors independently influenced coping responses. However, the pattern was distinctive for each coping strategy. Terry also found that the effect of N on coping strategies was moderated by the appraised controllability of the situation, although the amount of additional explained variance was not statistically significant.

Although these studies represent advances in assessing the unique contribution of personality traits, appraisals, and stressor type, they have notable weaknesses. Both

Parkes (1986) and Terry (1994) used retrospective measures of coping, which may inflate the role of personality traits due to memory biases (Coyne & Gottlieb, 1996; Peterson, 1980). Participants in Parkes' study were assessed only once, which may not be a reliable assessment of an individual's typical responses to stress (Epstein, 1979). Participants in Terry's study reported on their coping only two times and were asked to recall coping efforts two weeks after their reports of appraisals. Given that appraisals are usually considered a rapidly occurring process (e.g., Tennen & Affleck, 1996), a two-week time lag between the assessment of appraisals and coping may introduce retrospective contamination. Finally, these studies examined only the influences of N (Parkes; Terry, 1994) and E (Parkes), limiting our understanding of the role of A, O, and E in coping responses.

In the only study that used a repeated, within-person design (i.e., daily process) to examine multiple influences (i.e., person, appraisal, and type of stress) on stress and coping, Schwartz and Stone (1993) examined the unique influences of person factors (sex, age, education, and family income), appraisals (chronicity, severity, and controllability) and types of stress (interpersonal work events, job pressures, marital problems, and health issues) in coping responses. They found that stressor type uniquely and significantly predicted six of the eight coping strategies they examined. At least one of the appraisal variables was significant for all coping strategies, controlling for person factors and stressor type. They found that 19% to 54% of the variance of coping strategies were predicted by "non-specific" person factors (p.60), unaccounted for in their model. However, they did not examine whether personality traits accounted for some of

this residual within-person variability. Additionally, they did not examine the interactive effects between stable and situational factors in coping responses.

In summary, although considerable work has been done regarding the determinants of coping, there remain significant gaps in our knowledge. Studies examining stressor type, appraisals, and personality traits simultaneously, using a daily process methodology (i.e., repeated measures), may assist in clarifying the unique and interactive contribution of stable and situational influences in coping responses.

### **1.3 Role of Personality in Stressor Type and Appraisals**

As illustrated by the contemporary Transactional Model depicted in Figure 1, there are several ways in which personality traits may influence the stress and coping process in addition to influencing coping responses. Personality researchers have long contended that personality does more than just influence an individual's reactions *to* the environment. Personality traits are also associated with the "selection, evocation, and manipulation" *of* the environment (Buss, 1987, p.1214). Personality traits may influence the type of stressful situations encountered and the appraisals individuals make in stressful situations (Bolger & Zuckerman, 1995; Gunthert et al., 1999; O'Brien & DeLongis, 1996). This is also consistent with the CAPS model, which suggests that personality based consistencies in encoding and processing situational information may explain regularity in behavior across situations (Shoda et al., 1994). As such, exposure to and appraisal of stressful events may be critical ways in which stable factors influence the dynamic process of coping (Bolger & Zuckerman; Shoda et al.).

### **1.3.1 Role of personality traits in stressor type**

Research has found support for the notion that positive and negative events “keep happening to the same people” (Headey & Wearing, 1989, p.733). Furthermore, the likelihood of experiencing stressful events and the type of stressful event encountered has been associated with stable personality characteristics, such as the Big Five dimensions of personality (Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Headey & Wearing; Ormel & Wohlfarth, 1991; Terry, 1994). The majority of the studies have examined the role of N. Both objective and subjective ratings based on daily and longitudinal studies of stressors and life events suggest that those higher in N, compared to those lower in N, are more likely to report and be exposed to adverse events, especially interpersonal stressors (Bolger & Schilling; Bolger & Zuckerman, 1995; Bono, Boles, Judge & Lauver, 2002; David, Green, Martin & Suls, 1997; Gunthert et al., 1999; Headey & Wearing; Magnus, Diener, Fujita & Payot, 1993; Ormel & Wohlfarth; Suls, Martin, & David, 1998; Vollrath, 2000).

A limited number of studies suggest that those higher in E, relative to those lower in E, are less likely to report exposure to negative events and more likely to be exposed to positive events (Headey & Wearing, 1989; Magnus et al., 1993; Vollrath, 2001).

Although, research suggests that the dominant aspect of E is related to expressing anger and approaching (rather than avoiding) arguments (Blickle, 1997; Buss, 1991), previous studies have not found that those higher on E are more likely to report interpersonal conflict (Asendorpf & Wilpers, 1998; Bono et al., 2002). This may be due to their greater ease in managing social relationships (Riggio, 1986). Studies suggest that the tendency of those higher in O to be open to experiences may result in exposure to both



positive and negative events, compared to those lower in O (Bono et al.; Headey & Wearing). For example, research suggests that O is associated with favourable friendship events (Headey & Wearing) as well as interpersonal conflict (Blickle, 1997; Bono et al.). The tendency of those high in O to be open to ideas, intellectually curious, and interested in engaging in philosophical debate (Costa & McCrae, 1992) may explain the positive association between scores on O and argumentativeness or interpersonal conflict. Those higher in O may be less likely to shrink from disagreements or differences of opinions, compared to those lower in O (Blickle, 1997; Bono et al.). Limited research suggests that those higher in A are less likely to report interpersonal conflicts, than those lower in A (Asendorpf & Wilpers, 1998; Bono et al., 2002; Suls et al., 1998). Those lower in A have been found to be more likely to elicit conflict during interpersonal interactions, than those higher in A (Buss, 1991; Graziano et al., 1996; Suls et al., 1998). This is consistent with recent conceptualizations of A by Graziano and colleagues (Graziano et al.; Jensen-Campbell & Graziano, 2001), who suggest that those higher in A have a desire to maintain harmonious interpersonal relationships. They suggest this may motivate those higher in A to make positive attributions and assumptions in interpersonal situations, relative to those lower in A (Bono et al.; Graziano et al.; Suls et al., 1998), which may help them avoid interpersonal conflicts or stressors.

A small number of studies examining the role of C suggest that those higher in C, relative to those lower in C, are less likely to report daily hassles, especially those concerned with academic achievement (Vollrath, 2000). Although a core component of high C is achievement striving (Costa & McCrae, 1992), those higher in C may prevent stressful achievement situations because of their organized and disciplined approach to

work (Watson & Hubbard, 1996). Studies have failed to find a significant relationship between scores on C and reports of interpersonal conflict (Asendorff & Wilpers, 1998; Bono et al., 2002).

### **1.3.2 Role of personality traits in appraisals**

The contemporary Transactional Model proposes that personality traits are related to appraisals of stressful events. Previous studies suggest that personality traits are associated with an individual's tendency to view events or to process information in similar ways (Hemenover, 2001; Segerstrom, 2001; Shoda et al., 1994) and that there is stability in appraisals over time (Bono et al., 2002; Long & Schultz, 1995). A limited number of studies have examined the relationship between appraisals and the Big Five traits of personality (Gallagher, 1990; Gunthert, et al., 1999; Penley & Tomaka, 2002). However, the majority of these studies are based on single retrospective assessments of appraisal or laboratory studies, neither of which may be reflective of an individual's typical pattern of appraisals in a naturalistic setting.

Previous studies suggest that individuals higher in N, relative to those lower in N, report greater appraisals of threat (Bouchard, 2003; Gallagher, 1990; Hemenover, 2001; Hemenover & Dienstbier, 1996; Penley & Tomaka, 2002), stressfulness (Gunthert et al., 1999; Hemenover) and uncontrollability (Hemenover). Higher scores on E have been positively associated with challenge appraisals and negatively related to threat appraisals (Bouchard; Gallagher, 1990; Hemenover & Dienstbier). The results with O have been more inconsistent. In an experimental study of a stressful event, Penley and Tomaka found that higher scores on O were negatively associated with threat; however, Shewchuk, Elliott, MacNair-Semands, and Harkins (1999) found a significant positive

relationship between O and threat appraisals. Some studies have found that those higher in A, relative to those lower in A, are less likely to view situations as threatening, especially in regards to interpersonal conflict (Graziano et al., 1996; Bono et al., 2002). Other studies have found few significant relationships between appraisals and scores on A when A is examined in conjunction with the other Big Five traits (David & Suls, 1999; Penley & Tomaka). Finally, higher scores on C have been associated with a lower likelihood of viewing stressors as threats (Penley & Tomaka).

Notably, the majority of studies exploring the role of personality traits and appraisals, involved single, retrospective or laboratory-based assessments of appraisals and examined the personality dimensions individually. This may fail to capture the idiographic process of appraisals that occur in a naturalistic setting (e.g., Shoda et al., 1994). Additionally, some studies suggest different relationships between the Big Five traits and appraisals when all five dimensions are examined simultaneously, than when the personality dimensions are examined in isolation. For example, Gallagher (1990) and Shewchuk et al. (1999) found that the relationship between appraisals and scores on E and C, respectively, was no longer significant when the effects of N were partialled out. This suggests it may be important to examine the unique relationship of each personality trait with appraisals. Given that appraisals may play an important role in understanding the ways in which stable factors influence dynamic processes, more research is needed to understand the relationships between the Big Five traits of personality and situational appraisals.

## 1.4 Outcomes of Coping

Of key interest to researchers is the effect of coping on adaptational outcomes, as illustrated in the final step of Figure 1. In general, the literature supports the contention that coping is associated with adjustment and adaptational outcomes, such as mental and physical health (Aldwin & Park, 2004; Aldwin & Revenson, 1987; Folkman et al., 1986b; Mattlin et al., 1990; McCrae & Costa, 1986; Pearlin & Schooler, 1978; Penley, Tomaka, & Wiebe, 2002), mood (Bolger & Zuckerman, 1995; Gunthert et al., 1999; Stone et al., 1995), and relationship functioning (DeLongis, & Preece, 2003; O'Brien & DeLongis, 1997; Preece & DeLongis, 2005). Additionally, research suggests that specific coping strategies are related to differential patterns of adjustment. For example, studies suggest that problem solving is associated with better adjustment (McCrae & Costa, 1986; Folkman et al., 1986b), whereas passive emotion focused strategies, such as escape avoidance and self-blame, are associated with poorer adjustment (Aldwin & Revenson; Terry & Hynes, 1998). Seeking social support is often associated with negative outcomes (Aldwin & Revenson; Stone et al., 1995), even though social support is associated with positive outcomes (Cohen & Wills, 1985; Valentiner, Holahan, & Moos, 1994). This seemingly contradictory finding may be due to differences between *attempting* to obtain support and actually receiving support (Bolger, Zuckerman, & Kessler, 2000). Both distancing and positive reappraisal have been found to be adaptive emotion focused strategies (Park, Folkman, & Bostrom, 2001; Park & Folkman, 1997; Stone et al., 1995). Much less research has been done on the effects of interpersonally oriented coping strategies. However, research suggests that confrontation and interpersonal withdrawal are associated with greater psychological symptoms and poorer

relationship functioning (Bolger & Zuckerman, 1995; DeLongis & Preece, 2003; Folkman et al., 1986b; Repetti, 1989), whereas relationship focused coping has been associated with positive relationship functioning (DeLongis & Preece; O'Brien & DeLongis, 1997).

In attempting to understand the role of coping in adaptational outcomes, there is increasing interest in the examination of the short-term effects of coping (Bolger & Zuckerman, 1995; Gunthert et al., 1999; Stone et al., 1995; Tennen, Affleck, Armeli, & Carney, 2000). Studying short-term changes in outcomes is consistent with a process oriented approach to coping, in which "stressors, coping efforts, and adaptational outcomes [are viewed as] rapidly fluctuating processes" (Tennen et al., 2000, p. 627). The variability of mood makes it an appropriate outcome in studying the short-term effects of coping (Stone et al., 1995). Additionally, negative mood has important implications for physical health, including effects on physiological and immune functioning (Futterman, Kemeny, Shapiro, & Fahey, 1994; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Stone, Cox, Valdimarsdottir, Jandorf, & Neale, 1987), and mental health (Beevers & Carver, 2003; Watson & Walker, 1996). Understanding the short-term effects of coping on mood may assist in understanding the process through which coping comes to have long-term effects on health and well-being (DeLongis Folkman, & Lazarus, 1988; Stone et al., 1995). Furthermore, studies suggest that the effects of coping may differ when examined over brief intervals (i.e., daily) than when examined longitudinally (i.e., over the span of months or years). For example, contrary to assertions and previous retrospective studies (e.g., McCrae & Costa, 1986; Folkman et al., 1986b), when examined on a daily basis, Stone et al. (1995) found that problem

solving was associated with worse mood and both Bolger and Zuckerman (1995) and Gunthert et al. (1999) found no significant relationship between problem solving and negative mood.

An unresolved issue in the study of short-term effects of coping is the appropriate time frame in which to capture changes in mood. Previous studies on the short-term effects of coping on mood have examined very brief time intervals (e.g., approximately 40 minutes) using ecological momentary assessment (Marco et al., 1999) or end-of-day effects (Gunthert et al., 1999; Stone et al., 1995). Although concurrent effects of coping on mood are well documented, the lagged effects of coping on mood are less reliably observed. In their ecological momentary assessment study of coping and mood, Marco et al. (1999) suggested that the effects of coping may take several hours to appear. Additionally, the pain literature suggests that twice daily assessments may provide an appropriate window to examine the effects of coping on outcomes (Newth & DeLongis, 2004). Jointly, these studies indicate that examining the effects of coping twice a day may provide the ideal time frame in which to understand the short-term lagged effects of coping.

Finally, although previous studies have established associations between coping and outcomes, there are numerous third variables that may confound the observed relationship between coping and outcomes. For example, interpersonal stressors (Bolger, DeLongis, Kessler, & Schilling, 1989), appraisals, such as seriousness (Marco et al., 1999; Stone et al., 1995), and personality traits, such as neuroticism and extraversion (David et al., 1997; Watson & Clark, 1992, 1997), have each been associated with daily mood. As such, it is important to examine the effect of coping responses in adaptational

outcomes, such as mood, above and beyond the role of these other influences before concluding that coping uniquely impacts mood (McCrae, 1990; Park, Armeli, & Tennen, 2004; Stone et al., 1995). Furthermore, few studies examine the effects of coping comparing individuals to themselves (i.e., within person analyses). Such analyses minimize a host of potentially confounding variables and provide stronger evidence of the role of coping in outcomes (DeLongis et al., 1988). In summary, there remain several unresolved issues regarding the role of coping responses in short-term adaptational outcomes.

### **1.5 Methodological Issues in Studying Stress and Coping**

Methodological issues in the study of stress and coping have become increasingly scrutinized (e.g., Tennen et al., 2000; Somerfield & McCrae, 2000). There are three main methodologies used to examine stress and coping. The first asks participants to recall a stressful event in the past week, month, or year and to report on their use of various coping strategies in response to this recalled event (e.g., McCrae, 1984). However, this methodology provides only an isolated “snapshot” of coping based on a single episode (Coyne & Gottlieb, 1996; Suls & David, 1996). Furthermore, research suggests that single instances of behavior are unreliable estimates of behavior in general; multiple instances are necessary to achieve a high degree of reliability (Epstein, 1979; Mischel & Shoda, 1995; Schwartz et al., 1999).

The second typical method asks participants to describe how they “usually” or “generally” cope with stressors (e.g., Endler & Parker, 1990). This methodology may be prone to distortions due to memory biases (DeLongis, Hemphill & Lehman, 1992). Moreover, such biases are likely to reflect “general attitudes and implicit theories”

(Coyne & Gottlieb, 1996, p.980) that may inflate the role of stable influences, such as personality, in coping (Moore et al., 1979; Peterson, 1980; Suls et al., 1996).

Research supports the contention that individuals are generally poor at remembering how they coped. In two studies, college students reported their coping in daily assessments as well as a single retrospective assessment during the week leading up to an exam (Ptacek et al., 1994; Smith, Leffingwell, & Ptacek, 1999). Results indicated that retrospective accounts demonstrated a weak association with daily reports. Moreover, the correspondence between daily and retrospective measures of coping was *lower* when the participant was experiencing *more* stress. Schwartz et al. (1999) also found that an individual's report of how he/she "generally" coped with stress was a poor measure of his/her "actual" coping as captured by ecological momentary assessment.

The third, and less typically used, research design is the daily process methodology, which involves repeated assessments over time. Proponents assert that this methodology addresses some of the limitations of the cross-sectional, retrospective research design (e.g., Bolger & Zuckerman, 1995; David & Suls, 1999; Lee-Baggley et al., 2005; Stone et al., 1998; Tennen et al., 2000). First, this methodology involves the examination of multiple instances over time, increasing the reliability of assessments (Epstein, 1979) and permitting the exploration of patterns of behavior (Lee-Baggley et al.). Second, respondents are asked to recall events over a shorter period of time, reducing the influence of recall biases (DeLongis et al., 1992). Third, multiple reports over time allow for the examination of processes by permitting the examination of the influences and consequences of coping "closer to their actual occurrence" (Tennen & Affleck, 1996, p.153).



The development of new multilevel modeling statistical techniques, such as Hierarchical Linear Modeling (HLM; Raudenbush, Bryk, Cheong, & Congdon, 2004), has permitted more appropriate analyses of such data. First, multilevel modeling accounts for the lack of independence in the data points caused by the repeated assessments from the same subject. Multilevel modeling is also unique in being able to manage unbalanced data points that are unequally spaced across time (Raudenbush & Bryk, 2002). Second, analyses do not necessitate aggregation of data points preserving the temporal nature of the data (Tennen & Affleck, 1996; West & Hepworth, 1991). Studies of stress and coping have found that the aggregation of scores may obscure relationships that are evident when the individual assessments are examined (DeLongis et al., 1988; Park et al., 2001). Third, multilevel modeling permits the examination of both within-person effects (using each participant as his/her own control) as well as between-person effects (comparing individuals to the group). Several researchers have argued that most research questions in the stress and coping literature involve within-person effects (DeLongis et al., 1988; Tennen & Affleck). However, the majority of studies have used between-person analyses. Research suggests that between-person associations can differ in both magnitude and direction from within-person associations (Kenny, Kashy, & Bolger, 1998; Tennen & Affleck). For example, Tennen and Affleck found a significant positive association between undesirable and desirable events in a between-person analysis. However, when this relationship was examined using within-person analyses, all participants demonstrated a negative correlation between undesirable and desirable events.

Close to two decades ago, Lazarus and colleagues noted that “a major challenge in stress and coping research is to develop a method for describing stable styles of appraising and coping that do not sacrifice the cognitive and behavioural richness of these processes” (Folkman et al., 1986b, p. 578). Their recommendations are consistent with the contemporary Transactional Model of Stress and Coping, current models of the role of personality in behavior (e.g., Mischel & Shoda, 1995), and the increasing calls in the literature to examine the idiographic and nomothetic process of coping (e.g., Tennen et al., 2000). All highlight the need for intra-individual analyses, in which individuals are followed across time and situations, in addition to inter-individual analyses. The daily process methodology and multilevel modeling are ideally suited to capture both the within- and between-person process of coping over time (Tennen et al.).

## **1.6 Current Study**

The overarching goal of the current study was to examine the ways in which situational and dispositional factors influence multiple aspects of the stress and coping process as proposed by the contemporary Transactional Model of Stress and Coping, as illustrated in Figure 1. Although previous studies have examined various aspects of this model, there remain gaps in our knowledge. First, although research has demonstrated that both situational and dispositional factors influence coping responses, research into the unique contributions of each is lacking. Additionally, existing research may be confounded due to methodological limitations in the assessment of coping. The current study improves on past research by examining the unique and interactive influences of dispositional and situational influences in coping responses based on a daily process methodology. Second, despite the theoretical importance of appraisals in the stress

process, there is limited research as to the role of appraisals in coping responses beyond the appraisal of controllability or the incremental value of appraisals above and beyond type of stress. Furthermore, most studies have relied on single-retrospective accounts or laboratory experiments of appraisals, precluding an idiographic understanding of appraisals across situations. This study examines a broader range of appraisals and their unique contribution in coping responses over and above the influence of stressor type, based on repeated naturalistic assessments of appraisals. Third, previous studies have focused primarily on the role of personality traits in coping responses. However, personality traits may be related to the stress and coping process by influencing the type of stress encountered and the appraisals individuals make in stressful situations, in addition to influencing coping responses (Bolger & Zuckerman, 1995; Vollrath, 2001). The current study expands on previous work by examining the role of all of the Big Five traits in both stressor type and appraisals based on repeated naturalistic occurrences of stressors and appraisals. Fourth, there is increasing interest in examining the short-term effects of coping on mood. However, the ideal time frame in which to understand the lagged effects of coping has yet to be determined. The current study is the first, of which I am aware, to examine the twice daily assessment of coping and outcomes as a possible time frame in which to observe the lagged effects of coping. Furthermore, the current study examines the outcomes of coping beyond the influence of type of stress, appraisals, and dispositional factors using within-person analyses.

This study improves on previous research by examining the idiographic process of stress and coping, in addition to the nomothetic process of coping, using a daily process methodology in which individuals are followed across time and situations.

Furthermore, the current study acknowledges that stress and coping is not a solitary process by incorporating interpersonal aspects into multiple stages (e.g., type of stress, appraisal, coping) of stress and coping process. Overall, this study seeks to enhance our understanding of adaptation to stress by examining a broader range of dispositional and situational influences in the stress and coping process.

## **1.7 Hypotheses**

### **1.7.1 Role of stressor type and appraisals in coping responses**

The first set of hypotheses involved examination of the situational or contextual influences in coping responses. It was expected that both stressor type and appraisals would be independently related to coping responses and provide unique information in the prediction of coping responses. Additionally, it was anticipated that a broad range of appraisals, including controllability, seriousness, agentic threat, and communal threat would provide unique information in coping responses. As the predictive ability of communal and agentic threat has yet to be established, the contribution of these appraisals was examined above and beyond the previously studied appraisals of seriousness and controllability. It was expected that threats would predict significant and unique variance across coping strategies above and beyond the variance accounted for by seriousness, controllability, and stressor type.

Some specific relationships between situational factors and coping strategies were also hypothesized. First, it was hypothesized that stressor type and threats conceptualized along a communal-agentic framework would predict the use of coping strategies that can also be conceptualized along this continuum. That is, it was expected that higher reports of communal stressors and threats would be related to increased reports of the use of

communal or interpersonally oriented coping strategies, such as relationship focused coping, interpersonal antagonism, and support seeking. Similarly, it was hypothesized that higher reports of agentic stressors and threats would be related to the increased use of agentically oriented coping strategies, such as problem solving. Similar to past research (Folkman et al., 1986a; Lazarus & Folkman, 1980), it was expected that higher levels of controllability would be related to greater use of strategies typically viewed as problem focused (i.e., problem solving) and related to lower use of strategies typically viewed as emotion focused (e.g., passive emotion focused, support seeking, and distancing). It has been hypothesized that more serious stressors would be associated with greater emotional impact and as such, be solely associated with increased use of emotion focused coping strategies (David & Suls, 1999; Terry, 1994). However, previous research has failed to support this hypothesis. Instead, research suggests that more serious stressors elicit more coping effort of both emotion- and problem-focused coping. As such, it was hypothesized that greater reports of seriousness would elicit greater problem- and emotion-focused coping.

### **1.7.2 The role of personality in coping responses**

The next set of hypotheses concerned the contribution of personality traits to situation specific coping responses after situational factors are taken into account. Consistent with the contemporary Transactional Model, it was hypothesized that the Big Five traits of personality would account for significant variance, above and beyond stressor type and appraisals, across a range of coping strategies. Specific relationships between each of the Big Five traits and coping strategies were also predicted. It was expected that those higher in N would be more likely to report engaging in emotion

focused strategies, such as passive emotion focused and support seeking, as compared to those lower in N. It was also hypothesized that those higher in N, compared to those lower in N, would be more likely to report the use of coping strategies that may disrupt relationships, such as interpersonal antagonism, without reporting the use of strategies that may protect relationships, such as relationship focused coping. Given the strong affiliation tendencies associated with E, it was expected that those higher in E, compared to those lower in E, would be more likely to report engaging in communal or interpersonally oriented coping strategies, such as relationship focused coping and support seeking. Given the dominant nature of those high in E, it was also hypothesized that those higher in E would report the use of more interpersonal antagonism, than those lower in E. Based on previous diary studies controlling for the other personality dimensions (David & Suls, 1999; Lee-Bagglely et al., 2005) it was expected that E would be related to greater reports of a range of emotion focused strategies including passive emotion focused coping, positive reflection, and distancing. Based on past research and models of O, it was hypothesized that those higher in O would report engaging in less distancing and more relationship focused coping, compared to those lower in O (O'Brien & DeLongis, 1996; Lee-Bagglely et al.). Consistent with prior studies, those higher in A, compared to those lower in A, were expected to report engaging in less avoidant emotion focused strategies, such as passive emotion focused coping (David & Suls; Lee-Bagglely et al.; Watson & Hubbard, 1996). Models of A highlight the importance of interpersonal relationships. As such, it was expected that those higher in A, compared to those lower in A, would report higher levels of relationship-maintaining coping strategies, such as relationship focused coping, and lower levels of relationship-disruptive means of coping,

such as interpersonal antagonism. Finally, based on previous studies and models of C, it was expected that those higher in C would be more likely to report engaging in problem solving and relationship focused coping, compared to those lower in C (Lee-Baggley et al.; O'Brien & DeLongis, 1996).

### **1.7.3 Interactive effects of personality and situational variables in predicting coping responses**

Consistent with previous research that has demonstrated an interactive effect between situational and stable influences in predicting coping responses (David & Suls, 1999; Lee-Baggley et al., 2005; Parkes, 1986), it was expected that personality and situational variables would interact to predict coping responses. Given the lack of substantial research, specific predictions in regards to the nature of the interactions were not made.

### **1.7.4 Role of personality in stressor type and appraisals**

Consistent with the contemporary Transactional Model and limited previous research, it was expected that personality traits would be associated with the type of stressful situations reported as well as appraisals. Specifically, it was hypothesized that scores on N would be positively related to greater reports of interpersonal stressors. Although those higher in N, compared to those lower in N, are likely to experience a range of adverse events (Ormel & Wohlfarth, 1991), previous research suggests they are especially likely to encounter interpersonal stressors (Bolger & Zuckerman, 1995; Bolger & Schilling, 1991; Bono et al., 2002; David et al., 1997; Gunthert et al., 1999).

Consistent with previous research suggesting those higher in E are less likely to report adverse events (Headey & Wearing, 1989; Magnus et al., 1993; Vollrath, 2001), it was

hypothesized that those higher in E would report lower levels of interpersonal stressors and achievement stressors, compared to those lower in E. Models of O suggest that those higher in O seek out diverse experiences, even ones that may be conflictual or stressful (Blickle, 1997; McCrae & Costa, 1997). This may explain the findings of previous studies that those higher in O, relative to those lower in O, are more likely to report exposure to a variety of stressors (Bono et al., 2002). Consistent with this, it was hypothesized that higher scores on O would be associated with a greater likelihood of reporting both interpersonal and achievement stressors. Previous studies suggest those higher in A are motivated to maintain positive relationships, relative to those lower in A (Bono et al.; Graziano et al., 1996). As such, it was expected that those higher in A would be less likely to report interpersonal stressors than those lower in A. The organized and disciplined approach to tasks taken by those higher in C, relative to those lower in C (Costa & McCrae, 1992; Hogan & Ones, 1997), may help those higher in C prevent stressful achievement situations. As such, it was expected that those higher in C would report lower exposure to achievement stressors than those lower in C. Previous research has failed to find a significant relationship between higher scores on C and self-reports of interpersonal conflict (Bono et al.); therefore a significant relationship between reports of interpersonal stressors and scores on C was not expected.

The limited research that has been done on the influence of the Big Five traits on appraisals suggests that N is a key variable in appraisals (Gallagher, 1990; Shewchuk et al., 1999). It was hypothesized that higher scores on N would be related to higher reported levels of seriousness and threats and lower reported levels of controllability. Previous research suggests that those higher in E would be more likely to report lower



levels of seriousness and threats and higher reported levels of controllability, compared to those lower in E. Based on the limited research, but consistent with previous findings, it was hypothesized that higher scores on A, O, and C would each be negatively related to seriousness and threats (Bouchard, Guillemette, & Landry-Léger, 2004; Shewchuk et al., 1999). Specific hypotheses were not made regarding the relationship between the Big Five traits of personality and appraisals when the other personality dimensions are controlled, because of the absence of research on which to base such predictions.

#### **1.7.5 Outcomes of Coping**

It was hypothesized that coping would be significantly related to changes in negative mood measured concurrently and across time. Studies from the pain literature and ecological momentary assessment (e.g., Marco et al., 1999; Newth & DeLongis, 2004) suggest that twice daily assessments of coping may provide an appropriate time frame within which to assess the lagged effects of coping on outcomes. Specifically, it was expected that greater reports of interpersonal antagonism, passive emotion focused coping, and support seeking would be related to increases in negative mood. Conversely, it was expected that greater reports of relationship focused coping, positive reflection, and distancing would be related to decreases in negative mood. Given the discrepant relationships between problem solving and mood in previous daily studies, specific predictions regarding problem solving were not made. Finally, it was expected that coping would continue to have a significant effect on mood even when the effects of personality traits, appraisals, and stressor type on mood were taken into account.

## 2 METHOD

This study was part of a larger study on stress, coping, and adaptation. The design involved an initial set of questionnaires that assessed demographic and personality traits, followed by structured daily records completed twice a day (around lunchtime and before bedtime) for seven days using an on-line website. Only those procedures and measures relevant to the current study are discussed.

### 2.1 Sample

Participants were students taking 100- or 200-level psychology courses at the University of British Columbia. There were 412 individuals who signed up to participate. Of those, 30 did not return their personality data. Of the 382 participants who provided personality data, 25 did not provide enough daily data to be included in the analyses (i.e., at least one full day of data)<sup>3</sup>. Seven participants were excluded because they submitted more than two day's worth of entries at the same time (i.e., "backfilled" their reports). The final sample consisted of 350 participants. Seventy percent of the sample was female. The mean age of the sample was 20.54 years ( $SD = 5.12$ ). Thirty-four percent of the participants reported they were in their first year, 32% in their second year, 21% in their third year and 12% in their fourth year or higher. Two participants did not report their year of study. Participants' self-report of their ethnicity was as follows: 32 % European, 51% Asian, 5% East Indian, 3% Middle Eastern, 1% African, 4% mixed heritage, 2% other, and 3% unknown (i.e., participant did not report his/her ethnicity). Close to half the sample reported themselves as currently single (52%) and 43% reported themselves as currently dating. The mean length of time the sample had lived in Canada was 14.43 years ( $SD = 8.25$ ) and the mean age at which they had arrived in Canada was

6.08 years of age ( $SD = 7.05$ ). Five participants did not report how long they had lived in Canada.

Differences on demographic and personality data between those who provided sufficient diary data to those who did not, were examined. Only one significant difference emerged. Those who had provided sufficient diary data were significantly higher on Agreeableness than those who had not  $t(373) = 2.50, p < .05$ . The results of  $t$ -tests indicated that those who backfilled their diary responses, compared to those who did not, were significantly more likely to be earlier in their undergraduate degree,  $t(8.24) = 6.41, p < .001$ , and to be less Conscientious,  $t(355) = 3.25, p < .01$ . There were no other significant differences found between participants who backfilled their responses and those who did not backfill their responses<sup>4</sup>.

## **2.2 Measures**

### **2.2.1 Personality**

Personality was assessed by the NEO-FFI, which is a 60-item version of the longer 240-item NEO-PI-R (Costa & McCrae, 1992). The NEO-FFI assesses five personality dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Substantial psychometric research has been conducted on these scales and indicates they have excellent psychometric properties (for a review see Costa & McCrae, 1992). Cronbach's alphas in the present study were high .88, .84, .73, .80, .83 for N, E, O, A, and C respectively, consistent with previous studies (e.g., Costa & McCrae, 1992).

### **2.2.2 Stressor**

The stressful situation with which participants were coping was assessed through an open-ended question: "Please describe briefly the most bothersome event or problem you had since your last entry. Whatever your most serious problem since your last entry (no matter how minor or trivial it may seem to you), please describe it here." Categories for stressor type were developed based on the responses of the participants. The major categories that emerged were consistent with previous studies (Bolger et al., 1989; Gunthert et al., 1999; Lee-Bagglely et al., 2005; Park et al., 2004). These categories were: a) achievement stressors (37%), b) interpersonal stressors (20%), c) health/fatigue (10%), d) stressors involving others in one's social network (2%), e) multiple stressors (1%), and f) general hassles (15%; e.g., car breakdowns, noise, finances, commuting). Three coders were trained on coding the categories. Two coders rated each event. The interrater reliability (kappa) was high at .86. Discrepancies were resolved by the author.

### **2.2.3 Appraisals**

Appraisals were assessed based on items selected from previously developed measure of appraisals (Chang, 1998; Dunkley, Zuroff, & Blankstein, 2003; Folkman & Lazarus, 1980; Folkman et al., 1986a). Seriousness and controllability were each assessed with a single item. Participants were asked to report the extent to which they considered the event they had reported serious and the extent to which they felt they could control the event on a 5-point scale ranging from "none/not at all" (1) to "a lot" (5). Participants were also asked to assess the degree of threat in regards to their major problem since their last entry on a 5-point scale ranging from "none/not at all" (1) to "a lot" (5). Eight

questions assessed the degree of threat. These items tapped into agentic and communal threat (see Appendix A).

#### **2.2.4 Coping**

Participants were asked to report the degree to which they used a variety of coping strategies in regards to the stressor they described on a 3-point Likert scale ranging from “not at all” to “a lot”. Coping strategies were measured with items from the Brief Ways of Coping (BWOC), previously developed for use in diary studies (Lee-Bagglely et al., 2005). This scale is based on a revised version of the Ways of Coping scale (WOC; Folkman et al., 1986a) with additional items that tapped interpersonal modes of coping (see Lee-Bagglely et al.). In the current study, the three top loading items from the BWOC were used. The original BWOC contained only two items to assess support seeking. Consistent with recommendations for a minimum of three items to tap each expected factor (Russell, 2002), additional items from the Brief-COPE (Carver, 1997) and the original WOC-R (Folkman et al., 1986a) were added to measure both emotional support seeking and informational support seeking.

#### **2.2.5 Daily mood**

Negative daily mood was measured with the top four loading items from the Profile of Mood States (McNair, Lorr, & Droppleman, 1992) for the anger-hostility (“Peeved”, “Annoyed”, “Resentful”, and “Spiteful”), depression-dejection (“Sad”, “Worthless”, “Hopeless”, and “Discouraged”) and tension-anxiety (“Anxious”, “On edge”, “Uneasy”, and “Nervous”) subscales. These items have been used in previous diary samples assessing fluctuating mood on a daily basis (Bolger et al., 2000; Thompson & Bolger, 1999) including undergraduate samples (e.g., Bolger & Zuckerman, 1995). Internal

consistency reliabilities (Cronbach's alpha) for these scales from the full and shortened forms are high, ranging from .75 to .95 (Curran, Andrykowski & Studts, 1995; McNair et al., 1992; Thompson & Bolger). This was also true of the current study in which the Cronbach alphas were .86, .89, .83 for the anger-hostility, depression-dejection, and tension-anxiety subscales respectively. These three factors were highly correlated ( $r$ 's = .66 to .68) and were collapsed into a single score of negative mood ( $\alpha$  = .92). Participants were asked to indicate the extent to which they experienced the emotions listed since their last entry on a 5-point scale ranging from "not at all" (1) to "extremely" (5). Items were averaged into the scale scores.

## **2.3 Procedure**

Participants were recruited from the undergraduate subject pool of the Department of Psychology at the University of British Columbia. Interested participants responded to advertisements seeking participants for a study on personality, stress, and coping in return for bonus course credits. Participants were informed that participation was voluntary and confidential and were debriefed following their participation.

Participants completed a questionnaire package on demographic and personality information. Participants were asked to fill out daily reports through a web-based questionnaire twice a day (mid-day and evening/bedtime) for seven consecutive days beginning the day after they had completed the personality measures. The time of their twice daily records was confirmed by a time and date stamp at the time of submission based on the time log of the server. Only time logs entered according to the instructions (i.e., one entry mid day and the subsequent entry in the evening) were included in the

final analysis. Eighty-six percent of the sample provided data on at least six out of the seven days.

### **3 RESULTS**

#### **3.1 Factor analyses**

##### **3.1.1 Appraisals**

A principal components analysis was conducted on the threat appraisals items at the daily level based on 4658 entries from 369 participants<sup>5,6</sup>. Consistent with recommendations (e.g., Fabrigar, Wegener, MacCallum, & Strahan, 1999; Russell, 2002), the factors were extracted using Principal Axis Factoring and a Promax rotation, allowing the rotated factors to be correlated with one another. The number of factors to be extracted was determined through an examination of the scree plot and eigenvalues larger than 1.0. The scree plot and eigenvalues over 1.0 clearly indicated a two factor solution. One item “harm to your own health, safety or physical well being” did not load on any of the factors. It also had a very low frequency of endorsement and was dropped from subsequent analyses. Consistent with other studies using exploratory factor analysis with multilevel data (Lee-Baggley et al., 2005; Park et al., 2004), this factor structure was also examined within individual time points. The two factor solution replicated when it was examined in discrete time points. The two factor solution suggested two highly interpretable factors along the agentic and communal distinctions. These factors were labelled agentic threats and communal threats. The factor loadings and alphas are displayed in Appendix A.

##### **3.1.2 Coping**

A principal components analysis was conducted utilizing coping data reported twice daily for seven days by 369 participants. There were a total of 4658 entries for which a stressor

was reported and coping data obtained. The principal components analysis of coping was similar to that of appraisals. The factors were extracted using Principal Axis Factoring and a Promax rotation (Fabrigar et al., 1999; Russell, 2002). Seven factors were extracted based on an examination of the scree plot and eigenvalues larger than 1.0. The seven factor solution remained stable when it was examined within individual time points. The final coping scales were: relationship focused coping, interpersonal antagonism, passive emotion focused coping, positive reflection, problem solving, support seeking, and distancing. The factor loadings and alphas are displayed in Appendix B.

## **3.2 Analyses of Aggregated Data**

### **3.2.1 Descriptive statistics and zero-order correlations**

Table 1 presents the means and standard deviations as well as the bivariate correlations between the five personality dimensions and scores on the coping scales, appraisals, threats, and negative mood. These statistics are based on the daily evening reports aggregated over seven days<sup>7</sup>. Table 1 also presents the frequency of reported stressor types. These values were calculated by computing the number of days (out of the number of days reported) in which participants indicated either an achievement or an interpersonal stressor as the major stressor of the day. Zero order correlations revealed that higher scores on N were associated with significantly higher scores on interpersonal antagonism, passive emotion focused coping, perceived seriousness of the stressor, communal and agentic threat, and negative mood. Higher scores on N were also significantly related to lower scores on controllability. Higher scores on E were significantly related to higher scores on problem solving and support seeking and lower scores on seriousness and negative mood. Those higher in O were significantly less



Table 1

*Intercorrelations between Personality Scales and Aggregated Mean Scores of Situation, Appraisals, Threats, and Coping Scales*

Subscale	N	E	O	A	C	GENDER	MEAN	SD
Relationship Focused	-.01	.10 t	.02	-.07	.00	.00	1.29	0.31
Interpersonal Antagonism	.16 ***	-.01	-.13 *	-.23 ***	-.03	-.01	1.22	0.26
Passive Emotion Focused	.29 ***	.00	.00	-.18 **	-.12 *	.12 *	1.61	.0.38
Positive Reflection	.09 t	.08	.04	-.04	.01	.05	1.34	0.32
Problem Solving	.09	.11 *	.03	.03	.09 t	-.16 **	1.75	0.40
Support Seeking	.10 t	.14 *	.05	.00	.01	.15 **	1.36	0.37
Distancing	.10 t	.01	.10 t	-.11 *	-.03	-.07	1.46	0.34
Freq Interpersonal	.03	.04	.11 *	-.04	.00	.07	0.21	0.20
Freq Achievement	.04	-.06	-.07	-.02	-.05	-.01	0.36	0.26
Seriousness	.25 ***	-.13 *	-.04	-.13 *	-.09 t	.07	2.24	0.88
Controllability	-.11 *	.10 t	.01	.02	.01	.02	1.93	0.80
Communal Threat	.12 *	.02	-.05	-.20 ***	-.11 *	-.02	0.58	0.60
Agentic Threat	.29 ***	.02	.05	-.11 *	-.13 *	.10 t	1.64	0.73
Negative Mood	.43 ***	-.17 **	-.08	-.33 ***	-.24 ***	-.07	1.70	0.61
MEAN	34.58	41.7	42.05	44.37	42.00			
SD	9.09	7.04	6.28	6.61	6.80			

Note. N = 350 individuals. Coping, threats, appraisals, and mood have been mean aggregated across seven time points. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness, Freq Interpersonal = total number of days interpersonal stressor were listed as the major stressor of the evening out of the number of days reported, Freq Achievement = total number of days achievement stressor were listed as the major stressor of the evening out of the number of days reported. Gender= female (1), male (-1). \* $p < .05$ . \*\* $p < .01$ , \*\*\* $p < .001$ , t $p < .10$ .

likely to report the use of interpersonal antagonism and reported a significantly higher frequency of an interpersonal stressor as the major stressor since their last entry compared to those lower in O. Higher scores on A were significantly related to lower reports of the use of interpersonal antagonism, passive emotion focused coping and distancing. Higher scores on A were also significantly related to lower scores on seriousness, communal and agentic threat, and negative mood. Higher scores on C were related to significantly lower scores on passive emotion focused coping as well as significantly lower scores on communal and agentic threat and negative mood. Means and standard deviations on the personality measures were similar to norms for college-aged respondents (Costa & McCrae, 1992).

Table 2 presents the intercorrelations among the daily variables. The data are comprised of multiple reports from the same individual and violates the assumption of independence. As such, the interpretability of these results is limited; this table is presented to aid in interpretation of the multivariate analyses. Table 3 presents the intercorrelations among the daily variables aggregated across evening timepoints. These values tend to be larger than those in Table 2 because the aggregation of scores increases the reliability of the scale (Snijders & Bosker, 1999)<sup>8</sup>.

### **3.3 Multivariate analyses**

The multivariate analyses in this study followed the recommendations of Raudenbush and Bryk (2002) and others (e.g., Kreft & De Leeuw, 1998; Snijders & Bosker, 1999), who suggest that multilevel modeling is the most appropriate type of analyses for repeated measures (i.e., daily process) data. According to Raudenbush and Bryk (2002), multilevel analyses provide a richer analysis of the data by accounting for

Table 2

*Intercorrelations among Coping Scales, Appraisals, Threats, and Stressor Type*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Relationship Focused	--	.58	.13	.39	.14	.38	.21	.45	-.29	.11	-.02	.62	.03	.18
2. Interpersonal Antagonism		--	.24	.33	.10	.39	.24	.46	-.22	.16	-.03	.57	.16	.35
3. Passive Emotion Focused			--	.33	.39	.31	.20	-.06	.17	.42	.17	.28	.57	.38
4. Positive Reflection				--	.33	.51	.35	.02	.05	.20	.19	.36	.25	.13
5. Problem Solving					--	.28	.00	-.17	.31	.33	.36	.08	.42	.07
6. Support Seeking						--	.15	.15	-.03	.29	.00	.38	.24	.26
7. Distancing							--	.13	-.09	-.10	.00	.18	.09	.07
8. Interpersonal Stressor								--	-.51	-.05	-.20	.42	-.14	.15
9. Achievement Stressor									--	.21	.33	-.25	.36	-.07
10. Seriousness										--	.17	.27	.52	.31
11. Controllability											--	-.04	.25	-.07
12. Communal Threat												--	.26	.40
13. Agentic Threat													--	.34
14. Negative Mood														--

Note. N = involves the responses from 350 individuals across the seven evening time points for a total of 2450 time points. Although a correlation of .05 is significant at  $p < .05$ , due to the repeated assessments from the same individuals, the data violates the assumption of independence. Interpersonal stressor = Interpersonal stressor (1), other stress (0), Achievement stressor = achievement stress (1) other stress (0). According to Cohen (1992)  $r = .10$  to  $r = .29$  represents a small effect size;  $r = .30$  to  $r = .49$  represents a medium effect size;  $r \geq .50$  represents a large effect size.

Table 3

*Intercorrelations among the Aggregated Mean Scores of Coping Scales, Appraisals, Threats, and Stressor Type*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Relationship Focused	--	.70	.35	.57	.36	.54	.33	.35	-.17	.22	.11	.71	.22	.29
2. Interpersonal Antagonism		--	.45	.51	.29	.54	.40	.31	-.01	.24	.08	.64	.29	.46
3. Passive Emotion Focused			--	.44	.46	.45	.39	.09	.11	.44	.19	.43	.63	.46
4. Positive Reflection				--	.51	.66	.53	.09	.12	.32	.23	.51	.36	.19
5. Problem Solving					--	.46	.17	-.02	.24	.41	.40	.27	.45	.12
6. Support Seeking						--	.34	.20	.00	.35	.11	.49	.34	.28
7. Distancing							--	.11	.02	.06	.11	.29	.24	.18
8. Freq Interpersonal								--	-.39	.04	-.14	.40	.00	.23
9. Freq Achievement									--	.24	.35	-.12	.24	-.06
10. Seriousness										--	.23	.36	.58	.35
11. Controllability											--	.05	.27	-.07
12. Communal Threat												--	.44	.51
13. Agentic Threat													--	.42
14. Negative Mood														--

*Note.* N = involves the responses from 350 individuals mean aggregated across the seven evening time points. Freq Interpersonal = total number of days interpersonal stressor were listed as the major stressor of the evening out of the number of days reported, Freq Achievement = total number of days achievement stressor were listed as the major stressor of the evening out of the number of days reported. A correlation of .17 was significant at  $p < .001$ , a value of .14 was significant at  $p < .01$ , and a value of .11 was significant at  $p < .05$ .

the repeated nature of the data. It also allows for the analysis of unique effects keeping the other personality and situational variables constant as well as the examination of both within-person and between-person effects. All analyses consisted of a two-level model and followed the recommendations of Raudenbush and Bryk (2002). Daily (within-person) data was modeled on the first level and personality (between-person) data was modeled on the second level using Hierarchical Linear Modeling 6.0 (HLM; Raudenbush et al., 2004)<sup>9</sup>. The models were run as random intercept, fixed coefficient models<sup>10,11</sup>. In all analyses, interpersonal and achievement stressors were modeled as indicator variables where the presence of the stressor was coded as 1 and other stressors were coded as 0. Across all models, level 1 variables were group-mean centered. This can be conceptually understood as the variable being centered around the individual's own mean on the variable providing a within-person comparison. Level 2 variables were grand-mean centered. This signifies the variables were centered around the mean of the group and represent between-person comparisons<sup>12</sup>. Indicator variables (stressors, gender, and ethnicity) and demographic variables (age the respondent arrived in Canada) were modeled as uncentered to ease interpretation. To aid in interpretation, personality traits were entered into the analyses as z-scores. Finally, the robust standard errors and associated hypotheses tests were used in all analyses. These analyses are robust to violations in HLM assumptions concerning the "distribution and covariance" (Raudenbush & Bryk, p.278) in level 1 and level 2 variables, random effects, and error terms and are most appropriate with a large number of level 2 units, as is the case in the present study.

Table 4 presents the proportion of variance at each of the two levels of analyses. The proportion of the variance at the level 2 (individual level) can also be understood as the intraclass correlation coefficient, or the degree to which the daily variables are clustered within individuals (Raudenbush & Bryk, 2002). For all variables, the intraclass correlation was significant, indicating that the use of multilevel modeling (that accounts for this intraclass correlation) was an appropriate data analytic strategy (West & Hepworth, 1991). The use of an Ordinary Least Squared estimation method (such as in linear regression) would have resulted in biased estimates (Raudenbush & Bryk). The proportion of variance at each level of analysis can be understood as the degree to which the variable is stable across individuals or varies within individuals. For example, compared to other coping strategies, relationship focused, interpersonal antagonism, problem solving, support seeking, and distancing had relatively higher levels of daily variance indicating greater within-person or situation specific variance. In contrast, passive emotion focused and positive reflection had the highest levels of individual variance among the coping strategies, indicating greater stability in these coping strategies across situations. Consistent with previous research (Folkman et al., 1986a), appraisals demonstrated relatively higher levels of situation-specific variance. Despite the differences, all proportions of variance in Table 4 were significant, indicating that both within-person and between-person sources of variance were relevant to all the coping and appraisal variables examined in this study.

Table 4

*Variance for Coping, Appraisals, and Mood at the Two Levels of Analysis*

Variable	Proportion of Variance	
	Daily <sup>1</sup>	Individual <sup>2</sup>
Relationship Focused	0.75	0.25
Interpersonal Antagonism	0.73	0.27
Passive Emotion Focused	0.54	0.46
Positive Reflection	0.53	0.47
Problem Solving	0.72	0.28
Support Seeking	0.67	0.33
Distancing	0.68	0.32
Negative Mood	0.43	0.57
Seriousness	0.68	0.32
Controllability	0.83	0.17
Communal Threat	0.68	0.32
Agentic Threat	0.68	0.32

Note.  $N^1 = 1751$  (level 1),  $N^2 = 350$  (level 2). The individual level proportion of variance is also the intraclass correlation coefficient (Raudenbush & Bryk, 2002). All values were significant.

### **3.3.1 Influence of stressor type and appraisal variables in coping responses**

In the first set of multivariate analyses the influence of stressor type and appraisal variables in coping responses was examined. Type of stressor (interpersonal and achievement), appraisals (seriousness and controllability) and threats (communal and agentic) were modeled simultaneously to predict each coping strategy (Appendix C provides the equation describing these analyses). The results provide the unique contribution of each predictor. The model fit, based on a chi-square statistic, was used to evaluate whether the addition of variables as a group significantly improved the amount of variance accounted for by the model (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). Although not identical, this can be conceptually understood as an  $R^2$  change statistic from linear regression that evaluates whether the contribution of a block of variables as a group is significant compared to the previous block of variables (Kreft & De Leeuw, 1998). To aid in interpretation, the percentage of variance accounted for in level 1 (or within-person) outcomes was also calculated, according to recommendations by Snijders and Bosker.

Table 5 presents the unstandardized regression coefficients from these analyses<sup>13</sup>. Consistent with predictions, the addition of stressor type and appraisals, such as seriousness, controllability, and communal and agentic threats, significantly improved the fit of the model across a number of coping strategies with only a few exceptions. The addition of stressor type significantly improved the fit of the model for all the coping strategies except for positive reflection. The percentages of explained variance ranged from less than 1% to 22%. The addition of seriousness and controllability resulted in a significantly improved model fit for all the coping strategies. The additional variance



Table 5  
*Hierarchical Linear Modeling of Stressor Type and Appraisals on Coping*

	Relationship Focused		Interpersonal Antagonism		Passive Emotion Focused		Positive Reflection		Problem Solving		Support Seeking		Distancing	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Intercept	1.23***	0.02	1.15***	0.01	1.63***	0.02	1.33***	0.02	1.70***	0.03	1.34***	0.02	1.46***	0.02
Interpersonal Stressor	0.29***	0.03	0.33***	0.03	-0.06*	0.02	0.00	0.02	-0.05	0.03	0.09*	0.04	0.11**	0.03
Achievement Stressor	-0.03	0.02	-0.02	0.02	0.01	0.02	0.01	0.02	0.15***	0.03	0.00	0.03	-0.03	0.03
Variance	21.35%		21.60%		2.47%		0.36%		8.85%		2.53%		1.69%	
Model fit	$\chi^2(2) = 469.88^{***}$		$\chi^2(2) = 5.17^{***}$		$\chi^2(2) = 84.30^{***}$		$\chi^2(2) = 3.57$		$\chi^2(2) = 184.31^{***}$		$\chi^2(2) = 35.76^{***}$		$\chi^2(2) = 38.94^{***}$	
Seriousness	0.01	0.01	0.01t	0.01	0.06***	0.01	0.00	0.01	0.06***	0.02	0.09***	0.01	-0.11***	0.01
Controllability	0.01t	0.01	0.00	0.01	0.02t	0.01	0.04***	0.01	0.09***	0.01	-0.02*	0.01	-0.02*	0.01
Variance	0.30%		0.72%		4.70%		0.61%		5.67%		4.05%		3.76%	
Model fit	$\chi^2(2) = 9.66^{**}$		$\chi^2(2) = 26.95^{***}$		$\chi^2(2) = 181.12^{***}$		$\chi^2(2) = 32.51^{***}$		$\chi^2(2) = 160.64^{***}$		$\chi^2(2) = 117.19^{***}$		$\chi^2(2) = 95.24^{***}$	
Communal Threat	0.22***	0.02	0.11***	0.02	0.02	0.02	0.08***	0.02	-0.02	0.02	0.11***	0.02	0.01	0.02
Agentic Threat	-0.06***	0.01	0.01	0.01	0.15***	0.01	0.00	0.01	0.12***	0.02	0.03t	0.02	0.03t	0.02
Variance	8.56%		3.74%		3.81%		1.23%		1.41%		1.22%		0.13%	
Model fit	$\chi^2(2) = 256.97^{***}$		$\chi^2(2) = 99.72^{***}$		$\chi^2(2) = 173.39^{***}$		$\chi^2(2) = 40.65^{***}$		$\chi^2(2) = 49.98^{***}$		$\chi^2(2) = 46.28^{***}$		$\chi^2(2) = 4.96t$	

Note. Model fit has been calculated separately for the addition of each block of variables. Regression coefficients are unstandardized and represent the unique effect of each predictor when all other predictors in the model are taken into account. Variance indicates the amount of additional variance accounted for by the block of variables compare to the previous model. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , t $p < .10$

accounted for ranged from less than 1% to close to 6%. The addition of threats resulted in significant improvement in the model fit for all coping strategies except for distancing, which showed marginal significance ( $p < .10$ ). The additional explained variance ranged from less than 1% to close to 9%.

Additionally, stressor type, seriousness, controllability, and threats added unique information in coping responses. Several patterns consistent with expectations emerged. Communally oriented variables, such as interpersonal stressor and communal threat, were positively related to the reported use of communal or interpersonally-oriented coping strategies, such as relationship focused coping, interpersonal antagonism, and support seeking. Agentic threat was also negatively related to reports of relationship focused coping. A similar effect was observed for problem solving, a more agentially-oriented coping strategy, whereby agentic variables, such as achievement stressor and agentic threat were significantly related to greater reports of problem solving. Interpersonal stressors were also significantly related to greater distancing and negatively related to passive emotion focused coping. Communal threat was also positively and significantly related to positive reflection and agentic threat was positively and significantly related to passive emotion focused coping.

Similar to previous studies (e.g., David & Suls, 1999; Folkman et al., 1986a) and in line with expectations, controllability was significantly related to the use of problem solving. Although it was hypothesized that controllability would be negatively related to emotion focused strategies, only support seeking and distancing demonstrated this relationship whereas passive emotion focused coping evidenced a marginally significant relationship in the opposite direction. Controllability was also significantly related to

higher scores on positive reflection. Consistent with expectations and previous research, seriousness was related to both problem focused (problem solving) and emotion focused coping strategies (support seeking and passive emotion focused coping). Although previous studies have found no relationship between distancing and seriousness (e.g., David & Suls; Schwartz & Stone, 1993), in the current study a significant negative relationship emerged. Overall, the results of these analyses support the importance of situational characteristics of the stressor (i.e., type of event) as well as appraisals (i.e., seriousness, controllability, and threats). The situational influences on coping based on a communal-agentive framework were also consistent with expectations.

### **3.3.2 Role of personality traits in coping responses**

Table 6 presents the results of analyses examining the role of personality on coping responses controlling for situation, appraisals, and demographics. In level 1 the daily situational predictors (stressor type, appraisals, and threats) were modeled. Level 2 variables (personality and demographic information) were modeled onto the intercept of the level 1 equation. Conceptually, this represents the main effect of personality on coping controlling for demographic and level 1 (situational) variables. This was repeated for each of the coping strategies (Appendix C provides the equation depicting these analyses). The hypothesis that the Big Five traits of personality would be significantly related to coping strategies was confirmed. Five out of the seven coping strategies indicated the addition of personality resulted in significant improvement in explained variance with an additional coping strategy indicating a marginally significant improvement. The additional variance accounted for by the Big Five dimensions of personality after controlling for situational and demographic variables ranged

Table 6

*Hierarchical Linear Modeling of Personality Dimensions on Coping Controlling for Appraisals and Stressor Type*

	Relationship Focused		Interpersonal Antagonism		Passive Emotion Focused		Positive Reflection		Problem Solving		Support Seeking		Distancing	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
intercept	1.19***	0.04	1.13***	0.03	1.64***	0.05	1.24***	0.04	1.67***	0.05	1.20***	0.04	1.47***	0.05
N	0.00	0.02	0.04**	0.01	0.10***	0.02	0.04*	0.02	0.06**	0.02	0.05*	0.02	0.04t	0.02
E	0.03t	0.02	0.03t	0.01	0.06**	0.02	0.05**	0.02	0.06**	0.02	0.06**	0.02	0.03t	0.02
O	0.00	0.01	-0.03**	0.01	-0.01	0.02	0.02	0.02	-0.01	0.02	0.01	0.02	0.04*	0.02
A	-0.02	0.02	-0.05***	0.01	-0.06**	0.02	0.00	0.02	0.02	0.02	0.00	0.02	-0.03	0.02
C	0.00	0.02	0.02	0.01	-0.02	0.02	0.02	0.02	0.04*	0.02	0.01	0.02	0.01	0.02
Gender	-0.01	0.02	0.00	0.02	0.05*	0.02	0.00	0.02	0.05*	0.02	0.05*	0.02	-0.05*	0.02
European	0.01	0.04	-0.03	0.03	-0.03	0.06	0.00	0.04	-0.03	0.06	0.07	0.05	-0.04	0.06
Asian	0.00	0.04	-0.01	0.03	-0.09t	0.05	0.03	0.04	-0.06	0.06	0.05	0.05	-0.10t	0.05
Age to Can	0.01**	0.00	0.01**	0.00	0.00	0.00	0.01***	0.00	0.01**	0.00	0.01***	0.00	0.01***	0.00
Variance	0.61%		4.74%		7.91%		2.03%		1.84%		1.63%		1.53%	
Model fit	$\chi^2(5)=4.70$		$\chi^2(5)=35.01***$		$\chi^2(5)=42.75***$		$\chi^2(5)=12.39^*$		$\chi^2(5)=13.74^*$		$\chi^2(5)=11.97^*$		$\chi^2(5)=10.89t$	
Interpersonal Stressor	0.28***	0.03	0.33***	0.03	-0.06*	0.02	0.00	0.02	-0.06	0.03	0.09*	0.04	0.10**	0.03
Achievement Stressor	-0.03	0.02	-0.02	0.02	0.01	0.02	0.00	0.02	0.15***	0.03	0.00	0.03	-0.04	0.03
Seriousness	0.01	0.01	0.01t	0.01	0.06***	0.01	0.00	0.01	0.06***	0.02	0.09***	0.01	-0.11***	0.01
Controllability	0.01t	0.01	0.00	0.01	0.02t	0.01	0.04***	0.01	0.09***	0.01	-0.02*	0.01	-0.02*	0.01
Communal Threat	0.22***	0.02	0.11***	0.02	0.02	0.02	0.08***	0.02	-0.02	0.02	0.11***	0.02	0.01	0.02
Agentic Threat	-0.06***	0.01	0.01	0.01	0.15***	0.01	0.01	0.01	0.12***	0.02	0.03t	0.02	0.03t	0.02
Variance <sup>a</sup>	29.79%		30.75%		19.37%		9.96%		18.77%		13.31%		9.79%	
Model fit	$\chi^2(15)=751.31***$		$\chi^2(15)=701.14***$		$\chi^2(15)=493.05***$		$\chi^2(15)=123.69***$		$\chi^2(15)=426.45***$		$\chi^2(15)=242.68***$		$\chi^2(15)=172.89***$	

Note. <sup>a</sup> This model fit involves the comparison of variance accounted for in the null model (no predictors) and the current model tabled. Variance indicates the amount of additional variance accounted for by the block of variables compare to the previous block of variables. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness, Gender= female (1), male (-1), European = European (1), other (0), Asian = Asian (1), other (0), Age to Can = Age at which respondent arrived in Canada. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , t $p < .10$ .

from less than 1% to close to 8%<sup>14</sup>. In examining the unique relationship between personality and coping, only some of the hypotheses were confirmed. Controlling for the other personality dimensions, situation, appraisals, and demographics, higher scores on N were significantly related to higher scores on a number of coping strategies, including interpersonal antagonism, passive emotion focused, positive reflection, problem solving, and support seeking. Higher scores on E were significantly related to higher reports of passive emotion focused, positive reflection, problem solving, and support seeking. Higher scores on O were related to significantly lower reports of interpersonal antagonism and greater reports of distancing. Those higher in A reported significantly lower use of interpersonal antagonism and passive emotion focused coping relative to those lower in A. Those higher in C, as compared to those lower in C, were significantly more likely to report the use of problem solving.

Several of the demographic variables also demonstrated significant relationships with reports of coping strategies. Females were more likely to report the use of passive emotion focused coping, problem solving, and support seeking and less likely to report the use of distancing compared to males, controlling for appraisals and stressor type. Ethnicity was not significantly related to the reports of coping strategies. The age at which the respondent moved to Canada was significantly and positively related to the use of all coping strategies except for passive emotion focused coping, suggesting that individuals who moved to Canada at a later age were more likely to report the use of a number of coping strategies. The relationships between the situational and appraisal variables remained unchanged with the addition of the personality and demographic predictors. Overall, the multilevel analyses suggest that both personality and situational

variables provide unique and additional explanatory power in predicting coping responses across a number of coping strategies.

### **3.3.3 Interactions between personality and appraisals in predicting coping responses**

Table 7 presents the interactive effect between personality and appraisals controlling for stressor type. This table also presents the interactive effect of personality and stressor type in predicting coping responses. At level 1, stressor type and the appraisal variable were modeled. Personality and demographic variables were modeled onto the intercept of the level 1 equation, representing the main effects of these variables. The five personality dimensions were also modeled onto the slope of the appraisal variable. Conceptually, modeling onto the slope of a variable represents the interaction between the level 1 (appraisal) variable and the level 2 (personality variable) or a cross level interaction (Raudenbush & Bryk, 2002). Each appraisal variable was modeled in a separate equation. For the analyses examining the interactions between personality and stressor type, level 1 contained the indicator variables for stressor type. The five personality dimensions were then modeled onto the intercept (main effects) and slope of the stressor type (interactive effects) in separate equations for each stressor type. Demographics were also modeled onto the intercept (main effect)<sup>15</sup>. Equations representing the models examined in these analyses can be found in Appendix C. The model fit statistics were used to evaluate whether the addition of the interactions significantly contributed to the explained variance of the model over and above the main effects. The percentage of additional variance in within-person variability accounted for

Table 7

*Hierarchical Linear Modeling of the Interaction between Appraisals, Threats, Stressor Type, and Personality Dimensions on Coping*

	Relationship Focused	Interpersonal Antagonism	Passive Emotion Focused	Positive Reflection	Problem Solving	Support Seeking	Distancing
interpersonal stressor*personality							
Variance	0.95%	0.25%	0.65%	0.31%	0.88%	0.43%	0.10%
Model fit	$\chi^2(5)=16.74^{**}$	$\chi^2(5)=13.26^*$	$\chi^2(5)=8.70$	$\chi^2(5)=4.60$	$\chi^2(5)=13.41^*$	$\chi^2(5)=9.77t$	$\chi^2(5)=2.09$
achievement stressor*personality							
Variance	0.73%	0.23%	0.77%	0.04%	0.21%	0.06%	0.46%
Model fit	$\chi^2(5)=8.47$	$\chi^2(5)=4.74$	$\chi^2(5)=23.22^{***}$	$\chi^2(5)=1.34$	$\chi^2(5)=3.12$	$\chi^2(5)=1.78$	$\chi^2(5)=14.43^*$
seriousness*personality							
Variance	0.08%	0.12%	0.52%	0.08%	0.70%	0.48%	0.28%
Model fit	$\chi^2(5)=2.21$	$\chi^2(5)=3.48$	$\chi^2(5)=19.00^{**}$	$\chi^2(5)=2.76$	$\chi^2(5)=17.72^{**}$	$\chi^2(5)=12.67^*$	$\chi^2(5)=7.23$
controllability*personality							
Variance	0.10%	0.18%	0.49%	0.52%	0.09%	0.17%	0.40%
Model fit	$\chi^2(5)=2.60$	$\chi^2(5)=4.61$	$\chi^2(5)=15.70^{**}$	$\chi^2(5)=16.69^{**}$	$\chi^2(5)=2.15$	$\chi^2(5)=4.45$	$\chi^2(5)=9.77t$
communal threat*personality							
Variance	0.34%	0.52%	0.24%	0.11%	0.45%	0.76%	0.28%
Model fit	$\chi^2(5)=10.66t$	$\chi^2(5)=14.40^*$	$\chi^2(5)=7.76$	$\chi^2(5)=3.58$	$\chi^2(5)=11.14^*$	$\chi^2(5)=20.39^{***}$	$\chi^2(5)=6.97$
agentic threat*personality							
Variance	0.61%	0.12%	0.41%	0.15%	0.43%	0.04%	0.55%
Model fit	$\chi^2(5)=15.21^{**}$	$\chi^2(5)=3.08$	$\chi^2(5)=14.96^*$	$\chi^2(5)=4.61$	$\chi^2(5)=10.94t$	$\chi^2(5)=0.97$	$\chi^2(5)=13.93^*$

Note. Each set of interactions has been modeled separately. The interactions between appraisals and personality in predicting coping responses control for stressor type and the main effects of personality, demographics, and appraisal. The interactions between stressor type and personality in predicting coping responses control for the main effects of personality, demographics, and stressor type. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ,  $t p < .10$ .

by the interactions was calculated according to recommendations by Snijders and Bosker (1999).

The results suggest a greater number of significant findings than would be expected by chance. However, the variance accounted for was small in most cases. The additional variance accounted by the interactions was less than 1% in all cases. The model fit statistics examining the additional explained variance for the interactions between personality and interpersonal stressor were significant for three of the seven coping strategies, with an additional model fit indicating a marginal significance. For the interactions between personality and achievement stressor, two of the model fit statistics were significant. Three of the model fit statistics were significant for the interactions between personality and seriousness. Two of the model fit statistics were significant with an additional marginal significance for the interactions between controllability and personality. For both the interactions between communal threat and personality and the interactions between agentic threat and personality, three of the model fit statistics were significant with an additional marginally significant relationship. When the effects of the interactions were examined by coping strategy instead of by predictors, at least one interaction between situation or appraisals and personality increased the explained variance for each of the coping strategies. For example, three of the interactions were significant in predicting problem solving. The strongest effect was evidenced in the prediction of passive emotion focused coping in which the interactions between personality and achievement stressor, seriousness, controllability, and agentic threat significantly added to the explained variance. These models are a conservative test of the



interactions between personality and appraisals in which all five dimensions of personality and stressor type have been controlled<sup>16</sup>.

### **3.3.4 Role of personality in stressor type and appraisals**

Table 8 presents the influence of personality on reports of appraisals and stressor type, controlling for the other personality dimensions and demographic information (Appendix C provides the equation describing these analyses). Table 9 presents the unstandardized regression coefficients for demographic variables on reports of appraisals and stressor type, controlling for personality dimensions. In predicting stressor type, a Bernoulli distribution and logit link function was used, consistent with recommendations for dichotomous outcome variables (Raudenbush & Bryk, 2002). Controlling for the other personality dimensions and demographics, N was significantly related with higher reports of seriousness, communal and agentic threat, and lower reports of controllability. This is congruent with predictions and previous research indicating that those higher on N are more likely to view stressors as threatening, serious, and lacking control (Bouchard, 2003; Gallagher, 1990; Hemenover, 2001; Hemenover & Dienstbier, 1996; Penley & Tomaka, 2002). Controlling for the other personality dimensions, higher scores on E were significantly related to higher reports of communal and agentic threat. This was contrary to predictions, where it was expected that higher reports of E would be related with lower reports of threat appraisals. However, this finding is consistent with previous research indicating that the relationship between E and appraisals may differ in the presence of the other personality dimensions (Gallagher). Finally, those higher in A were significantly less likely to report communal threat than those lower in A. There

Table 8

*Hierarchical Linear Modeling of Personality Dimensions on Appraisals and Stressor type*

	Interpersonal Stressor		Achievement Stressor		Seriousness		Controllability		Communal Threat		Agentic Threat	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	-0.95***	0.16	-0.41**	0.14	2.14***	0.12	1.93***	0.09	0.53***	0.08	1.61***	0.09
N	0.03	0.07	-0.02	0.06	0.17***	0.05	-0.12*	0.05	0.06*	0.03	0.20***	0.04
E	0.10	0.07	-0.04	0.07	-0.03	0.05	0.05	0.04	0.08*	0.04	0.13**	0.04
O	0.08	0.07	0.01	0.07	-0.01	0.05	0.02	0.04	-0.03	0.03	0.03	0.04
A	-0.09	0.07	0.05	0.06	-0.05	0.05	0.01	0.05	-0.11**	0.04	-0.04	0.04
C	-0.03	0.07	-0.03	0.06	-0.01	0.04	-0.03	0.04	-0.02	0.03	-0.05	0.04

*Note.* A Bernoulli distribution and logit link function (for binary outcomes) was used in equations predicting stressor type. Regression coefficients are unstandardized and represent the unique effect of each personality dimension when other personality dimensions and demographic information has been taken into account. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness. \* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ,  $t p < .10$ .

Table 9

*Hierarchical Linear Modeling of Demographics on Appraisals and Stressor Type*

	Interpersonal Stressor		Achievement Stressor		Seriousness		Controllability		Communal Threat		Agentic Threat	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Gender	0.08	0.08	0.03	0.07	0.11*	0.05	0.05	0.05	0.00	0.04	0.05	0.04
European	0.08	0.18	-0.21	0.17	-0.09	0.14	-0.22t	0.11	-0.01	0.09	-0.07	0.11
Asian	-0.49**	0.19	0.26	0.17	0.01	0.14	-0.05	0.11	-0.09	0.08	-0.06	0.11
Age to Can	0.01	0.01	0.01	0.01	0.02*	0.01	0.02**	0.01	0.01**	0.01	0.01t	0.01

*Note.* A Bernoulli distribution and logit link function (for binary outcomes) was used in equations predicting stressor type. Regression coefficients are unstandardized and represent the unique variance of each demographic when personality dimensions and demographic information has been taken into account. Gender= female (1), male (-1), European = European (1), other (0), Asian = Asian (1), other (0), Age to Can = Age at which respondent arrived in Canada. \* $p < .05$  \*\*  $p < .01$ , \*\*\*  $p < .001$ , t  $p < .10$

were also several significant effects of the demographic variables. Females were significantly more likely than males to report higher levels of seriousness. Those who self reported their ethnicity as Asian, as compared to those who self report their ethnicity as European or other, were significantly less likely to report an interpersonal stressor as the major stressor of the day. Additionally, the age at which the respondent moved to Canada was positively and significantly related to communal threats, seriousness, and controllability. This suggests that the older a participant was when they moved to Canada, the more likely a participant would report his/her stressors as serious and threatening but also controllable.

### **3.3.5 Outcomes of coping**

In the next set of analyses the relationship between coping and mood was examined. Table 10 and 11 present the results of multilevel analyses examining the effect of evening reports of coping strategies on evening negative mood controlling for the other coping strategies, morning negative mood, personality, stressor type, and appraisals. The relationship between demographics and mood were non significant and, consistent with recommendations, were dropped from the model (Snijders & Bosker, 1999). By controlling for morning negative mood, these analyses can be understood as examining changes in mood. Collapsing across stressors, evening reports of interpersonal antagonism, passive emotion focused coping, and support seeking were related to increases in negative mood; whereas evening reports of positive reflection, problem solving, and distancing were related to decreases in negative mood. Controlling for the type of stressor involved and appraisals, the results remained largely consistent

Table 10

*Hierarchical Linear Modeling of Coping on Evening Negative Mood Controlling for Morning Negative Mood and Stressor Type*

	Evening Coping		Morning Coping		Evening Coping		Evening Coping	
	Across all stressors		Across all stressors		Interpersonal Stressors		Achievement Stressors	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	1.71***	0.08	1.70***	0.03	1.69***	0.08	1.73***	0.09
N	0.24***	0.03	0.23***	0.03	0.24***	0.03	0.24***	0.03
E	0.05	0.03	0.04	0.03	0.05	0.03	0.05	0.03
O	-0.02	0.03	-0.02	0.03	-0.02	0.03	-0.02	0.03
A	-0.13***	0.03	-0.14***	0.03	-0.13***	0.03	-0.13***	0.03
C	-0.05t	0.03	-0.06t	0.03	-0.05t	0.03	-0.05t	0.03
AM negative mood	0.26***	0.04	0.27***	0.05	0.26***	0.04	0.26***	0.04
Relationship focused	0.01	0.04	-0.01	0.04	-0.02	0.04	0.00	0.04
Interpersonal antagonism	0.31***	0.06	0.01	0.05	0.26***	0.06	0.30***	0.06
Passive emotion focused	0.28***	0.04	0.04	0.04	0.28***	0.04	0.28***	0.04
Positive reflection	-0.12*	0.05	0.05	0.05	-0.11*	0.05	-0.12*	0.05
Problem solving	-0.05*	0.03	0.03	0.03	-0.04	0.03	-0.04	0.03
Support seeking	0.18***	0.04	0.06	0.04	0.18***	0.04	0.18***	0.04
Distancing	-0.12***	0.03	-0.03	0.03	-0.13***	0.03	-0.13***	0.03
Stressor	--	--	--	--	0.09*	0.04	-0.04	0.03

*Note.* In all models, the effects of morning mood and personality dimensions on evening mood were controlled. Regression coefficients are unstandardized and represent the unique effect of each coping strategy when the other predictors are held constant. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , t $p < .10$ .

Table 11

*Hierarchical Linear Modeling of Evening Coping on Evening Negative Mood Controlling for Morning Negative Mood and Appraisals*

	Seriousness		Controllability		Agentic Threat		Communal Threat	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	1.70***	0.03	1.70***	0.03	1.70***	0.03	1.70***	0.03
N	0.23***	0.03	0.23***	0.03	0.23***	0.03	0.23***	0.03
E	0.05	0.03	0.05	0.03	0.05	0.03	0.05	0.03
O	-0.02	0.03	-0.02	0.03	-0.02	0.03	-0.02	0.03
A	-0.14***	0.03	-0.14***	0.03	-0.14***	0.03	-0.14***	0.03
C	-0.06t	0.03	-0.06t	0.03	-0.06t	0.03	-0.06t	0.03
AM negative mood	0.26***	0.04	0.26***	0.04	0.26***	0.04	0.26***	0.04
Relationship focused	0.00	0.04	0.00	0.04	0.04	0.04	-0.06	0.04
Interpersonal antagonism	0.30***	0.06	0.31***	0.06	0.30***	0.06	0.26***	0.06
Passive emotion focused	0.21***	0.04	0.28***	0.04	0.19***	0.04	0.25***	0.04
Positive reflection	-0.11*	0.05	-0.09t	0.05	-0.12*	0.05	-0.13*	0.05
Problem solving	-0.10**	0.03	-0.02	0.03	-0.09**	0.03	-0.04	0.03
Support seeking	0.14***	0.04	0.16***	0.04	0.17***	0.04	0.16***	0.04
Distancing	-0.08*	0.03	-0.13***	0.03	-0.11***	0.03	-0.12***	0.03
Appraisal	0.08***	0.01	-0.04***	0.01	0.09***	0.02	0.10**	0.03

*Note.* In all models, the effects of morning mood and personality dimensions on evening mood were controlled. Regression coefficients are unstandardized and represent the unique effect of each coping strategy when the other predictors are held constant. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , t  $p < .10$ .

except for the effects of problem solving. Although the direction of the relationship between problem solving and mood remained consistent, the significance was affected when the type of stressor, controllability, and agentic threat was controlled.

Similar to previous research (e.g., Bolger et al., 1989; Dunkley et al., 2003), interpersonal stressors were significantly related to increases in negative mood.

Achievement stressors were not significantly related to negative mood. The difference between these regression coefficients was significant,  $t(348) = 2.63, p < .01$ .

Examination of the bivariate correlations between stressor type and mood indicated a similar pattern. Again the difference between the correlations was significant,  $t(347) = -3.12, p < .001$ , and suggested that interpersonal stressors were significantly more distressing than achievement stressors. It is unlikely these effects occurred because interpersonal stressors were viewed as more serious than achievement stressors. In fact, the opposite effect was observed, achievement stressors were rated as significantly more serious than interpersonal stressors,  $t(347) = -5.47, p < .001$ . Across all the analyses neuroticism was significantly related to increases in negative mood and agreeableness was significantly related to decreases in negative mood.

Table 10 also presents the results of morning coping on evening mood. Analyses examining the effect of morning coping on evening mood, controlling for the effect of the other coping strategies, personality, and morning mood, failed to reveal any significant effects. These results remained consistent when seriousness, controllability, agentic and communal threat, and type of stressor were controlled except for the relationship between morning problem solving and evening mood. When seriousness was controlled, the relationship between morning problem solving and evening mood was positive and

significant. Analyses examining the effect of evening coping strategies on the next morning's mood did not reveal any significant effects<sup>17</sup>.

## **4 DISCUSSION**

The current study provided support for the contemporary Transactional Model, illustrated in Figure 1, in which situational and dispositional factors were proposed to influence multiple aspects of the stress and coping process. Although previous research has found that both stable and situational factors influence the process of coping, the current study provided novel evidence of the unique contribution of each based on repeated assessments. The findings suggest that a broad range of dispositional and situational influences are important to consider in understanding individual differences in responding and adapting to stress.

### **4.1 Situational influences in coping responses**

Congruent with hypotheses and the Transactional Model of Stress and Coping, situational influences, such as the type of stress and appraisals, were found to be important determinants of the ways in which individuals cope with stress. As predicted, stressor type (achievement and interpersonal) and appraisals (seriousness, controllability, communal and agentic threat) accounted for significant and unique variance across a range of coping strategies with few exceptions. The results also support the notion that a range of appraisals play an important role in influencing coping responses.

Stressor type and appraisals were uniquely related to coping strategies in meaningful and expected ways. It was hypothesized that seriousness would be related to an increase in both emotion- and problem-focused coping strategies. Although this prediction was confirmed, it appears that more severe stressors do not simply invoke



more coping, but rather, are related to a specific pattern of coping strategies. Seriousness was positively related to reports of passive emotion focused coping, problem solving, and support seeking, and negatively related to reports of distancing. These results suggest that when faced with more serious stressors individuals were more likely to report wishing the situation would go away and trying to take active steps to remedy the problem including seeking information and emotional support from others. Although participants were more likely to report passively wishing the situation was different (passive emotion focused), they were less likely to report acting as if the situation did not exist (distancing). This suggests that trying to ignore the presence of a stressor may not be a viable response for events that are significant. Consistent with predictions, the seriousness of the stressor and personality traits interacted to predict coping responses, although the additional explained variance was small.

The results are congruent with previous studies that highlight a specific pattern of coping strategies associated with more severe stressors. Several studies suggest that seriousness is related to catharsis, social support, and passive emotion focused (David & Suls, 1999; Schwartz & Stone, 1993; Stone et al., 1995) as well as problem solving (Schwartz & Stone, 1993; Stone et al., 1995). Significant interactions between seriousness and personality to predict coping have also emerged across the two studies that examined interactive effects (present study, David & Suls).

Despite the assertion that seriousness is an important appraisal dimension (e.g., Aldwin & Revenson, 1987; David & Suls, 1999; Schwartz & Stone, 1993; Stone et al., 1995), there is little theory with which to explain the pattern of findings. More serious stressors may increase an individual's motivation to try to remove or alter the stressor by

engaging in problem solving (Folkman & Lazarus, 1985). More severe stressors may also elicit stronger emotions (David & Suls; Stone et al., 1995; Terry, 1994). Studies suggest that specific appraisals lead to specific emotions (Frijda, 1993; Smith & Lazarus, 1993). However, few have examined the relationship between the appraisal of seriousness and its emotional concomitants. Such an undertaking may assist in explaining the relationship between seriousness and the specific emotion focused coping strategies that are used. The current results add to the increasing evidence that the seriousness of the stressor is an important dimension of appraisals. However, more work is needed to develop and test a theoretical model explaining the relationship between seriousness and coping.

Concordant with predictions, higher levels of controllability were positively associated with problem solving and negatively associated with support seeking and distancing. Greater reports of controllability were also related to reports of more positive reflection. This suggests that when participants were facing stressors they felt they could control, they were more likely to report thinking positively about the situation, engaging in positive events, and actively planning ways to deal with the situation. This is congruent with findings from previous studies, in which problem solving is often accompanied by positive reappraisal (Folkman et al., 1986a; Folkman & Lazarus, 1985; Mattlin et al., 1990). Some have argued that the two may be "mutually facilitative" (Folkman et al., 1986a, p. 1000). Positive reappraisal may promote problem focused coping by making the situation more amenable to change and problem solving may help individuals view their circumstances more positively (Folkman & Lazarus, 1985; Mattlin et al., 1990; Park & Folkman, 1997; Taylor, 1983). Conversely, when faced with uncontrollable stressors,

participants were more likely to report the use of emotion focused strategies, such as seeking emotional and informational support from others and trying to ignore or minimize the presence of the stressor. This is in keeping with theory and research, suggesting that controllable stressors promote problem focused coping whereas uncontrollable situations elicit emotion focused coping (Folkman et al., 1986a; Park et al., 2004; Zakowski, Hall, Cousino, & Baum, 2001).

The distinction of stressors and appraisals as communal or agentic provided a meaningful framework through which to understand situational influences on coping. Congruent with the hypothesis that communally-based stressors would be associated with communally-oriented coping strategies, interpersonal stressors were related to increased reports of relationship focused coping, interpersonal antagonism, and support seeking. This suggests that when facing stressors involving others, individuals are motivated to respond with coping strategies that involve interacting, relating, and engaging with others. This includes being empathic, providing support to others, compromising, confronting, withdrawing, and seeking emotional and informational support from others.

In contrast to previous studies, in which distancing was unrelated or negatively related to interpersonal stressors (e.g., Folkman et al., 1986a; Lee-Baggley et al., 2005; O'Brien & DeLongis, 1996), distancing was positively related to interpersonal stressors in the current study. This discrepancy may be due to the nature of the interpersonal stressor examined. O'Brien and DeLongis (1996) found that distancing was unrelated to situations involving close others but was positively associated with situations involving distant others. This suggests that the use of distancing may only be a viable solution when the relationship is not a close one (Lee-Baggley et al.). The interpersonal situations

reported in the current study may have involved less close interpersonal relationships. The lower use of passive emotion focused coping was also similar to past studies examining the influence of interpersonal stressors (O'Brien & DeLongis, 1996). These findings suggest that when dealing with an interpersonal event, it may be difficult to passively wish the situation would go away.

The results between communal threats and coping revealed a similar but unique pattern when compared with the associations between interpersonal stressors and coping. Similar to interpersonal stressors, greater communal threat was related to increased reports of relationship focused coping, interpersonal antagonism, and support seeking. Greater communal threat was also significantly related to more positive reflection but, unlike the results regarding interpersonal stressors, was unrelated to passive emotion focused coping or distancing. This finding suggests that the perception of threat to interpersonal relationships and loved ones is related to attempts to positively reframe the situation and increase one's positive events, in addition to engaging in interpersonally oriented coping strategies. The fact that both communal stressor type and communal appraisals were uniquely related to interpersonal coping strategies, suggests they are not redundant sources of information. Compared to external (i.e., judges') classification of the situation, self-reported perceptions of the situation revealed consistent but distinct patterns. Both provide support for the notion that interpersonal factors are important to consider in the stress and coping process.

Conversely, achievement (agentic) stressors were related to greater problem solving, which is concordant with predictions and previous studies (Folkman & Lazarus, 1985; Folkman et al., 1986a; O'Brien & DeLongis, 1996). Agentic threat was negatively

related to relationship focused coping and positively related to passive emotion focused coping and problem solving. These findings indicate that when individuals reported threats to accomplishing their tasks or their personal well being, they were more likely to report passively wishing the situation would go away as well as taking steps necessary to address the situation. This pattern of coping may be a typical reaction of students feeling threatening by final exams, who wish they did not have to take their exams but attempt, nonetheless, to study for them. The negative relationship between agentic threat and relationship focused coping suggests that when individuals report their own well-being is at stake, they are less able to respond empathically and supportively to the needs of others.

Prior research has emphasized the important role of appraisals as determinants of coping (e.g., Chang, 1998; Folkman et al., 1986b; Major et al., 1998). However, to my knowledge, there are no prior daily process studies examining the influence of appraisals controlling for the nature of the stressor. The present study provides stronger evidence that both external classification of the situation and subjective evaluations provide unique information into the situational influences of coping and are not simply redundant sources of information. Additionally, a broad range of appraisals, in addition to controllability, appear important in influencing coping responses. The results also support the utility of conceptualizing situational influences and coping strategies as communal and agentic (Helgeson, 1994; O'Brien & DeLongis, 1996). Overall, the findings demonstrate the meaningful and important influence situational factors exert in the coping process.

## 4.2 Role of personality traits in coping responses

Consistent with the contemporary Transactional Model, personality traits predicted unique and additional variance above and beyond situational variables in reported usage of a wide range of coping strategies. Individual predictions regarding each personality trait and coping, controlling for the other personality traits, were partially confirmed.

As hypothesized, those higher in N were more likely to report the use of passive emotion focused strategies that involve blaming themselves and wishing the situation would go away. Those higher in N, compared to those lower in N, were also more likely to report relationship-disruptive coping strategies, such as confronting and withdrawing from others, without reporting the use of coping strategies that may protect relationships, such as compromising and responding empathically to others. And while those higher in N were more likely to report seeking support they were not more likely to report providing support to others, compared to those lower in N. Unexpectedly, N was also related to the use of positive reflection and problem solving. Although not hypothesized, previous daily studies have also found a significant positive relationship between N and planful problem solving (Bolger & Zuckerman, 1995) and relaxation (David & Suls, 1999; Gunthert et al., 1999), which has aspects similar to the coping strategy of positive reflection. These results support the contention of Eysenck (1983) and Bolger (1990) that those higher in N may engage in certain strategies in an attempt to compensate for their high emotionality. This may include such strategies as trying to relax and engaging in problem solving. Alternatively, given the evidence in the current study that those higher in N tend to view their stressors as more serious and threatening as well as past evidence

that individuals higher in N experience more stressors (e.g., Bolger & Schilling, 1991; Bolger & Zuckerman; Gunthert et al.), individuals higher in N may need to engage in more coping effort, resulting in the use of a myriad of strategies. Finally, reports of engaging in a coping strategy do not reveal whether the coping strategy was effective in managing the stressor. Previous research suggests that despite engaging in multiple strategies, individuals higher in N may employ these coping strategies with less effectiveness compared to people low in N (Gunthert et al.).

The hypothesis that E would be related with interpersonally oriented coping strategies was partially confirmed. Those higher in E were significantly more likely to report the use of support seeking and marginally more likely to report the use of relationship focused coping and interpersonal antagonism. Consistent with predictions and past studies (David & Suls, 1999; Lee-Baggley et al., 2005), scores on E were positively associated with a variety of emotion focused strategies, including being significantly related to positive reflection and passive emotion focused coping and marginally related to reports of distancing. This is congruent with past research indicating that scores on E are positively associated with reports of both putatively adaptive and maladaptive emotion focused coping strategies when controlling for the other personality dimensions and when examined on a daily basis (David & Suls; Lee-Baggley et al.). There is little in the current models of E, which have focused primarily on positive emotionality and sociability (e.g., Amirkhan et al., 1995; Lucas, & Baird, 2004; Watson & Clark, 1997), to explain these findings. Given the replication of this finding across several studies, this may be an area in need of further exploration and development.

The similarity in the coping patterns between N and E is surprising given the view in the literature, in which those high in E are seen as adaptive copers whereas those high in N are seen as ineffective copers (Bolger, 1990; Gallagher, 1990; Hooker et al., 1994; Lee-Bagglely et al., 2005; McCrae & Costa, 1986; Watson & Hubbard, 1996). In the current study, N and E reported engaging in similar coping strategies yet reported different outcomes. Although the relationships between personality and coping strategies were similar for both high N and high E, there may be other differences between these two groups that account for their differential outcomes. Previous studies have found that N may moderate the effectiveness of coping strategies (Bolger & Zuckerman, 1995; Gunthert et al., 1999). For example, Gunthert et al. found that individuals higher in N reported greater increases in negative affect, than did those lower in N, given the use of catharsis, social support, self blame, and hostile reaction. Other studies have found that those higher in N, compared to those lower in N, are less able to tailor the use of coping strategies to the needs of the situation (Lee-Bagglely et al.; O'Brien & DeLongis, 1996), a hallmark of good coping (Lazarus & Folkman, 1984). O'Brien and DeLongis (1996) found that those higher in N, compared to those lower in N, were more likely to use relationship focused coping in response to stressors involving distant others than close others. Lee-Bagglely et al. found that the type of interpersonal family stress did not moderate the role of N in coping. They found that those higher in N, compared to those lower in N, reported using the same coping strategy regardless of whether they were managing conflict with their spouse or their child. Scores on E, on the other hand, were related to the greatest number of significant interactions with situation in predicting coping use, relative to the other Big Five traits of personality. The outcomes of coping



may also depend on which coping strategies are used together (Mattlin et al., 1990; Pearlin & Schooler, 1978) or the phase of the stressful event in which coping strategies are invoked (Carver & Scheier, 1994; Folkman & Lazarus, 1985). Those higher in N may use a different constellation of strategies or use coping strategies in a different sequence compared to those higher in E. Given the similar patterns of coping that emerged for those higher in E and those higher in N, future research may need to evaluate more than just the use of coping strategies. Examination of the pattern of strategies and the ability to tailor responses to the needs of the situation may help to understand the ways in which coping responses are related to outcomes for those high in E and those high in N.

The relationships between coping and scores on A were largely consistent with models of A and previous research. Congruent with past studies and hypotheses, those higher in A were less likely to use passive emotion focused coping strategies involving avoidance, compared to those lower in A (Hooker et al., 1994; Lee-Baggley et al., 2005; Watson & Hubbard, 1996). Scores on A were also negatively related to interpersonal antagonism but, contrary to predictions, unrelated to relationship focused coping. These results suggest that those higher in A, compared to those lower in A, are not necessarily more likely to report the use of relationship sustaining coping strategies, such as responding emphatically to others, but rather to eschew the use of strategies that are disruptive to relationships, such as confronting and withdrawing from others. This suggests that those higher on A may be more concerned with avoiding conflict than with nurturing relationships. This is in line with recent conceptualizations of A as motivated to preserve harmony in their relationships (Graziano et al., 1996; Jensen-Campbell &

Graziano, 2001). However, this fails to replicate previous findings suggesting that A is related to prosocial and empathic behavior (Graziano & Eisenberg, 1997). Previous research suggests that the type of interpersonal situation may affect the degree to which those higher in A can respond empathically and avoid confrontation (Lee-Baggley et al.). Although those higher in A, compared to those lower in A, reported responding empathically with low confrontation in managing an interpersonal stressor involving their spouse, they were less likely to report doing so in managing their child's misbehavior. Graziano and Eisenberg also noted that prosocial or empathic behavior is often moderated by situational influences. Future research may benefit from examining more specific types of interpersonal contexts to understand the role of A and interpersonally oriented coping strategies.

The positive association between scores on C and problem solving is consistent with the conceptualization of those high in C as being methodical, disciplined, and organized (Hogan & Ones, 1997; McCrae & John, 1992). Individuals high in C may be similarly meticulous and careful in planning their responses to stressors (Watson & Hubbard, 1996). Contrary to predictions and previous studies (Lee-Baggley et al., 2005; O'Brien & DeLongis, 1996), scores on C were unrelated to relationship focused coping. Differences in the sample, the nature of the stressors being encountered, or the research design may account for this difference. For example, scores on C were positively related to relationship focused coping in a daily study of community members managing interpersonal family stress (Lee-Baggley et al.). Scores on C were also related to empathic responding in a retrospective study of undergraduates (O'Brien & DeLongis, 1996). Those higher in C may be more likely to report using relationship focused coping

in retrospective designs or when managing interpersonal family problems. Additional studies examining interpersonally oriented coping strategies may help clarify the relationship between C and responding empathically to others during stress. Such studies may assist in uncovering whether those high in C are equally dutiful and careful in caring for their interpersonal relationships as they are in dealing with their agentic tasks (Asendorpf & Wilpers, 1998; Lee-Baggley et al.). The relatively fewer number of findings for C, relative to cross-sectional studies (e.g., Watson & Hubbard), is consistent with other daily process studies that have examined the role of C controlling for the other five personality dimensions (David & Suls, 1999; Lee-Baggley et al.). This supports the notion that the relationship between C and coping strategies may be especially sensitive to methodological and contextual factors.

In the present study, scores on O were positively related to distancing and negatively related to interpersonal antagonism. This former finding is particularly discrepant with previous daily studies controlling for the other personality dimensions, which have found that those higher in O are less likely to distance, compared to those lower in O (Lee-Baggley et al., 2005; David & Suls, 1999). The flexible, creative, and adaptive nature of high O (McCrae & Costa, 1997) suggests O may be particularly important in managing stress (Watson & Hubbard, 1996). However, the results of O across a number of studies have been inconsistent (Bouchard, 2003; David & Suls; Lee-Baggley et al.; O'Brien & DeLongis, 1996; Watson & Hubbard). David and Suls found that the relationship between O and coping was particularly complex, involving several interactions with appraisals to predict coping responses. O has been viewed as the least agreed upon and, arguably, the most poorly understood, dimension of the Big Five traits

(McCrae & John, 1992; McCrae & Costa, 1997). It may be that a deeper understanding of the nature of O and more complex models of coping are needed to fully interpret the relationship between O and coping.

The results confirm the important role dispositional factors, such as the Big Five traits of personality, play in coping responses. In general, the results of each of the Big Five traits and coping were more consistent with previous daily process studies than past cross-sectional retrospective studies. The use of the daily process methodology, as in the present study, permits the examination of the role of personality traits in situation specific instances of coping. This minimizes retrospective influences and allows a more contextual approach, in which situational influences can also be examined. Examining the ways in which personality traits influence situation specific behavior may assist in clarifying the role of personality traits in coping responses (Lee-Baggeley et al., 2005; Mischel & Shoda, 1998).

The findings also highlight the limitations of the Big Five Model of personality in understanding the role of personality in coping. Although this model permits a broad and comprehensive view of the role of personality in coping (Suls et al., 1996; Watson & Hubbard, 1996), it is a “descriptive” model rather than a “causal” or explanatory model (e.g., Block, 1995; Briggs, 1985; McAdams, 1992, p.340; Mischel & Shoda 1998). That is, “a trait measure’s ability to ‘account’ for behavioral variance is not quite the same as its ability to ‘explain’” (McAdams, p. 342). With the aim of developing an explanatory framework for each trait, several lines of research are exploring the emotional, cognitive, biological, social, and motivational processes that may underlie each trait (e.g., Bono et al., 2002; Tobin, Graziano, Vanman, & Tassinary, 2000; Watson & Clark, 1997). The

current study provides an additional source of information to add to this body of knowledge. The cognitive, behavioral, and emotional reactions of those under stress, may contribute to an understanding of the Big Five traits beyond their descriptive labels.

#### **4.3 Unique and interactive influence of appraisals, stressor type, and personality**

The current study provided novel evidence regarding the unique influences of stressor type, appraisals, and personality in coping responses based on repeated assessments. The results confirmed that both situational and stable influences significantly accounted for unique variance across a number of coping strategies. Additionally, multilevel modeling, examining both within-person (or situation specific) and between-person (or individual based) variance, indicated that both sources of variance were significant for all the coping strategies examined in this study. This is consistent with the contemporary Transactional Model of Stress and Coping, which asserts that both situational and stable influences are determinants of coping.

However, coping strategies were not equally influenced by situational and stable factors. For example, the pattern of findings across multiple types of analyses (i.e., proportion of variance at the within- and between-person level of analysis, explained variance, and hierarchical multilevel analyses) suggest that relationship focused coping and problem solving were strongly influenced by situational predictors. In contrast, passive emotion focused coping and positive reflection showed a stronger association with stable factors. This is similar to past studies that have found problem-focused coping strategies are more situationally dependent than emotion focused strategies. Among emotion focused strategies, passive emotion focused coping and positive reappraisal have emerged as more stable coping strategies than distancing (Bolger, 1990; Folkman et al.,

1986b; O'Brien & DeLongis, 1996; Terry, 1994). Communally oriented coping strategies have also been found to be heavily influenced by situational factors (O'Brien & DeLongis, 1996).

Because each coping strategy was predicted by a unique composition of factors, a homogeneous model which specifies the relative proportion of situational compared to stable influences for all coping strategies may not be possible (Bouchard, 2003; Fleishman, 1984; Terry, 1994). However, the emerging consistency of the relative impact of stable and situational factors suggests that future research may want to focus on understanding why certain coping strategies are more situationally determined than others. For example, what accounts for the fact that personality exerts a relatively greater influence in passive emotion focused coping than in problem solving?

Overall the models accounted for between 10% and 30% of the variance in coping responses. The variance accounted for by the models is consistent with daily process models that predict within-person variance (Lee-Baggley et al., 2005; Park et al., 2004). Additional variance may be accounted for by examining the bidirectional social impact of stress and coping. For example, although interpersonal situations, appraisals, and means of coping were examined, this study did not assess the bidirectional impact of others in coping. Others in one's network may be both sources of stress as well as coping resources (Bolger et al., 2000; DeLongis, Capreol, Holtzman, O'Brien, & Campbell, 2004; Lee-Baggley et al., 2005). Furthermore, previous studies have found that coping strategies can influence relationship functioning, such as marital satisfaction and the quality of parent-child interactions (Bouchard, Sabourin, Lussier, Wright, & Richer, 1998; DeLongis & Preece, 2003; DeLongis et al., 2004; Preece & DeLongis, 2005).

Understanding the reciprocal associations between coping and interpersonal relationships is an important area for future research and may serve to increase our predictive power.

The present study also examined the interactions between stable and situational influences on coping. There were a greater number of significant interactions than would be expected by chance alone, but the explained variance was small across the analyses (less than 1% in each case). However, additional variance of even 1% may be meaningful in naturalistic studies where interaction effects are difficult to obtain (McClelland & Judd, 1993). Additionally, for each coping strategy there was at least one interaction between personality and situation or appraisals that significantly increased the explained variance of the model. For example, interactions between personality and achievement stressor, seriousness, controllability, and agentic threat significantly added to the explained variance in predicting passive emotion focused coping. Although these results indicate a weak effect of the interaction between situational variables and personality, they also suggest such moderating effects may be valuable to consider for certain coping strategies.

Previous studies have emphasized the important role of interactive effects between situational and stable influences in predicting coping (David & Suls, 1999; Lee-Baggeley et al., 2005; O'Brien & DeLongis, 1996; Parkes, 1986). However, a strong effect was not observed in the present study. Several possible explanations for the discrepancy between the current study and past studies exist. First, the one previous daily process study that examined the interactive role of appraisals did not control for the nature of the stress (David & Suls). This is in contrast to the more stringent analyses examined in the present study, where stressor type was controlled. This may have weakened the interactive

effects of appraisals by removing variance shared by both situations and appraisals. This may be especially important to consider because of potential differences in the range and assortment of stressors between the two samples. The stressors faced by the community sample, examined by David and Suls, were likely much different than those in the current study in which undergraduate students were in the midst of final exams. Without controlling for situation, the greater diversity of stressors in prior studies may have provided more instances in which personality could be expressed differentially, and thus, increase the relative strength of interactions. The fairly homogenous and restricted range of stressors in the present study may have resulted in a weaker effect of interactions. This is consistent with research that indicates that restrictions in "ranges or variances of the predictor variables are compounded when testing for interactions" and significantly reduce the statistical power of the test for the interaction (McClelland & Judd, 1993, p. 386).

Second, the current study may not have examined situations in which personality is likely to demonstrate variable (interactive) effects. Suls and David (1996) suggest that personality traits may be most likely to be expressed in "weak" situations (i.e., situations which involve private behavior and where there are no strong normative rules for behavior). They contend that personality differences may not be apparent in "strong" situations in which responses are fairly standardized. Wachtel (1973) argues that differences due to personality are more likely to be revealed in ambiguous situations. The most common stressor reported in the current study was final exams. However, final exams are particularly homogeneous situations and well understood by most students. There are clear norms for behavior, which are enacted publicly. Thus, personality may



not have had an opportunity to be expressed differently because the achievement situations were “strong” situations. In comparison, interpersonal situations, the second most commonly reported stressor, are more likely to be ambiguous (Wachtel). However, the present study did not examine differences *between* interpersonal situations. Comparing differences among ambiguous situations may reveal a stronger effect of personality by situation interactions. Consistent with this, O’Brien and DeLongis (1996) found that personality interacted with interpersonal stressors that were assessed as involving a close or distant other. Lee-Bagglely et al. (2005) found that personality interacted with interpersonal stressors involving marital conflict or child misbehavior. As such, interactions between personality and situation may be most apparent in comparing behavior among ambiguous or weak situations, such as interpersonal events. Finally, it is possible that previous daily process studies overestimated the importance of interactions. Previous daily process studies did not provide fit statistics or percentage of explained variance. Therefore, it is difficult to ascertain the degree to which the past results are in fact similar or dissimilar to the current study.

Naturalistic studies that allow participants to report on whatever stressor is important to them, such as in the present study, help to increase the ecological validity of the results. However, there are also clear limitations in the resultant inability to control the nature of the stressors being encountered. Assessing and controlling for the type of situation may be especially important in such naturalistic studies. To my knowledge, this is the first study to examine interactions between person and agentic and communal situations using a daily process design. The current study offers insights into the types of situations which may be most likely to demonstrate interactive effects.

The results of the present study supported the assertion that situational influences, such as stressor type and appraisals, and dispositional influences, such as the Big Five traits of personality, are uniquely and meaningfully related to coping responses. Furthermore, although interactions did not account for large proportions of variance, such interactive effects may be important to examine in more ambiguous situations, such as interpersonal stressors, and for certain coping strategies.

#### **4.4 Role of personality in stressor type and appraisals**

The results indicated that personality traits influence multiple aspects of the stress and coping process as proposed by the contemporary Transactional Model. However, there was stronger evidence for the role of personality traits in predicting appraisals than in stressor type.

In contrast to predictions, O was the only personality trait related to differential reports of stressor type. This contradicts previous studies in which both N and A were significantly related to the likelihood of reporting interpersonal stressors in daily process studies (greater for N and lesser for A; Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Bono et al., 2002; Gunthert et al., 1999; Suls et al., 1998). The discrepancies between the present study and past studies may have emerged due to an artifact of sampling. The current study took place during the last month of the academic year, in which all the participants were facing final exams. Given the ubiquitous presence of academic exams, personality may have had a limited ability to affect differential exposure to events (Suls & David, 1996; Wachtel, 1973). Previous studies have also found a time-of-year effect in stressor type among undergraduate students (Gunthert et al.). Consistent with models of O (McCrae & Costa, 1997), individuals high in O may

have been the only personality type who sought out diverse events in the face of upcoming exams. This also suggests that undergraduate populations, especially at certain times of year, may not be the ideal sample in which to understand the role of personality traits and exposure. Community samples, with a greater range and diversity of stressors, may be more appropriate samples in which to explore the role of personality traits in exposure.

In contrast to stressor type, the results revealed several significant relationships between personality traits and appraisals. Multivariate analyses, controlling for the other personality dimensions, revealed that those higher in N were more likely to report their stressors as threatening, serious, and lacking control, relative to those lower in N. This is consistent with previous studies and models of N, which suggest that those higher in N are likely to view events in their lives as alarming and their ability to manage those events as limited (Gallagher, 1990; Gunthert et al., 1999; Hemenover, 2001; McCrae, 1990; Shewchuk et al., 1999). Contrary to predictions, multivariate analyses indicated that those higher in E, compared to those lower in E, were more likely to view their stressors as threatening to both their interpersonal and their own well-being. This is consistent with the view of E as involving both communal and agentic qualities (Trapnell & Wiggins, 1990). However, this contradicts previous studies that have found that those higher in E, relative to those lower in E, are less likely to view stressors as threatening (Bouchard et al., 2004; Penley & Tomaka, 2002). Research suggests that the relationship of E and appraisals may depend on whether the effects of N are controlled (Gallagher, 1990). Additionally, previous studies that ask participants to recall appraisals for a past event or how they “usually” appraise events may be influenced by retrospective biases

(Tennen et al., 2000). The positive affect associated with E (David et al., 1997; Watson & Clark, 1997) may help those high in E view stressors more positively when recalled retrospectively. Such mood-congruent memory effects are well documented in the literature and have been related to personality traits (e.g., Blaney, 1986; Rusting, 2001). Although the pattern between E and threat appraisals was similar to the pattern between N and threat appraisals, those higher on E were not more likely to report their stressors as serious or uncontrollable as were those higher in N. Given the differential outcomes reported for N and E in the literature (McCrae & Costa, 1986; Gallagher, 1990; Hooker et al., 1994; Lee-Baggley et al., 2005; Watson & Hubbard, 1996), it may be that appraisals of threat, in concert with appraisals of seriousness and uncontrollability, are a particularly vulnerable constellation of appraisals. Additionally, this study did not examine the role of challenge appraisals, which have been positively associated with scores on E (Gallagher). Those higher in E may be likely to view their stressors as both threatening *and* challenging, which may serve to differentiate them from those higher in N who may only view their stressors as threatening (Gallagher).

Those higher in A, relative to those lower in A, were less likely to report threats to their loved ones or their interpersonal relationships. This result supports the assertion of Graziano and colleagues (Graziano et al., 1996; Jensen-Campbell & Graziano, 2001) that those higher in A, compared to those lower in A, are less likely to interpret situations as interpersonally threatening, which may help them maintain harmonious relationships with others. This latter point, that favourable appraisals of interpersonal events are related to more positive relationships, is consistent with the clinical literature on marital relationships. A primary goal of cognitive-behavioral therapies for marital distress is to

move spouses towards more positive, or at least less negative and global, attributions for spousal behavior. Long-term outcomes are more favorable for couples making more positive attributions for spousal behavior and marital stressors (e.g., Bradbury, Beach, Fincham, & Nelson, 1996; Fincham, Harold, & Gano-Phillips, 2000). Given the calls to develop theory for the Big Five traits, additional studies examining the relationship between A and cognitive appraisals may contribute to theoretical models regarding the motivational, cognitive, and social-affective processes underlying A.

At the bivariate level, C was related to lower reports of seriousness and communal and agentic threats. This replicates previous cross-sectional studies, which found C to be negatively correlated with threats (Penley & Tomaka, 2002; Shewchuk et al., 1999). However, these results did not generalize to conditions in which the other personality traits and repeated instances were also examined. Previous studies have also found that the relationship between C and appraisals was weakened when the effects of N were controlled (Shewchuk et al.). The dimension of A demonstrated a similar pattern whereby the bivariate analyses demonstrated a negative relationship between scores on A and reports of seriousness and communal and agentic threats. However, only the relationship between communal threat and A remained significant in multivariate analyses<sup>18</sup>. These results suggest that although A and C are related to appraisals, they may not play as significant a role in stress appraisals as other personality traits, such as E or N.

Scores on O were unrelated to appraisals in both the bivariate and multivariate analyses. The results regarding O and appraisals have been inconsistent in the literature (Penley & Tomaka, 2002; Shewchuk et al., 1999). Given the multidimensional nature of

Openness (McCrae & Costa, 1997), it may be that only certain facets of Openness are related to appraisals. When the entire scale is examined, these relationships may be obscured. For example, the *ideas* facet (e.g., “open-mindedness and a willingness to consider new, perhaps unconventional ideas” Costa & McCrae, 1992, p. 17) of the NEO-PI-R may be especially relevant to cognitive appraisals, whereas the *aesthetics* facet (e.g., “deep appreciation for art and beauty” Costa & McCrae, 1992, p. 17) may be unrelated. Examination of the facets of O may assist in clarifying the contradictory findings in the literature.

Overall, N appears to be a key personality dimension in stress appraisals. This is congruent with previous research on appraisals and the Big Five traits of personality (Gallagher, 1990; McCrae, 1990; Shewchuk et al., 1999). Although differences often emerge between bivariate correlations and multivariate analyses, such differences may be especially apparent in the results of bivariate and *multilevel* multivariate analyses (e.g., David & Suls, 1999; Lee-Baggley et al., 2005). Multilevel analyses not only control for other variables, but examine the relationship between variables for each individual without aggregating over time (Tennen & Affleck, 1996). In the current study, differences between bivariate and multilevel analyses were prominent in the relationships between appraisals and the traits of E, A, and C. These results suggest that examining appraisals based on multiple assessments and controlling for the other personality dimensions may provide distinct associations compared to zero-order correlations. Given the lack of studies examining the relationship between the Big Five and stress appraisals simultaneously in a daily study, the current study suggests this may be an important area for additional research to explore and confirm these findings.

## 4.5 Outcomes of coping

As hypothesized, coping strategies were related to negative mood. The nature of these relationships was similar to past research (Aldwin & Revenson, 1987; Stone et al., 1995; Park & Folkman, 1997). Interpersonal antagonism, passive emotion focused coping, and support seeking were related to increases in negative mood when the type of stress, personality traits, prior mood, and the other coping strategies were controlled. Positive reflection and distancing were related to decreases in negative mood. The significance of evening problem solving was affected by whether the type of stress, controllability, or agentic threat was controlled. This suggests that the effectiveness of problem solving may depend on contextual factors, which is consistent with past research (e.g., Conway & Terry, 1992; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990). A greater consideration of the context of coping may assist in explaining the discrepant results of problem solving and mood.

Consistent with the hypotheses and previous research (e.g., Bolger et al., 1989; Folkman et al., 1986b; Marco et al., 1999; Watson & Clark, 1992), stressor type, appraisals, and personality traits were associated with negative mood. This study replicated previous findings suggesting that interpersonal stressors are especially likely to generate negative emotions and distress (Bolger et al., 1989; Dunkley et al., 2003). This occurred despite the fact that achievement stressors were rated as significantly more serious than interpersonal stressors. This highlights the significant impact one's interpersonal context has on well being and underscores the importance of considering interpersonal factors in adaptation to stress. Appraisals were also related to outcomes. The subjective impression of the situation as serious or threatening (both interpersonally

and agentically) was associated with increases in negative mood, whereas appraisals of controllability were associated with decreases in negative mood. This is consistent with past research on coping (e.g., Folkman et al., 1986b; Marco et al.; Stone et al., 1995) as well as the broader clinical literature on cognitive schemas (e.g., Greenberg & Beck, 1990). Although appraisals are viewed as situation specific subjective impressions, they may also reflect consistent ways of interpreting the environment, similar to the concept of schemas. Congruent with cognitive-behavioral therapies (e.g., Young, Weinberger, & Beck, 2001), appraisals may be an important area for interventions to assist individuals in viewing events in their lives as less stressful and more controllable (Gaab, Rohleder, Nater, Ehlert, 2005; Moskowitz & Wrubel, 2005). The current study suggests this would assist in promoting more effective coping strategies as well as decreasing the direct impact of stressors on outcomes such as mood.

Similar to past research, neuroticism was consistently related to increases in negative mood (e.g., Watson & Clark, 1992). Agreeableness was also significantly related to negative mood but in the inverse direction. This corresponds with the limited research examining the emotional experiences of A (McCrae & Costa, 1991; Watson & Clark, 1992). Although less frequently examined, A may be associated with emotional self-regulatory systems, such as effortful control (Ahadi & Rothbart, 1994; Rothbart & Bates, 1998). Being able to minimize negative mood may be important to successfully manage interpersonal relationships (Tobin et al., 2000).

Although the examination of the concurrent effects of coping demonstrated a significant association between coping and mood, the causal nature of these relationships cannot be ascertained. This is a limitation of most existing daily process studies that



examine end-of-day mood (e.g., Gunthert et al., 1999; Stone et al., 1995). It is possible that mood may influence the type of coping strategies enacted. Although others have argued against this proposition using similar designs (e.g., Stone et al., 1995), it cannot be ruled out in the current study. However, other possible third variables, such as concurrent appraisals, type of stress, personality traits and prior mood, were ruled out as potential explanations for the results.

The significant relationships observed between the concurrent effects of coping and mood were not found when the lagged effects of coping and mood were examined. Only one significant finding emerged: the effect of morning problem solving was significant and positive when the influence of seriousness on mood was controlled. There were no significant results when the effects of evening coping on next day's mood were examined. These results correspond with previous research wherein concurrent effects of coping are found consistently, but lagged effects are less reliably observed (Bolger & Zuckerman, 1995; Gunthert et al., 1999; Marco et al., 1999; Stone et al., 1995). Importantly, the current study was able to verify the timing of the reports and only "on-time" reports were included in the analyses. Being able to verify the time of entries may be important for analyses such as these in which lagged effects are determined (Green, Rafaeli, Bolger, Shrout, Reis, in press). Retrospective accounts completed "off-time" may introduce personal assumptions about the role of stress or coping on outcomes, rather than reports of what actually occurred. Differences between assessment techniques and the ability to verify the timing of reports in previous studies may also account for the discrepancies concerning the lagged effects of coping.

As noted by Marco et al. (1999), a key issue for daily process researchers is to find the appropriate time window in which to assess the lagged effects of coping. The current study was an attempt to bridge the existing daily process research that has examined end-of-day assessments and ecological momentary assessment research that has assessed very brief time periods. However, the results did not support the hypothesis that twice daily assessments would be a suitable window to assess the lagged effect of coping on mood. Despite the increasing lack of evidence of lagged effects of daily coping, there continues to be evidence of the concurrent and the long term impact of coping. Additional work is needed to understand the processes or mechanisms that may underlie the role of coping in short term and long term effects. Such research may inform us of the ways in which the short term effects of coping may impact long term outcomes.

#### **4.6 The Contemporary Transactional Model of Stress and Coping**

Overall, the contemporary Transactional Model examined in this study (see Figure 1) provided a useful framework through which to understand the simultaneous effects of personality traits and situational influences in the stress and coping process. Similar to the broader literature on personality and behavior, the field of stress and coping is likely to benefit from models, which integrate dispositional and situational influences in the prediction of behavior (Mischel & Shoda, 1998). Overall, the results suggest that incorporating both the effects of personality traits and situational factors are necessary to understand the process of the stress and coping.

#### **4.7 Limitations**

The current study improved on past research by examining a broad range of factors, including both dispositional and situational influences in coping responses using

a daily process methodology. However, several limitations exist. One limitation is that the current study did not assess the stage of the stressor with which individuals were coping. Prior research suggests that appraisals, coping strategies, and coping effectiveness may differ depending on the phase of a given stressor (Bolger, 1990; Carver & Scheier, 1994; Folkman & Lazarus, 1985). For example, Carver and Scheier found that problem solving and acceptance coping were highest in the anticipatory stage of an exam. Studies have also found that denial or avoidant strategies may be adaptive at the onset of a stressor but may be maladaptive later in the process of coping (Lazarus, 1983; Suls & Fletcher, 1985; Wolff, Friedman, Hofer & Mason, 1964). Because the unfolding of the stressor was not assessed in the present study, potential differences in the role of dispositional and situational factors or the effectiveness of coping at different phases of a stressor, were not captured.

Although interpersonal factors were highlighted in this study, an in-depth examination of the social context was not evaluated. Previous research suggests that coping may impact others in one's social network as well as the quality of one's relationships with others (Bouchard et al., 1998; Coyne & Smith, 1991; DeLongis et al., 2004; DeLongis & Preece, 2005; O'Brien & DeLongis, 1997; Preece & DeLongis, 2005). Moreover, individuals in one's network may influence the effectiveness of coping strategies. Others may assist in problem solving or provide opportunities to distract oneself. Alternatively, support seeking may be met with well intentioned but unhelpful offers of social support (Lehman, Ellard, & Wortman, 1986). The current study did not examine such bi-directional effects of one's social network and coping. Future research examining informant reports of coping and relationship outcomes would help to further

contextualize an individual's coping efforts and consequences in his/her social environment.

Another limitation of the present study was the examination of only a single outcome (i.e., negative mood). As such, the results are limited to conclusions regarding negative affect. Others have argued that coping research should broaden the nature of outcomes assessed (Aldwin & Park, 2004; Coyne & Gottlieb, 1996; Coyne & Racioppo, 2000; Folkman & Moskowitz, 2000; O'Brien & DeLongis, 1997; Stone et al., 1995). Previous research has demonstrated that coping is related to physical health (Penley et al., 2002), relationship functioning (Bouchard et al., 1998; DeLongis & Preece, 2003; Preece & DeLongis, 2005), and positive mood (Folkman, & Moskowitz, 2000; Stone et al., 1995), which were not examined in the present study. This may be especially important in order to understand the effects of communally-oriented coping strategies, as they may be more related to interpersonal outcomes, such as relationship satisfaction or tension (Preece & DeLongis, 2005; Repetti, 1989). Research examining diverse and multiple outcomes of coping may assist in highlighting the varied ways in which coping may affect adaptational outcomes. Additional outcomes may also clarify the lagged effects of coping. For example, daily studies of pain suggest that morning coping may influence evening pain outcomes in individuals managing chronic illness (Newth & DeLongis, 2004).

Understanding the outcomes of coping may also require a more detailed examination of context than that provided in the current study. Previous theory and research have proposed and examined the "goodness-of-fit" or matching hypothesis concerning the adaptiveness of coping strategies. That is, the effectiveness of a coping

strategy may differ depending on the nature of the stressful situation in which it is used (Conway & Terry, 1992; Forsythe, & Compas, 1987; Lazarus & Folkman, 1984). More recently, researchers have also argued that coping strategies may be moderated by the individual using the strategy (Bolger & Zuckerman, 1995; Suls & David, 1996).

However, the literature on the goodness-of-fit hypothesis has been contradictory. The current study suggested that coping strategies were fairly stable across different types of stressor type, appraisals, and personality traits when negative mood was examined as the outcome variable. This is congruent with the only other study, of which I am aware, that examined the goodness-of-fit hypothesis in regards to within-person daily negative mood (Park et al., 2004). However, the study did not undertake an in-depth analysis of the goodness-of-fit hypothesis. Studies, such as the current one, in which individuals are compared to themselves and studied across different situations, may be especially valuable in clarifying the role of dispositions and context in moderating the effectiveness of coping strategies (Bolger & Zuckerman, 1995; Park et al., 2004). Additional studies that employ more detailed examination of the ways in which the context and the individual may moderate coping effectiveness, using within-person analyses, may be critical to fully understand the role of coping in adaptational outcomes.

Finally, much less is known concerning the mechanisms which may underlie the processes of coping and adaptation. Previous research suggests that appraisals may mediate the relationship between personality traits and coping (e.g., Long & Schultz, 1995). Other studies suggest that patterns of information processing may underlie the relationship between personality and appraisals (e.g., Hemenover, 2001). More research is needed into understanding such mechanisms.

## 4.8 Conclusion

The current study enhanced our understanding of adaptation to stress by examining the simultaneous and unique contribution of dispositional (personality traits) and situational (stressor type and appraisals) influences on coping responses using a daily process methodology. Although previous research indicated both dispositional and situational factors influence the process of coping, this study extended existing research by demonstrating the unique role of each, based on multiple assessments. The results also provided support for the importance of appraisals in coping by establishing that multiple types of appraisals provided unique and additional information in predicting coping responses. The current study went beyond past research by employing a broader view of the stress and coping process and providing evidence of the various ways in which personality traits may influence the stress and coping process (e.g., through stressors and appraisals, in addition to influencing coping responses) based on repeated assessments. Additionally, the study demonstrated the ways in which interpersonal aspects can be integrated into multiple stages of the stress and coping process, including stressor type, appraisals, and coping responses. Overall, the contemporary Transactional Model examined in this study provided a useful framework through which to understand the ways both dispositional tendencies and situational factors influence the process of stress and coping.

Despite criticisms of a lack of progress in the field of stress and coping (e.g., Coyne & Gottlieb, 1996; Coyne & Racioppo, 2000; Snyder, 1999), the present study highlights an increasing consistency and convergence in the findings across studies. However, such consistency may only emerge when a contextual view of the individual is

employed, one that assesses both dispositional tendencies and situational variability. Contemporary views of the Transactional Model, which integrate situational and dispositional factors, may be especially valuable in understanding the ways in which individuals respond and adapt to stress. The current study suggests that understanding individual differences in adaptation to stress involves consideration of the multiple, situational, dispositional, and interpersonal factors that impact the stress and coping process.

## ENDNOTES

<sup>1</sup> Appraisals are best understood as the transaction between the person and the situation rather than purely a situational or person factor (Lazarus & Folkman, 1984). However, in the current study appraisal are referred to as “situational” factors to reflect the fact that they are assessed in regards to a specific situation and to distinguish them from appraisals that may involve a more global or trait-like perspective of the world.

<sup>2</sup> The term “contemporary” is used only to highlight the increased emphasis of personality traits in the Transactional Model and not to suggest personality traits are a new addition to the Transactional Model. Additionally, different variations of this model exist (for example see Bolger & Zuckerman, 1995).

<sup>3</sup> All participants who provided at least one full day’s of entries were examined in the analyses. Hierarchical Linear Modeling (HLM) can handle missing data assuming that “data are missing at random” (Raudenbush & Bryk, 2002, p.199). This assumption can be made if the data are *missing completely at random (MCAR)*, meaning that data are missing due to completely random factors. As noted by Raudenbush and Bryk making this assumption is “generally implausible, impossible to verify, and risky” (2002, p.199). The assumption that “data are missing at random” can also be assumed if the data are *missing at random (MAR)*. This assumption can be made when factors that may be related to missing data are captured by the variables in the model. That is, the model contains variables that may be related to the causes of missing data. When data are *MAR*, HLM provides unbiased estimates only if all of the data are used in the analyses (i.e., no participants are discarded due to missing data) and an efficient estimation procedure, such as maximum likelihood estimation, is used (Raudenbush & Bryk, 2002). Because



missing data are rarely due to completely random factors, discarding participants with missing data may result in biased estimates. As such, respondents were only discarded if they had provided insufficient data to run analyses.

<sup>4</sup> The rate of participants who backfilled their responses is in stark contrast to reports by Stone and colleagues (Stone, Shiffman, Schwartz, Hufford, & Broderick, 2002; Broderick, Schwartz, Shiffman, Hufford, & Stone, 2003). In the current study only 2% of participants backfilled all their entries, whereas Stone and colleagues reported rates of 22% and 32%. In the current study, only 7% of instances were backfilled compared to 61% and 80% reported by Stone and colleagues. Differences in the requested reporting times may account for some of the differences. For example, Stone and colleagues requested reports at 10am, 4pm and 8pm and viewed non-compliance as reporting outside of a 30- or 90-minute window. In the current study, participants were permitted to choose times which best suited their schedule. Permitting greater flexibility in reporting times may help to decrease the burden faced by participants in daily process studies. Furthermore, variability in reporting times does not limit the type of analysis that can be conducted or the generalizability of the results. One may argue, in fact, that more stringent reporting times may reflect an artificially imposed restriction that may not reflect the daily variation experienced by participants.

<sup>5</sup> Factor loadings may differ when variables are examined at different levels in multilevel data (Muthén, 1991). Because daily variability was of interest in the current study, coping items were examined at the daily level.

<sup>6</sup> Participants who had backfilled their responses and those who did not provide any daily data were not included in these analyses.

<sup>7</sup> Results were consistent when examined across morning reports and collapsed across evening and morning reports.

<sup>8</sup> In both Table 2 and 3 several of the coping scales were significantly intercorrelated. The scales were not collapsed because they were consistent with theoretical distinctions among coping strategies. The intercorrelations found here among the coping scales are of a similar size to those reported in other research (e.g., Folkman et al., 1986a), when the inflation due to the repeated nature of the data is taken into account. Multicollinearity statistics were examined and indicated the degree of intercorrelation was not statistically problematic (Tabachnick & Fidell, 2001).

<sup>9</sup> The autocorrelation in the dependent variables (coping and negative mood) was calculated. A low average autocorrelation value was found across coping measures (-.07) and negative mood (-.05). Consistent with past research (e.g., Bolger & Zuckerman, 1995; Gunthert et al., 1999; Lee-Baggley et al., 2005), a homogeneous variance for the error structure was used in the analyses.

<sup>10</sup> The models were examined with both fixed and random slopes for the predictor variables. The statistical significance of the random slopes for the predictor variables was unstable across models. Furthermore, when the equations were run with random slopes, the models had difficulty converging (e.g., 4000 iterations) or failed to converge indicating that the random-slopes models were a poor fit to the data (Raudenbush & Bryk, 2002). As such, all models were run as random-intercept only models.

<sup>11</sup> Models were examined using both Restricted Maximum Likelihood (REML) and Maximum Likelihood (ML) as the estimation method and the results were identical. For fixed slopes models both estimation methods produce the same results for large

samples (Kreft & De Leeuw, 1999; Raudenbush & Bryk, 2002). For model testing (i.e., chi-squared statistics) ML was used because analyses involved comparing changes in fixed coefficients. REML is appropriate to examined model fit statistics only when the differences between models are among the random effects (Kreft & De Leeuw; Raudenbush & Bryk; Snijders & Bosker, 1999).

<sup>12</sup> The distinction of within- and between-person variation can only be cleanly established in fixed slope models as was used here (Kreft, de Leeuw, & Aiken, 1995).

<sup>13</sup> Only unstandardized regression coefficients are provided in the HLM statistical package (Raudenbush et al., 2004).

<sup>14</sup> Analyses were also conducted reversing the order in which the predictors were entered. When the predictors were entered in the following order: 1) personality; 2) seriousness and controllability; 3) threat appraisals; 4) situation, the significance of each step did not change. The significance of individual betas for personality was consistent when examined with and without the situational variables.

<sup>15</sup> These models were also examined with the demographic variables in the interaction term. However, the results were not significant more than would be expected by chance and when significant did not change the results of the analyses. As such, the demographics in the interaction terms were dropped from the model.

<sup>16</sup> Despite the fact that situation was statistically controlled in these analyses, the relative influence of appraisals and situation could still be confounded. As such, the interactive effect of appraisals and personality using only achievement stressors and only interpersonal stressors were examined. There continued to be significant interactions

between personality and appraisals under these conditions suggesting that the moderating effect of appraisals and personality is not solely due to the influence of the situation.

<sup>17</sup> Because the large number of intercorrelated coping strategies may obscure the effects of any one coping strategy, the relationship between each coping strategy and mood was also examined separately. In these analyses, morning mood, personality traits, and total coping effort (total coping score minus the coping strategy being examined) were controlled. For the concurrent effects of coping on mood, the direction and significance of the coping strategies remained the same, except for the direction of problem solving which reversed direction and was non-significant. Follow up analyses indicated that when the effects of passive emotion focused coping were controlled, problem solving was associated with decreases in negative mood. When examined without controlling for passive emotion focused coping or controlling for any of the other coping strategies, problem solving was associated with increases in negative mood. This is consistent with past research indicating that the constellation of coping strategies may be an important determinant of coping effectiveness (Mattlin et al., 1990; Pearlin & Schooler, 1978). When the lagged effects of each morning coping strategy on evening mood were examined separately, none of the coping strategies were significant although passive emotion focused coping and problem focused were marginally positively related to evening negative mood. None of the effects of evening coping on next day mood were significant when examined separately.

<sup>18</sup> Research suggests the Big Five traits are likely to be intercorrelated when based on self reports (Biesanz & West, 2004) as is the case in the present study. Consistent with previous studies (e.g., Bouchard et al., 2004; O'Brien & DeLongis, 1999;

Penley & Tomaka, 2002), the correlations between dimensions of personality ranged from  $r = .11$  to  $r = -.41$ . However, these intercorrelations did not approach levels likely to be statistically problematic (Tabachnick & Fidell, 2001) and significant results were found for both N and E, which demonstrated the highest intercorrelation ( $r = -.41$ ). As such, multicollinearity is unlikely the reason for these null findings at the multivariate level of analysis. Additionally, the large sample size argues against inadequate power to detect results.

## BIBLIOGRAPHY

- Ahadi, S. A., & Rothbart, M. K. (1991). Temperament, development, and the Big Five. In C. F. Halverson, Jr., & G. A. Kohnstamm (Eds.), *Developing structure of temperament and personality from infancy to adulthood* (pp. 189-207). Hillsdale, NJ: Lawrence Erlbaum.
- Aldwin, C. M. (1994). *Stress, coping, and development: An integrative perspective*. New York: Guilford Press.
- Aldwin, C. M., & Park, C. L. (2004). Coping and physical health outcomes: An overview. *Psychology and Health, 19*, 277-281.
- Aldwin, C. M. & Revenson, R. A. (1987). Does coping help? A reexamination of the relation between coping and mental health. *Journal of Personality and Social Psychology, 43*, 337-348.
- Amirkhan, J. H., Risinger, R. T., & Swickert, R. J. (1995). Extraversion: A "hidden" personality factor in coping? *Journal of Personality, 63*, 189-212.
- Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology, 74*, 1531-1544.
- Beevers, C.G., & Carver, C.S. (2003). Attentional Bias and Mood Persistence as Prospective Predictors of Dysphoria. *Cognitive Therapy and Research, 27*, 619-637.
- Ben-Porath, Y. S., & Tellegen, A. (1990). A place for traits in stress research. *Psychological Inquiry, 1*, 14-17.
- Biesanz, J. C., & West, S. G. (2004). Towards understanding assessments of the big five: multitrait-multimethod analyses of convergent and discriminant validity across

- measurement occasion and type of observer. *Journal of Personality*, 72, 845-876.
- Blaney, P. H. (1986) Affect and memory: A review. *Psychological Bulletin*, 99, 229-246.
- Blickle, G. (1997). Argumentativeness and the facets of the big five. *Psychological Reports*, 81, 1379-1385.
- Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin*, 117, 187-215.
- Bolger, N. (1990). Coping as a personality process: A prospective study. *Journal of Personality and Social Psychology*, 59, 525-537.
- Bolger, N., DeLongis, A., Kessler, R. C., & Schilling, E. A. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychology*, 57, 808-818.
- Bolger, N., & Schilling, E. A., (1991). Personality and the problems of everyday life: The role of neuroticism in the exposure and reactivity to daily stressors. *Journal of Personality*, 59, 355-386.
- Bolger, N., & Zuckerman, A. (1995). A framework for studying personality in the stress process. *Journal of Personality and Social Psychology*, 69, 890-902.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology*, 79, 953-961.
- Bono, J. E., Boles, T. L., Judge, T. A., & Lauver, K. J. (2002). The role of personality in task and relationship conflict. *Journal of Personality*, 70, 311-344.

- Bouchard, G. (2003). Cognitive appraisals, neuroticism, and openness as correlates of coping strategies: An integrative model of adaptation to marital difficulties. *Canadian Journal of Behavioural Science*, 35, 1-12.
- Bouchard, G., Guillemette, A., & Landry-Léger, N. (2004). Situational and dispositional coping: An examination of their relation to personality, cognitive appraisals, and psychological distress. *European Journal of Personality*, 18, 221-237.
- Bouchard, G., Sabourin, S., Lussier, Y., Wright, J., & Richer, C. (1998). Predictive validity of coping strategies on marital satisfaction: Cross-sectional and longitudinal evidence. *Journal of Family Psychology*, 12, 112-131.
- Bradbury, T. N., Beach, S. R. H., Fincham, F. D., & Nelson, G. M. (1996). Attributions and behavior in functional and dysfunctional marriages. *Journal of Consulting and Clinical Psychology*, 64, 569-576.
- Briggs, S. R. (1985). A trait account of social shyness. In P. Shave (Ed.). *Review of personality and social psychology* (Vol. 6. pp.35-64). Beverly Hills: Sage.
- Broderick, J. E., Schwartz, J. E., Shiffman, S., Hufford, M. R., & Stone, A. A. (2003). Signalling does not adequately improve diary compliance. *Annals of Behavioral Medicine*, 26, 139-148.
- Buss, D. M. (1987). Selection, evocation, and manipulation. *Journal of Personality and Social Psychology*, 53, 1214-1221.
- Buss, D. M. (1991). Conflict in married couples: Personality predictors of anger and upset. *Journal of Personality*, 59, 663-688.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4, 92-100.



- Carver, C. S., & Scheier, M. F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology*, 66, 184-195.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. L. (1989). Assessing coping strategies: A theoretical based approach. *Journal of Personality and Social Psychology*, 56, 267-283.
- Chang, C. E. (1998). Dispositional optimism and primary and secondary appraisal of a stressor: Controlling for confounding influences and relations to coping and psychological and physical adjustment. *Journal of Personality and Social Psychology*, 74, 1109-1120.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310-357.
- Conway, V. J., & Terry, D. J. (1992). Appraised controllability as a moderator of the effectiveness of different coping strategies: A test of the goodness of fit hypothesis. *Australian Journal of Psychology*, 44, 1-7.
- Costa, P. R., & McCrae, R. R. (1992). *NEO-PI/NEO-FFI Professional Manual*. Odessa, Fl: Psychological Assessment Resources.
- Coyne, J. C., & Gottlieb, B. H. (1996). The mismeasure of coping by checklist. *Journal of Personality*, 64, 959-991.
- Coyne, J. C., & Racioppo, M. W. (2000). Never the twain shall meet? Closing the gap between coping research and clinical intervention research. *American Psychologist*, 55, 655-664.

- Coyne, J. C., & Smith, D. A. (1991). Couples coping with a myocardial infarction: A contextual perspective on wives' distress. *Journal of Personality and Social Psychology, 61*, 404-412.
- Curran, S. L., Andrykowski, M. A., & Studts, J. L. (1995). Short form of the Profile of Mood States (POMS-SF): Psychometric information. *Psychological Assessment, 7*, 80-83.
- David, J. P., Green, P. J., Martin, R., & Suls, J. (1997). Differential roles of neuroticism, extraversion, and event desirability for mood in daily life: An integrative model of top-down and bottom-up influences. *Journal of Personality and Social Psychology, 73*, 149-159.
- David, J. P., & Suls, J. (1999). Coping efforts in daily life: Role of Big Five traits and problems appraisals. *Journal of Personality, 67*, 265-294.
- DeLongis, A., Capreol, M., Holtzman, S., O'Brien, T., & Campbell, J. (2004). Social support and social strain among husbands and wives: A multilevel analysis. *Journal of Family Psychology, 18*, 470-479.
- DeLongis, A., Folkman, S., & Lazarus, R. S. (1988). The impact of daily stress on health and mood: Psychological and social resources as mediators. *Journal of Personality and Social Psychology, 54*, 486-495.
- DeLongis, A., Hemphill, K. J., & Lehman, D. R. (1992). A structured diary methodology for the study of daily events. In F. B. Bryant, J. Edwards, L. Health, E. J. Posavac, R. S. Tinsdale, & E. Henderson (Eds.), *Methodological issues in applied social psychology* (pp. 81-109). New York: Plenum.

- DeLongis, A., & Newth, S. (2001). Coping with stress. In H.S. Friedman (Ed.) *Assessment and Therapy*. San Diego: Academic Press.
- DeLongis, A., & O'Brien, T. B. (1990). An interpersonal framework for stress and coping: An application to the families of Alzheimer's patients. In M. A. P. Stephens, J. H. Crowther, S. E. Hobfoll, & D. L. Tennenbaum (Eds.), *Stress and coping in later life families* (pp. 221-239). Washington, DC: Hemisphere Publishers.
- DeLongis, A., & Preece, M. (2003). Emotional and relational consequences of coping in stepfamilies. *Marriage and Family Review*, 34, 115-138.
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology*, 84, 234-252.
- Endler, N. S., & Parker, J. D. A. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology*, 58, 844-854.
- Epstein, S. (1979). The stability of behavior: On predicting most of the people much of the time. *Journal of Personality and Social Psychology*, 37, 1097-1126.
- Eysenck, M. W. (1983). Anxiety and individual differences. In G. R. J. Hockey (Ed.), *Stress and fatigue in human performance* (pp. 273-298). New York: Wiley.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4, 272-299.

- Fincham, F. D., Harold, G. T., & Gano-Phillips, S. (2000). The longitudinal association between attributions and marital satisfaction: Direction of effects and role of efficacy expectations. *Journal of Family Psychology, 14*, 267-285.
- Fleishman, J. A., (1984). Personality characteristics and coping patterns. *Journal of Health and Social Behavior, 25*, 229-244.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in middle-aged community sample. *Journal of Health and Social Behavior, 21*, 219-239.
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*, 150-170.
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. (1986a). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*, 992-1003.
- Folkman, S., Lazarus, R. S., Gruen, R., & DeLongis, A. (1986b). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology, 50*, 571-579.
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist, 55*, 647-654.
- Forsythe, C. J., & Compas, B. E. (1987). Interaction of cognitive appraisals of stressful events and coping: Testing the goodness of fit hypothesis. *Cognitive Therapy and Research, 11*, 473-485.
- Frijda, N. H. (1993). The place of appraisal in emotion. *Cognition and Emotion, 7*, 357-387.

- Futterman, A. D., Kemeny, M. E., Shapiro, D., & Fahey, J. L. (1994). Immunological and physiological changes associated with induced positive and negative mood. *Psychosomatic Medicine*, 56, 499-511.
- Gaab, J., Rohleder, N., Nater, U. M., Ehlert, U. (2005). Psychological determinants of the cortisol stress response: The role of anticipatory cognitive appraisal. *Psychoneuroendocrinology*, 30, 599-610.
- Gallagher, D. J. (1990). Extraversion, neuroticism, and appraisal of stressful academic events. *Personality and Individual Differences*, 11, 1053-1057.
- Graziano, W. G., & Eisenberg, N. (1997). Agreeableness: A dimension of personality. In R. Hogan & J. A. Johnson (Eds.), *Handbook of Personality Psychology* (pp. 795-824). San Diego, CA: Academic Press.
- Graziano, W. G., Jensen-Campbell, L. A., & Hair, E. C. (1996). Perceiving interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology*, 70, 820-835.
- Green, A. S., Rafaeli, E., Bolger, N., Shrout, P. E., & Reis, H. T. (in press). Paper or plastic? Data equivalence in paper and electronic diaries. *Psychological Methods*.
- Greenberg, M. S., & Beck, A. T. (1990). Cognitive approaches to psychotherapy: Theory and therapy. In R. Plutchik & H. Kellerman (eds.), *Emotion, psychopathology, and psychotherapy* (pp. 177-194). San Diego, CA: Academic Press.
- Gunthert, K. C., Cohen, L. H., & Armeli, S. (1999). The role of neuroticism in daily stress and coping. *Journal of Personality and Social Psychology*, 77, 1087-1100.

- Headey, B. & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology*, 57, 731-739.
- Helgeson, V. S. (1994). Relation of agency and communion to well-being: Evidence and potential explanations. *Psychological Bulletin*, 116, 412-428.
- Hemenover, S. H. (2001). Self-reported processing bias and naturally occurring mood: Mediators between personality and stress appraisals. *Personality and Social Psychology Bulletin*, 27, 387-394.
- Hemenover, S. H., & Dienstbier, R. A. (1996). Prediction of stress appraisals from mastery, extraversion, neuroticism, and general appraisal tendencies. *Motivation and Emotion*, 20, 299-317.
- Hogan, J., & Ones, D. S. (1997). Conscientiousness and integrity at work. In R. Hogan & J. A. Johnson (Eds.), *Handbook of Personality Psychology* (pp. 849-870). San Diego, CA: Academic Press.
- Hooker, K., Frazier, I. D., & Monahan, D. J. (1994). Personality and coping among caregivers of spouses dementia. *The Gerontologist*, 34, 386-392.
- Jensen-Campbell, L. A., & Graziano, W. G. (2001). Agreeableness as a moderator of interpersonal conflict. *Journal of Personality*, 69, 323-362.
- Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. Gilbert, & S. T. Fiske (Eds.), *The handbook of social psychology* (pp. 233-265). New York: McGraw Hill.
- Kenrick, D. T., & Funder, D. C. (1988). Profiting from controversy: Lessons from the person-situation debate. *American Psychologist*, 43, 23-34.

Kiecolt-Glaser, J., McGuire, L., Robles, T. F., & Glaser, R. (2002).

Psychoneuroimmunology: Psychological influences on immune function and health. *Journal of Consulting and Clinical Psychology, 70*, 537-547

Kreft, I., & de Leeuw, J. (1998). *Introducing multilevel modelling*. Thousand Oaks: Sage Publications.

Kreft, I., de Leeuw, J., Aiken, L. S. (1995). The effect of different forms of centering in hierarchical linear models. *Multivariate Behavioral Research, 30*, 1-21.

Krohne, H. W. (1990). Personality as a mediator between objective events and their subjective representation. *Psychological Inquiry, 1*, 26-29.

Lazarus, R. S. (1983). The cost and benefits of denial. In S. Breznitz (Ed.), *The denial of stress* (pp.1-30). New York: International Universities Press.

Lazarus, R. S. (1990). "Theory-based stress measurement": Response. *Psychological Inquiry, 1*, 41-51.

Lazarus, R. S., & DeLongis, A. (1983). Psychological stress and coping in aging. *American Psychologist, 38*, 245-254.

Lazarus, R. S., & Folkman, S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21*, 219-239.

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

Lee-Baggley, D. L., Preece, M. & DeLongis, A. (2005). Coping with interpersonal stress: Role of Big Five traits. *Journal of Personality, 73*, 1141-1180.

- Lehman, D. R., Ellard, J. H., Wortman, C. B. (1986). Social support for the bereaved: Recipients' and providers' perspectives on what is helpful. *Journal of Consulting and Clinical Psychology, 54*, 438-446.
- Long, B. C., & Schutz, R. W. (1995). Temporal stability and replicability of a workplace stress and coping model for managerial women: A multiwave panel study. *Journal of Counselling Psychology, 42*, 266-278.
- Lucas, R. E., & Baird, B. M. (2004). Extraversion and Emotional Reactivity. *Journal of Personality and Social Psychology, 86*, 473-485.
- Magnus, K., Diener, E., Fujita, F., & Payot, W. (1993). Extraversion and neuroticism as predictors of objective life events: A longitudinal analysis. *Journal of Personality and Social Psychology, 65*, 1046-1053.
- Major, B., Richards, C., Cooper, M. L. (1998). Personal resilience, cognitive appraisals, and coping: An integrative model of adjustment to abortion. *Journal of Personality and Social Psychology, 74*, 735-752.
- Marco, C.A., Neale, J.M., Schwartz, J.E., Shiffman, S., & Stone, A.A. (1999). Coping with daily events and short-term mood changes: An unexpected failure to observe effects of coping. *Journal of Consulting and Clinical Psychology, 67*, 755-764.
- Mattlin, J. A., Wethington, E., & Kessler, R. C. (1990). Situational determinants of coping and coping effectiveness. *Journal of Health and Social Behavior, 31*, 103-122.
- McAdams, D. P. (1992). The Five-Factor Model in personality: A critical appraisal. *Journal of Personality, 60*, 329-361.



- McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin*, 114, 376-390.
- McCrae, R. R. (1984). Situational determinants of coping responses: Loss, threat, and challenge. *Journal of Personality and Social Psychology*, 46, 919-928.
- McCrae, R. R. (1990). Controlling neuroticism in the measurement of stress. *Advances in Measuring Life Stress*, 6, 237-241.
- McCrae, R. R., & Costa, P. T., Jr. (1985). Updating Norman's "adequate taxonomy"; Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology*, 49, 710-721.
- McCrae, R. R., & Costa, P. T., Jr. (1986). Personality, coping, coping effectiveness in an adult sample. *Journal of Personality*, 54, 385-405.
- McCrae, R. R., & Costa, P. T., Jr. (1991). Adding *Liebe und Arbeit*: The full five-factor model and well-being. *Personality and Social Psychology Bulletin*, 17, 227-232.
- McCrae, R. R., & Costa, P. T. Jr. (1997). Conceptions and correlates of openness to experience. In R. Hogan & J. A. Johnson (Eds.), *Handbook of Personality Psychology* (pp. 825-847). San Diego, CA: Academic Press.
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60, 175-215.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). *Profile of mood states manual*. Educational and Industrial Testing Service. San Diego, CA.
- Mischel, W. (1968). *Personality and Assessment*. New York: Wiley.
- Mischel, W., & Shoda, Y. (1995). Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, 102, 246-268.

- Mischel, W., & Shoda, Y. (1998). Reconciling processing dynamics and personality dispositions. *Annual Review of Psychology*, 49, 229-258.
- Moore, B. S., Sherrod, D. R., Liu, T. J., & Underwood, B. (1979). The dispositional shift in attribution over time. *Journal of Experimental Social Psychology*, 15, 553-569.
- Moskowitz, J. T., & Wrubel, J. (2005). Coping with HIV as a chronic illness: A longitudinal analysis of illness appraisals. *Psychology and Health*, 20, 509-531.
- Muthén, B. O. (1991). Multilevel factor analysis of class and student achievement components. *Journal of Educational Measurement*, 28, 338-354.
- Newth, S. & DeLongis, A. (2004). Individual Differences, mood and coping with chronic pain in rheumatoid arthritis: A daily process analysis. *Psychology and Health*, 19, 283-305.
- O'Brien, T. B., & DeLongis, A. (1996). The interactional context of problem-, emotion-, and relationship-focused coping: The role of the Big Five personality factors. *Journal of Personality*, 64, 775-813.
- O'Brien, T. B., & DeLongis, A. (1997). Coping with chronic stress: An interpersonal perspective. In B. H. Gottlieb, (Ed.), *Coping with chronic stress* (pp. 161-190). New York: Plenum Press.
- Ormel, J. & Wohlfarth, T. (1991). How neuroticism, long-term difficulties, and life situation change influence psychological distress: A longitudinal model. *Journal of Personality and Social Psychology*, 60, 744-755.
- Park, C. L., Armeli, S., & Tennen, H. (2004). Appraisal-coping goodness of fit: A daily internet study. *Personality and Social Psychology Bulletin*, 30, 558-569.

- Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology, 1*, 115-144.
- Park, C. L., Folkman, S., & Bostrom, A. (2001). Appraisals of controllability and coping in caregivers and HIV+ men: Testing the goodness-of-fit hypothesis. *Journal of Consulting and Clinical Psychology, 69*, 481-488.
- Parkes, K. R. (1986). Coping in stressful episodes: The role of individual differences, environmental factors, and situational characteristics. *Journal of Personality and Social Psychology, 51*, 1277-1292.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.
- Penley, J. A., & Tomaka, J. (2002). Associations among the big five, emotional responses and coping with acute stress. *Personality and Individual Differences, 32*, 1215-1128.
- Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine, 25*, 551-603.
- Peterson, C. (1980). Memory and the "dispositional shift." *Social Psychology Quarterly, 43*, 372-380.
- Preece, M., & DeLongis, A. (2005). A contextual examination of stress and coping processes in stepfamilies. In T. A. Revenson, K. Kayser, & G. Bodenmann, (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 51-69). Washington, DC: American Psychological Association.

- Ptacek, J. T., Smith, R. E., Espe, K., & Raffety, B. (1994). Limited correspondence between daily coping reports and retrospective coping recall. *Psychological Assessment, 6*, 41-48.
- Raudenbush, S. W. & Bryk, A. S. (2002). *Hierarchical Linear Models, 2<sup>nd</sup> Edition*. London: Sage Publications.
- Raudenbush, S., Bryk, A., Cheong, Y., & Congdon, R. (2004). *HLM 6.0: Hierarchical linear and non-linear modeling*. Lincolnwood, IL: Scientific Software International, Inc.
- Repetti, R. L. (1989). Effects of daily workload on subsequent behavior during marital interaction: The roles of social withdrawal and spouse support. *Journal of Personality and Social Psychology, 57*, 651-659.
- Riggio, R. E. (1986). Assessment of basic social skills. *Journal of Personality and Social Psychology, 51*, 649-660.
- Rim, Y. (1986). Ways of coping, personality, age, sex and family structural variables. *Personality and Individual Differences, 7*, 113-116.
- Rothbart, M. K., & Bates, J. E. (1998). Temperament. In W. Damon, & N. Eisenberg (Eds.), *Handbook of child psychology, 5th ed.* (pp. 105-176). New York: John Wiley.
- Russell, D. W. (2002). In search of underlying dimensions: The use (and abuse) of factor analysis in Personality and Social Psychology Bulletin. *Personality and Social Psychology Bulletin, 28*, 1629-1646.

- Rusting, C. L. (2001). Personality as a moderator of affective influences on cognition. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 371-391). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Schwartz, J. E., Neale, J., Marco, C., Schiffman, S. S., & Stone, A. A. (1999). Does trait coping exist? A momentary assessment approach to the evaluation of traits. *Journal of Personality and Social Psychology*, 77, 360-369.
- Schwartz, J. E., & Stone, A. A. (1993). Coping with daily work problems: Contributions of problem content, appraisals, and person factors. *Work and Stress*, 7, 47-62.
- Segerstrom, S. C. (2001). Optimism and attentional bias for negative and positive stimuli. *Personality and Social Psychology Bulletin*, 27, 1334-1343.
- Shewchuk, R. M., Elliott, T. R., MacNair-Semands, R. R., & Harkins, S. (1999). Trait influences on stress appraisal and coping: An evaluation of alternative frameworks. *Journal of Applied Social Psychology*, 29, 685-704.
- Shoda, Y., Mischel, W., & Wright, J. C. (1994). Intraindividual stability in the organization and patterning of behavior: Incorporating psychological situations into the idiographic analysis of personality. *Journal of Personality and Social Psychology*, 67, 674-687.
- Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition and Emotion*, 7, 233-269.
- Smith, R. E., Leffingwell, T. R., & Ptacek, J. T. (1999). Can people remember how they coped? Factors associated with discordance between same-day and retrospective reports. *Journal of Personality and Social Psychology*, 76, 1050-1061.

- Somerfield, M. R., & McCrae, R. R. (2000). Stress and coping research: Methodological challenges, theoretical advances, and clinical applications. *American Psychologist*, 55, 620-625.
- Snijders, T., & Bosker, R. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modeling*. London: Sage Publications.
- Snyder, C. R. (1999). Coping: Where are you going? In C.R. Snyder (Ed.), *Coping: The psychology of what works* (pp. 324-333). New York: Oxford University Press.
- Stone, A. A., Cox, D. S., Valdimarsdottir, H., Jandorf, L., & Neale, J.M. (1987). Evidence that secretory IgA antibody is associated with daily mood. *Journal of Personality and Social Psychology*, 52, 988-993.
- Stone, A., Kennedy-Moore, E., & Neale, J. (1995). Association between daily coping and end-of-day mood. *Health Psychology*, 14, 341-349.
- Stone, A. A., Shiffman, S. S., Schwartz, J. E., Hufford, M., & Broderick, J. B. (2002). Patient non-compliance with paper diaries. *British Medical Journal*, 324, 1193-1194.
- Suls, J. & David, J. P. (1996). Coping and personality: Three generations of research. *Journal of Personality*, 64, 711-735.
- Suls, J., David, J. P., & Harvey, J. H. (1996). Personality and coping: Three generations of research. *Journal of Personality*, 64, 711-735.
- Suls, J., & Fletcher, B. (1985). The relative efficacy of avoidant and nonavoidant coping strategies: A meta-analysis. *Health Psychology*, 4, 249-288.

- Suls, J., Martin, R., & David, J. P. (1998). Person-environment fit and its limits: Agreeableness, neuroticism, and emotional reactivity to interpersonal conflict. *Personality and Social Psychology Bulletin*, 24, 88-98.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using Multivariate Statistics*, 4<sup>th</sup> ed. Boston, MA: Allyn & Bacon.
- Taylor, S. E (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist*, 38, 1161-1173.
- Taylor, S. W., Repetti, R. L., & Seeman, T. (1997). Health psychology: What is an unhealthy environment and how does it get under the skin? *Annual Review of Psychology*, 48, 411-447.
- Tennen, H., & Affleck, G. (1996). Daily processes in coping with chronic pain: Methods and analytic strategies. In M. Zeidner, & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications*. (pp. 151-177). Oxford: John Wiley & Sons.
- Tennen, H., Affleck, G., Armeli, S., Carney, M. A. (2000). A daily process approach to coping: Linking theory, research, and practice. *American Psychologist*, 55, 626-636.
- Terry, D. J. (1991). Coping resources and situational appraisals as predictors of coping behavior. *Personality and Individual Differences*, 12, 1031-1047.
- Terry, D. J. (1994). Determinants of coping: The role of stable and situational factors. *Journal of Personality and Social Psychology*, 66, 895-910.

- Terry, D. J., & Hynes, G. J. (1998). Adjustment to a low-control situation: Reexamining the role of coping responses. *Journal of Personality and Social Psychology*, 74, 1078-1092.
- Thompson, A., & Bolger, N. (1999). Emotional transmission in couples under stress. *Journal of Marriage and the Family*, 61, 38-48.
- Tobin, R. M., Graziano, W. G., Vanman, E. J., & Tassinary, L. G. (2000). Personality, emotional experience, and efforts to control emotions. *Journal of Personality and Social Psychology*, 79, 656-669.
- Trapnell, P. D., & Wiggins, J. S. (1990). Extension of the Interpersonal Adjective Scales to include the Big Five dimensions of personality. *Journal of Personality and Social Psychology*, 59, 781-790.
- Valentiner, D. P., Holahan, C. J., & Moos, R. H. (1994). Social support, appraisals of event controllability, and coping: An integrative model. *Journal of Personality and Social Psychology*, 66, 1094-1102.
- Vitaliano, P. P., DeWolfe, D. J., Maiuro, R. D., Russo, J., & Katon, W. (1990). Appraised changeability of a Stressor as a modifier of the relationship between coping and depression: A test of the hypothesis of fit. *Journal of Personality and Social Psychology*, 59, 582-592.
- Vollrath, M. (2000). Personality and hassles among university students: A three-year longitudinal study. *European Journal of Personality*, 14, 199-215.
- Vollrath, M. (2001). Personality and stress. *Scandinavian Journal of Psychology*, 42, 335-347.



- Watchel, P. L. (1973). Psychodynamics, behavior therapy, and the implacable experimenter: An inquiry into the consistency of personality. *Journal of Abnormal Psychology, 82*, 324-334.
- Watson, D., & Clark, L. A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the five-factor model. *Journal of Personality, 60*, 441-476.
- Watson, D., & Clark, L. A. (1997). Extraversion and its positive emotional core. In R. Hogan & J. A. Johnson (Eds.), *Handbook of Personality Psychology* (pp. 767-793). San Diego, CA: Academic Press.
- Watson, D. & Hubbard, B. (1996). Adaptational style and dispositional structure: Coping in the context of the five-factor model. *Journal of Personality, 64*, 737-774.
- Watson, D., & Walker, L. M. (1996). The long-term stability and predictive validity of trait measures of affect. *Journal of Personality and Social Psychology, 70*, 567-577.
- West, S. G., & Hepworth, J. T. (1991). Statistical issues in the study of temporal data: Daily experiences. *Journal of Personality, 59*, 609-662.
- Wiggins, J. S., & Trapnell, P. D. (1996). A dyadic-interactional perspective on the five-factor model. In J. S. Wiggins (Ed.), *Five-factor model of personality: Theoretical perspectives* (pp. 88-162). New York: Guilford Press.
- Wolff, C. T., Friedman, S. B., Hofer, M. A., & Mason, J. W. (1964). Relationship between psychological defenses and mean urinary 17-hydroxycorticosteroid

excretion rates: I. A predictive study of parents of fatally ill children.

*Psychosomatic Medicine*, 26, 576-591.

Young, J. E., Weinberger, A. D., & Beck, A. T. (2001). Cognitive therapy for depression. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual 3rd ed.* (pp. 264-308). New York: Guilford Press.

Zakowski, S. G., Hall, M. H., Cousino K. L., & Baum, A. (2001). Appraised control, coping, and stress in a community sample: A test of the goodness-of-fit hypothesis. *Annals of Behavioral Medicine*, 23, 158-165.

## APPENDIX A

### Principle Components Analysis: Threat Appraisals

Factor 1: Communal threats ( $\alpha = .79$ )		Factor loadings
Harm to a loved ones' well being		0.91
A loved one having difficulty getting along in the world		0.82
Losing someone's respect or love		0.59
Not getting the support and understanding you want		0.51
Factor 2: Agentic threats ( $\alpha = .59$ )		
Losing your self-respect		0.62
Things not running as smoothly as you would like		0.57
Not achieving an important goal at your job or in your schoolwork		0.54

*Note.* All items are from Folkman et al. (1986a).

## APPENDIX B

### Principle Components Analysis: Coping

Factor 1: Relationship focused coping ( $\alpha = .92$ ) (BWOC $\alpha = .88$ )		Factor loadings
Tried to understand how the other person felt		0.90
Tried to see things from the other person's perspective		0.89
Tried to help the other person involved by listening to them		0.88
Tried to comfort the other person involved by showing them my positive feelings for them		0.83
imagined myself in the other person's shoes		0.82
Tried to help other person involved by doing something for them		0.62
Tried to find a solution that was fair to all involved		0.54
Tried to meet the other person half-way		0.59
Tried to compromise with others involved		0.58
Factor 2: Interpersonal Antagonism ( $\alpha = .75$ )		
Expressed anger to the person who caused the problem		0.70
I gave the other person involved the "silent treatment"		0.65
I withdrew from the other person involved		0.64
Tried to get the person responsible to change his/her mind		0.49
Stood my ground and fought for what I wanted		0.47
Factor 3: Passive emotion-focused coping ( $\alpha = .77$ )		
Criticized or lectured myself		0.71
Realized I brought the problem on myself		0.59
Hoped a miracle would happen		0.58
Made a promise to myself that things would be different next time		0.54
Wished the situation would go away or somehow be over with		0.52
Had fantasies about how things might turn out		0.46
I sulked		0.41
		cont...

Factor 4: Positive Reflection (alpha = .78)	Factor loadings
Did something nice for myself	0.74
Took some private time out to do something	0.65
Took some time out to be with someone I enjoy	0.58
Changed or grew as a person in a good way	0.54
Rediscovered what is important in life	0.52
Came out of the experience better than when I went in	0.43
Factor 5: Problem-solving (alpha = .78) (BWOC alpha = .71) (WOC alpha = .68)	
Concentrated on what I had to do next to solve the problem	0.70
Made a plan of action	0.70
Increased my efforts to make things work	0.66
Factor 6: Support Seeking (alpha = .90) (BWOC alpha = .72) (WOC alpha = .76)	
Talked with someone not involved about the problem	0.79
Talked to someone about how I was feeling	0.79
Tried to get comfort and understanding from someone	0.76
Tried to get advice or help from other people about what to do	0.75
Tried to get emotional support from others	0.74
I asked someone I respected for advice	0.74
Factor 7: Distancing (alpha = .69) (BWOC alpha = .55) (WOC alpha = .61)	
Didn't let it get to me; refused to think about it too much	0.75
Went on as if nothing had happened	0.62
Refused to get too serious about the situation; tried to laugh about it	0.56

---

*Note.* The first alpha reported after the scale name is the Cronbach alpha for this version of the scale using the entire data set at the daily level. The second alpha, when noted, is for the parallel scale from the 38-item Brief Ways of Coping (Lee-Baggeley et al., 2005). The third alpha, when noted, is for the parallel scale from the 67-item Revised Ways of Coping Scale (Folkman, et al., 1986a).

## APPENDIX C: EQUATIONS

The following equations represent the model examined in Table 5:

Level 1 Model:

$$\begin{aligned} \text{Coping strategy}_{ti} = & \pi_{0i} + \pi_{1i} (\text{Interpersonal stressor}) + \pi_{2i} (\text{Achievement stressor}) + \\ & \pi_{3i} (\text{Seriousness}) + \pi_{4i} (\text{Controllability}) + \pi_{5i} (\text{Communal Threat}) + \pi_{6i} (\text{Agentic} \\ & \text{Threat}) + e_{ti} \end{aligned}$$

Level 2 Model:

$$\pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{2i} = \beta_{20}$$

$$\pi_{3i} = \beta_{30}$$

$$\pi_{4i} = \beta_{40}$$

$$\pi_{5i} = \beta_{50}$$

$$\pi_{6i} = \beta_{60}$$

The following equation represents the model used in the analysis in Table 6:

Level 1 Model:

$$\begin{aligned} \text{Coping strategy}_{ti} = & \pi_{0i} + \pi_{1i} (\text{Interpersonal stressor}) + \pi_{2i} (\text{Achievement stressor}) + \pi_{3i} \\ & (\text{Seriousness}) + \pi_{4i} (\text{Controllability}) + \pi_{5i} (\text{Communal Threat}) + \pi_{6i} (\text{Agentic Threat}) + \\ & e_{ti} \end{aligned}$$

Level 2 Model:

$$\pi_{0i} = \beta_{00} + \beta_{01} (N) + \beta_{02} (E) + \beta_{03} (O) + \beta_{04} (A) + \beta_{05} (C) + \beta_{06} (\text{gender}) + \beta_{07} (\text{Caucasian}) + \beta_{08} (\text{Asian}) + \beta_{09} (\text{age to Canada}) + r_{0i}$$

$$\pi_{1i} = \beta_{20}$$

$$\pi_{2i} = \beta_{20}$$

$$\pi_{3i} = \beta_{30}$$

$$\pi_{4i} = \beta_{40}$$

$$\pi_{5i} = \beta_{50}$$

$$\pi_{6i} = \beta_{60}$$

The following equation represents the model used in the analyses examining the interactive effect of appraisals and personality controlling for stressor type (Table 7).

Level 1 Model:

$$\text{Coping strategy}_{ti} = \pi_{0i} + \pi_{1i} (\text{Interpersonal stressor}) + \pi_{2i} (\text{Achievement stressor}) + \pi_{3i} (\text{Seriousness}) + e_{ti}$$

Level 2 Model:

$$\pi_{0i} = \beta_{00} + \beta_{01} (N) + \beta_{02} (E) + \beta_{03} (O) + \beta_{04} (A) + \beta_{05} (C) + \beta_{06} (\text{gender}) + \beta_{07} (\text{Caucasian}) + \beta_{08} (\text{Asian}) + \beta_{09} (\text{age to Canada}) + r_{0i}$$

$$\pi_{1i} = \beta_{10}$$

$$\pi_{2i} = \beta_{20}$$

$$\pi_{3i} = \beta_{30} + \beta_{31} (N) + \beta_{32} (E) + \beta_{33} (O) + \beta_{34} (A) + \beta_{35} (C)$$

The following equation represents the model used in the analyses examining the interactive effect of personality and stressor type (Table 7).

Level 1 Model:

$$\text{Coping strategy}_{ti} = \pi_{0i} + \pi_{1i} (\text{Interpersonal stressor}) + \pi_{2i} (\text{Achievement stressor}) + e_{ti}$$

Level 2 Model:

$$\pi_{0i} = \beta_{00} + \beta_{01} (N) + \beta_{02} (E) + \beta_{03} (O) + \beta_{04} (A) + \beta_{05} (C) + \beta_{06} (\text{gender}) + \beta_{07}$$

$$(\text{Caucasian}) + \beta_{08} (\text{Asian}) + \beta_{09} (\text{age to Canada}) + r_{0i}$$

$$\pi_{1i} = \beta_{20} + \beta_{21} (N) + \beta_{22} (E) + \beta_{23} (O) + \beta_{24} (A) + \beta_{25} (C)$$

The following equation represents the model used the analyses in Table 8 and 9:

Level 1 Model:

$$\text{Appraisal}_{ti} = \pi_{0i} + e_{ti}$$

Level 2 Model:

$$\pi_{0i} = \beta_{00} + \beta_{01} (N) + \beta_{02} (E) + \beta_{03} (O) + \beta_{04} (A) + \beta_{05} (C) + \beta_{06} (\text{gender}) + \beta_{07}$$

$$(\text{Caucasian}) + \beta_{08} (\text{Asian}) + \beta_{09} (\text{age to Canada}) + r_{0i}$$