THE UNIVERSITY OF CALGARY

Exploring the Stress Process in the University Context

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ABSTRACT

Two of the most recent developments in the sociological study of the stress process are the call for considering multiple outcomes and the call for taking gender seriously. Using data on the university context, I respond to both calls by using the main effects, support buffer and mastery buffer models to explore the possibility of gender differences in the effects of stress, social support and mastery on psychological distress, subjective academic distress and objective academic distress. I found that different models of the stress process are appropriate for different outcomes and that the variables considered in this exploration of the stress process had substantially greater explanatory efficacy for psychological distress. My results also highlight the importance of instrumental support in the university context and the importance of considering gender differences and gender similarities in studies of the stress process more generally.

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CHAPTER 1

INTRODUCTION

For more than three decades, researchers in
disciplines ranging from epidemiology through psychology to
sociology have explored the impact of socially-induced
stress on human health and well being. Early studies
established the negative effects of stress on psychological
and physical health (Dodge and Martin 1970; Sales and House
1971; Syme 1967). They also showed that these health
outcomes varied systematically across the social statuses
of age, gender, socioeconomic status and marital status.
To account for these social status differentials, some
researchers argued that individuals of different social
statuses are differentially exposed to stressors (Kessler
and McLeod 1984; Brown and Harris 1978; Turner, Wheaton and
Lloyd 1995). Others argued that these differences reflect
differential vulnerability to stressors.

Two concepts dominate attempts to explain differential
vulnerability to stressors: social support and personal
coping resources. In the standard sociological model of
the stress process, social support is conceptualized as
emotional aid and instrumental aid that is received from

others (e.g., parents, siblings and friends). Researchers
studying social support have established two things.
First, individuals who receive more social support have
lower levels of distress (e.g., depression, poor physical
health) than individuals who receive less social support
(Cassel 1976; Cobb 1976; Ross and Mirowsky 1989; Turner and
Marino 1994). Second, access to social support varies by
age, gender, socioeconomic status and marital status
(Thoits 1995a; Turner, Wheaton and Lloyd 1995; Umberson,
Chen, House, Hopkins and Slaten 1996).

Studies of the impact of personal coping resources on
health suggest that vulnerability to stress is also a
function of personality characteristics such as self-esteem
and a sense of control or mastery. According to them,
these characteristics are resources that may be drawn upon
in order to deal with the stressors that are experienced.
Not surprisingly, then, individuals who report high levels
of self-esteem or high levels of mastery are less
vulnerable to stress than individuals who report low levels
of these personality characteristics. Like social support,
personal coping resources are differentially distributed
across the social statuses of age, gender, marital status
and socioeconomic status (Aneshensel, Rutter and

Lachenbruch 1991; Aneshensel 1992; Mirowsky and Ross 1990;
Pearlin and Schooler 1978; Ross and Mirowsky 1989; Thoits
1995a).

Two specifications of the stress process dominate
sociological research. The first specification examines
the main effects of stress, social support and personal
coping resources on health-related outcomes. In this
framing of the stress process, social support and mastery
have independent effects on distress. The second
specification explores the joint effects of stress and
social support on distress and stress and personal coping
resources on distress (Cohen and Wills 1985; Haines,
Hurlbert and Zimmer 1991; Haines and Hurlbert 1992; Kessler
and McLeod 1985; Mirowsky and Ross 1990). Operationalized
as a statistical interaction effect between stress and
social support, the support buffer hypothesis states that
individuals who are exposed to high levels of stress and
have access to high levels of support will experience lower
levels of distress, while individuals who are exposed to
high levels of stress but have access to low levels of
support will experience higher levels of distress. The
concept of buffering has also been used in studies of
personal coping resources. Here, researchers use the

mastery buffer hypothesis to predict that individuals who are exposed to high levels of stress but have high levels of mastery will experience low levels of distress, while individuals who are exposed to high levels of stress but have low levels of mastery will experience high levels of distress. Because researchers have found evidence for the main effects, support buffer and mastery buffer framings of the stress process, many (House et al. 1988; Thoits 1995a; Turner and Marino 1994) now argue that the appropriate research question is not whether main effects or buffering effects exist, but rather when, how and why each occurs.

My exploration of the stress process in the university context incorporates all four components of the standard sociological model: stressors, social support, personal coping resources and outcomes. Three things set it apart from other tests of this model, both inside and outside the university context. First, where most studies examine the effects of either social support or personal coping resources, I use the same data to test the main effects and buffer effects models for both social support and mastery. Second, where most studies use a single health-related outcome, psychological distress (Aneshensel, Rutter and Lachenbruch 1991; Horwitz, White and Howell-White 1996), I

respond to Aneshensel's (1992) call for using multiple outcomes by examining one type of psychological distress and two types of academic distress. Third, because there is evidence for gender-specific effects of stressors, social support and personal coping resources (Haines and Hurlbert 1992; Horwitz, White and Howell-White 1996; Roxburgh 1996; Thoits 1995b; Umberson et al. 1996), I include gender interaction terms for all three components in my tests of the main effects, support buffer and mastery buffer models for my three outcomes.

To prepare the way for these tests of the main effects, support buffer and mastery buffer models, the second chapter of my thesis uses the standard sociological model of the stress process to frame my review of the literature. Here I develop the models I will use to predict psychological distress, objective academic distress and subjective academic distress. In Chapter 3 I discuss my sample, measures and the data analytic techniques that I use to test these models. My presentation of results in Chapter 4 considers each outcome variable separately. After comparing across models in Chapter 5, I conclude by investigating the implications of my results for the study of the stress process more generally.

CHAPTER 2

SOCIOLOGICAL MODELS OF THE STRESS PROCESS

The standard sociological model of the stress process has four basic components: stress, social support, personal coping resources and outcomes. In the discussion that follows, I use these components to frame the development of the main effects, support buffer and mastery buffer models of the stress process I test. For each component, I draw on literature inside and outside the university context first to defend my conceptual and operational definitions and then to develop predictions about its effects on psychological distress and, based on these predictions, on subjective academic distress and objective academic distress. To justify this strategy for predicting the effects of stress, social support and personal coping resources on academic distress, I begin with the final component of the stress process - outcomes.

USING MULTIPLE OUTCOMES TO STUDY DISTRESS

Most attempts to refine the standard sociological model of the stress process have focused on its stress, social support and personal coping components (Aneshensel

1992; Horwitz, White and Howell-White 1996). Recently, however, stress researchers have called for the use of multiple outcomes on the grounds that the use of a single outcome variable may underestimate the negative consequences of stress among different groups of people (Aneshensel, Rutter and Lachenbruch 1991; Horwitz and Davies 1994; Horwitz and White 1991; Horwitz, White and Howell-White 1996; Thoits 1995a,b). The dominant response to this call has been to use outcomes that allow for gendered expressions of psychological distress – usually depression (women) versus alcohol problems (men). These studies have produced mixed results, with some finding that women and men do express psychological distress in different ways (cf. Horwitz, White and Howell-White 1996) and others finding little evidence for gender-specific reactions to stress (cf. Mirowsky and Ross 1995; Umberson et al. 1996).

This response to the call for using multiple outcomes in sociological studies of the stress process limits concern to the negative health consequences of differential exposure to stressors and differential access to social support and personal coping resources. In her influential review of current stress research, Aneshensel (1992) argued

for the importance of studying nonhealth-related outcomes like diminished educational achievement. Because the university context provides a strategic arena for studying this outcome, I respond to the call for using multiple outcomes in stress research by developing and testing main effects, support buffer and mastery buffer models that use two types of academic distress and one type of psychological distress as outcomes. Diminished educational achievement has not been used as an outcome by sociologists using the standard model of the stress process. Therefore, my predictions about the effects of stress, social support and personal coping resources on this nonhealth-related outcome follow those developed for psychological distress. By testing the same main effects model, support buffer model and mastery buffer model for each outcome, I can begin to assess the utility of the standard sociological model of the stress process for the study of nonhealth-related outcomes.

STRESS

Sociological studies of the stress process have established the negative health consequences of socially-induced stress (Avison and Turner 1988; Brown and Harris

1978; Lin and Ensel 1989; Thoits 1983). Early approaches to conceptualizing this stress focused exclusively on life events like bereavement, unemployment and other discrete occurrences which altered individuals' social settings (Rabkin and Struening 1976). More recent approaches to conceptualizing stress highlight the importance of also considering persistent stressors that individuals experience in everyday life (Avison and Turner 1988; Pearlin and Schooler 1978; Thoits 1995b). When examining the effects of these chronic strains, some researchers (e.g. Pearlin and Schooler 1978) focus on recurrent demands that arise within the boundaries of the roles that people play (e.g. problems with children). Others (e.g. Avison and Turner 1988) explore the effects of ongoing difficulties that do not emerge from social roles (e.g. financial troubles). Because studies have shown that our understanding of the stress process is improved by considering the combined contribution of life events and chronic strains (Avison and Turner 1988; Thoits 1995b; Turner, Wheaton and Lloyd 1995), I include both types of stressors in the models I test. In developing the stress component of my models, I also draw on studies outside and inside the university context that highlight the importance

of considering stressors that people experience within specific domains like school stress, work stress, family stress, friendship stress and love/relationship stress (Klocek, Oliver and Ross 1997; Krause 1994, 1995; Pearlin and Schooler 1978; Thoits 1995a,b).

Research on life events and mental health has demonstrated that experiencing stressful life events leads to psychological distress (Brown and Harris 1978; Lin and Ensel 1989; Thoits 1983). Other researchers have found similar results when chronic strains are studied (Avison and Turner 1988; Brown and Harris 1978). Not surprisingly, then, recent reviews (e.g., by Aneshensel 1992; Avison and Turner 1988; Thoits 1995a; Turner, Wheaton and Lloyd 1995) highlight the importance of including both life events and chronic strains in studies of the stress process. I follow their lead and include both life events and chronic strains in my domain-specific measures of stress.

SOCIAL SUPPORT

Since its introduction by Cassel (1976) and Cobb (1976), social support has become the most widely-studied component of the standard sociological model of the stress process, with hundreds of studies exploring the beneficial

effects of social support on the health and well-being of individuals (House et al. 1988; Thoits 1995a; Turner and Marino 1994; Veiel and Baumann 1992). Yet, despite its importance, there is no consensus on how to conceptualize or operationalize social support. Early metaphoric uses of the terms "support system" and "social support network" viewed social support as a single, uni-dimensional construct (Hall and Wellman 1985). More recent conceptualizations (Pearlin 1985; House 1981) highlight the multidimensionality of social support by focusing on the question, "Who gives what to whom regarding which problems?", where "who" defines the source of support, "what" identifies the type of social support, "whom" the recipient of social support and "which problems" the stressor which mobilizes the process of social support.

Most definitions of social support focus on either the sources or types of support. Source-based definitions look at who is likely to be a source of support. Conventional source-based approaches have focused on parents, siblings, spouses, neighbors, friends and co-workers as providers or sources of social support (Wellman and Wortley 1990; Fischer 1982).

There are two general issues in the literature on definitions that are based on types of social support. The first issue is how fine-grained the typology of types of support should be. One approach distinguishes between instrumental and expressive support. Here, instrumental support is the provision and/or receipt of things such as financial aid and various services like borrowing items and getting a ride somewhere. Expressive support is the provision and/or receipt of emotional aid, advice and companionship.

In the intermediate typology developed by House and colleagues (1988), support is the "positive, potentially health promoting or stress-buffering aspects of relationships such as instrumental aid, emotional caring or concern, and information". Wellman and Wortley (1990) have developed a more fine-grained typology of social support. According to it, there are five dimensions of support: 1) emotional aid, 2) small services, 3) large services, 4) financial aid, and 5) companionship. Emotional aid is operationalized as major and minor emotional aid and advice about family problems. The second dimension of support, small services, includes lending and giving household items, minor household services and aid in dealing with

organizations. The third dimension of support is large services, which would include major household services such as major repairs, regular help with housework and major services such as children's day care and long term health care. The fourth dimension is financial aid, including both small and large loans and gifts. The last type of support is companionship, which is operationalized in terms of discussing ideas, doing things together and participating in an organization.

The second general issue in the literature on type-based definitions of support centers on the distinction between perceived social support and received social support. Many studies of the stress process that have documented the protective function of social support have focused exclusively on perceived social support (Turner and Marino 1994). As Thoits (1995a:64) notes, "the perception or belief that emotional support is available appears to be a much stronger influence on mental health than the actual receipt of social support." Perceived support has also been identified to be more important than received support in buffering the negative effects of stressful events (Wethington and Kessler 1986). In my framing of the stress process, I will follow the perceptual approach by focusing

on the effect of perceived emotional support and perceived instrumental support on psychological distress, subjective academic distress and objective academic distress.

This discussion of perceived support versus received support also highlights the importance of testing both the main effects and support buffer framings of the standard sociological model of the stress process. Tests of these competing framings have generated mixed results. Some find support for the direct effect of social support, independent of stress, others for the stress buffer hypothesis (Syme 1967; Cohen and Wills 1985; Haines and Hurlbert 1992; Kessler and McLeod 1985; Pugliesi and Shook 1998; Ross and Mirowsky 1989; Turner and Marino 1994).

PERSONAL COPING RESOURCES

Personal coping resources are the "personality characteristics that people draw upon to help them withstand threats posed by events and objects in their environments" (Pearlin and Schooler 1978:5). One of the most frequently studied personal coping resource is mastery, which refers to the ability of individuals to feel responsible for the successes and failures of their lives (Thoits 1995a).

Perceptions of mastery have been shown to lead to significant decreases in depression in general populations (Ross and Mirowsky 1989; Turner and Avison 1992) and for college students (Chang 1996). It is now well-documented that individuals who lack coping resources like self-esteem and a sense of control are more vulnerable to stress (Brown and Harris 1978; Pearlin and Schooler 1978; Ross and Mirowsky 1989). Tests of the mastery buffer framing of the stress process have also shown that mastery buffers the negative effects of stress on psychological distress (Mirowsky and Ross 1990; Turner and Noh 1988).

SOCIAL STATUS DIFFERENTIALS

Researchers studying the stress process have established that psychological distress is not uniformly distributed throughout the social system. One of their most consistent findings is the association between higher levels of psychological distress and lower socioeconomic statuses (Aneshensel and Sucoff 1996; House, Lepkowski, Kinney, Mero, Kessler and Herzog 1994; Mirowsky and Ross 1986, 1995). Psychological distress also varies by gender, with women experiencing higher levels than men (Aneshensel, Rutter and Lachenbruch 1991; Aneshensel 1992; Kessler and

McLeod 1984; Umberson et al. 1996). Younger people experience greater distress than older people (Turner and Marino 1994; Turner, Wheaton and Lloyd 1995) and unmarried individuals have higher levels of distress than do their married counterparts (Horwitz, McLaughlin and White 1998; Mirowsky and Ross 1986, 1995).

To explain these social status differentials, some argue that individuals' positions in the social system influence the probability of their experiencing stressors that lead to distress (Aneshensel, Rutter and Lachenbruch 1991; Aneshensel 1992; Turner, Wheaton and Lloyd 1995). Their studies have shown that younger people (Avison and Turner 1988; Eckenrode and Gore 1981; Pearlin and Lieberman 1979; Turner, Wheaton and Lloyd 1995; but see Aldwin, Sutton, Chiara and Spiro 1996), women (Haines and Hurlbert 1992; Kessler and McLeod 1984; Turner, Wheaton and Lloyd 1995, but see Avison and Turner 1988) individuals from a lower socioeconomic strata (Brown and Harris 1978; Turner Wheaton and Lloyd 1995) and people who are unmarried (Brown and Harris 1978; Turner, Wheaton and Lloyd 1995) experience more stress.

Other stress researchers argue that social status differentials in psychological distress also reflect

differential access to social support and differential use of personal coping resources like mastery. Starting with social support, women generally report receiving higher levels of emotional and instrumental support than men (Turner and Marino 1994; Umberson 1992; Umberson et al. 1996), but see Haines and Hurlbert 1992). Married individuals have higher levels of social support than unmarried individuals (Mirowsky 1996; Thoits 1995a; Turner and Marino 1994). Age has a negative effect on receipt of social support (House et al. 1994, but see Antonucci 1990). The effect of socioeconomic status, in contrast, is positive (Ross and Mirowsky 1989; Thoits 1995a; Turner and Marino 1994).

Turning to mastery, most studies have found that men report higher levels of mastery than do women (Aneshensel, Rutter and Lachenbruch 1991; Aneshensel 1992; Pearlin and Schooler 1978; Thoits 1995a). Differences in mastery levels are also associated with social class, with individuals with more education and more family income reporting higher levels of mastery (Pearlin and Schooler 1978; Ross and Mirowsky 1989). Married individuals have higher levels of mastery than unmarried individuals

(Aneshensel, Rutter and Lachenbruch 1991; Aneshensel 1992; Mirowsky and Ross 1990; Thoits 1995a).

Researchers using the standard sociological model of the stress process have used two strategies to take account of these social status differentials. The first (and dominant) strategy is to include social class, gender, age and marital status as control variables in models predicting psychological distress. The second strategy is to investigate the possibility of social status-specific effects of stress, social support and personal coping resources on psychological distress (cf. Aneshensel and Sucoff 1996; Conger, Lorenz, Elder, Simons and Ge 1993; LeClere, Rogers and Peters 1998; Simon 1995; Ulbrich, Warheit and Zimmerman 1989). I investigate this possibility for gender.

Most attempts to improve our understanding of gender differences in the stress process begin from theoretical arguments about the differences between men and women, which suggest that "women are more nurturant and relationship-oriented than men" (Umberson et al. 1996). These suggestions highlight the importance of investigating the possibility that the effects of stress, social support and personal coping resources on distress may differ for

men and women. Following other stress researchers (Haines and Hurlbert 1992; Mirowsky and Ross, 1995; Umberson et al. 1996), I test for gender-effects by including gender interaction terms with each stress domain, emotional and instrumental support and mastery in my main effects, support buffer and mastery buffer models.

CHAPTER THREE

DATA AND METHODS

The purpose of this chapter is to describe the sample,
measures and data analytic techniques that I used to test
the main effects, social support buffer and mastery buffer
framings of the standard sociological model of the stress
process.

SAMPLE

The data for this study are from a 1994 exploratory
study of the academic choices of undergraduates at a
commuter university in a large, metropolitan city in
Western Canada. Of these approximately 18,000 full-time
students, 1,646 were in the Faculty of Science and 2,585
were in the Faculty of Social Science. Surveys were sent
to 600 full-time science majors and 600 full-time social
science majors. Each respondent received a copy of the
questionnaire with a cover letter, consent form, prepaid
return envelope, and a set of forms that were used to
collect network data. To select respondents, original
researchers used proportionate sampling by department with
a random start. Department subsamples of less than 50

students (Chemistry, Mathematics, Anthropology, Archaeology, Linguistics) were oversampled to 50, or surveys were sent to all majors (Geology, Physics). Numbers permitting, the under-represented genders for male-dominated departments and female-dominated departments were oversampled to 15 students per department. One telephone follow-up was conducted.

A total of 281 surveys were returned. The response rate of 23.4% is at the low end of the range of returns (24-90%) provided by Miller (1991) for questionnaires mailed to American high school and college graduates. However, it is consistent with student participation rates in elections at this particular university (e.g., 19.5%) and with consistently low turn-out rates at commuter universities in general (Grayson 1994). The timing of the data collection and the complexity of the questionnaire both contributed to the low response rate. Because of funding constraints, the survey was conducted during the last month of the winter term when demands on the students' time are heaviest. The survey was long (24 pages plus 9 network forms) and, because it included a network component that elicited information about members of respondents'

personal networks, on average, it took respondents 1.5 hours to complete.

Despite the response rate, the sociodemographic characteristics of the sample were quite similar to those of the population of science and social science majors. Table 1 shows that the only significant difference between the sample and the population is in the gender distribution, which was to be expected given the sampling strategy.

Table 1:   Comparison of Population and Sample Data

	Population Data (N=4003)	Sample Data (N=281)
Faculty	40% Science	43% Science
	60% Social Science	57% Social Science
Gender	48% Male	34% Male *
	52% Female	66% Female *
Age	85% under 25	79% under 25
Home Address	80% Local	93% Local

* $p<0.10$ (two tailed test)

I did not include all 281 cases in my statistical analyses because I used listwise deletion to deal with missing values. Using this statistical procedure meant that I eliminated from my analyses any cases that had

missing values on any variable in my models. My sample size throughout the statistical analyses is 240.

Controls are often incorporated in statistical analyses to ensure that relevant theoretical variables have not been excluded. Control variables are variables that the researcher believes may have an effect on the dependent variable and therefore should be held constant when evaluating the model. I include age, marital status and social class as control variables in the models I test because they have been shown to be important in the stress process.

MEASUREMENT

Before describing the measures for the variables I use in my analyses, I will address three measurement concerns: validity, reliability and multicollinearity. Tests of validity are used to assess the extent to which a particular indicator or set of indicators represents the theoretical concept it is intended to measure (Carmines and Zeller 1982). To demonstrate the validity of my measures, I use both face validity and construct validity. Face validity is simply whether something appears to be true 'on the face of it' (Neuman, 1994). In a sense, then, face

validity is assessed by commonsense: If the measure seems
plausible, then the requirement for face validity is met.
The descriptions of my measures that follow suggest that
each has face validity.

Construct validity is a more sophisticated method for
demonstrating validity. It assesses the extent to which
one measure is related to other measures in ways that are
consistent with theoretically derived hypotheses (Carmines
and Zeller 1982). To demonstrate construct validity, I use
the three-step procedure set out by Carmines and Zeller
(1982). The first step is to specify the theoretical
relationship between concepts. The second step is to
examine the empirical relationship between the measures of
the concepts. The third step involves interpreting the
empirical evidence. To meet the second and third criteria,
I examined the underlined zero-order correlations in the
correlation matrix presented in Table 2. I selected these
correlations because these bivariate relationships have
been specified theoretically in the sociological literature
on the stress process. In all cases, the hypothesized
relationships are in the predicted direction.

Table 2: Correlation Matrix of the Variables in the Main Effects, Support Buffer and Mastery Buffer Models (N=240)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Gender (Male)	1.00															
2. Psychological Distress	-.09*	1.00														
3. Subjective Academic Distress	.11*	.08	1.00													
4. Objective Academic Distress	.07	.17	.53	1.00												
5. Love/Relationship Stress	-.09*	.25*	.07	.09*	1.00											
6. School Stress	-.01	.37*	.30*	.31*	.21	1.00										
7. Family Stress	-.14*	.32*	.11*	.12*	.31	.32	1.00									
8. Friendship Stress	-.16*	.14*	-.02	-.01	.09	.15	.22	1.00								
9. Work Stress	-.11*	.23*	.07	.06	.31	.28	.36	.13	1.00							
10. Emotional Support	-.20*	-.19*	-.18*	-.15*	.07	-.13*	-.04	-.06	.04	1.00						
11. Instrumental Support	-.06	-.28*	-.14*	-.10*	-.10	-.18*	-.20*	-.06	-.15*	.57	1.00					
12. Mastery	-.04	-.11*	.00	-.04	.06	-.09*	.07	.03	.02	.18	.05	1.00				
13. Health Problems	-.08	.31*	.08	.12*	.03	.14	.17	.05	.13	-.14	-.27	-.01	1.00			
14. Socioeconomic Status	.01	-.03	-.05	.02	.00	-.07	-.08*	.03	-.11*	.07	.05	.05	-.10	1.00		
15. Marital Status (married)	.00	.00	-.06	-.02	.03	-.01	.08	-.03	.21*	-.10	-.09	.06	-.03	.03	1.00	
16. Age	-.01	.05	-.04	.02	.32	.05	.07	.06	.38	-.02	-.14*	.07	.02	-.03	.48	1.00

*p < 0.10 level (one-tailed test)

Reliability refers to "the extent to which an experiment, test, or any measuring procedure yields the same results on a repeated basis" (Carmines and Zeller 1982:11). As this definition makes clear, reliability relates to consistency. To be useful, a measure has to be reliable. The most commonly used test of reliability is the coefficient called "Cronbach's Alpha". This coefficient is based on internal consistency of items and ranges from 0.00 to 1.00, with a large number indicating a reliable scale. The alpha levels reported for the multiple-item measures described below indicate acceptable levels of internal consistency.

Multicollinearity refers to high intercorrelations among independent variables, which, when present, can affect tests of statistical significance (Pedhauzer 1982:235). To determine if multicollinearity problems exist, I examined the zero-order correlation matrix. A high correlation between two independent variables (.80 or higher) indicates a problem with multicollinearity. Looking at the zero-order correlation matrix for my variables, multicollinearity does not appear to be a problem because there are no zero-order correlations approaching .80.

Table 3 provides a summary of the descriptive data (means, standard deviations and where necessary, Chronbach's Alphas) for all of the variables used in the analyses. In the discussion of measures that follows, I follow the order in which variables are listed in Table 3, starting with gender.

Table 3: Means and Standard Deviations for Variables Used in the Analysis of Main Effects, Support Buffer and Mastery Buffer Models (N=240)

Variable	Mean	S.D.	Alpha
Gender (Male)	.354	.479	
Psychological Distress	12.921	9.179	.79
Subjective Academic Distress	3.000	1.128	
Objective Academic Distress	4.021	1.361	
Love/Relationship Stress	.954	1.087	
School Stress	2.504	1.814	
Family Stress	2.592	1.711	
Friendship Stress	1.879	.713	
Work Stress	1.650	1.355	
Emotional Support	4.196	1.010	
Instrumental Support	4.163	1.011	
Mastery	.354	.479	.65
Health Problems	1.567	.589	
Socioeconomic Status	58.827	15.816	
Marital Status (Married)	.058	.235	
Age	23.263	3.701	

VARIABLES AND MEASUREMENT

Gender

Gender is coded male (1) and female (0).

Psychological Distress

To measure psychological distress, I used the modified version of the Center for Epidemiological Studies Depression (CES-D) scale that is described by Ross and Mirowsky (1989, 1990; see also Radloff, 1977). The correlation between this measure and the full CES-D is .92 (Mirowsky and Ross, 1990). Respondents were asked: "how many times during the past week (0-7) have you: (1) felt that you just couldn't get going; (2) felt sad; (3) had trouble getting to sleep or staying asleep; (4) felt that everything was an effort; (5) felt lonely; (6) felt that you couldn't shake the blues; and (7) had trouble keeping your mind on what you were doing". I constructed my measure by summing across the items to arrive at a measure of psychological distress that can range from low (0) to high (49). The alpha reliability is .79.

Academic Distress

Academic distress is measured in two ways. My measure of objective academic distress was constructed from respondents' reports of their current Grade Point Averages (GPA). Responses are coded 4.0 (1), 3.7-4.0 (2), 3.3-3.7 (3), 3.0-3.3 (4), 2.7-3.0 (5), 2.3-2.7 (6), 2.0-2.3 (7),

1.7-2.0 (8), 1.3-1.7 (9), 1.0-1.3 (10), and 0-1.0 (11).

For objective academic distress, a higher score indicates

more objective academic distress. My measure of subjective

academic distress was constructed from respondents' degree

of agreement with the following statement: "I have

performed academically as well as I anticipated I would".

Responses are coded strongly disagree (5), disagree (4),

neither agree nor disagree (3), agree (2), and strongly

agree (1), with higher scores indicating greater subjective

academic distress.

Stressors

Stress was assessed by a 41 item checklist, which

included measures of life events and chronic strains common

to many stress checklists and stressors that are specific

to the university context. Respondents were asked to

circle those items that they experienced in the last five

years. Their responses are coded 1 if circled and 0 if

otherwise. To construct four of my measures of stress, I

separated the stressors into four domains:

love/relationship, family, school, and work/financial.

Then for each stress domain, items were summed into a

domain-specific stress score, with a higher score

indicating a higher level of stress. The stressors
included in each stress domain are presented in Appendix A.
My fifth domain of stress, friendship stress is constructed
from responses to the question: "About how often do you
feel that your friends make too many demands on you?"
Responses are coded never (1), once in a while (2), some of
the time (3) and a lot of the time (4), with higher scores
indicating greater friendship stress.

Social Support

Following the perceptual approach, social support is
operationalized as "the experience of being supported by
others" (Turner 1983). Expressive support is measured by
the degree of agreement with the following statement:
"Thinking about all the people I know, I have enough people
to talk to about personal matters and problems."
Instrumental support is measured by the degree of agreement
with the statement: "Thinking about all the people I know,
I have enough people to rely on to help me with things when
I need it, things like work around the home or lending
money". Responses for both support measures are coded:
strongly disagree (1), disagree (2), neither agree nor

disagree (3), agree (4) and strongly agree (5). Higher
scores for both indicate higher levels of social support.

Personal Coping Resources

Mastery refers to the extent to which respondents feel
that their life-chances are under their control. It is
measured by respondents' degree of agreement with the
following statements: 1) "I am responsible for my own
successes; 2) I can do just about anything I really set my
mind to; 3) My misfortunes are the result of mistakes I
have made; 4) I am responsible for my failures; 5) The
really good things that happen to me are mostly luck; 6)
There is no sense in planning a lot – if something good is
going to happen, it will; 7) Most of my problems are due to
bad breaks; and 8) I have little control over the bad
things that happen to me." Following Ross and Mirowsky
(1989), responses to the first four questions (control) are
coded strongly disagree (1), disagree (2), neither agree
nor disagree (3), agree (4) and strongly agree (5).
Responses to the last four questions (lack of control) are
coded strongly agree (-1), agree (-2), neither agree nor
disagree (-3), disagree (-4) and strongly disagree (-5).

The final index is coded from low mastery (-16) to high mastery (16). Alpha reliability is .65.

Sociodemographic Differentials

Perceived health problems is measured by responses to the question: "In general how would you say your health is?". Responses are coded excellent (1), good (2), fair (3), and poor (4), with higher scores indicating greater perceived health problems. Age is measured in years. Marital status is measured as a dummy variable coded married (1) and non-married (0) because there were insufficient numbers in the categories of separated, divorced and widowed to include these categories separately. Following Turner and colleagues (1995) social class is measured by the occupational prestige of the respondents' father or mother, with the higher prestige score used for each respondent.

DATA ANALYTIC TECHNIQUES

I use ordinary least squares regression analysis and interaction effects in multiple regression to test the main effects, support buffer and mastery buffer framings of the stress process. Because the literature suggests that the

effects of stress, social support and personal coping resources may be gender-specific, all of my models include the eight gender interaction terms that allow me to explore this possibility. For each of my three outcomes, I begin by testing the main effects model. This involves regressing my outcome variable on gender, the five stress domains, emotional support, instrumental support, mastery, the sociodemographic controls, the five gender x stress interactions, the two gender x social support interactions and the gender x mastery interaction. In many studies of the stress process, the level of significance is set at the .05 level but because my sample is relatively small, the .10 level of significance is more appropriate for the statistical analyses I conduct (cf. Hodson 1989).

To test the support buffer model, I first estimate separate models for each possible interaction between emotional support and a stress domain and each possible interaction between instrumental support and a stress domain. I do this by adding an interaction for one type of social support and one stress domain and the corresponding second-order gender interaction for the support buffer to the main effects model. If more than one stress x social support interaction is significant when predicting

distress, I estimate a final model that includes all statistically significant stress x social support interaction terms and the corresponding gender interactions to determine if a particular interaction was the predominant source of the effect. In the discussion of the support buffer models in Chapter 4, I report only the final models for psychological distress, subjective academic distress and objective academic distress. If these results indicate that the inclusion of the support buffers to the main effects model produces a statistically significant improvement in the R^2 value, then I can conclude that the support buffer model is a better fit for the data than the main effects model.

I use the same two-step procedure to test the mastery buffer model for my three distress outcomes. In step 1, I estimate separate models for each possible interaction of mastery and a stress domain by adding an interaction for mastery and one stress domain and the corresponding second-order gender interaction for the mastery buffer to the main effects model. If more than one stress x mastery interaction is significant when predicting distress, then I move to step 2 and estimate a final model that includes all statistically significant stress x mastery interaction

terms and the corresponding gender interactions to determine if a particular interaction was the predominant source of the effect. Only the final models for psychological distress, subjective academic distress and objective academic distress are presented in Chapter 4. If these results indicate that the inclusion of the mastery buffers to the main effects model produces a statistically significant improvement in the R^2 value, then I can conclude that the mastery buffer model is a better fit for the data than the main effects model.

CHAPTER 4

RESULTS

In this chapter, I present the results of my exploration of the stress process in the university context. For each outcome, starting with psychological distress, I discuss the main effects model, the support buffer model and the mastery buffer model.

PSYCHOLOGICAL DISTRESS

Table 4 presents the regression results for psychological distress for the Main Effects Model (Panel A), the Support Buffer Model (Panel B) and the Mastery Buffer Model (Panel C).

Starting with Panel A, the main effects model for psychological distress has reasonable explanatory power, with an R-square value of .31. In this specification of the stress process, three stress domains have significant impacts on psychological distress, net of social support and mastery.

Table 4: Regression Coefficients for Main Effects, Support Buffer and Mastery Buffer Models for Psychological Distress (N=240)

Independent Variable	Panel A Main Effects	Panel B Support Buffer	Panel C Mastery Buffer
Gender (Male)	-8.405	23.204**	-12.714**
Stress Domains			
Love/Relationship	1.242**	3.589	1.348**
School	1.318****	1.889	1.259****
Family	.936**	5.445***	.917**
Friendship	-.145	.221	-.570
Work	-.013	.096	-.154
Social Support			
Emotional	-1.372*	-.036	-1.602**
Instrumental	-1.118*	1.920	-.942
Personal Coping Resources			
Mastery	-.131	-.183	.772
Socio-Demographic Variables			
Health Problems	3.075****	2.878***	2.652**
Socioeconomic Status	.012	.030	.002
Marital Status (Married)	.171	-.525	-.187
Age	-.091	-.035	-.002
Interactions			
Love/Relationship x Male	-.135	-3.623	-.569
School x Male	-.632	-6.625**	-.945
Family x Male	-.947	-3.70	-.172
Friendship x Male	1.410	.492	2.345
Work x Male	1.402*	1.400*	1.545*
Emotional x Male	.627	-2.963	1.096
Instrumental x Male	.866	-2.902	.676
Mastery x Male	-.221	-.164	-3.112**
Support Buffers			
School x Emotional		.183	
Family x Emotional		.756*	
Love x Instrumental		-.600	
School x Instrumental		-.353	
Family x Instrumental		-.326	
Interactions			
School x Emotional x Male		-.474	
Family x Emotional x Male		1.981***	
Love x Instrumental x Male		.849	
School x Instrumental x Male		1.936**	
Family x Instrumental x Male		-1.230*	

Independent Variable	Panel A Main Effects	Panel B Support Buffer	Panel C Mastery Buffer
Mastery Buffers			
Love x Mastery			-.280
Family x Mastery			-.018
Friendship x Mastery			-.323
Interactions			
Love x Mastery x Male			-.006
Family x Mastery x Male			.479**
Friendship x Mastery x Male			.934*
Constant	13.661	-7.311	14.265
R^2	.310	.369	.339

* $p<.10$, ** $p<.05$, *** $p<.01$, **** $p<.001$ (two-tailed tests)

The effects of love/relationship stress, school stress and family stress are all in the predicted direction, with individuals experiencing more stress in these domains reporting higher levels of psychological distress. The work stress domain also has a significant impact on psychological distress but its effect is gender-specific. For men, work stress has the expected positive relationship with psychological distress. For women, however, work stress does not affect psychological distress.

The effects of emotional support and instrumental support are also significant and in the predicted direction. Students who have higher levels of both types of social support experience less psychological distress. Contrary to my prediction, mastery does not affect this outcome in the main effects model. Turning to the personal

characteristics of students, I found the expected negative relationship between perceived health and psychological distress, with individuals reporting more health problems experiencing greater psychological distress.

The results of my test the support buffer model for psychological distress are presented in Panel B. They show that the addition of the five support buffer terms and the corresponding gender interactions to the main effects model represents a statistically significant improvement over the main effects model in predicting psychological distress. Comparing the R-square values for the main effects model and the final support buffer model, I found that the variance explained increased from 31% to 37%.

In this specification of the stress process, stressors in the family and school domains continue to have significant effects. But as Panel B makes clear, not only are the effects of family stress and school stress contingent upon levels of support, but they also differ for men and women. Starting with instrumental support buffers, instrumental support reduces the negative effects of family stress on psychological distress for men – exactly what the buffer hypothesis predicts. For women, instrumental support does not buffer the effects of family stress. The

interaction term for school stress and instrumental support is also significant and once again, its effect holds for men only. Here, however, the results contradict the support buffer hypothesis: instrumental support exacerbates the negative effect of school stress on psychological distress. Turning to the emotional support buffers, as predicted, emotional support reduces the negative effects of family stress on psychological distress for women. For men, the effect is significant but in the opposite direction. Contrary to the support buffer hypothesis, emotional support exacerbates the negative effect of family stress on psychological distress for men. None of the other stress x social support interactions is significant. Work stress continues to increase psychological distress for men only and individuals with health problems report higher levels of psychological distress. As in the main effects model, mastery does not have a significant effect on psychological distress.

Panel C of Table 4 presents the regression results of the mastery buffer model for psychological distress. Adding the three significant mastery buffer interaction terms and the mastery buffer x gender interactions to the main effects model increases the R-square to .34. Because

the increment to R^2 is not statistically significant, the mastery buffer model does not represent a significant improvement over the main effects model in predicting psychological distress. But, as the discussion of the mastery buffer model that follows shows, examining the significant mastery buffers separately does improve our understanding of the role of gender in the stress process.

The mastery buffer model reproduces the pattern of effects for the sociodemographic controls found in the main effects and support buffer models, with only perceived health having a significant effect. In this model, the effect of emotional support is also significant and in the predicted direction: students who have higher levels of emotional support have lower levels of psychological distress.

Stressors in the love/relationship, school and family domains have significant effects on psychological distress, with the effects of school stress and love/relationship stress following the predictions of the main effects model. The effect of family stress on psychological distress, in contrast, is contingent upon levels of mastery – a pattern that becomes clear only when the gender-specific effects are taken seriously. Contrary to what the mastery buffer

hypothesis predicts, men with high levels of this coping resource and high levels of family stress experience greater psychological distress. Mastery does not buffer the negative health effects of family stress for women. My test of the mastery buffer model for psychological distress also suggests that the effects of friendship stress x mastery interaction are gender-specific. But, when I examined the effects of this mastery buffer on psychological distress separately for women and men, its effect was not significant in either equation. What this more fine-grained analysis suggests, then, is that the significant effect reported in Panel C of Table 4 is not substantively meaningful.

SUBJECTIVE ACADEMIC DISTRESS

Table 5 presents the regression results for my first non-health related outcome, subjective academic distress. Panel A shows that the main effects model for this outcome has relatively modest explanatory power, with an R^2 value of .16.

Table 5: Regression Coefficients for Main Effects and
Support Buffer Models for Subjective Academic
Distress (N=240)

Independent Variable	Panel A Main Effects	Panel B Support Buffer
Gender (Male)	1.539**	5.580**
Stress Domains		
Love/Relationship	.071	.049
School	.159***	.282*
Family	.027	.316*
Friendship	.019	.523
Work	.020	.031
Social Support		
Emotional	-.169*	-.162*
Instrumental	.024	.549**
Personal Coping Resources		
Mastery	.013	.009
Socio-Demographic Variables		
Health Problems	.060	.046
Socioeconomic Status	-.001	.000
Marital Status (Married)	-.454	-.589*
Age	-.015	-.012
Interactions		
Love/Relationship x Male	-.163	-.193
School x Male	-.030	-.072
Family x Male	-.042	-.307
Friendship x Male	-.480**	-2.222**
Work x Male	.038	.028
Emotional x Male	-.074	-.073
Instrumental x Male	.032	-.886*
Mastery x Male	.042	.062
Support Buffers		
School x Instrumental		-.033
Family x Instrumental		-.069*
Friendship x Instrumental		-.105
Interactions		
School x Instrumental x Male		.013
Family x Instrumental x Male		.064
Friendship x Instrumental x Male		.399*
Constant	3.277	.860
R^2	.158	.182

* $p<.10$, ** $p<.05$, *** $p<.01$, **** $p<.001$ (two-tailed tests)

Two stress domains have significant effects on subjective academic distress. As predicted, individuals who have more school stress have greater subjective academic distress. Friendship stress is also significant but its effect is gender-specific. Contrary to my prediction, friendship stress reduces the subjective academic distress for men, while having no significant effect for women. The effect of emotional support is consistent with my hypothesis. Individuals with higher levels of emotional support have lower levels of subjective academic distress than those with lower levels of emotional support. Contrary to my predictions, the effect of mastery is nonsignificant.

Panel B of Table 5 presents the results of my test of the support buffer model for subjective academic distress. Adding the three significant support buffer interaction terms and the corresponding gender interaction terms to the main effects model increases the R-square to .18. Because the increment to R^2 is not statistically significant, the support buffer model does not represent a significant improvement over the main effects model in predicting this expression of diminished academic achievement. But when each support buffer is considered separately, their effects

and the effects of gender on this non-health related form of distress become clearer.

Starting with the sociodemographic controls, marital status has a significant effect on subjective academic distress. As predicted, married students experience lower levels of subjective academic distress than do their unmarried counterparts. The stress and social support components of the standard sociological model of the stress process continue to have significant effects on subjective academic distress and, once again, the effect of mastery is nonsignificant. The effects of stressors in the school domain and emotional aid follow the predictions of the main effects model, with the former increasing subjective academic distress and the latter decreasing it. The effects of family stress and instrumental support on this outcome become clear only when the support buffer hypothesis is taken seriously. Consistent with this hypothesis, high levels of family stress produce subjective academic distress in students experiencing low levels of instrumental support but not in students who experience high levels of instrumental support. These results also suggest that the effects of stress in the friendship domain on distress depend upon levels of instrumental support and

that these effects are different for women and men. But, once again, my examination of separate equations for women and men suggest that this result is not substantively meaningful.

To test the mastery buffer model for subjective academic distress, I estimated separate models for each possible interaction between mastery and a stress domain. None of these interactions was significant when predicting subjective academic distress. For this outcome variable, then, there is no support for the buffer hypothesis and the appropriate final model is main effects model presented in Panel A.

OBJECTIVE ACADEMIC DISTRESS

Table 6 presents the regression results for objective academic distress. Beginning with Panel A, the main effects model for my second non health-related outcome has only modest explanatory power, with an R^2 value of .14. In this specification of the stress process, two stress domains are important in predicting objective academic distress. As expected, individuals who have higher levels of school stress have higher objective academic distress than individuals who have lower levels of school stress.

Table 6: Regression Coefficients for Main Effects, Support Buffer and Mastery Buffer Models for Objective Academic Distress (N=240)

Independent Variable	Panel A Main Effects	Panel B Support Buffer	Panel C Mastery Buffer
Gender (Male)	1.489*	-.659	1.275
Stress Domains			
Love/Relationship	.019	-.809	.036
School	.216***	.208****	.206****
Family	.043	.041	.040
Friendship	-.008	.035	-.021
Work	.026	-.525	.016
Social Support			
Emotional	-.183*	-.527**	-.209*
Instrumental	.126	.073	.134
Personal Coping Resources			
Mastery	.014	.022	.056
Socio-Demographic Variables			
Health Problems	.213*	.221*	.146
Sociceconomic Status	.005	.004	.004
Marital Status (Married)	-.303	-.201	-.409
Age	.006	-.002	.015
Interactions			
Love/Relationship x Male	.044	1.124*	.105
School x Male	.012	.027	.006
Family x Male	-.027	-.040	-.006
Friendship x Male	-.381*	-.390*	-.366
Work x Male	-.124	.497	-.125
Emotional x Male	.033	.452*	.088
Instrumental x Male	-.152	-.084	-.193
Mastery x Male	-.034	-.043	-.143**
Support Buffers			
Love x Emotional		.174	
Work x Emotional		.126	
Interactions			
Love x Emotional x Male		-.242*	
Work x Emotional x Male		-.140	
Mastery Buffers			
Love x Mastery			-.044*
Interactions			
Love x Mastery x Male			.111**
Constant	2.761	4.701	2.892
R^2	.142	.156	.156

* p<.10, ** p<.05, *** p<.01, **** p<.001 (two-tailed tests)

Friendship stress is also significant but its effect is different for men and women. Contrary to my hypothesis, friendship stress reduces objective academic distress for men and has no significant effect for women. The effect of emotional support is significant and in the predicted direction. Students who have higher levels of emotional support experience less objective academic distress. Looking at the personal characteristics of my respondents, I found the expected negative relationship between health and objective academic distress, with individuals reporting more health problems experiencing higher levels of objective academic distress.

Panel B of Table 6 presents the results of my test of the support buffer model for objective academic distress. Adding the two support buffer interaction terms and the support buffer x gender interactions to the main effects model increases the R-square to .16. Because the increment to R^2 is not statistically significant, the support buffer model does not represent a significant improvement over the main effects model in predicting psychological distress. But, once again, when each support buffer is considered separately, their effects and the effects of gender on non health-related forms of distress become clearer.

In the support buffer model for objective academic distress, the effects of perceived health problems and school stress reproduce those found in the main effects model. But as Panel B shows, the impact of stressors in the love/relationship domain become clear only when I test for gender-specific support buffers. For women only, the effects of love/relationship stress are contingent upon levels of emotional support. But, contrary to what the support buffer hypothesis predicts, emotional support exacerbates the negative impact of love/relationship stress on objective academic distress. The friendship x gender interaction is still significant in Panel B, but in the support buffer model, this effect is not substantively meaningful because when I examined the effect of friendship stress separately for men and women, it did not have a significant effect on distress for either.

Panel C of Table 6 presents the results of my test of the mastery buffer model for objective academic distress. Adding the love/relationship x mastery buffer and the love/relationship x mastery x gender interaction term to the main effects model increases the R-square to .16. Although the mastery buffer model does not represent a significant improvement over the main effects model in

predicting objective academic distress, this framing of the stress process does improve our understanding of the mastery buffers and gender in the university context.

In this framing of the stress process, as in the main effects and support buffer models, stressors in the school domain continue to have a significant positive impact on objective academic distress. The effect of love/relationship stress, in contrast, is contingent upon levels of mastery and its effect only becomes clear when the gender-specific effects are examined. For women only, mastery reduces the negative effect of love/relationship stress on objective academic distress – exactly what the mastery buffer hypothesis predicts. For men, however, the results contradict the mastery buffer hypothesis: mastery exacerbates the negative effect of love/relationship stress on objective academic distress, thus highlighting the importance of taking gender seriously in tests of the standard model of the stress process.

CHAPTER 5

DISCUSSION

Two of the most recent developments in the
sociological study of the stress process are the call for
considering multiple outcomes and the call for taking
gender seriously. In this study of the stress process in
the university context, I respond to the call for greater
diversity in stress outcomes by testing the main effects,
support buffer and mastery buffer models for psychological
distress and two expressions of diminished educational
attainment (subjective academic distress and objective
academic distress). I respond to the call for taking
gender seriously by including gender interactions for
stress, social support and mastery in these models. I use
the main effects, support buffer and mastery buffer models
to frame my exploration of the stress process in the
university context because research inside and outside this
context has found evidence for all three framings of the
stress process.

Two things become clear by comparing across the three
outcomes. First, different models of the stress process
are appropriate for different stress outcomes. For

psychological distress, the support buffer model provides the best fit for the data. For both expressions of diminished educational attainment, in contrast, my analyses show that the appropriate model is the main effects model. This finding suggests that adequate studies of multiple outcomes must use multiple specifications of the stress process. Second, the variables considered in this analysis have substantially greater explanatory efficacy for psychological distress than for subjective academic distress or objective academic distress. The explanatory efficacy for psychological distress is about twice as potent as for the other outcomes. But, because the amount of variance explained for my nonhealth-related outcomes is consistent with values reported for health-related outcomes in other studies (cf. Turner Wheaton and Lloyd 1995), these results support arguments for using the standard sociological model of the stress process in the study of nonhealth-related outcomes.

Taken separately and together, these analyses improve our understanding of the stress process in the university context by clarifying the roles of social support, mastery and stress. Social support is an important determinant of psychological distress, subjective academic distress and

objective academic distress. Most researchers accept arguments for the primacy of emotional support in the stress process (Aneshensel 1992; Lin, Woelfel, and Light 1985; Lin and Ensel 1989; Pearlin 1985; Pugliesi and Shook 1998). In the support buffer model predicting psychological distress, emotional support did buffer the negative impact of family stress for women. But, for men, it is instrumental support which buffers the negative impact of family stress. The only significant support buffer for subjective academic distress also involved instrumental support and in this case, the effect held for both men and women.

At the same time that my results establish the importance of instrumental support transactions in the university context, they also support calls for exploring the phenomenon of "negative support" (Antonucci 1990; Rook 1992; Thoits 1995a). Introduced to eliminate the misconception that all support transactions are beneficial, proponents of this concept argue that the effectiveness of social support transactions depends upon the nature of the stressful event. Where optimal matching (Cutrona and Russel 1990; Komproe, Rikjen, Ros, Winnubst and Hart 1997) does not occur, support transactions of the wrong kind,

amount or duration may exacerbate rather than buffer the effects of specific stressors (Harris 1992; Lehman, Ellard and Wortman 1986; Messeri, Silverstein and Litwak 1993; Thoits 1984). Three of my findings support this argument for nonbeneficial consequences of social support. For the men in my sample, the effects of school stress and family stress on psychological distress were contingent upon levels of instrumental support and emotional support respectively. But, in both cases, students who experienced high levels of these stressors and high levels of these types of support reported high levels of psychological distress. For the women in my sample, I found the same stress-exacerbating effect for the love/relationship stress x emotional support interaction in my model predicting objective academic distress. More fine-grained studies of this aspect of the specificity of the stress process may help researchers to establish when, how and why support buffers the negative effects of stress.

Turning from social support to mastery, the pattern of effects across my three outcomes is very different. In no case did the inclusion of the mastery buffers as a block improve my ability to predict distress. But, when I considered each mastery buffer separately, my

results again highlighted the importance of taking
seriously the specificity of the stress process. My review
of the literature emphasized the beneficial effects of
mastery on the health and well-being of individuals. But,
there is accumulating evidence to suggest that the
beneficial aspects of mastery may be stress specific
(Mattlin, Wethington and Kessler 1990; Menaghan 1983;
Pearlin and Schooler 1978; Thoits 1995a). Higher levels of
mastery are associated with problem-focused forms of coping
(Hobfoll, Dunahoo, Ben-Porath and Monnier 1994; Menaghan
and Merves 1984; Pearlin and Schooler 1978; Ross and
Mirowsky 1989; Thoits 1995a). These forms of coping may
not be effective in situations where individuals face
stressors over which they have little control (Aneshensel
1992; Folkman and Lazarus 1980; Hobfoll et al. 1994; Roth
and Cohen 1992; Thoits 1991b). In these situations, high
levels of mastery may exacerbate rather than moderate the
effects of stress (Krause 1994; Menaghan 1983; Menec and
Chipperfield 1997; Schulz, Heckhausen and Locher 1991;
Thoits 1995a). My unexpected results for the family stress
x mastery interaction for psychological distress and the
love/relationship stress x mastery interaction for
objective academic distress are consistent with the

argument that personal coping resources may have damaging rather than beneficial aspects on well-being (Coyne and Downey 1991; Thoits 1995a). More research is needed to examine this aspect of the specificity of the stress process. But, my finding that the stress-exacerbating effects of mastery hold for men only is consistent with arguments for gender differences in coping, with men relying more on problem-focused forms of coping (Gore and Colten 1991; Hobfoll et al. 1994; Thoits 1995a; Umberson et al. 1996).

These discussions of my tests of the support buffer and mastery buffer models support calls for using domain-specific measures of stress. Different combinations of stress and social support and stress and mastery are consequential for different outcomes. The importance of considering university-specific stressors is also clear. In this domain, stress increases psychological distress, subjective academic distress and objective academic distress - a pattern that is consistent with arguments that stressors in more salient roles have stronger effects on individuals' well-being (Thoits 1991a; Umberson and Terling 1997).

Studies of the stress process routinely control for the effects of gender. But, as recent reviews (e.g., by House et al. 1988; Thoits 1995a; Umberson et al. 1996) make clear, the possibility of gender differences in the effects of stress, social support and mastery on well-being typically is not explored. I explored this possibility for the main effects, support buffer and mastery buffer framings of the stress process. My results suggest that there are few gender differences in the effects of stress, social support and mastery on psychological distress, subjective academic distress and objective academic distress. Most of the variables considered in these analyses affect the well-being of women and men in the same way.

My analysis has two main limitations which should be considered when interpreting the results. First, the students in the study are all science and social science majors. It is unclear whether I would find the same results in samples of other university students. Second, because of the small sample size, I could not estimate a model which includes both support buffers and mastery buffers. It is possible that my analyses underestimate the

importance of stress buffering for one or all of my outcomes in the university context.

Despite these limitations, my use of the same data to test the main effects, support buffer and mastery buffer models for health and nonhealth-related outcomes improves our understanding of the stress process in the university context. At the same time, the significance of my exploration of the stress process goes beyond the university context. The differences in the results for psychological distress, subjective academic distress and objective academic distress support calls for considering multiple outcomes in sociological studies of the stress process. My results also sustain the conclusion by Umberson and her colleagues (1996:855) that it is "important to recognize gender differences *and* gender similarities in order to integrate theory and research into a coherent picture of 'gendered' reality".

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APPENDIX A

STRESS ITEM CHECKLIST

1. Love/Relationship Domain
    - problems with spouse
    - broke off close relationship
    - marital separation
    - death of a spouse
    - ended an engagement
    - separated from someone close
    - divorced
    - spouse injured
    - spouse seriously ill
    - spouse hospitalized

2. School Domain

    - failed a course(s)
    - repeated a course(s)
    - personal conflict with a professor
    - personal conflict with a T.A.
    - personal conflict with other students
    - appealed a mark or a course grade
    - school demands overwhelming
    - school conflicting with familial obligations
    - changed major
    - changed minor

3. Family Domain

    - problems with children
    - problems with parents
    - close family member died
    - arguments at home
    - problems with in-laws
    - demands from parents or in-laws
    - child injured
    - child seriously ill
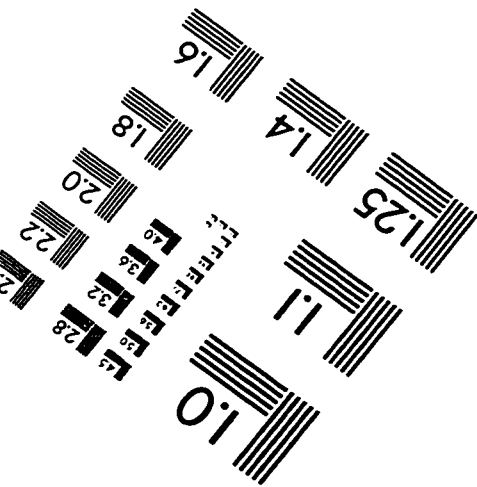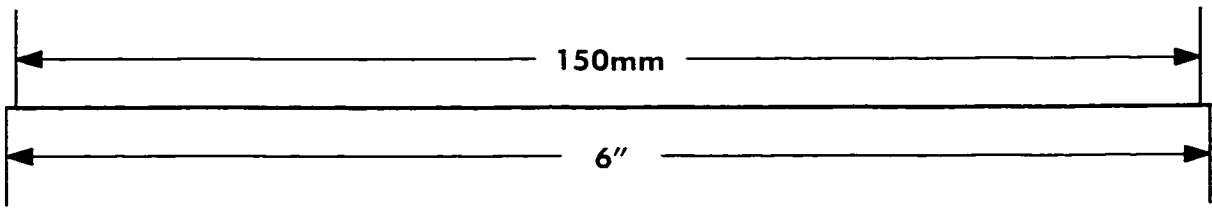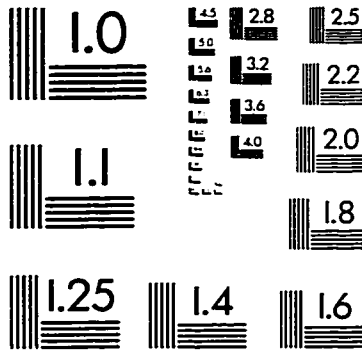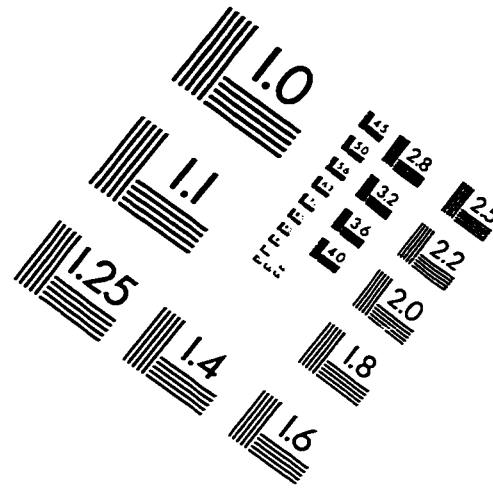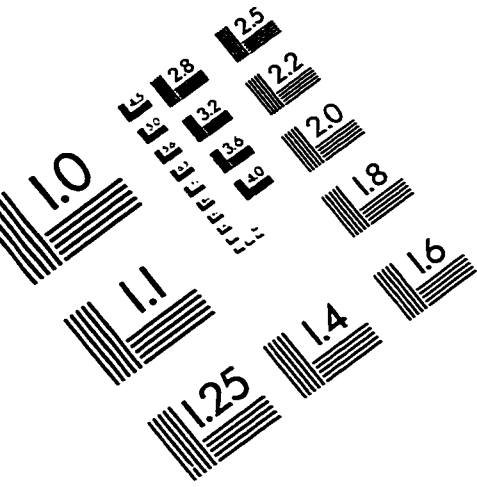   - child hospitalized

3. Family Domain (cont'd)

    - parent's health worsened
    - in-law's health worsened
    - parent financially worse off
    - in-law financially worse off
    - family demands overwhelming

4. Work Domain

    - financial worries
    - problems at work
    - financial crisis
    - threat of layoff
    - lower standard of living
    - demotion
    - fired

IMAGE EVALUATION
TEST TARGET (QA-3)

150mm

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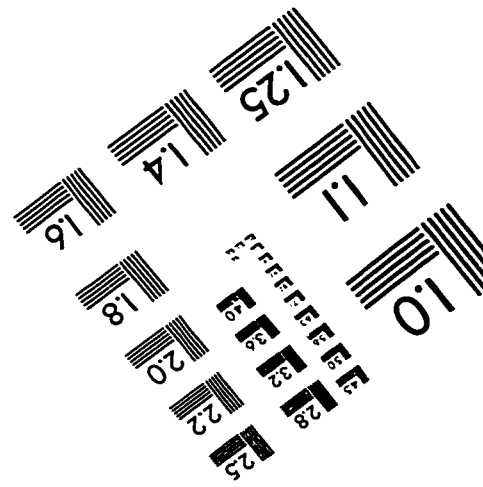
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