

To the Graduate Council:

I am submitting herewith a thesis written by Maria Rowley entitled "The Interaction of Neuroticism and Stress in Predicting Infidelity in a Newlywed Sample." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Psychology.

Kristina Coop Gordon, Major Professor

We have read this thesis and recommend its acceptance:

James K. McNulty, Greg L. Stuart

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

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**The Interaction of Neuroticism and Stress in Predicting Infidelity in a Newlywed Sample**

A Thesis Presented for the  
Master of Arts  
Degree  
The University of Tennessee, Knoxville

Maria Moana Rowley  
August 2012

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## ABSTRACT

Crisis theories (e.g., Hill, 1942; Karney & Bradbury 1995) suggest that the reciprocal interaction between long-term vulnerabilities and stressors predict relationship outcomes. This model might partially explain an individual's choice to engage in an extramarital affair. In particular, neuroticism may be an individual vulnerability that can lead to chronic stress, and when this chronic stress is combined with acute stressors, the individual's resources may be overwhelmed. Thus, the addition of acute stressful events may lead to infidelity as an emotion regulation strategy. The data for this study were drawn from two larger studies assessing newlywed couples' marital interactions. Participants in Study 1 were 72 couples recruited from northern Ohio. Participants in Study 2 were 135 couples recruited from eastern Tennessee. The measures used were the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978), the Chronic Life Stress questionnaire, created for the two studies described earlier, the Neuroticism subscale of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975), and the Quality of Marriage Index (Norton, 1983). The statistics in this study were carried out using multi-level modeling in a three-level model. All analyses were conducted using Hierarchical Linear Modeling (HLM; Bryk, Raudenbush, & Congdon, 2004). This study's findings suggest that, whereas neuroticism may not be predictive of infidelity via its relationship with chronic stress, acute stressful events may moderate the relationship between chronic stress and infidelity, suggesting that individuals who are overwhelmed with stress may engage in infidelity as an emotion regulation strategy.

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## **CHAPTER I**

### **INTRODUCTION AND GENERAL INFORMATION**

Infidelity is a widespread phenomenon in this country; as many as 20 - 25% percent of individuals admit to involvement in extra-dyadic affairs (e.g. Atkins, Baucom, & Jacobson, 2001; Greeley, 1994; Laumann, Gagnon, Michael, & Michaels, 1994; Wiederman, 1997). In the U.S., infidelity is heavily sanctioned and has the potential for serious repercussions for both members of a dyad. Extra-marital affairs are cited as one of the leading causes of divorce (Bodenmann & Charvoz, 2007), the costs of which can be high regarding the financial and emotional resources of those involved. Therapists estimate that fifty to sixty percent of couples in therapy enter treatment due to infidelity (Atkins, Baucom, & Jacobson, 2001), and clinicians have described relationship discord as a result of extra-dyadic affairs as very difficult to successfully treat (Whisman, Dixon, & Johnson, 1997). Infidelity also is a significant cause of intimate partner violence (Kaighobadi et al., 2008) and puts individuals at an increased risk for mental health problems (Whisman & Snyder, 2007). Furthermore, divorces following affairs and marital conflict around betrayals also can negatively impact children as well as parents (Gordon, Hughes, Tomcik, Litzinger, & Dixon, 2009; Walker & Ehrenberg, 1998). Thus the thorough study of factors leading to infidelity is an important direction of inquiry, as increased knowledge of these factors could yield interventions designed to prevent infidelity and subsequent marital instability.

## **CHAPTER II**

### **Crisis Theory, Neuroticism, and Stress**

Consequently, the current study used a crisis theory model and longitudinal methods to examine environmental and personality factors predicting actual instances of infidelity in a newlywed sample (See Figure 1). Originally developed by Hill (1942), crisis theory describes how families react differently to stressful events depending on their ability to regulate their emotions relevant to dealing with their particular events. The extent of their regulation affects their retrospective perception of the event. This retrospective perception affects how the event continues to impact them, and the extent to which they will recover from it. For example, if a stressful event occurs and a family is able to successfully cope with the aftermath, on looking back on the event, they will perceive it as less stressful than if they had coped with it poorly. This makes recovery from the event in the long term more successful than equivalent recovery from an event that is retroactively perceived as extremely stressful due to poor initial emotional regulation. When this model is applied to couples, extent of recovery from the event has an effect on marital satisfaction and stability (Karney & Bradbury, 1995).

Karney & Bradbury (1995) built upon crisis theory to better explain changes in marital quality and stability over time. Their theory focuses on the reciprocal interaction between stress and marital satisfaction. The effect acute stressful events have on marital quality will be determined by the emotion regulation skills brought to bear upon the stressors. Individuals' resources for managing stressful events will be determined in part by existing vulnerabilities that are stable parts of their personality, such as neuroticism. Furthermore, the extent to which individuals find events stressful is partially dependent on these existing vulnerabilities and the efficacy of their emotion regulation skills. Thus, the efficacy and quantity of resources available

will influence marital quality by reducing or increasing stress. In return, marital quality will affect a couple's resources since poor marital quality increases chronic stress. Finally, marital quality will impact marital stability (Karney & Bradbury, 1995).

Based on this approach, we hypothesized a model (See Figure 1) in which neuroticism would predict infidelity (Path C), and in Paths A and B of the model, chronic stress would mediate neuroticism's relationship with infidelity. In Path D, acute stressful events would moderate the mediation. As outlined in Eysenck's model, neuroticism was defined here as a trait or an inclination toward emotional lability (Eysenck, 1967). Individuals with high neuroticism are more likely to display higher levels of anxiety, depression, shyness, and low self-esteem. (Francis, Craig, & Robbins, M, 2008)

Previous studies have conflicting results regarding a link between infidelity and neuroticism (Path C of Figure 1). Whereas some results indicate a significant association between these variables (Schmitt & Buss, 2001; Whisman, Gordon, & Chatav, 2007; Egan & Angus, 2004; Barta & Kiene, 2005; Buss & Shackelford, 1997; Schmitt, 2004), others do not (Egan & Angus, 2004; Barta & Kiene, 2005; Nasrollahi, Darandegan, & Rafatmah, 2011; Orzeck & Lung, 2005; Schmitt, 2004). However, crisis theory's model of a preexisting vulnerability interacting with stress to predict outcomes suggested that the potential of neuroticism as a preexisting vulnerability for infidelity was worth examining.

Schmitt and Buss (2001) found a positive relationship between self-reports of neuroticism and past engagement in infidelity. Whisman, Gordon, & Chatav (2007) found that higher rates of neuroticism were associated with infidelity within the past year. This relationship was significant over and above shared significance with marital dissatisfaction. Neuroticism often is associated with a lack of effective coping resources. Rather than engaging in functional

coping methods, which facilitate overcoming crises, individuals with higher neuroticism tend to engage in avoidant and hostile coping methods (Bolger, 1990; McCrae & Costa, 1986; O'Brien & DeLongis, 1996; Bunk, 1982). However, Schmitt (2004) found that individuals who are higher in neuroticism were not always more likely to be identified as unfaithful. Thus, external factors may contribute to the association. The dysfunctional coping methods of individuals high in neuroticism can result in increased emotional distress and difficulties (chronic stress) (e.g., Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Path A in the model). Also, the lack of coping resources caused by high levels of neuroticism affects the way individuals perceive events and how much stress the events evoke. Neurotic individuals have a tendency to overreact to stressful environmental stimuli (Eysenck, 1967) which also contributes to chronic stress, as well as causing individual events to be perceived as more stressful. This association can be seen in the relationship context, in that neurotic individuals not only experience more negative experiences in their marriages, but also interpret these experiences more negatively than warranted (McNulty, 2008).

This heightened tendency toward and reaction to the experience of chronic stress, might thus contribute to increased marital instability and greater risk of infidelity, as low tolerance for stress is associated with infidelity (Buunk & van Driel, 1989; Path B). Stressors external to the relationship also have been associated with infidelity; for example, Fisher & Corona (2009) found that men who have more stressful careers are more likely to engage in affairs. Neurotic individuals might attempt to avoid stressors, particularly those associated with their relationship, by engaging in an extra-dyadic affair, as a means of distracting themselves from the stress. In this way, the infidelity becomes a coping mechanism, albeit a potentially relationship-damaging one. Supporting this idea, Fincham and Hall (2008) found that an individual's psychological

distress predicted his or her engagement in infidelity. They suggested that infidelity might have been used as an avoidant coping technique, as it can allow individuals to avoid the source, or sources, of their distress. Consequently, following the model described in this paper, neurotic individuals might experience greater levels of stress, and more hyper-vigilance to potential relationship threats. Furthermore, when stress levels are high, a highly neurotic individual may turn to infidelity and the accompanying positive and distracting interactions with a new partner as a way of coping with this stress.

However, the inadequate coping mechanisms of the neurotic individual and the subsequent chronic stress they experience might not be enough to lead to infidelity. Therefore, an acute stressor may be necessary to precipitate an infidelity. Karney, Story, and Bradbury (2005) have found chronic and acute stressors to have categorically different effects on relationships. Chronic stress appears to affect the overall course of the relationship, whereas acute stressors affect variability in marital stability. For example, increased chronic stress may contribute to an overall downward trend in satisfaction, and an acute stressor can cause a sudden increase in this trend. Furthermore, several acute stressors related to relationships, such as pregnancy and early parenthood, have been associated with infidelity (Allen & Rhoades, 2008; Whisman, Gordon, & Chatav, 2007). It might require this sudden and severe increase in marital distress to precipitate an affair, by strengthening the relationship between chronic stress and infidelity. Thus, Path D will examine the interaction of acute stressors with chronic stress.

## **CHAPTER III**

### **OVERVIEW OF THE CURRENT STUDY**

We hypothesized that higher levels of neuroticism would be likely to lead to higher levels of chronic stress, which in turn might make it more likely for neurotic individuals to seek out new relationship partners as an emotion regulation strategy, thus it would be expected that chronic stress would mediate the association between neuroticism and infidelity. Also, we hypothesized that the number of recent stressful events would moderate the relationship between chronic stress and infidelities, such that there would be a stronger relationship between chronic stress and infidelity in the presence of acute stressors.

## CHAPTER IV

### METHOD

#### Participants

The data for this study were drawn from two larger longitudinal studies assessing newlywed couples' marital interactions. Participants in Study 1 were 72 couples recruited from northern Ohio. Participants in Study 2 were 135 couples recruited from eastern Tennessee. Eligibility requirements were: (a) neither partner had been previously married; (b) they had been married for less than six months; (c) both partners were at least eighteen years old; (d) both spoke English; and (e) both had at least ten years of education, to ensure ability to fill out the surveys. In Study 2, one of the goals of the original study was to examine the transition to parenthood; thus both partners were required to have no children, and the wife was required to be under thirty-five years of age.

In Study 1, the husbands' average age was 24.92 ( $SD = 4.39$ ) and average education was 14.15 ( $SD = 2.48$ ). 74% of husbands were employed full-time, and 11% were full-time student. The wives' average age was 23.54 ( $SD = 3.85$ ) and average education was 14.72 ( $SD = 2.48$ ). 49% of wives were employed full-time, and 26% were full-time students. The median income of the couples was 15-20K. Over 90% of the study was Caucasian, 4% were African-American, and 3% identified as other.

In Study 2, the husbands' average age was 25.90 ( $SD = 4.57$ ) and average education was 15.69 ( $SD = 2.38$ ). 70% of husbands were employed full-time, and 26% were full-time students. The wives' average age was 24.21 ( $SD = 3.59$ ) and average education was 18.14 ( $SD = 1.88$ ). 56% of wives were employed full-time, and 28% were full-time students. The median income was 20-25K for husbands and 10-15K for wives. Over 90% of the sample was Caucasian, 3% were African-American, 2% were Asian, and 3% identified as other.

## **Measures**

### *Acute Stress.*

Acute Stress was measured with the Life Experiences Survey (LES) (Sarason, Johnson, & Siegel, 1978), a 110-item measure that assesses the stress level of both negative and positive events that occurred in the past six months. Items are grouped into nine different life domains: marriage, work, school, family and friends, finances, health, personal events, living conditions, and legal. Sample items include ‘Had a wedding’ and ‘Had a major conflict with coworkers’. Participants indicate their agreement with the items by responding either Yes or No, and the number of affirmative responses was summed. The LES is a reasonably reliable and valid measure of life stress for both research and clinical uses (Sinha & Watson, 2007).

### *Infidelity.*

Two items from the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) were used to determine whether or not individuals had engaged in infidelities: ‘Learned that spouse had been unfaithful’ or ‘Had a romantic affair/infidelity’. An affirmative response for the first item resulted in the individual being coded positive for an infidelity. An affirmative response for the second item resulted in the individual’s partner being coded positive for an infidelity. Negative responses for each item resulted in coding as no infidelity for each corresponding partner. These two items were removed from the LES scoring in measuring for acute stress to avoid collinearity between the acute stress and infidelity measurement.

### *Marital Satisfaction.*

Marital satisfaction was measured with the Quality of Marriage Index (QMI) (Norton, 1983), a six-item measure of marital relationship quality, of which we utilized the first five. Participants rate their agreement with five items asking about positive aspects of marriage, such

as, “My relationship with my partner is very stable.”, on a 7-point Likert Scale where 1 = very strong disagreement and 7 = very strong agreement.

#### *Chronic Life Stress.*

The Chronic Life Stress questionnaire, created for the two studies described earlier, measures stress in 12 different areas of life (parenthood, living conditions, finances, school, work, homemaking, unemployment, health, partner’s health, own family, and partner’s family). Levels of stress in each area are measured on a 7-point Likert Scale where 1 = not at all stressful and 7 = extremely stressful. As not all 12 domains apply to all spouses (e.g., parenthood, unemployment), the mean of the responses to domains that did apply was used in all analyses. The utilized item from each domain is, ‘How stressful is this area of your life?’

#### *Neuroticism*

Neuroticism was measured with the neuroticism subscale of the Eysenck Personality Inventory (Eysenck & Eysenck, 1975), a 23-item measure that was created to measure neuroticism levels, with higher scores indicating a higher level of neuroticism. Participants indicate their agreement with the items by responding either Yes or No. Sample items include “Does your mood often go up and down?” and “Do you ever feel “just miserable” for no reason?”. The EPQ has been extensively validated and shows excellent reliability (Costa & McCrae, 1995). In this study, the alphas for this measure across genders and samples ranged from .82 to .90.

#### **Procedure**

Couples were recruited using advertisements in local newspapers and bridal shops. Also, letters were sent to couples who had recently applied for marriage licenses in nearby counties. Couples were offered payment to participate in the study. All couples were initially screened via

a telephone interview. Participants in both studies were mailed a packet of questionnaires consisting of a consent form, a letter of instructions, and self-report measures of marital satisfaction and severity of marital problems. For six subsequent time points, every six to eight months, couples were mailed packets of the self-report measures and postage-paid envelopes to complete independently. After returning each packet, couples were mailed fifty dollar checks. The participant attrition rate by the end of the Ohio study was 33% and that of the Tennessee study was 46%, consistent with the average rate of retention in longitudinal research on marriage (Karney & Bradbury, 1995; McNulty & Russell 2010).

### **Analysis Strategy**

Analysis consisted of three stages of analysis. Due to the interdependence of husbands' and wives' data, all analyses for both hypotheses were conducted in a three-level multilevel model, using Bryk and Raudenbush's (2004) HLM 6 computer program. Chronic stress, acute stress, and relationship satisfaction were all mean-centered before being entered into the first level of the models. To ensure that all relationships were significant over and above relationship dissatisfaction, relationship satisfaction from each assessment wave was entered into each model as a control variable, as was time of data collection. This allowed us to control for time over a multi-wave assessment.

Any difference between husbands and wives was controlled in the second level of the models by entering gender dummy coded and grand-centered. In addition, significant differences in our analyses were tested across gender to examine whether they were significantly different for husbands and wives. Neuroticism was entered grand-centered at the second level into all models to examine main effects and interactions with the level one variables. As the two

samples used the same measure, both samples were included in the analysis models, and any differences between the samples were controlled in the third level of the model with a dummy coded variable for study number, also grand-centered. In addition, significant differences in our analyses were tested across studies to examine whether they were significantly different across studies.

The first set of analyses examined the relationship between neuroticism and infidelity in a 3-level multilevel model. First infidelity, as reported at each time point (seven for each study), was regressed onto neuroticism, controlling for gender and study. Second, infidelity was regressed onto neuroticism, acute stress, as reported at all seven time points for each study, and the acute stress X neuroticism interaction to examine the moderation of the neuroticism-infidelity association by acute stress. Once again, gender and study were controlled in this analysis.

The second set of analyses was conducted for the first hypothesis and examined whether chronic stress mediated the relationship between neuroticism and infidelity. To test this mediation hypothesis, we utilized MacKinnon et al.'s (2007) Prodclin procedure for mediation. This mediation method consists of three stages of examination (1) the effect of neuroticism on chronic stress; (2) the effects of chronic stress on infidelity; and (3) a 95% confidence interval that indicates a significant mediated effect. Specifically, in the first 3-level multilevel model analysis, the association between neuroticism and chronic stress was examined. In the first level of the model, chronic stress from each of the seven time points was regressed onto the control variables; the times of data collection and relationship quality from each time point. Neuroticism was entered into the second level, as was gender, and study was entered in the third level. In the second 3-level multilevel model analysis, the association between chronic stress and infidelity was examined. In the first level, infidelity was regressed onto chronic stress, and the control

variables time of data collection, and relationship quality. Neuroticism was entered into the second level, as was gender, and study was entered in the third level. Finally, we multiplied the two effects obtained in the two previous analyses to obtain an estimate of the mediated effect and computed the 95% confidence interval

The third set of analyses was conducted for the second hypothesis and examined whether acute stress moderated the aforementioned mediation. To test this model, we utilized Muller, Judd, and Yzerbyt's (2005) procedure for moderated mediation. This procedure consists of two stages of examination: (1) the interaction of neuroticism and acute stress on chronic stress, or the acute stress' moderation of the relationship between neuroticism and chronic stress; and (2) the interaction of acute and chronic stress on infidelity, or acute stress' moderation of the relationship between chronic stress and infidelity. Specifically, in the first 3-level multilevel model analysis, the association between the interaction of neuroticism and acute stress on chronic stress was examined by regressing chronic stress from each of the seven time points onto acute stress from each of the seven time points and the control variables: the times of data collection and relationship quality from each time point in the first level. Neuroticism was entered into the second level, as was gender, and study was entered in the third level. In the second 3-level multilevel model analysis, the association between the interaction of acute and chronic stress on infidelity was examined by regressing infidelity was regressed onto chronic stress, acute stress, the interaction of chronic and acute stress, the times of data collection, and relationship quality in the first level. Neuroticism was entered into the second level, as was gender, and study was entered in the third level.

## CHAPTER V

### RESULTS

#### Descriptive Statistics and Preliminary Analyses

As reported in other studies using this dataset (e.g. McNulty and Russell, 2010 and McNulty, 2008) women ( $M = 9.48$ ,  $SD = 4.89$ ) are significantly higher in neuroticism,  $t(206) = -7.17$ ,  $p < .001$ ) than men ( $M = 6.22$ ,  $SD = 4.99$ ). Correlation between men and women's neuroticism did not reach significance  $.12$ ,  $p = .10$ . Multilevel modeling was used, controlling for sex and study to find the simple regressions between the variables. Neuroticism was significantly positively associated with chronic stress ( $B = .62$ ,  $SE = .09$ ,  $t(410) = 6.79$ ,  $p < .001$ ) and acute stress ( $B = .44$ ,  $SE = .06$ ,  $t(177) = 8.03$ ,  $p < .001$ ), as opposed to infidelity, with which it is not significantly associated ( $B = .05$ ,  $SE = .04$ ,  $t(177) = 1.28$ ,  $p = .20$ ), and relationship quality, with which it was significantly negatively associated ( $B = -.11$ ,  $SE = .03$ ,  $t(290) = -3.21$ ,  $p < .01$ ). Chronic and acute stress also were positively significantly associated ( $B = .11$ ,  $SE = .05$ ,  $t(1989) = 2.24$ ,  $p < .05$ ). Infidelity was not significantly associated with chronic stress ( $B = .00$ ,  $SE = .00$ ,  $t(2018) = 1.88$ ,  $p = .06$ ) and negatively significantly related to relationship quality ( $B = -.65$ ,  $SE = .07$ ,  $t(2012) = -9.38$ ,  $p < .001$ ). The significant relationship between relationship satisfaction and infidelity is consistent with the findings of a number of studies examining this relationship (e.g. Atkin, Baucom, & Jacobson, 2001). Relationship satisfaction was also negatively significantly related to chronic stress ( $B = -.07$ ,  $SE = .01$ ,  $t(177) = -0.10$ ,  $p < .001$ ).

#### Incidence Rates

As reported in other studies using this dataset (e.g. Little et al., 2010), and as is expected in a sample of newlyweds, average rates of marital satisfaction were fairly high. Incidence of

infidelity was low to average in both sexes (Table 1) with percentages of infidelity ranging from .97% to 2.9% per year as compared to 2-4% percent reported in other studies (e.g. (Whisman & Snyder, 2007); (Allen, Atkins, Baucom, Snyder, Gordon, & Glass, 2005). For the sake of comparing these rates, as past research examines infidelity rates in on- year periods, we determined our comparison rates by condensing our six month report periods into one year periods. As reported in regards to this sample in Hellmuth and McNulty (2008), average levels of stress were relatively low. Paired sample gender t-tests were nonsignificant for all variables at all time points, with the exception of acute stress, which was significantly higher for women.

### **Growth Curves**

As reported in other studies using this dataset (McNulty & Russell, 2010), relationship satisfaction decreased significantly over the course of the study ( $B = -.38$ ,  $SE = .05$ ,  $t(2079) = -7.04$ ,  $p < .001$ ). Acute stress also decreased significantly over the course of the study ( $B = -.83$ ,  $SE = .06$ ,  $t(1993) = -13.49$ ,  $p < .001$ ). Conversely, chronic stress increased significantly over the course of the study ( $B = 2.25$ ,  $SE = .20$ ,  $t(2023) = 11.31$ ,  $p < .001$ ), as did the rate of infidelity ( $B = .30$ ,  $SE = .10$ ,  $t(2135) = 2.91$ ,  $p < .01$ ).

### **How is neuroticism associated with infidelity?**

First we tested the association between neuroticism and infidelity. Second, we tested the moderation of this relationship by acute stress. In both models, the only parameters allowed to vary across individuals and couples were the level 2 and level 3 intercepts,  $r_0$  and  $u_0$ . To test the relationship between neuroticism and infidelity, we regressed infidelity onto data collection time point, gender, relationship satisfaction, sex, and neuroticism, and study, using the following equation in the first level of a 3-level model:

$$Y_{ij} (\text{Infidelity}) = \pi_{0ij} (\text{Intercept}) + \pi_{1ij} (\text{Time}) + \pi_{2ij} (\text{Relationship satisfaction}) + e_{ij}$$

[Equation 1]

As seen in Model 1 in Table 2, infidelity was not significantly associated with neuroticism. This effect did not vary by sex, ( $B = .09$ ,  $SE = .18$ ,  $t(409) = .49$ ,  $p = .62$ ) or study, ( $B = .61$ ,  $SE = .86$ ,  $t(410) = .71$ ,  $p = .48$ ). To test the moderation of neuroticism and infidelity by acute stress, we regressed infidelity onto acute stress, data collection time point, gender, relationship satisfaction, sex, and neuroticism, and study, using the following equation in the first level of a 3-level model:

$$Y_{ij} (\text{Infidelity}) = \pi_{0ij} (\text{Intercept}) + \pi_{1ij} (\text{Time}) + \pi_{2ij} (\text{Acute Stress}) + \pi_{3ij} (\text{Relationship satisfaction}) + e_{ij}$$

[Equation 2]

As seen in Model 2 in Table 2 this relationship was not significantly moderated by acute stress. This effect did not vary by sex, ( $B = .09$ ,  $SE = .07$ ,  $t(1974) = 1.25$ ,  $p = .21$ ) or study, ( $B = .00$ ,  $SE = .01$ ,  $t(1974) = .06$ ,  $p = .95$ ).

### **Does chronic stress mediate the association between neuroticism and infidelity?**

MacKinnon et al.'s (2007) Prodclin method was used to determine mediation of the relationship between neuroticism and infidelity by chronic stress. We tested for mediation by computing asymmetric confidence intervals for the mediated effect. In both models, the only parameters allowed to vary across individuals and couples were the level 2 and level 3 intercepts,  $r_0$  and  $u_0$ . First we estimated the association between neuroticism and chronic stress, the hypothesized mediator, by regressing chronic stress onto data collection time point, gender, relationship satisfaction, sex, and neuroticism, using the following equation in the first level of a 3-level model:

$$Y_{ij} (\text{Chronic Stress}) = \pi_{0ij} (\text{Intercept}) + \pi_{1ij} (\text{Time}) + \pi_{2ij} (\text{Relationship satisfaction}) + e_{ij}$$

[Equation 1]

As seen in Model 1 in Table 3, chronic stress was positively significantly associated with neuroticism. This effect did not vary by sex, ( $B = .17$ ,  $SE = .19$ ,  $t(409) = .90$ ,  $p = .37$ ) or study, ( $B = .21$ ,  $SE = .22$ ,  $t(410) = .96$ ,  $p = .34$ ). Second, we estimated the association between chronic stress and infidelity, controlling for neuroticism, by regressing infidelity onto data collection time point, neuroticism, chronic stress, gender, sex, and relationship satisfaction, using the following equation in the first level of a 3-level model utilizing a Bernoulli distribution for outcome:

$$Y_{ij} \text{ (Infidelity)} = \pi_{0ij} \text{ (Intercept)} + \pi_{1ij} \text{ (Time)} + \pi_{2ij} \text{ (Chronic Stress)} + \pi_{3ij} \text{ (Relationship satisfaction)} + e_{ij}$$

[Equation 2]

As seen in Model 2 in Table 3, chronic stress was not significantly associated with infidelity. This effect did not vary by sex, ( $B = -.00$ ,  $SE = .01$ ,  $t(1999) = -.44$ ,  $p = .66$ ) or study, ( $B = .04$ ,  $SE = .05$ ,  $t(1998) = .75$ ,  $p = .45$ ). Finally, we multiplied these two effects to obtain an estimate of the mediated effect,  $B = 0.03$ , and computed the 95% confidence interval [-0.02, 0.09] that indicated that the mediated effect was not significant. Given that the 95% confidence interval contains zero, our results indicate that neuroticism does not predict infidelity through chronic stress, on average.

### **Does acute stress moderate the association between chronic stress and infidelity?**

To test for moderated mediation, we utilized Muller, Judd, & Yzerbyt's (2005) method to examine whether acute stress moderated the mediation model described in the previous section. In all models, the only parameters allowed to vary across individuals and couples were the level

2 and level 3 intercepts,  $\pi_{0ij}$  and  $u_0$ . First, we estimated the association between neuroticism, chronic stress, and the moderation of this relationship by acute stress, by regressing chronic stress onto acute stress, data collection time points, neuroticism, sex, and relationship satisfaction, using the following equation in the first level of a 3-level model:

$$Y_{ij} (\text{Chronic Stress}) = \pi_{0ij} (\text{Intercept}) + \pi_{1ij} (\text{Time}) + \pi_{2ij} (\text{Acute Stress}) + \pi_{3ij} (\text{Relationship satisfaction}) + e_{ij}$$

[Equation 1]

As seen in Model 1 in Table 4, the change in the effect of chronic stress on neuroticism as acute stress increases was not significant. This indicates, consistent with our model, that the relationship between neuroticism and chronic stress is not moderated by acute stress. This effect did not vary by sex, ( $B = .02$ ,  $SE = .02$ ,  $t(1969) = 1.45$ ,  $p = .15$ ) or study, ( $B = .02$ ,  $SE = .02$ ,  $t(1970) = 1.18$ ,  $p = .24$ ). Second, we estimated the association between infidelity, chronic stress, and the moderation of this relationship by acute stress by regressing infidelity onto chronic stress, acute stress, chronic stress by acute stress, data collection time points, neuroticism, sex, and relationship satisfaction, using the following equation in the first level of a 3-level model utilizing a Bernoulli distribution for outcome:

$$Y_{ij} (\text{Infidelity}) = \pi_{0ij} (\text{Intercept}) + \pi_{1ij} (\text{Time}) + \pi_{2ij} (\text{Acute Stress}) + \pi_{3ij} (\text{Chronic Stress}) + \pi_{4ij} (\text{Chronic Stress} \times \text{Acute Stress}) + \pi_{5ij} (\text{Relationship satisfaction}) + e_{ij}$$

[Equation 2]

As seen in Model 2 in Table 4, the change in the effect of chronic stress on infidelity as acute stress increases was positive and significant. This effect did vary by sex, ( $B = -.01$ ,  $SE = .00$ ,  $t(1961) = -2.27$ ,  $p < .05$ ), but not by study, ( $B = -.00$ ,  $SE = .00$ ,  $t(1960) = -.52$ ,  $p = .60$ ). This finding indicates that acute stress moderates the relationship between chronic stress and

infidelity, as hypothesized. The effect of chronic stress is significant at 1 SD above acute stress mean ( $B = .05$ ,  $SE = .02$ ,  $t(1973) = 2.32$ ,  $p < .05$ ), but is not significant 1 SD below acute stress mean ( $B = -.02$ ,  $SE = .02$ ,  $t(1973) = -.81$ ,  $p = .42$ ). This suggests that the association between chronic stress and infidelity is significant at high levels of acute stress, but not at low levels of acute stress.

## CHAPTER VI

### DISCUSSION

#### **Study Rationale and Summary of Results**

Studies examining the link between neuroticism and infidelity have conflicting results and certainly, anecdotal evidence shows us the relationship between the two is not perfect. In our study, consistent with the findings of Schmitt (1996; 2004) neuroticism itself is not directly associated with infidelity. However, this result conflicts with the findings of other studies in which the two were significantly related (e.g. Schmitt & Buss, 2001; Whisman, Gordon, & Chatav, 2007). In fact, surveying multiple studies in which the association between neuroticism and infidelity was examined, results were varied (Schmitt & Buss, 2001; Egan & Angus, 2004; Barta & Kiene, 2005; Whisman, et al., 2007; Buss & Shackelford, 1997; Nasrollahi, et al., 2011; Orzeck & Lung, 2005; Schmitt, 2004).

Furthermore, when examining the results of these studies there was no clear split along the lines of sample demographic, relationship status, or method of measurement for either neuroticism or infidelity. Notably, whereas the methods for measuring neuroticism were limited to the Big Five, the NEO, or Eysenck's measure of neuroticism, the operational definition for infidelity consisted of almost as many definitions as articles. For some studies, the operational definition of infidelity was limited to direct self-report of sexual intercourse with an individual other than one's partner (e.g. Egan & Angus, 2004). For others, activities as varied as flirting, hand-holding, or emotional involvement were defined as infidelity (e.g. Barta & Kiene, 2005; Orzeck & Lung, 2005). In one study, infidelity was defined by an individual's assumptions about his or her partner's likelihood to engage in non-monogamous behavior (Buss & Shackelford, 1997). It is possible that these inconsistent results were associated with these

differences in operational definition. Luo, Cartun, and Snider's (2010) review of the literature suggested that these differences in differentiation have had a significant effect on aspects of infidelity research as basic as reported rates, of infidelity, thus it seems reasonable to extrapolate that other differences in results might have been due to methodological issues. Future studies would benefit from a more consistent method of assessment than the field currently uses.

Whereas our preliminary analysis does not support a direct relationship between neuroticism and infidelity, we examined other factors potentially involved in this association. In our first analysis, contrary to prediction, chronic stress does not mediate the relationship between neuroticism and infidelity. Neuroticism is, however, related positively to stress, as argued and demonstrated by Bolger and Schilling (1991) and Bolger & Zuckerman (1995), possibly because individuals who are high in neuroticism have a tendency to overreact to stressful events, both in the context of their relationships (McNulty, 2008) and more generally (Eysenck, 1967).

Incidentally, these analyses also demonstrated that chronic stress increased over the course of the study and, similarly to (e.g. McNulty & Russell, 2010), relationship satisfaction decreased. It is likely that low relationship satisfaction may be a significant contributor to chronic stress, supported by their significant negative association in our preliminary analyses. Conversely, the chronic stress level of the individuals in a couple may be likely to take a toll on relationship satisfaction.

While the significant association between neuroticism and chronic stress suggests that neurotic individuals are more likely to become chronically stressed, the non-significance of the mediation model leading to infidelity suggests that even when neuroticism leads to chronic stress, a higher likelihood of infidelity is not necessarily more likely to follow. This may suggest

equal capability for coping with chronic stress, or that infidelity is not, in fact, viewed by them as a useful coping mechanism.

Although neuroticism leading to chronic stress does not subsequently lead to infidelity, in our second analysis, the addition of acute stress to the model suggests that these factors combined may well lead to an increased incidence of infidelity. The fact that this occurs only at high levels of acute stress suggests that acute stress may act as a factor that precipitates infidelity. Whereas chronic stress alone is not sufficient to lead to infidelity, and an additional mild acute stressor may not be sufficient either, yet as acute stressors increase, the neurotic individual is perhaps more likely to engage in an infidelity.

This model is consistent with Allen, Atkins, Baucom, Snyder, Gordon, and Glass' (2005) temporal model of the development of an extramarital involvement. This model proposes that predisposing factors, approach factors, and precipitating factors lead, in concert, to the occurrence of an infidelity. In our model, neuroticism fills the role of predisposing factor, chronic stress as approach factors, and acute stress as precipitating factor. Allen et al.'s (2005) model posits the idea that the event of an affair is caused by the confluence of these factors rather than one single factor.

Our findings mirror this model, suggesting a complex set of factors could be necessary to lead to increased likelihood of infidelity. These results suggest that infidelity could be more likely to occur when an individual feels overwhelmed by the stress in his or her life on both a regular and immediate basis. That an affair would occur when an individual is highly stressed may support the hypothesis that infidelities serve as a regulating mechanism, by distracting from negative life events, or merely by providing the positive emotions associated with the start of a new relationship. Previous studies have reported a boost in self-esteem as a result of an affair

(Buunk, 1980; Spanier & Margolis, 1983), suggesting that infidelities may have at least short-term benefits for the individuals who engage in them. In this way, whereas affairs generally have negative effects on a couple, for the individual, an infidelity could have some very real positive effects, at least in the short term.

In addition, chronic and acute stress are positively associated, which, consistent with crisis theory (Hill, 1942), suggests that chronic stress may make an individual more vulnerable to acute stress, as the chronic stress takes a toll on the individual's ability to cope with crises, thus amplifying the effect of acute stressors. This relationship could also be reciprocal, as acute stressors provide an additional drain on coping resources, making everyday stress magnified and thus increasing chronic stress. This interaction of effects may be akin to Karney, Story, and Bradbury's (2005) findings that acute and chronic stress had different effects on relationship satisfaction. Whereas chronic stress affected the overall trend of the relationship, acute stress caused significant rate changes in satisfaction decreases. Our findings suggest a similar pattern in that acute stress might cause a significant change in tendency towards infidelity.

### **Clinical Implications**

The crisis theory model could aid couples therapists in pinpointing therapeutic areas of focus, examining both areas of chronic and acute stress in an attempt to determine the causes for an infidelity. If a particular individual within a couple tends to be emotionally labile and reactive, this personal trait can lead to difficulties in coping with life problems (i.e. financial struggles or chronic health problems) and experiencing consistently high levels of stress. Were this person to then experience an additional acute stressor, such as job loss, these factors could result in the individual turning to an affair for purposes of distraction from the various stressors

and/or the self-confidence boost and positive emotional arousal that can occur in the beginning of a new relationship. For the therapist treating this couple post-affair, examining the situation leading up to the affair could be helpful in increasing both understanding and compassion in both members of the couple and building empathy in the affair individual's partner. In addition, helping the individual who engaged in an affair to understand his or her own weaknesses in the area of emotional regulation, and develop ways of coping with both chronic stress and acute stressors could be helpful in preventing future infidelities. A functional analysis of the infidelity could be useful in helping the individual understand what benefits he or she gained from the affair. Understanding these could provide better insight into the individual's needs and allow for planning ways to fulfill those needs in the future that will not undermine the individual's relationship.

The findings of this study also have important therapeutic implications in regards to designing marital interventions. Preventative marital interventions designed on the model of regular health checkups, such as the Marriage Checkup (Gee, Scott, Castellani, & Cordova, 2002), have demonstrated improved outcomes in relationships in the long term. Additionally, a study on a mindfulness-based relationship intervention for couples found improved levels of relationship happiness, relationship stress, stress coping efficacy and overall stress (Carson, Carson, Gil, & Baucom, 2004). Combining these two concepts and creating a checkup-style intervention with a stress-reduction component could potentially reduce infidelity rates. The findings of this study of increased stress and relationship satisfaction levels over the course of the study suggest an increased risk for infidelity over time, as both of these variables are positively significantly related to infidelity. Furthermore, although results suggest that neuroticism alone will not lead an individual to engage in affairs, they are more likely to

experience chronic stress, which is a likely risk factor. This emphasizes the need for interventions targeted toward better coping skills, in the hope of reducing risk factors.

### **Strengths and Limitations**

Several factors limit the generalizability and interpretation of these results, until replication and extension of the results is possible. The primary issue with this study is the homogeneity of the sample. The majority of the participants were White and Christian, which makes the results less generalizable to the general populace. In addition, this sample consists entirely of newlyweds in the first four years of their first marriage, which may be a qualitatively different sample from couples at different points in their relationship. The relationship satisfaction level in this sample is higher than average levels of satisfaction, which may be due to the newness of the marriage. Also, this quality of the sample may contribute to the low infidelity rate, which is initially lower than estimated national averages per year. The low rate of reported infidelity in the first year of this study could result in lower power and thus potentially weaker results than might a sample with a higher reported infidelity rate. In addition, whereas we controlled for infidelity in our acute stress measure, the presence of an affair could contribute to an individual's chronic stress causing a potential confound in our chronic stress measurement.

Our confidence in these results is enhanced by several factors of this study. As this study consists of two independent samples, the results are less likely to be confounded by an independent factor specific to a particular sample, such as cultural aspects of a particular geographic region or a specific sampling factor. Further, the results of the analysis are consistent across both studies, suggesting they are robust. In addition, the study design consists of multiwave assessment which is likely to obtain more valid estimates of the variables than would

a cross-sectional design, by gaining considerably more data about each individual while still controlling for the changes that occur within relationships and individuals over time, particularly in a newlywed sample. In addition, our analyses control for both couple nonindependence and autocorrelation of repeated measures. Finally, our models control for relationship satisfaction, thus suggesting that the associations found are significant above and beyond relationship satisfaction, which is the variable which has been mostly widely associated with infidelity (Whisman, Gordon, & Chatav, 2007). However, it is also possible that relationship satisfaction has been a factor for suppression in our mediation model.

### **Directions for Future Research**

Future research may benefit from examining these associations in a non-newlywed sample or by following a newlywed sample into later years in the marriage, in which risk factors have increased over time, and therefore are likely to contribute to a higher infidelity and chronic stress levels. In addition, given the findings of Whisman, Gordon, and Chatav (2007) regarding the association between pregnancy and infidelity, a longitudinal study examining stress and infidelity in couples during the transition to parenthood and the early years thereof could provide important data. A longitudinal study examining a marital intervention around stress reduction targeted at reducing infidelity and improving favorable marriage outcomes, such as relationship satisfaction, could provide valuable data about the possibility of reducing infidelity rates nationally.

The relationship between stress and infidelity has not been widely studied, and generally it is aspects of stress specific to relationships, such as pregnancy and parenthood, that have been examined (Allen & Rhoades, 2008; Whisman, Gordon, & Chatav 2007), although a study by

Fisher & Corona (2009) found that men who have more stressful careers are more likely to engage in affairs. Our results suggest that it may be worthwhile to examine more fully the links between stress and infidelity, specifically, parsing out both the mechanics of chronic and acute stress in predicting infidelity. In addition, different types of stress, including parenting, vocational, financial, and other types of stress not directly related to relationship issues could be examined to determine which were the strongest predictors of infidelity.

A longitudinal daily-diary study examining the causal relationships between acute and chronic stress could provide insight into the specific directionality, or possible bidirectionality, of the relationship between these two types of stress, and potentially provide evidence allowing us to generalize Karney and Bradbury's (1995) theory about the reciprocity of stress and marital quality onto acute and chronic stress. An examination into whether or not infidelity does act as a coping mechanism or emotion regulation strategy might be particularly informative. Once again, a longitudinal daily diary study tracking stress and negative and positive affect vacillations could provide insight into both the immediate and long-term emotional effects of an affair on the individual engaging in the infidelity, as well as better understanding the temporal, and potentially causal, nature of the relationship between stress and infidelity.

In summary, findings from this study indicate that individuals with higher levels of neuroticism are more likely to become chronically stressed. However, chronic stress is not more likely to lead to infidelity without the addition of levels of acute stress. These findings and future research building on these findings continue to elucidate the roots of infidelity, providing important information for clinicians, both in treating and preventing infidelity in couples.

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## **APPENDIX**

Table 1. Mean Marital Satisfaction, Chronic Stress, Acute Stress, and Infidelity across waves of measurement for Husbands and Wives

|                             | <u>Time 1</u> | <u>Time 2</u> | <u>Time 3</u> | <u>Time 4</u> | <u>Time 5</u> | <u>Time 6</u> | <u>Time 7</u> |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <u>Marital Satisfaction</u> |               |               |               |               |               |               |               |
| Husbands                    |               |               |               |               |               |               |               |
| M                           | 33.06         | 31.26         | 31.42         | 30.71         | 31.10         | 30.98         | 31.41         |
| SD                          | 3.05          | 5.39          | 5.05          | 5.77          | 4.40          | 4.99          | 3.87          |
| N                           | 208           | 180           | 153           | 147           | 132           | 126           | 96            |
| Wives                       |               |               |               |               |               |               |               |
| M                           | 32.96         | 31.96         | 31.44         | 30.82         | 30.58         | 30.60         | 31.43         |
| SD                          | 3.65          | 4.62          | 5.03          | 5.27          | 5.79          | 5.97          | 4.08          |
| N                           | 208           | 182           | 155           | 150           | 134           | 126           | 95            |
| t                           | .34           | -1.43         | -.03          | -.32          | .85           | .69           | -.07          |
|                             | <u>Time 1</u> | <u>Time 2</u> | <u>Time 3</u> | <u>Time 4</u> | <u>Time 5</u> | <u>Time 6</u> | <u>Time 7</u> |
| <u>Chronic Stress</u>       |               |               |               |               |               |               |               |
| Husbands                    |               |               |               |               |               |               |               |
| M                           | 3.66          | 3.70          | 3.79          | 4.75          | 4.70          | 4.71          | 4.52          |
| SD                          | 1.37          | 1.40          | 1.42          | 1.31          | 1.30          | 1.25          | 1.25          |
| N                           | 208           | 178           | 144           | 138           | 123           | 123           | 92            |
| Wives                       |               |               |               |               |               |               |               |
| M                           | 3.66          | 3.69          | 3.62          | 4.70          | 4.72          | 4.71          | 4.33          |
| SD                          | 1.18          | 1.31          | 1.25          | 1.27          | 1.26          | 1.28          | 1.29          |
| N                           | 208           | 181           | 150           | 143           | 127           | 123           | 93            |
| t                           | .02           | .09           | 1.34          | .36           | -.10          | -.01          | 1.58          |

Table 1. Mean Marital Satisfaction, Chronic Stress, Acute Stress, and Infidelity across waves of measurement for Husbands and Wives

|          | <u>Time 1</u>       | <u>Time 2</u> | <u>Time 3</u> | <u>Time 4</u> | <u>Time 5</u> | <u>Time 6</u> | <u>Time 7</u> |
|----------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|
|          | <u>Acute Stress</u> |               |               |               |               |               |               |
| Husbands |                     |               |               |               |               |               |               |
| M        | 12.31               | 7.64          | 6.46          | 7.35          | 6.27          | 7.03          | 5.58          |
| SD       | 6.94                | 5.60          | 4.67          | 8.58          | 5.59          | 5.85          | 4.77          |
| N        | 208                 | 171           | 140           | 136           | 122           | 123           | 93            |
| Wives    |                     |               |               |               |               |               |               |
| M        | 14.36               | 10.17         | 9.66          | 13.01         | 8.89          | 8.77          | 7.59          |
| SD       | 6.89                | 6.25          | 6.16          | 8.93          | 6.68          | 5.77          | 5.65          |
| N        | 208                 | 175           | 146           | 140           | 127           | 122           | 94            |
| t        | -3.93*              | -4.58*        | -5.78*        | -6.12*        | -4.15*        | -2.91**       | -3.24**       |
|          | <u>Time 1</u>       | <u>Time 2</u> | <u>Time 3</u> | <u>Time 4</u> | <u>Time 5</u> | <u>Time 6</u> | <u>Time 7</u> |
|          | <u>Infidelity</u>   |               |               |               |               |               |               |
| Husbands |                     |               |               |               |               |               |               |
| #        | 0.00                | 2.00          | 0.00          | 3.00          | 4.00          | 2.00          | 2.00          |
| Wives    |                     |               |               |               |               |               |               |
| #        | 2.00                | .00           | 1.00          | 3.00          | 4.00          | 2.00          | 2.00          |
| t        | -1.42               | 1.42          | -1.00         | 0.00          | 0.00          | 0.00          | 0.00          |

p<.001.\* p<.01.\*\*

Table 1. continued

| <i>Variable</i>                                                                   | <i>Model</i>         |                      |
|-----------------------------------------------------------------------------------|----------------------|----------------------|
|                                                                                   | <i>1. Infidelity</i> | <i>2. Infidelity</i> |
| Control Variables                                                                 |                      |                      |
| Relationship satisfaction                                                         | -.11***              | -.11***              |
| Sex†                                                                              | -.12                 | -.25                 |
| Time                                                                              | .28**                | .32*                 |
| Main Variables                                                                    |                      |                      |
| Neuroticism†                                                                      | .07                  | .02                  |
| Acute Stress (AS)                                                                 |                      | .06                  |
| Neuroticism X AS                                                                  |                      | .00                  |
| Variables grand centered at Level 2. †* $p < .05$ , ** $p < .01$ , *** $p < .001$ |                      |                      |

Table 2. Hierarchical linear modeling results for testing association between neuroticism and infidelity

| <i>Variable</i>           | <i>Model</i>             |                      |
|---------------------------|--------------------------|----------------------|
|                           | <i>1. Chronic stress</i> | <i>2. Infidelity</i> |
| Control Variables         |                          |                      |
| Relationship satisfaction | -.04***                  | -.10***              |
| Sex <sup>†</sup>          | -2.57**                  | -.09                 |
| Time                      | 2.06***                  | .24                  |
| Main Variables            |                          |                      |
| Neuroticism <sup>†</sup>  | 1.08***                  | .06                  |
| Chronic stress            |                          | -.00                 |

Variables grand centered at Level 2. † p < .10, \* p<.05, \*\*p< .01, \*\*\*p<.001

Table 3. Hierarchical linear modeling results for testing mediation by chronic stress

| <i>Variable</i>                                                   | <i>Model</i>             |                      |
|-------------------------------------------------------------------|--------------------------|----------------------|
|                                                                   | <i>1. Chronic stress</i> | <i>2. Infidelity</i> |
| Control Variables                                                 |                          |                      |
| Relationship satisfaction                                         | -.44***                  | -.12***              |
| Sex†                                                              | -3.08***                 | -.10                 |
| Time                                                              | 2.30***                  | .31*                 |
| Main Variables                                                    |                          |                      |
| Neuroticism†                                                      | .10***                   | .04                  |
| Chronic stress                                                    |                          | .02                  |
| Neuroticism X AS                                                  | -.01                     |                      |
| Acute stress (AS)                                                 | .30***                   | .00                  |
| Chronic stress x AS                                               |                          | .00*                 |
| Variables grand centered at Level 2. † p<.05, **p< .01, ***p<.001 |                          |                      |

Table 4. Hierarchical linear modeling results for testing mediation by chronic stress moderated by acute stress

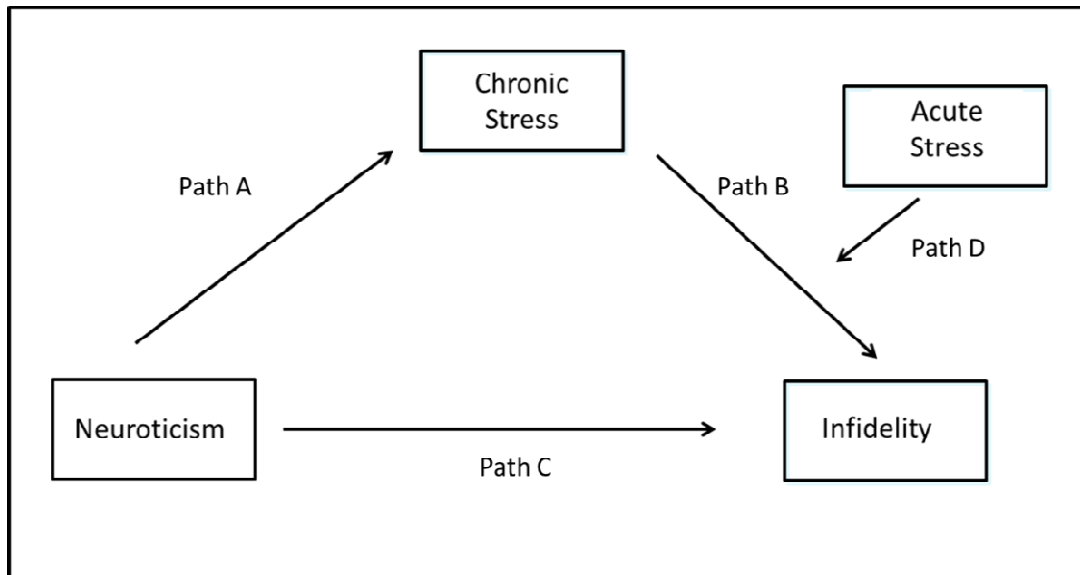


Figure1. Hypotheses Model

## **VITA**

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