

To the Graduate Council:

I am submitting herewith a thesis written by Julianne Christina Hellmuth entitled “Neuroticism, Marital Violence, and the Moderating Role of Stress and Behavioral Skills.” I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment 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

Todd M. Moore

Acceptance for the Council:

Carolyn R. Hodges
Vice Provost and Dean of the
Graduate School

(Original signatures are on file with official student records.)

NEUROTICISM, MARITAL VIOLENCE, AND THE MODERATING ROLE OF
STRESS AND BEHAVIORAL SKILLS

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

Julianne Christina Hellmuth
May 2008

ACKNOWLEDGEMENTS

I would like to thank all those who have helped in the process of obtaining my Master of Arts degree. I would like to thank my advisor, Dr. Kristina Coop Gordon, for her consistency, patience, and guidance. I would also like to thank Dr. James McNulty for fostering the development of this project from its conception, his tireless efforts towards its completion, and for challenging me to improve the quality of my work every step of the way. I would like to thank Dr. Todd Moore for serving on my committee and for helping find my path. I would like to thank Dr. Benjamin Karney for allowing me access to his data and for his valuable feedback on earlier versions of this manuscript, as well as grant MH59712 from the Institute of Mental Health and an award by the Fetzer Institute, both awarded to Dr. Karney.

Finally, I would like to thank my family for instilling in me the value of education and for reminding me that throughout this process, I am never alone.

ABSTRACT

Do high levels of neuroticism predict intimate partner violence (IPV)? Although neuroticism may predispose partners to increased risks of IPV perpetration, the extent to which it predicts such perpetration is likely to depend on the broader context of the relationship. Consistent with this prediction, the current longitudinal study of 169 community couples revealed that the effects of neuroticism on IPV perpetration over the first four years of marriage were moderated by observations of problem-solving behavior and objective ratings of chronic stress. Specifically, although husbands and wives who scored higher on a measure of neuroticism at the outset of marriage engaged in more IPV throughout the marriage on average, those who possessed more effective problem-solving skills or experienced lower levels of stress were significantly less like to engage in IPV. Results highlight the importance of considering the broader relationship context when examining predictors of specific interpersonal processes.

CONTENTS

Introduction and Background Research	1
<i>Neuroticism and IPV</i>	3
<i>Neuroticism and IPV in Context</i>	5
<i>Neuroticism and Problem Solving Skills</i>	6
<i>Neuroticism and Stress</i>	7
<i>Neuroticism, Problem Solving Skills, and Stress</i>	7
<i>Overview and Predictions for the Current Study</i>	8
Method	10
<i>Participants</i>	10
<i>Procedure</i>	11
<i>Measures</i>	12
Results	16
<i>Descriptive Statistics and Preliminary Analyses</i>	16
<i>Incidence Rates</i>	18
<i>Retention Rates and Mean Levels of Aggression</i>	19
<i>Was aggression associated with marital satisfaction?</i>	20
<i>Does neuroticism predict mean aggression?</i>	22
<i>Do problem-solving skills and stress predict mean aggression?</i>	23
<i>Do problem-solving skills and stress</i>	
<i>moderate the effects of neuroticism on IPV?</i>	23
<i>Do problem-solving skills, stress, and neuroticism</i>	
<i>interact to predict IPV?</i>	25

<i>How much variance in IPV was accounted for by neuroticism, negative behavior, positive behavior, and stress?</i>	27
Discussion	28
<i>Study Rationale and Summary of Results</i>	28
<i>Gender Similarities and Differences</i>	29
<i>Implications</i>	31
<i>Strengths and Limitations</i>	34
References	37
Appendix	48
Vita	59

LIST OF TABLES

<i>Table 1 Descriptive Statistics of Independent Variables</i>	49
<i>Table 2 Correlations among Independent Variables</i>	50
<i>Table 3 Frequency of Aggression and Mean Marital Satisfaction at Each Wave of Data</i>	51
<i>Table 4 Incidence of Marital Aggression over Four Years</i>	52
<i>Table 5 Main Effects on Mean Aggression over Four Years</i>	53
<i>Table 6 Interactive Effects of Neuroticism and Context on Mean Aggression over Four Years</i>	54

LIST OF FIGURES

<i>Figure 1 Interactive Effects of Neuroticism and Context on Mean Aggression over Four Years</i>	55
<i>Figure 2 Three-way Interactions among Husbands' Neuroticism, Stress, and Problem-Solving Behavior</i>	57

INTRODUCTION AND BACKGROUND RESEARCH

Understanding the incidence of intimate partner violence (IPV) is one of the most pressing challenges facing romantic relationship researchers today. Specifically, recent estimates indicate that as many as 20% of couples in the United States will experience IPV in a given year (Schafer, Caetano, & Clark, 1998), suggesting that one of the more destructive behaviors perpetrated in relationships occurs in a rather large proportion of couples. Accordingly, research providing insights into what leads to such high levels of IPV could lead to important practical benefits, such as more effective prevention efforts.

But understanding the incidence of IPV is also one of the most puzzling challenges facing romantic relationship researchers today. Specifically, IPV does not appear to be unique to unhappy relationships. Rather, even couples in satisfying relationships report experiencing relationship violence (e.g., Capaldi & Crosby, 1997; Fincham, Bradbury, Arias, Byrne & Karney 1997; Gray & Foshee 1997). In fact, rates of IPV may be highest among some of the most satisfying relationships, new marriages (Frye & Karney, 2006; Lawrence & Bradbury, 2001, 2007; O'Leary et al., 1989), where as many as 57% of couples have reported experiencing violence. Accordingly, research providing insight into the sources of these destructive yet prevalent behaviors would have important theoretical benefits as well.

Why do some partners perpetrate violence against their loved ones? One valuable step in answering this question has been to identify dispositional qualities common among perpetrators (e.g., Dutton, 1994; Dutton & Starzomski, 1993; Gondolf, 1999; Hart, Dutton, & Newlove, 1993; Leonard, 1993; Murphy & O'Farrell, 1996; Senchak & Leonard, 1992; for review, see Holtzworth-Munroe & Stuart, 1994). Indeed, some studies

have accounted for over half of the variance in IPV perpetration using aspects of the perpetrator's personality (e.g., Dutton, 1994; Dutton & Starzomski, 1993; Gondolf, 1999; Hart, Dutton, & Newlove, 1993). Hart et al. (1993), for instance, noted that as many as 80% of men drawn from a violence intervention program met criteria for one or more clinical personality disorders.

Yet, a more complete understanding of the role of dispositional qualities in IPV perpetration has been limited by two shortcomings of this body of work. First, the majority of this research has examined the association between personality and IPV among individuals drawn from *clinical* settings. Although such research has provided valuable insights into the dispositional predictors of the violence unique to such specialized samples, numerous investigators (e.g., Holtzworth-Munroe & Stuart, 1994; M. P. Johnson, 1995; Margolin et al., 1988) have noted important distinctions between the motivations for the violence perpetrated by clinical batterers and the motivations for violence perpetrated by couples drawn from the broader community, what M. P. Johnson (1995) referred to as "common couple violence." Accordingly, understanding the dispositional risk factors that put the average couple at risk for experiencing IPV requires examining links between personality and IPV among community couples. Second, possibly because prior work on the dispositional predictors of IPV has relied so heavily on clinical samples, it has focused primarily on the role played by clinical personality *disorders* in predicting IPV (e.g., Borderline Personality Disorder, Antisocial Personality Disorder; for review, see Holtzworth-Munroe & Stuart, 1994). Yet, given the high incidence of IPV noted earlier, and the much lower incidence of personality disorders, a more complete understanding of the dispositional predictors of violence among

community couples requires examining more fundamental aspects of personality that are more normally distributed throughout the population.

The overarching goal of the current study was to examine the extent to which one of the fundamental traits of the Five Factor model of personality, neuroticism – defined as a trait-like propensity towards negative emotionality (Costa & McCrae, 1992), can account for incidence of IPV in a sample of community couples. To this end, the remainder of this introduction is divided into three sections. The first outlines previous research suggesting that neuroticism is likely to be associated with higher prevalences of IPV perpetration. The second highlights the importance of contextual models of IPV (e.g., Leonard, 1993) to understanding the role of personality in predicting IPV, noting the possibility that two contextual variables, problem-solving skills and levels of chronic stress, may moderate the effects of neuroticism on IPV. Finally, the third section describes the current longitudinal study of 169 newly-married couples drawn from the community that tests the extent to which neuroticism interacts with observed problem-solving behavior and objectively-rated stress to predict mean levels of IPV over the first four years of 169 community marriages.

Neuroticism and IPV

Describing the dispositional make-up of interpersonally violent individuals could have important theoretical benefits. Specifically, knowing which personality traits are distally associated with relationship violence can provide insight into the proximal variables (e.g., motivations, emotions, perceptions) responsible for such links. Yet, given that the majority of prior research on personality and IPV has focused on the role played by rather rare personality *disorders*, key mechanisms likely to be more prevalent in the

general population may have been overlooked by prior research. By contrast, given the great extent to which the five factor model describes the general population (McCrae & Costa, 1997), identifying links between neuroticism and IPV in community couples would suggest more common mechanisms of IPV.

There are several reasons to expect greater levels of neuroticism to lead to greater levels of IPV. First, neuroticism has been strongly linked with various negative relationship outcomes in prior research (for review, see Karney & Bradbury, 1995), such as relationship dissatisfaction (Karney & Bradbury, 1997), sexual dissatisfaction (e.g., Fisher & McNulty, in press), and divorce (Kelly & Conley, 1987). Given this general link, it is likely that neuroticism is associated with various negative interpersonal processes, one of which may be IPV. Second, neuroticism is positively associated with several of the dispositional qualities already linked to IPV. For example, Costa and McCrae (1990) reported positive associations between neuroticism and both Antisocial Personality Disorder and Borderline Personality Disorder, each of which has been linked to IPV in several studies (Field, Caetano, & Nelson, 2004; Hamberger & Hastings, 1991; Holtzworth-Munroe et al., 2000; Taft et al., 2004). Perhaps qualities common to these disorders and neuroticism, such as low levels of empathy (e.g., Miller & Eisenberg, 1988), high levels of anxiety (e.g., Enns & Cox, 1997), and/or the inability to regulate negative emotions (e.g., Morossanova, 2003), leads individuals high in neuroticism to engage in IPV.

In sum, there is evidence that neuroticism should predict increased incidence of IPV perpetration. Demonstrating such a link would help provide insight into the specific mechanisms of IPV. Nevertheless, research investigating the role of personality in

accounting for IPV has overlooked the likely role played by fundamental traits such as neuroticism, attending instead to the role played by clinical personality disorders.

Accordingly, the first aim of the current study was to test the prediction that neuroticism would be associated with higher levels of violence over the first few years of marriage.

Neuroticism and IPV in Context

Though the link between neuroticism and IPV seems likely, recent theories of personality note that the links between personality and behavior depend on the particular context in which the behavior is exhibited (e.g., Mischel & Shoda, 1995). Relationship researchers generally (e.g., Bradbury & Fincham, 1988; Karney & Bradbury, 1995), and IPV researchers specifically (e.g., Grekin, Sher, & Larkins, 2004; Leonard, 1993), have taken a similar position on the role of dispositional factors in predicting the processes and outcomes of intimate relationships, noting that the effects of distal qualities on interpersonal outcomes depend on presence or absence of other distal and proximal qualities. For example, Leonard (1993) states “Aggression generally, and marital aggression more specifically, probably has a number of different causal antecedents with few, if any of these, acting as necessary or sufficient to produce the behavior. Instead, marital aggression is better viewed as arising from a confluence of individual, interpersonal, and situational/contextual factors acting in probabilistic fashion” (p.255). In other words, more contextual models predict that the effects of neuroticism on IPV should not be immutable, but instead should vary depending on other intrapersonal or interpersonal factors.

Neuroticism and Problem-Solving Skills

According to Bogard (1998), one of the most common reasons that batterers give for being violent towards their partners is that they feel they have no other way to handle conflicts that arise in the relationship. Consistent with this idea, one line of research has implicated deficits in problem-solving skills as a predictor of aggression (Gordis, Margolin, & Vickerman, 2005; Holtzworth-Munroe & Anglin, 1991; Lochman & Dodge, 1994; Margolin, John, & Gleberman, 1988; Schumacher, Slep, & Heyman, 2001). Indeed, numerous studies have used observational data to investigate the relationship between intimates' abilities to resolve their problems verbally and their tendencies to perpetrate IPV (Berns, Jacobson, & Gottman, 1999; Burman, John, & Margolin, 1992; Cordova, Jacobson, Gottman, Rushe, & Cox, 1993; Holtzworth-Munroe, Smutzler, & Stuart, 1998; Jacobson, Gottman, Waltz, Rushe, Babcock, & Holtzworth-Munroe, 1994; Margolin, John, & Gleberman, 1988; Smith, Vivian, & O'Leary, 1991), invariably noting that partners who lack such skills are more likely to engage in IPV.

Lacking the ability to resolve problems should not lead to higher levels of IPV for everyone, however. Rather, as also suggested by contextual models of IPV (e.g., Leonard, 1993), there are likely to be particular people for whom the inability to resolve conflicts is likely to lead to IPV perpetration. Given the likely role of neuroticism in predicting interpersonal violence, it may be that people high in neuroticism are those for whom the ability to resolve conflicts is particularly problematic. Thus, the second aim of the current study was to test the hypothesis that problem-solving skills moderate the effects of neuroticism on aggression, such that neuroticism predicts IPV more strongly among intimates who lack problem-solving skills than among intimates who possess such skills.

Neuroticism and Stress

Problem-solving behavior is not the only variable likely to moderate the effects of personality on violence. Rather, contextual models suggest that a number of factors inside and outside the relationship should moderate the effects of neuroticism on IPV. One factor that plays a particularly prominent role in such theories is stress (Bradbury & Fincham, 1991; Leonard, 1993; Hill, 1949; Karney & Bradbury, 1995). In fact, both Karney and Bradbury's (1995) stress-vulnerability-adaptation model and Leonard's (1993) contextual model of IPV specifically note that stress should moderate the effects of stable qualities of the person on specific relationship processes like violence.

Nevertheless, although numerous studies have demonstrated direct links between stress and IPV (e.g., Frye & Karney, 2006; MacEwen & Barling, 1988; Cano & Vivian, 2003), a more indirect role of stress in moderating the effects of stable dispositional traits on IPV has not been tested directly. The third aim of the current study was to test the hypothesis that stress moderates the effects of neuroticism on IPV, such that neuroticism predicts IPV more strongly among intimates experiencing high levels of chronic stress than among intimates experiencing less stress.

Neuroticism, Problem-Solving Skills, and Stress

Perhaps the three-way interaction among neuroticism, problem-solving behavior, and stress provides the best description of the role of neuroticism in predicting IPV. That is, as implied by contextual models, it is likely that people high in neuroticism are not at increased risk merely when they lack problem-solving skills, or merely when they are under stress. Rather it may be that their dispositional tendencies, their lack of skills, and their stressful experiences all interact to predict IPV. Therefore, the fourth and final aim

of the current study was to test the prediction that neuroticism would be most strongly associated with IPV among partners who lacked problem solving skills *and* experienced higher levels of stress.

Overview and Predictions for the Current Study

The overarching goal of the present longitudinal study was to examine the associations among neuroticism, observed problem-solving behavior, objectively-rated stress, and the IPV perpetration self-reported over the first four years of 169 community marriages. Community newlyweds were a fitting population in which to investigate these issues for at least three reasons. First, couples have been shown to report relatively high levels of IPV during the early years of marriage (e.g., O’Leary et al., 1989), allowing us to investigate the predictors of IPV at a time when IPV is particularly likely to occur. Second, compared to more clinical, batterer populations, community couples are likely to demonstrate greater levels of variability in terms of the independent variables examined here. Third, given that women in community couples report engaging in violence at least as much as men (Straus & Ramirez, 2007; for reviews, see Archer, 2000 and Hines & Malley-Morrison, 2001), assessing community couples allowed us to examine the role of personality and contextual variables in predicting women’s aggression as well as men’s.

At Time 1, each spouse first completed questionnaires assessing neuroticism, own use of physical violence during the past year, and satisfaction with the marriage. Next, husbands and wives were interviewed separately regarding their levels of chronic stress. Finally, couples were reunited to participate in two ten-minute videotaped problem-solving interactions. Given that common couple violence may occur sporadically throughout a relationship, we subsequently assessed violence every six months for four

years to obtain the most comprehensive estimate of the violence that occurred in these marriages. Also, given that spouses' satisfaction with their marriages may be associated with both IPV and the independent variables investigated here, marital satisfaction was assessed every six months and its association with IPV was examined as a potential covariate.

We predicted that: (H1) high neuroticism would be positively associated with mean levels of IPV perpetrated over the four years of these marriages; (H2) this effect of neuroticism on mean levels of IPV would be moderated by problem-solving skills, such that neuroticism would be most strongly associated with IPV among partners who demonstrated more negative and less positive problem-solving skills; (H3) the effects of neuroticism on mean levels of IPV would also be moderated by levels of chronic stress, such that neuroticism would be most strongly associated with IPV among partners experiencing greater levels of stress; and (H4) the 3-way interaction among neuroticism, problem-solving skills, and stress would account for mean levels of IPV perpetration over four years, indicating that neuroticism is most strongly associated with IPV among couples high in neuroticism who lack problem-solving skills *and* experience high levels of stress.

METHOD

Participants

As part of a larger study of newlywed development, the 169 couples participating in this study were recruited using two methods. The first method was to place advertisements in community newspapers and bridal shops, offering payment to couples participating in a study of newlyweds. The second was to send invitations to eligible couples who had completed marriage license applications in counties near study locations. Couples responding to either method of solicitation were screened in a telephone interview to determine whether they met the following criteria: (a) this was the first marriage for each partner, (b) the couple had been married less than 6 months, (c) each partner was at least 18 years of age, (d) each partner spoke English and had completed at least 10 years of education (to ensure comprehension of the questionnaires), and, as part of larger aims of the study, that (e) couples not have children and (f) wives not be older than 35 (to allow the high probability that couples be capable of conceiving children over the course of the study).

On average, husbands were 25.6 years ($SD = 4.1$) old and had received 16.3 years ($SD = 2.4$) of education. Fifty-nine percent were employed full time, and 34% were full-time students. On average, wives were 23.4 years ($SD = 3.6$) old and had received 16.2 ($SD = 2.0$) years of education. Forty-five percent were employed full time, and 45% were full-time students. Slightly over 65% of the sample was Christian, and 94% of husbands and 86% of wives were White.

Procedure

Before their session, participants were mailed a packet of questionnaires to complete at home and bring with them to their appointment. This packet included a consent form approved by the local IRB, self-report measures of neuroticism, relationship violence, marital satisfaction, and a letter instructing couples to complete all questionnaires without consulting one another. As part of the laboratory session, spouses were separately interviewed regarding their levels of chronic stress and then participated in two problem-solving discussions designed to assess their verbal problem-solving skills. Specifically, both spouses identified their own area of difficulty in the marriage and then participated in two 10-minute videotaped discussions, one for each topic, in which they were left alone to “work towards some resolution or agreement.” The order of the two interactions was determined through a coin flip. Couples were paid \$70 for participating in this phase of the study.

At approximately six-month intervals subsequent to the initial assessment, couples were recontacted by phone and again mailed a packet of questionnaires, one of which was the same questionnaire used to assess violence at Time 1 and another of which was the same questionnaire used to assess marital satisfaction as Time 1, postage-paid return envelopes, and a letter of instruction reminding couples to complete forms independently of one another. This procedure was used at all follow-up procedures except Time 5 which was a laboratory session resembling Time 1. After completing each phase, couples were mailed a payment check (\$40-\$50). Data from all follow-ups are analyzed here. Thus, analyses attempt to predict the mean levels of violence that occurred over the first four years of these marriages.

Measures

Intimate Partner Violence. At Time 1, and at every six-month follow-up, participants were presented with the eight aggressive behaviors from the *Conflict Tactics Scale* (CTS; Straus, 1979), [(1) threw something at spouse, (2) pushed, grabbed, or shoved spouse, (3) slapped spouse, (4) kicked, bit or hit spouse with a fist, (5) hit or tried to hit spouse with something, (6) beat up spouse, (7) threatened to use a knife or gun, (8) used a knife or gun], and asked to report how frequently they had engaged in each over the past year, on a four-point scale from 0 (never) to 3 (more than twice). Scale scores at each assessment could range from 0 (the spouse did not engaged in any of the behaviors) to 24 (the spouse had engaged in each of the behaviors more than twice in the past year). Though reports of one type of physical aggression (e.g., threw something at spouse) do not necessary imply high reports of another type of physical aggression (e.g., using a knife or gun), internal consistency was high across all assessments used here (husbands' coefficient alpha ranged from .72 at Time 3 to .96 at Time 7; wives' coefficient alpha ranged from .70 at Time 5 to .95 at Time 7).

Neuroticism. Neuroticism was measured using the neuroticism subscale of the Big Five Personality Inventory (BFPI; Goldberg, 1999). This instrument consists of 10 statements with which the participant indicates extent of agreement or disagreement on a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Participants' responses to items were summed to create a scale from 10 to 50 with higher scores indicating a greater degree of the neuroticism. Internal consistency was high (for husbands, coefficient alpha = .91; for wives, coefficient alpha = .86).

Problem-Solving Skills. The problem-solving skills of each partner were estimated

at baseline by coding each speaking turn from the videotaped problem-solving discussions using a modified version of the *Verbal Tactics Coding Scheme* (VTCS; Sillars, Coletti, Parry, & Rogers, 1982). A speaker received a Positive code for speaking turns that furthered the resolution of the conflict. A speaker received a Negative code for speaking turns that either directly faulted, rejected, or criticized the partner, or indirectly criticized the partner through presumptive attributions, avoiding responsibility, or hostile questions. A total proportion of negative behavior and a total proportion of positive behavior exhibited by each spouse was computed for each conversation by dividing the number of codes for a spouse in a given conversation by the total number of speaking turns for that spouse in that conversation. Given that our hypotheses did not distinguish between partner's topics, we averaged across conversations to form two indices of problem-solving skills for each spouse: a proportion of negative behavior and a proportion of positive behavior.

To determine the reliability of our coding, 25% were randomly chosen to be coded by a second rater, and agreement between coders was assessed by calculating intra-class correlation coefficients (*ICC*) between the proportions of speaking turns coded as positive and negative by each coder. Reliability appeared to be adequate (*ICC* for Positive = .82, *ICC* for Negative = .89).

Due to technical difficulties, 27 (8%) of the 338 conversations were not coded. Nevertheless, because the indices of negative and positive behavior were calculated by averaging across both conversations from each couple, and because codes from both conversations were missing from only 8 couples, behavioral data were available for 161 (95%) of the 169 couples. The interactions that could not be coded were randomly

distributed across all interactions, suggesting no systematic bias in the types of interactions that could not be coded. Indeed, couples missing behavioral data did not differ on the variables of interest.

Observations of Chronic Stress. During their laboratory visit at Time 1, one member of a small group of trained raters interviewed each spouse individually to assess that spouse's external stress using a modification of a protocol developed by Hammen et al. (1987) in which interviewers prompted spouses to talk about their ongoing experiences in twelve life domains: the marital relationship, relationships with family, relationships with in-laws, relationships with friends, experiences at school, experiences at work, experiences as a homemaker, unemployment, finances, living conditions, own health, and spouse's health. Specifically, interviewers followed a specific list of questions designed to identify any ongoing stressors that spouses had been experiencing in each domain during the past six months (e.g., "Have you been able to pay all your bills?" "Do you have any ongoing health problems?"), and then probed for concrete indicators of the amount of stress caused by any ongoing stressors that were identified. After completing questions for each domain, interviewers rated spouses' experiences within that domain on a 9-point scale (1 = exceptionally positive circumstances and 9 = exceptionally stressful circumstances). The interview was structured such that spouses were asked about their marriage first, then the other domains. This ordering of questions was chosen in order to encourage spouses to separate their marital stress from their stress in the other domains (e.g., Strack, Martin, & Schwarz, 1988). To eliminate the influence of potential dyadic sources of IPV, of the twelve domains included on the original measure, we selected only those domains that are representative of stress occurring outside the marriage to be

included in the final composite score (i.e., for this study, ratings of stress in the marital relationship were omitted from analyses).

To determine the reliability of the coding, 34% of the recorded interviews were randomly chosen to be coded by a second rater, and agreement between coders was assessed by calculating intra-class correlation coefficients (*ICC*) between the averages of the ratings provided by each rater. Reliability appeared to be adequate (*ICC* for husbands = .87, *ICC* for wives = .90).

Marital Satisfaction. Given that global sentiments toward the relationship could be associated with relationship violence and thus account for any associations that might emerge, global marital satisfaction was measured as a potential control with the Quality Marriage Index (QMI; Norton, 1983). The QMI is a six-item scale asking spouses to report the extent to which they agree or disagree with general statements about their marriage (e.g., “We have a good marriage” and “My relationship with my partner makes me happy”). Five items ask spouses to respond according to a 7-point scale whereas one item asks spouses to respond according to a 10-point scale, yielding scores from 6 to 45. High scores reflect more positive satisfaction with the relationship. Internal consistency of this measure was high. (Across all eight assessments, coefficient alpha was at least .92 for husbands and .93 for wives.)

RESULTS

Descriptive Statistics and Preliminary Analyses

Descriptive statistics for the independent variables examined here are reported in Table 1¹. As would be expected from a sample of newlyweds, husbands and wives were observed as exchanging low rates of negative behaviors and higher rates of positive behaviors during their problem-solving discussions. In fact, on average, husbands and wives engaged in more positive than negative behaviors (for husbands, $t(161) = 12.0, p < .001$; for wives, $t(161) = 14.1, p < .001$). Likewise, husbands and wives were observed as experiencing relatively low levels of stress outside their marriages, with the average for both partners falling well below the midpoint of 5. Finally, consistent with the idea that neuroticism should demonstrate substantial variability in the general population (McCrae & Costa, 1997), both husbands and wives demonstrated substantial standard deviations in neuroticism, though husbands reported significantly lower mean scores overall, $t(168) = -8.3, p < .001$.

Correlations among the independent variables are reported in Table 2. Not surprisingly, the use of positive and negative behaviors was significantly negatively correlated among both husbands and wives, such that spouses who tended to demonstrate more positive behaviors also tended to demonstrate fewer negative behaviors and vice versa. Nevertheless, the majority of the variance in these two variables was unshared. Correlations between stress and negative behavior were positive and significant among both husbands and wives, though the majority of the variance in these two variables was unshared, as well. Correlations between stress and positive behavior, in contrast, did not

¹ All tables and figures appear in the Appendix.

reach significance, suggesting that the levels of positive behaviors exchanged during the problem-solving discussion were unrelated to levels of stress outside the marriage.

Neuroticism was positively associated with stress for both husbands and wives, and positively associated with negative behavior for wives. Finally, all cross-spouse correlations were significant and positive, except for correlations between husbands' and wives' neuroticism scores, indicating that husbands and wives exchanged similar levels of positive and negative behavior and shared similar levels of stress, but did not report similar levels of neuroticism. In general, all variables appeared to be performing as expected.

The proportions of husbands and wives who reported perpetrating at least one act of aggression at each wave of data collection, χ^2 statistics that test for gender differences in those reports, mean levels of marital satisfaction reported at each wave of data collection, and paired sample t-statistics that test for gender differences in those reports are reported in Table 3. As the χ^2 statistics in the top half of the table reveal, more wives than husbands reported perpetrating at least one act of aggression at every time point, with the exception of Time 8. This gender difference is consistent with what has been documented in prior research (for a review, see Archer, 2000). Also consistent with prior research (O'Leary et al., 1989), the proportion of partners reporting aggression appeared to decrease over the four years of these marriages, particularly wives. Indeed, growth curve analyses (Bryk & Raudenbush, 1987) revealed that wives reported fewer acts of aggression as these marriages grew older, $t(160) = -3.24, p < .01$; husbands' reports of aggression, in contrast, did not change over time, $t(160) = -0.14, ns$. With respect to marital satisfaction, as the t-statistics in the bottom half of the Table 3 reveal, husbands

were occasionally less satisfied with their marriages than were their wives, although the consistency of these effects did not match the consistency of the gender differences observed in reports of aggression. Finally, also consistent with prior research (e.g., Karney & Bradbury, 1997; McNulty & Karney, 2004), marital satisfaction appeared to decline over time for both partners. Indeed, growth curve analyses revealed that marital satisfaction declined significantly over the four years of these marriages among both husbands, $t(168) = -5.59, p < .001$, and wives, $t(168) = -5.04, p < .001$. [Footnote 1].

Incidence Rates

Table 4 provides the incidence of aggression reported across the four years of the study, presented both in terms of spouses' total scores on the CTS and in terms of each act contained on the CTS, as well as χ^2 statistics that test for gender differences in these reports. Most notably, as revealed in the top row of the table, a rather substantial number of these husbands and wives reported perpetrating at least one act of aggression over the course of the study. In fact, at least one member of 45% of these couples reported perpetrating at least one act of physical aggression over these 4 years. Although alarmingly high, these numbers are comparable to those documented in other studies of IPV within newlyweds (e.g., Frye & Karney, 2006; Lawrence & Bradbury, 2001, 2007; O'Leary et al., 1989). Also notable, husbands and wives who perpetrated aggression demonstrated similar trends in the types of aggression they used. That is, both husbands and wives were most likely to push, grab, or shove their partners and least likely to engage in more severe forms of aggression such as using or threatening to use a knife or gun. Finally, consistent with what was reported above regarding the gender differences in reports of aggression at each wave of data collection, wives appeared more likely than

husbands to use all but the most severe forms of aggression over the course of the study.

Retention Rates and Mean Levels of Aggression

Although identifying whether or not spouses were aggressive provides valuable information about the incidence of aggression, these simple categorizations overlook important information, such as how many acts of aggression were perpetrated by those who were aggressive. Given that we wanted to account for not only whether or not spouses perpetrated aggression over the four years of these marriages, but also for how much aggression they perpetrated, our analyses examined the *average* levels of aggression reported by these spouses. [Footnote 2] Of the 169 couples, 169 husbands and 169 wives providing at least one CTS report, 161 husbands and 160 wives providing at least two CTS reports, 155 husbands and 154 wives providing at least three CTS reports, 145 husbands and 144 wives providing at least four CTS reports, 134 husbands and 131 wives providing at least five CTS reports, 119 husbands and 118 wives providing at least six CTS reports, 104 husbands and 100 wives providing at least seven CTS reports, and 70 husbands and 70 wives provided all eight CTS reports. Spouses who reported on at least half the occasions (for husbands, $n = 144$; for wives $n = 145$) did not report different levels of aggression than spouses who reported on less than half the occasions.

Average levels of aggression were estimated through the following level-1 equation of a multilevel model, where the statistical non-independence of husbands' and wives' data was controlled by estimating husbands and wives' parameters simultaneously through a procedure described by Raudenbush, Brennan, & Barnett, 1995), CTS scores were log transformed to help normalize the skewed distribution due to the high number of participants who reported perpetrating no aggression, as is typical in CTS reports, and

robust standard errors were used to compute all inferential statistics, in case the transformations failed to completely normalize the data (Chou, Bentler, & Satorra, 1991):

$$Y_{ji} \text{ (logCTS Scores)} = \pi_{1ji} \text{ (Dummy code for husbands)} + \pi_{2ji} \text{ (Dummy code for wives)} + e_{ji}$$

[Equation 1a]

Accordingly, Y_{ji} is the log transformed CTS score of individual j at time i , π_{1ji} estimates the average transformed CTS score of husband j across the four years; π_{2ji} estimates the average transformed CTS score of wife j across the four years; and e_{ji} is the residual variance in repeated measurements of CTS for individual j . For husbands, $M = 0.91$ ($SD = 0.03$); for wives, $M = 0.93$ ($SD = 0.06$). Although these mean levels of aggression do not reveal particularly high rates of aggression, significant chi-square tests of the between-subjects variance in these estimates indicate that these means varied significantly across both husbands, $\chi^2(168) = 599.21, p < .001$, and wives, $\chi^2(168) = 2167.83, p < .001$. That is, some husbands were significantly more aggressive across the four years than other husbands and some wives were significantly more aggressive across the four years than other wives. The hypotheses to be examined here predict that these between-subjects differences can be understood by neuroticism, problem-solving behavior, and stress.

Was aggression associated with marital satisfaction?

Before addressing these primary hypotheses, however, analyses examined the extent to which changes in IPV were associated with changes in marital satisfaction, an association that, if significant, would suggest the need to control for marital satisfaction in the primary analyses. To address this issue, the within-person association between

reports of aggression and reports of satisfaction were estimated through the following level-1 equation of a multilevel model where each spouse's person-centered marital satisfaction scores were added to equation 1a as time-varying covariates, yielding the following model:

$$Y_{ji} \text{ (CTS Scores)} = \pi_{1ji} \text{ (Dummy code for husbands)} + \pi_{2ji} \text{ (Dummy code for wives)} + \pi_{3ji} \text{ (Husbands' Satisfaction)} + \pi_{4ji} \text{ (Wives' Satisfaction)} + e_{ji}$$

[Equation 1b]

Accordingly, π_{3ji} captures the covariance between variability in CTS scores and variability in marital satisfaction across time for husband j ; π_{4ji} captures the covariance between variability in CTS scores and variability in marital satisfaction across time for wife j and e_{ji} is the residual variance in repeated measurements of CTS for individual j . Unlike typical between-subject estimates of the association between satisfaction and aggression, the scores produced by this analysis estimate the extent to which variations in each spouse's own marital satisfaction over time were associated with variations in that spouse's own IPV perpetration over time. Notably, this analysis revealed that satisfaction and IPV were unrelated for both husbands, $\pi = -1.10^{-4}$, $SD = 2.47^{-3}$, $t(168) = -0.32$, $p = ns$, and wives, $\pi = 0.14^{-4}$, $SD = 1.47^{-3}$, $t(168) = 0.04$, $p = ns$. That is, husbands and wives did not report higher or lower levels of aggression at times in the relationship that they reported higher or lower levels of marital satisfaction. Though somewhat surprising, similar findings have been reported elsewhere (e.g., Capaldi & Crosby, 1997; Fincham et al., 1997; Gray & Foshee 1997). Given that marital satisfaction was unrelated to IPV, it was dropped from the level 1 model and equation 1a was used in the primary analyses:

Does neuroticism predict mean aggression?

The first aim of the current study was to examine whether each partner's own neuroticism accounted for their own mean levels of aggression. To address this issue, the following level-2 equation was used to predict the mean levels of CTS estimated in Equation 1a:

$$\pi_{1ij} = \beta_{10} + \beta_{11} (\text{Husbands' Neuroticism}) + r_{1ji},$$

$$\pi_{2ij} = \beta_{20} + \beta_{21} (\text{Wives' Neuroticism}) + r_{2ji}$$

[Equation 2]

Accordingly, β_{10} is the mean log CTS score as averaged across all husbands in the sample, β_{11} captures the association between husbands' mean log CTS scores and their neuroticism, r_{1ji} is the residual between-subjects variability in husbands' mean log CTS scores that remains to be explained after accounting for neuroticism, β_{20} is the mean log CTS score as averaged across all wives in the sample, β_{21} captures the association between wives' mean log CTS scores and their neuroticism, and r_{2ji} is the residual between-subjects variability in wives' mean log CTS scores that remains to be explained after accounting for neuroticism.

Results of these analyses are reported in the first row of Table 5. As can be seen there, baseline neuroticism scores were positively associated with the mean levels of aggression perpetrated over the course of these marriages. Specifically, consistent with predictions, both husbands and wives who reported higher levels of neuroticism at baseline engaged in higher levels of IPV over the first four years of marriage than husbands and wives who reported lower levels of neuroticism.

Do problem-solving skills and stress predict mean aggression?

The second and third aims of the current study were to examine whether the effects of neuroticism on IPV were moderated by problem-solving skills and stress. Before addressing those issues, however, we first tested for main-effects of negative behavior, positive behavior, and stress on IPV, essentially attempting to replicate previous research. Accordingly, we entered each variable separately into Equation 2 to account for between-subjects differences in mean aggression. The results of these analyses are reported in the bottom 3 rows of Table 5. As can be seen there, consistent with previous research, all three factors significantly predicted IPV perpetration by both husbands and wives. Specifically, exhibiting more negative behaviors during problem-solving discussions at the outset of the marriage predicted higher levels of IPV perpetration by both husbands and wives, exhibiting more positive behaviors during problem solving discussions at the outset of the marriage predicted lower levels of IPV perpetration by both husbands and wives, and experiencing more stress at the outset of the marriage predicted higher levels of IPV perpetration by both husbands and wives. In other words, these analyses replicated previous work showing that these specific aspects of the relationship predict IPV.

Do problem-solving skills and stress moderate the effects of neuroticism on IPV?

To test the prediction that these relationship qualities moderate the effects of neuroticism on IPV, neuroticism scores were centered and entered into Equation 2, along with one centered contextual variable at a time, and the appropriate interaction term, to account for between-subjects variance in IPV. The results of these analyses are reported in the top portion of Table 6. As can be seen there, consistent with predictions, a

pattern of significant interactions emerged in five out of the six tests. The only interaction that did not reach significance was the interaction between wives' neuroticism and observations of their positive behavior. Nevertheless, a model constraining husbands' and wives' effects to be equal did not provide a poorer fit to the data, $\chi^2(1) = 2.35, p > .1$, suggesting the interaction between husbands' neuroticism and positive behavior did not predict husbands' IPV more strongly than the corresponding interaction for wives predicted wives' IPV.

All interactions were deconstructed by plotting the predicted means of spouses who were one standard deviation above and below the mean on the variables involved in the interaction (Aiken & West, 1991). Results of these deconstructions appear in Figure 1. As can be seen in Panels A and B, consistent with predictions, the effects of both husbands' and wives' neuroticism on the IPV perpetrated over the first four years of marriage were most pronounced among those who engaged in more negative problem-solving behaviors, and the effects of husbands' neuroticism on IPV were more pronounced among those who engaged in fewer positive behaviors. Moreover, although subsequent simple effects tests revealed that neuroticism was predictive of higher levels of IPV among husbands and wives demonstrating high levels of negative behavior (for husbands, $t(157) = 3.1, p < .01$; for wives, $t(157) = 2.6, p < .05$) and among husbands demonstrating low levels of positive behavior ($t(157) = 2.6, p < .05$), neuroticism was unrelated to IPV among husbands and wives who demonstrated fewer negative problem-solving behaviors (for husbands, $t(157) = -1.6, p > .1$; for wives, $t(157) = 0.3, p > .5$) or among husbands demonstrating more positive problem-solving behaviors ($t(157) = 0.2, p > .5$). In contrast, but consistent with non-significant interaction between wives'

neuroticism and their positive behavior, neuroticism was predictive of IPV among wives demonstrating either low levels of positive behavior ($t(157) = 2.7, p < .01$) or high levels of positive behavior ($t(157) = 2.4, p < .05$). Likewise, as can be seen in Panel C, the plots that emerged from deconstructing the interactions involving neuroticism and stress were also consistent with predictions. Specifically, the effects of husbands' and wives' neuroticism on the IPV perpetrated over the first four years of marriage were most pronounced among those experiencing higher amounts of stress at the outset of the marriage. Again, although subsequent tests of the simple effects revealed that neuroticism was predictive of higher levels of IPV among husbands and wives experiencing high levels of chronic stress (for husbands, $t(165) = 2.5, p < .05$; for wives, $t(165) = 2.7, p < .01$), neuroticism was unrelated to IPV among husbands and wives experiencing lower levels of stress (for husbands, $t(165) = -1.1, p > .2$; for wives, $t(165) = 0.3, p > .5$).

Do problem-solving skills, stress, and neuroticism interact to predict IPV?

The final aim of the current study was to examine whether both contextual variables, i.e., problem-solving skills and stress, interact with each other to moderate the effects of neuroticism on IPV. To address this issue, analyses were conducted to determine whether the three-way interactions among these variables provided the best description of IPV perpetration across the four years of these marriages. Specifically, two three way interactions were examined: the Neuroticism x Stress x Negative Behavior interaction and the Neuroticism x Stress x Positive Behavior interaction. For each interaction, neuroticism, stress, and each type of behavior were centered and entered together into the level 2 model described by Equation 2, along with the appropriate two-way and three-way interaction terms.

Results are presented in the bottom portion of Table 6. As can be seen there, both three-way interactions emerged as significant for husbands, though they did not reach significance for wives. Tests of these gender difference revealed that the three-way interaction involving husbands' negative behavior was not more strongly predictive of husbands' IPV than was the corresponding three-way interaction for wives, $\chi^2(1) = 2.60$, $p > .2$, but that the three-way interaction involving husbands' positive behavior was more strongly predictive of husbands' IPV than was the corresponding three-way interaction for wives, $\chi^2(1) = 3.84$, $p < .05$.

The two significant interactions that emerged for husbands were deconstructed by plotting the predicted means as previously described. Those plots appear in Figure 2. As can be seen there, consistent with predictions, neuroticism was most strongly associated with IPV when stress was high and problem-solving skills were low (either measured through more negative behaviors or less positive behaviors). Further, follow-up tests of the simple effects demonstrated that neuroticism was strongly associated with IPV among husbands experiencing high levels of stress and demonstrating either high levels of negative behavior ($t(153) = 4.0$, $p < .001$) or low levels of positive behavior ($t(153) = 3.4$, $p < .01$), but that neuroticism was unassociated with IPV in all other contexts, with the exception that higher levels of neuroticism actually predicted lower levels of IPV among husbands experiencing high stress but demonstrating low levels of negative problem-solving behaviors ($t(153) = -2.2$, $p < .05$).

How much variance in IPV was accounted for by neuroticism, negative behavior, positive behavior, and stress?

One final analysis was conducted to determine how much variance in IPV was accounted for by the significant associations unveiled in our analyses. To do this, we compared the between subjects variance in IPV estimated by a null level 2 model (r_{1ji} and r_{2ji} from Equation 2) to the variance remaining after entering in all significant predictors to account for variance in husbands' and wives' mean levels of aggression. These analyses revealed that husbands' factors accounted for 72% of the variance in their IPV perpetration and wives' factors accounted for 22% of the variance in their IPV perpetration over the first four years of these marriages.

DISCUSSION

Study Rationale and Summary of Results

Whereas great strides have been made towards developing a better understanding the dispositional predictors of marital violence in clinical populations, there remains a gap in understanding how such factors are associated with IPV in the general population. Over the four years of the current study, spouses in 45% of these 169 community marriages reported perpetrating at least one act of aggression against their partners. Consistent with predictions, own neuroticism accounted for significant variance in those reports among both husbands and wives. But also consistent with predictions, the effects of neuroticism were moderated by contextual variables. Specifically, the effects of neuroticism on IPV were moderated by both observed problem-solving behaviors and objectively rated stress, such that neuroticism was predictive of IPV among husbands and wives who either demonstrated high levels of negative behavior or experienced high levels of stress, but was unrelated to IPV among husbands and wives who either demonstrated low levels of negative behavior or experienced low levels of stress. Likewise, neuroticism only predicted IPV among husbands who demonstrated less positive problem-solving behaviors, though wives' neuroticism predicted higher levels of IPV regardless of their positive behaviors. Finally, the three way interactions among neuroticism, stress, and both types of behavior provided the best account of husbands' IPV, such that husbands higher in neuroticism were only more likely to engage in IPV when they experienced high levels of stress *and* lacked problem-solving skills. Together, neuroticism, positive behavior, negative behavior, and stress accounted for 72% of the variance in husbands' aggression and 22% of the variance in wives' aggression over the

first four years of marriage.

Somewhat surprisingly, the association between marital satisfaction and IPV did not reach significance here. Although other studies (e.g., Capaldi & Crosby, 1997; Fincham et al., 1997; Gray & Foshee 1997) have similarly failed to demonstrate significant associations between violence and relationships satisfaction, the findings reported here are different in an important way. Prior studies have relied on between-subjects analyses that examine whether individuals who report lower levels of satisfaction are more likely to report aggression than individuals who report higher levels of satisfaction. Accordingly, the lack of between subjects associations between aggression and satisfaction observed in those studies suggests that happy couples are no less likely than less happy couples to report perpetrating violence. In contrast, the within-subjects analyses described here estimated the extent to husbands and wives tended to be more likely to report higher levels of aggression at points during the relationship that they reported lower levels of satisfaction. Accordingly, the current results suggest that, even within a given couple, spouses appear no less likely to perpetrate aggression during times of the relationship that they are more satisfying compared to times that they are less satisfied. Consistent with this idea, Lawrence and Bradbury (2007) recently reported no significant effects of changes in satisfaction on changes in aggression, although those authors did report that changes in husbands' aggression predicted declines in husbands' satisfaction.

Gender Similarities and Differences

The most noticeable gender difference in these results is that husbands' variables accounted for more than three times as much variance in their IPV perpetration as wives'

variables accounted for in their perpetration. One interpretation of this result is that neuroticism, stress, and problem-solving skills are less predictive of women's aggression than they are predictive of men's aggression. However, subsequent analyses did not provide strong support for this conclusion. Specifically, effects emerged as significant for husbands but not wives in only three out of the nine cases. Further, of those three cases, in only one case was the gender difference statistically significant: the three-way interaction between neuroticism, stress, and positive behavior. Thus, although the current variables accounted for more variance in husbands' IPV than in wives' IPV, they appeared to be equally strong in terms of the extent that they predicted husbands' and wives' IPV. Accordingly, an alternative explanation for the greater variance in husbands' IPV accounted for by these variables is more plausible: compared to men, it may be that women engage in IPV for a greater variety of reasons not captured in the current study. Though research on the motivations of females for engaging in IPV is particularly sparse, several studies (e.g., Hines & Malley-Morrison 2001; Stuart et al., 2006) have suggested that women may engage in IPV in an attempt to gain power in their relationships. Given that women are more likely than men to report lacking power in their intimate relationships (Johnson, 1978) the motive to gain power may explain why more women than men engaged in IPV in this sample, and why the variables examined here did not account for as much variance in women's perpetration. Future research may benefit by directly examining whether women are more likely than men to engage in IPV in an effort to gain power in the relationship.

Implications

The current findings have implications for research on relationship violence specifically, and for research on close relationships more generally. With respect to research on relationship violence, the finding that neuroticism is associated with violence can inform predictions regarding the specific proximal factors that might account for such an association. For instance, given that a key component of neuroticism is a failure in self-regulation (e.g., Morossanova, 2003), perhaps those high in neuroticism are less able to maintain control of their emotions in times of conflict. Indeed, recent theory (Finkel, 2007) and empirical research (Hellmuth, McNulty, & Gordon, 2007) suggests that the inability to regulate negative emotions may predict IPV perpetration. Future research may benefit by examining the role of this and other qualities that differentiate individuals who are high versus low in neuroticism in predicting IPV.

At the same time, however, the current findings suggest that the effects of such dispositional qualities on IPV perpetration are not uniform, but instead vary according to the context of the relationship. That is, the main effects of neuroticism observed here were qualified by several conceptually distinct qualities of individuals' relationships. Specifically, individuals high in neuroticism were only more likely to engage in IPV when they experienced high levels of stress and/or low problem-solving skills. In line with contextual models of personality (e.g., Mischel & Shoda, 1995) and relationships (e.g., Bradbury & Fincham, 1988; Grekin, Sher, & Larkins, 2004; Karney & Bradbury, 1995; Leonard, 1993), the more nuanced effects of neuroticism observed here are not likely to be unique to neuroticism, or even to personality. Rather, consistent with Leonard's (1993) model of IPV perpetration, it is likely that a variety of individual and

situation factors interact to predict IPV. For instance, Frye and Karney (2006) recently demonstrated that the effects of partners' experiences with acute stressors on IPV do not invariably predict perpetration but are instead moderated by the extent of their experiences with chronic stress. Consistent with Hill's (1949) classic writings, chronic stress is likely to deplete the resources available to partners, limiting the resources available to them when experiencing acute stressors. Future research may similarly benefit by examining the extent to which distal and proximal factors *interact* to predict IPV.

The current findings also join others in demonstrating the importance of examining the extent to which the marital context moderates the effects of other interpersonal processes. For instance, recent evidence suggests that even the robust positive effects of marital attributions depend on the context of the relationship (McNulty, O'Mara, & Karney, in press). Specifically, whereas more benevolent marital attributions appear to predict more stable marital satisfaction among spouses who possess effective problem-solving skills, these same attributions predict steeper declines in satisfaction among spouses who lack such skills. Given that similar effects have been described in research on the effects of positive expectancies for the relationship (McNulty & Karney, 2004) and in research on marital forgiveness (McNulty, in press), future research may benefit by continuing to define the contextual limits of what is beneficial versus harmful for relationships.

In addition to these theoretical implications, the current findings have several practical implications. First, they suggest mechanisms through which IPV may be reduced by direct interventions. Specifically, though various distal experiences and traits,

e.g., aggressive parents or friends (e.g., Arriaga & Foshee, 2004), clinical personality disorders (e.g., Hart et al., 1993), and neuroticism put people at risk for IPV, the current findings demonstrate that the effects of such distal factors may not be immutable. Rather, the current study suggests that teaching at risk couples the skills necessary to resolve their problems without violence may be effective in preventing aggression. Though numerous studies have suggested the importance of problem-solving skills in reducing aggression (Holtzworth-Munroe, Smutzler, & Stuart, 1998; Berns, Jacobson, & Gottman, 1999; Jacobson, Gottman, Waltz, Rushe, Babcock, & Holtzworth-Munroe, 1994; Burman, John, & Margolin, 1992; Cordova, Jacobson, Gottman, Rushe, & Cox, 1993; Holtzworth-Munroe, Stuart, Sandin, Smutzler, & McLaughlin, 1997; Jacobson et al., 1994; Margolin, John, & Gleberman, 1988; Smith, Vivian, & O'Leary, 1991), to our knowledge, the current study is the first to provide evidence that such skills actually interact with factors associated with perpetrator risk to predict reduced IPV. Of course, the correlational nature of the current data makes it premature to draw strong conclusions. Future experimental research, perhaps teaching skills to young people with characteristics that put them at risk for perpetration, would go further in supporting the ability of skills to buffer at-risk intimates against IPV perpetration.

Finally, the current findings suggest ways in which IPV could be reduced through broader policy interventions. The three-way interactions that emerged among husbands in this study revealed that husbands who experienced low levels of stress were unlikely to perpetrate aggression regardless of their levels of problem-solving skills or their levels of neuroticism. Accordingly, restructuring policies in ways that lower stress among newlyweds may be a valuable avenue through which to reduce IPV. Specifically, several

sources of the chronic stress measured in the current study, such as finances, living conditions, and health, could be lowered through policies that offer tax breaks, housing assistance programs, and/or low-cost health care during the first few years of marriage. Again, however, given the correlational nature of these data, future research demonstrating a more causal role of stress in reducing IPV is necessary before strong conclusions can be drawn.

Strengths and Limitations

Our confidence in the results reported here is enhanced by a number of strengths of the study's methodology. First, in contrast to previous studies that examined clinical disorders and populations, the current study used neuroticism, one of the fundamental factors of the Big Five, to predict the IPV of perpetrators drawn from the broader community, providing necessary insights into the violence experienced among common couples. Second, in contrast to the common use of cross-sectional designs, the current study prospectively predicted a large portion of the variance that occurred across the first four years of marriage. Further, the study employed a multi-wave design which assessed aggression every six months for a total of eight assessments, which is likely to have obtained more valid estimates of IPV than cross-sectional or pre-post designs. Second, the effects here were replicated across conceptually distinct contextual variables, suggesting that they are not unique to one aspect of the context versus another. Third, the results reported here were based on techniques that were likely to have reduced the biasing effects of the non-normal distribution typical to CTS scores (i.e., log transformations of CTS scores and robust standard errors; Chou, et al., 1991), limiting the possibility that results reported here reflect violations of statistical assumptions. Fourth,

the study employed a variety of measurement strategies (observations, interviews, and self-reports), reducing the likelihood that mono-method biases and sentiment override (Weiss, 1980) can account for the results reported here. Finally, the sample examined here demonstrated levels of aggression comparable to other samples of newlyweds (e.g., Frye & Karney, 2006; Lawrence & Bradbury, 2001, 2007; O'Leary et al., 1989), providing some confidence that these results may generalize to similar populations.

Despite these strengths, several factors nevertheless limit interpretations of the current findings. First, though the use of community sample strengthened the current study in some ways, the homogeneity of the sample also limits the study's generalizability. For instance, the first few years of their marriage appear to be a period during which partners are at particular risk for IPV. Thus, personality in the context of more established marriages may demonstrate weaker associations. Likewise, as others have pointed out (e.g., M. P. Johnson, 1995), the violence experienced in common married couples may be very different from the violence experienced in relationships less commonly found in research settings. Accordingly, other factors, such as antisocial tendencies or desires for control over the partner, may be better predictors of the IPV perpetrated in such samples, and future research is necessary in order to know what factors, if any, moderate those associations. Second, the couples examined in this study were primarily White. Although the basic processes through which problem-solving skills and stress interact with personality to predict aggression should not differ across different races and ethnicities, variability in these factors (e.g., stress and skills) may indeed differ across such populations, leading to stronger or weaker associations in other populations. Finally, as mentioned previously, although the longitudinal design of the

study helped rule out reverse causal interpretations, unmeasured third variables may nevertheless undermine the internal validity of the results obtained here. Treatment-outcome research examining the ability of new skills and reduced stress to mitigate the effects of personality on IPV would be most conclusive.

REFERENCES

REFERENCES

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Archer, J. (2000). Sex differences in aggression between heterosexual partners: A meta-analytic review. *Psychological Bulletin*, 126(5), 651-680.
- Arriaga, X. B., & Foshee, V. A. (2004). Adolescent dating violence: Do Adolescents follow in their friends', or their parents', footsteps? *Journal of Interpersonal Violence*, 19, 162-184.
- Berns, S. B., Jacobson, N. S., & Gottman, J. M. (1999). Demand-withdraw interaction in couples with a violent husband. *Journal of Consulting and Clinical Psychology*, 67, 666-674.
- Bogard, M (1988). How battered women and abusive men account for domestic violence: Excuses, justifications, or explanations? In G. T. Hotaling, D. Finkelhor, J. T. Kirkpatrick, & M. A. Straus (Eds.). *Coping with family violence: Research and policy perspectives*. (pp. 60-77). Thousand Oaks, CA, US: Sage Publications, Inc.
- Bradbury, T. N., & Fincham, F. D. (1988). Individual difference variables in close relationships: A contextual model of marriages as an integrative framework. *Journal of Personality and Social Psychology*, 54, 713-721.
- Bradbury, T.N., & Fincham, F.D. (1991). A contextual model for advancing the study of marital interaction. In F.D. Fincham & G.J.O. Fletcher (Eds). *Cognition in close relationships*. (pp. 127-147). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

- Bryk, A. S., & Raudenbush, S. W. (1987). Application of hierarchical linear models to assessing change. *Psychological Bulletin*, 101, 147-158.
- Burman, B., John, R. S., & Margolin, G. (1992). Observed patterns of conflict in violent, nonviolent, and nondistressed couples. *Behavioral Assessment*, 14, 15-37.
- Cano, A. & Vivian, D. (2003). Are life stressors associated with marital violence? *Journal of Family Psychology*, 17(3), 302-314.
- Capaldi, D.M., & Crosby, L. (1997). Observed and reported psychological and physical aggression in young, at-risk couples. *Social Development*, 6(2), 184-206.
- Chou, C. Bentler, P. M., Satorra, A. (1991). Scaled test statistics and robust standard error for non-normal data in covariance structure analyses: A Monte Carlo study. *British Journal of Mathematical and Statistical Psychology*, 44, 347-357.
- Cordova, J. V., Jacobson, N. S., Gottman, J. M., Rushe, R., & Cox, G. (1993). Negative reciprocity and communication in couples with a violent husband. *Journal of Abnormal Psychology*, 102, 559-564.
- Costa, P.T. & McCrae, R.R. (1990). Personality disorders and the five-factor model of personality. *Journal of Personality Disorders*, 4(4), 362-371.
- Costa, P. T., & McCrae, R.R. (1992). Revised NEO Personality Inventory (NEO-PIR): *Professional Manual*. Psychological Assessment Resources, Inc.
- Dutton, D.G. (1994). The origin and structure of the abusive personality. *Journal of Personality Disorders*, 8(3), 181-191.
- Dutton, D.G. & Starzomski, A.J. (1993). Borderline personality in perpetrators of psychological and physical abuse. *Violence and Victims*, 8(4), 327-337.

- Enns, M.W., & Cox, B.J. (1997). Personality dimensions and depression: Review and commentary. *Canadian Journal of Psychiatry, 42*(3), 274-284.
- Field, C.A., Caetano, R., & Nelson, S. (2004). Alcohol and violence related cognitive risk factors associated with the perpetration of intimate partner violence. *Journal of Family Violence, 19*, 249-253.
- Fincham, F.D., Bradbury, T.N., Arias, I., Byrne, C.A., & Karney, B. R. (1997). Marital violence, marital distress, and attributions. *Journal of Family Psychology, 11*(3), 367-372.
- Finkel (2007). Impelling and inhibiting forces in the perpetration of intimate partner violence. *Review of General Psychology, 11*, 193-207.
- Fisher, T. D., & McNulty, J. K. (in press). Neuroticism and marital satisfaction: The mediating role played by the sexual relationship. *Journal of Family Psychology*.
- Frye, N. E., & Karney, B. R. (2006). The proximal and distal context of aggressive behaviors in marriage: A longitudinal study of newlyweds. *Journal of Family Psychology, 20*, 12-20.
- Goldberg, L. R. (1999). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe (Vol. 7, pp. 7-28)*. Tilburg, The Netherlands: Tilburg University Press.
- Gondolf, E.W. (1999). MCMI-III results for batterer program participants in four cities: Less "pathological" than expected. *Journal of Family Violence, 14*, 1-17.
- Gordis, E. B., Margolin, G., & Vickerman, K. (2005). Communication and frightening behavior among couples with past and recent histories of physical marital

- aggression. *American Journal of Community Psychology*, 36, 177-191.
- Gray, H.M., & Foshee, V. (1997). Adolescent dating violence: Differences between one-sided and mutually violent profiles. *Journal of Interpersonal Violence*, 12(1), 126-141.
- Grekin, E.R., Sher, K.J., & Larkins, J.M. (2004). The role of behavioral undercontrol in the relation between alcohol use and partner aggression. *Journal of Studies on Alcohol*, 65(5), 658-662.
- Hamberger, L.K. & Hastings, J.E. (1991). Personality correlates of men who batter and nonviolent men: Some continuities and discontinuities. *Journal of Family Violence*, 6(2), 131-147.
- Hammen, C., Adrien, C., Gordon, D., Burge, D., Jaenicke, C., & Hiroto, D. (1987). Children of depressed mothers: Maternal strain and symptom predictors of dysfunction. *Journal of Abnormal Psychology*, 96, 190-198.
- Hart, S.D., Dutton, D.G., Newlove, T. (1993). The prevalence of personality disorder among wife assaulters. *Journal of Personality Disorders*, 7(4), 329-341.
- Hellmuth, J.C., McNulty, J.K., & Gordon, K.C.. Deficits in Problem-Solving Skills and Intimate Partner Violence: The Role of Personality. Poster presented at the 40th annual convention of the Association for Behavioral and Cognitive Therapy, Chicago, Illinois.
- Hill, R. (1949). *Families under stress*. New York: Harper & Row.
- Hines, D.A. & Malley-Morrison, K. (2001). Psychological effects of partner abuse against men: A neglected research area. *Psychology of Men and Masculinity*, 2(2), 75-85.

- Holtzworth-Munroe, A., & Anglin, K. (1991). The competency of responses given by maritally violent versus nonviolent men to problematic marital situations. *Violence and Victims, 6*(4), 257-269.
- Holtzworth-Munroe, A., Meehan, J. C., Herron, K., Rehman, U., and Stuart, G. L. (2000). Testing the Holtzworth-Munroe and Stuart batterer typology. *Journal of Consulting and Clinical Psychology, 68*, 1000-1019.
- Holtzworth-Munroe, A., Smutzler, N., & Stuart, G. L. (1998). Demand and withdraw communication among couples experiencing husband violence. *Journal of Consulting and Clinical Psychology, 66*(5), 731-743.
- Holtzworth-Munroe, A., & Stuart, G.L. (1994). Typologies of male batterers: Three subtypes and the differences among them. *Psychological Bulletin, 116*, 476-497.
- Holtzworth-Munroe, A., Stuart, G.L., Sandin, E., Smutzler, N., & McLaughlin, W. (1997). Comparing the social support behaviors of violent and nonviolent husbands during discussions of wives' personal problems. *Personal Relationships, 4*, 395-412.
- Jacobson, N. S., Gottman, J. M., Waltz, J., Rushe, R., Babcock, J., & Holtzworth-Munroe, A. (1994). Affect, verbal content, and psychophysiology in the arguments of couples with a violent husband. *Journal of Consulting and Clinical Psychology, 62*(5), 982-988.
- Johnson, M.P. (1995). Patriarchal terrorism and common couple violence: Two forms of violence against women. *Journal of Marriage and the Family, 57*, 283-294.
- Johnson, P. (1978). Women and interpersonal power. In I. H. Frieze, J. E. Parsons, P. B. Johnson, D. N. Ruble, & G. L. Zellman (Eds.), *Women and sex roles: A social*

psychological perspective (pp. 301-320). New York: Norton.

- Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin*, 118, 3-34.
- Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology*, 72, 1075-1092.
- Kelly, E. L., & Conley, J. J. (1987). Personality and compatibility: A prospective analysis of marital stability and marital satisfaction. *Journal of Personality and Social Psychology*, 52, 27-40.
- Lawrence, E., & Bradbury, T. N. (2001). Physical aggression and marital dysfunction: A longitudinal analysis. *Journal of Family Psychology*, 15(1), 135-154.
- Lawrence, E., & Bradbury, T. N. (2007). Trajectories of change in physical aggression and marital satisfaction. *Journal of Family Psychology*, 21(1), 236-247.
- Leonard, K.E. (1993). Drinking patterns and intoxication in marital violence: Review, critique and future directions for research, USDHHS Research Monograph No. 24, NIH Publication No. 93-3496, Rockville, MD: National Institutes of Health.
- Lochman, J.E. & Dodge, K.A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and nonaggressive boys. *Journal of Consulting and Clinical Psychology*, 62(2), 366-374.
- MacEwen, K.E. & Barling, J. (1988). Multiple stressors, violence in the family of origin, and marital aggression: A longitudinal investigation. *Journal of Family Violence*, 3(1), 73-87.

- Margolin, G., John, R. S., & Gleberman, L. (1988). Affective responses to conflictual discussions in violent and nonviolent couples. *Journal of Consulting and Clinical Psychology, 56*, 24-33.
- McCrae, R.R., & Costa, P.T. (1997). Personality trait structure as a human universal. *American Psychologist, 52*, 509-516.
- McNulty, J. K. (in press). Forgiveness in marriage: Putting the benefits into Context. *Journal of Family Psychology*.
- McNulty, J. K., & Karney, B. R., (2004). Positive expectations in the early years of marriage: Should couples expect the best or brace for the worst? *Journal of Personality and Social Psychology, 86*, 729-743.
- McNulty, J. K., O'Mara, E. M., & Karney, B. R., (in press). Benevolent cognitions as a strategy of relationship maintenance: "Don't sweat the small stuff"... but it's not all small stuff. *Journal of Personality and Social Psychology*.
- Miller, P.A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin, 103*(3), 324-344.
- Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review, 102*(2), 246-268.
- Morossanova, V. I. (2003). Extraversion and neuroticism: The typical profiles of self-regulation. *European Psychologist, 8*, 279-288.
- Murphy, C.M., & O'Farrell, T. J. (1996). Marital violence among alcoholics. *Current Directions in Psychological Science, 5*, 183-186.

- Neff, L. A. & Karney, B. R. (2005a). To know you is to love you: The importance of global adoration and specific understanding for close relationships. *Journal of Personality and Social Psychology*, 88, 480-497.
- Neff, L. A. & Karney, B. R. (2005b). Gender differences in social support: A question of skills or responsiveness? *Journal of Personality and Social Psychology*, 88, 79-90.
- Neff, L. A. & Karney, B. R. (2007). Stress crossover in newlywed marriage: A longitudinal and dyadic perspective. *Journal of Marriage and Family*, 69, 594-607.
- Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and Family*, 45, 141-151.
- O'Leary, K.D., Barling, J., Arias, I., Rosenbaum, A., Malone, J., & Tyree, A. (1989). Prevalence and stability of physical aggression between spouses: A longitudinal analysis. *Journal of Consulting and Clinical Psychology*, 57, 263-268.
- Raudenbush, S. W., Brennan, R. T., & Barnett, R. C. (1995). A multivariate hierarchical model for studying psychological change within married couples. *Journal of Family Psychology*, 9, 161-174.
- Schafer, J., Caetano, R., Clark, C. L. (1998). Rates of intimate partner violence in the United States. *American Journal of Public Health*, 88, 1702-1704.
- Schumacher, J. A., Smith Slep, A. M., & Heyman, R. E. (2001). Risk factors for male-to-female partner psychological abuse. *Aggression and Violent Behavior*, 6(2-3), 255-268.
- Senchak, M. & Leonard, K.E. (1992). Attachment styles and marital adjustment among

- newlywed couples. *Journal of Social and Personal Relationships*, 9(1), 51-64.
- Sillars, A.L., Coletti, S.F., Parry, D., & Rogers, M.A. (1982). Coding verbal conflict tactics: Nonverbal and perceptual correlates of the “Avoidance-distributive-integrative” distinction. *Human Communication Research*, 9, 83-95.
- Smith, D. A., Vivian, D., & O’Leary, K. D. (1991). The misnomer proposition: A critical reappraisal of the longitudinal status of “negativity” in marital communication. *Behavioral Assessment*, 13, 7-24.
- Strack, F., Martin, L. Schwarz, N. (1988). Priming and communication: Social determinants of information use in judgments of life satisfaction. *European Journal of Social Psychology*, 18, 429-442.
- Straus, M.A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) scales. *Journal of Marriage and the Family*, 41, 75-88.
- Straus, M.A. & Ramirez, I.L. (2007). Gender symmetry in prevalence, severity, and chronicity of physical aggression against dating partners by university students in Mexico and USA. *Aggressive Behavior*, 33(4), 281-290.
- Stuart, G.L., Moore, T.M., Gordon, K.C., Hellmuth, J.C., Ramsey, S.E., & Kahler, C.W. (2006). Reasons for Intimate Partner Violence Perpetration Among Arrested Women. *Violence Against Women*, 12(7), 609-621.
- Taft, C.T, Murphy, C.M., Musser, P.H., & Remington, N.A. (2004). Personality, interpersonal, and motivational predictors of the working alliance in group cognitive-behavioral therapy for partner violent men. *Journal of Consulting and Clinical Psychology*, 72(2), 349-354.

Weiss, R.L. (1980). Strategic behavioral marital therapy: Toward a model for assessment and intervention. In J.P. Vincent (Ed.), *Advances in Family Intervention, Assessment, and Theory*. (pp. 229-271). Greenwich: JAI Press.

APPENDIX

Table 1. Descriptive Statistics of Independent Variables

	<u>Husbands</u>		<u>Wives</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Neuroticism	22.9 _a	7.2	29.9 _b	7.4
Negative Behavior	2.3%	3.8%	2.3%	3.9%
Positive Behavior	10.8%	7.2%	11.3%	6.2%
Observed Stress	3.7	0.6	3.7	0.6

Note. Different subscripts in the same row denote significantly different means

Table 2. Correlations among Independent Variables

	Neuroticism	Negative Behavior	Positive Behavior	Observed Stress
Neuroticism	.05	.16 [*]	-.10	.32 ^{**}
Negative Behavior	.14	.40^{**}	-.27 ^{**}	.26 ^{**}
Positive Behavior	-.12	-.27 ^{**}	.52^{**}	-.04
Observed Stress	.47 ^{**}	.23 ^{**}	-.10	.58^{**}

Note. Husbands' correlations appear below the diagonal, wives' correlations appear above the diagonal, and correlations between husbands and wives appear on the diagonal in bold.

^{*} $p < .05$, ^{**} $p < .01$

Table 3. Frequency of Aggression and Mean Marital Satisfaction at Each Wave of Data Collection

	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6	Time 7	Time 8
Marital Aggression								
Husbands								
%	6.5	5.3	4.2	6.5	4.2	2.9	3.5	1.8
N	167	152	146	135	126	103	92	125
Wives								
%	24.3	19.5	17.2	10.1	10.6	9.4	7.1	3.6
N	168	154	147	136	130	104	94	124
χ^2	14.61***	17.53***	6.13*	20.48***	21.10***	7.80**	7.72**	0.16
Marital Satisfaction								
Husbands								
M	41.7	40.4	40.2	40.9	40.3	39.7	38.7	39.2
SD	4.6	5.7	6.2	4.9	6.6	7.1	7.4	6.5
N	169	163	161	150	140	113	127	125
Wives								
M	42.2	40.8	41.1	41.8	40.5	40.5	39.7	40.3
SD	4.4	5.9	5.8	4.6	5.9	6.5	6.5	6.3
N	169	162	161	151	142	116	128	125
t	1.36	0.90	1.89 [†]	2.15*	0.52	1.42	1.91 [†]	2.34*

Note. χ^2 statistics are 1 df tests for gender differences in reports of aggression. t

statistics test for gender differences in satisfaction.

[†] $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. Incidence of Marital Aggression over Four Years

Act	Husbands	Wives	Gender Difference
	%	%	χ^2
Physical aggression	19.5	41.4	27.58***
Threw something at spouse	9.5	24.3	9.84***
Pushed, grabbed, or shoved spouse	18.9	28.4	26.90***
Slapped spouse	4.7	17.2	12.14***
Kicked, bit or hit spouse with fist	4.7	16.6	6.79**
Hot or tried to hit spouse with something	5.3	13.6	7.69**
Beat up the spouse	1.8	3.6	7.91**
Threatened spouse with a knife or gun	1.2	3.0	0.06
Used a knife for gun on spouse	1.8	1.8	0.06

Note. χ^2 statistics test for gender differences in reports of aggression.

** $p < .01$, *** $p < .001$

Table 5. Main Effects on Mean Aggression over Four Years

Variable	Husbands			Wives		
	<i>B</i>	<i>SE</i>	<i>r</i>	<i>B</i>	<i>SE</i>	<i>r</i>
Neuroticism	1.11 ⁻³	0.52 ⁻³	.16*	2.23 ⁻³	0.80 ⁻³	.21**
Observed Negative Behavior	0.23	0.13	.14*	0.43	0.19	.18*
Observed Positive Behavior	-0.06	0.03	.16*	-0.10	0.06	.13*
Observed Stress	1.00 ⁻²	0.51 ⁻²	.15*	2.81 ⁻²	0.95 ⁻²	.22**

Note. Unstandardized betas and effect size *r* is presented. *Df* = 167 for tests involving Neuroticism or Stress; *df* = 159 for tests involving Behavior.

* $p < .05$, ** $p < .01$, one tailed.

Table 6. Interactive Effects of Neuroticism and Context on Mean Aggression over Four Years

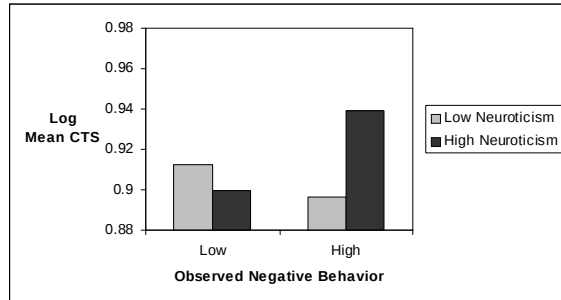
	Husbands			Wives		
	<i>B</i>	<i>SE</i>	<i>r</i>	<i>B</i>	<i>SE</i>	<i>r</i>
Two-Way Interactions						
<u>Neuroticism X</u>						
Observed Negative Behavior	5.06 ⁻²	1.81 ⁻²	.22**	5.27 ⁻²	2.80 ⁻²	.15*
Observed Positive Behavior	-1.39 ⁻²	0.60 ⁻²	.18*	-0.09 ⁻²	0.77 ⁻²	.01
Observed Stress	2.29 ⁻³	0.98 ⁻³	.18*	2.53 ⁻³	1.17 ⁻³	.17*
Three-Way Interactions						
<u>Neuroticism X Observed Stress X</u>						
Observed Negative Behavior	5.97 ⁻²	2.58 ⁻²	.16*	0.04 ⁻²	3.65 ⁻²	.00
Observed Positive Behavior	-1.75 ⁻²	0.72 ⁻²	.19*	0.55 ⁻²	1.17 ⁻²	.04

Note. Unstandardized betas and effect size *r* is presented. *Df* = 165 for tests of 2-way interactions involving Stress; *df* = 157 for tests of 2-way interaction involving Behavior; *df* = 153 for all 3-way interactions.

* $p < .05$, ** $p < .01$, one tailed.

Panel A

Husbands' Neuroticism X Neg. Behavior



Wives' Neuroticism X Neg. Behavior

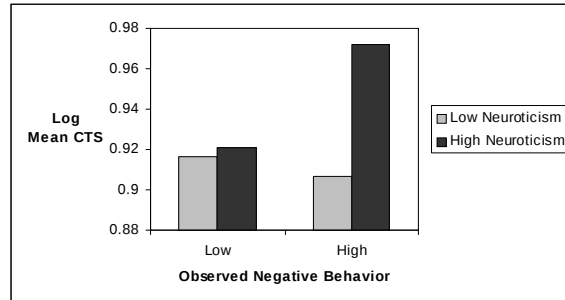
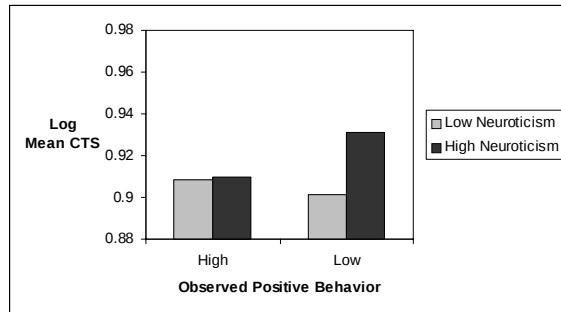
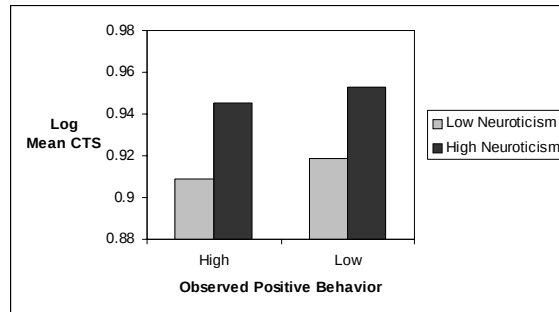


Figure 1. Interactive Effects of Neuroticism and Context on Mean Aggression over Four Years

Figure 1 cont'd

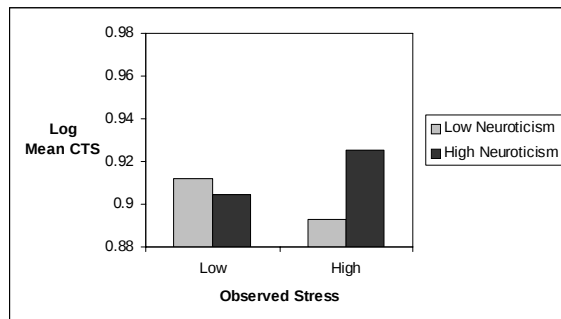
Panel B

Husbands' Neuroticism X Pos. Behavior

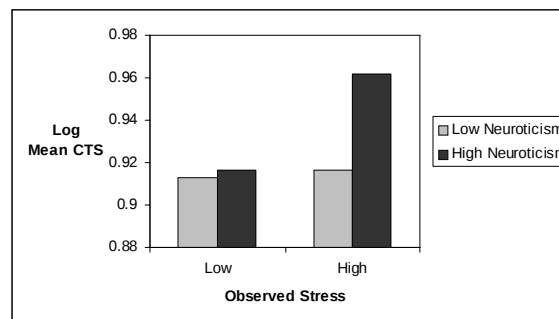
Wives' Neuroticism X Pos. Behavior (*ns*)

Panel C

Husbands' Neuroticism X Stress



Wives' Neuroticism X Stress



Panel A

Negative Behavior

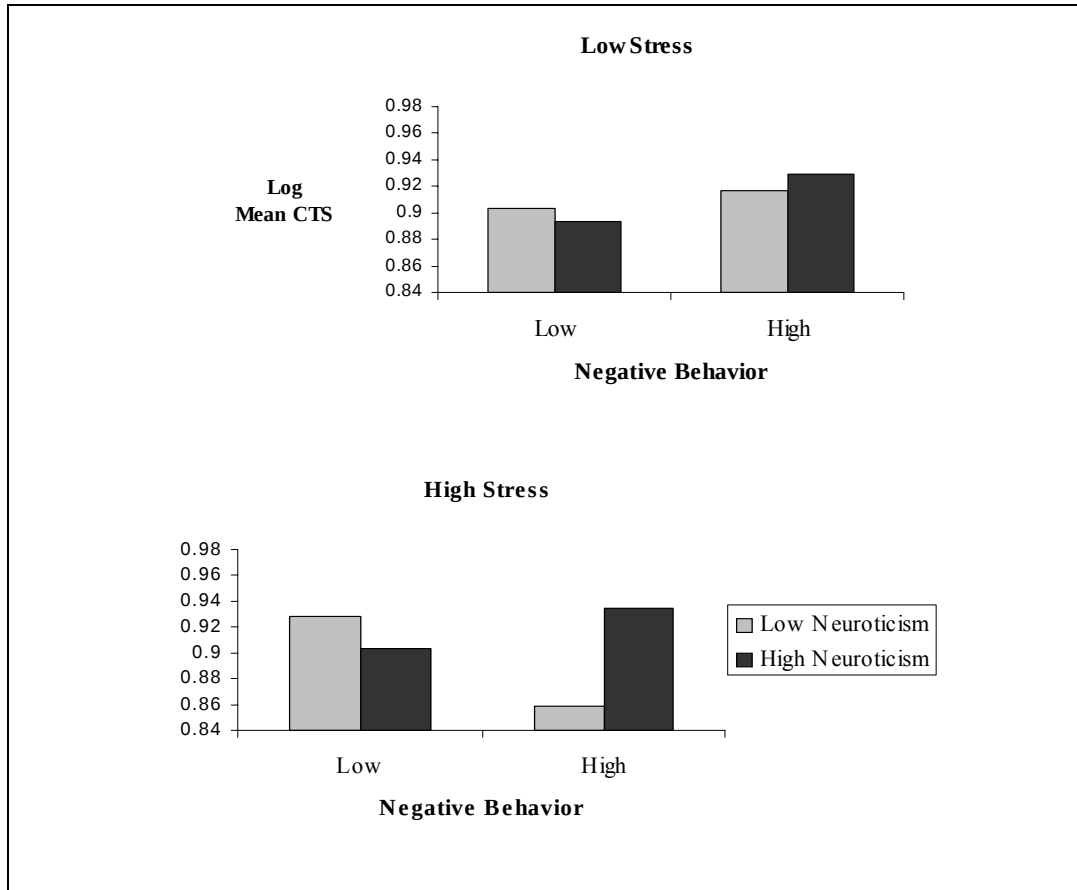
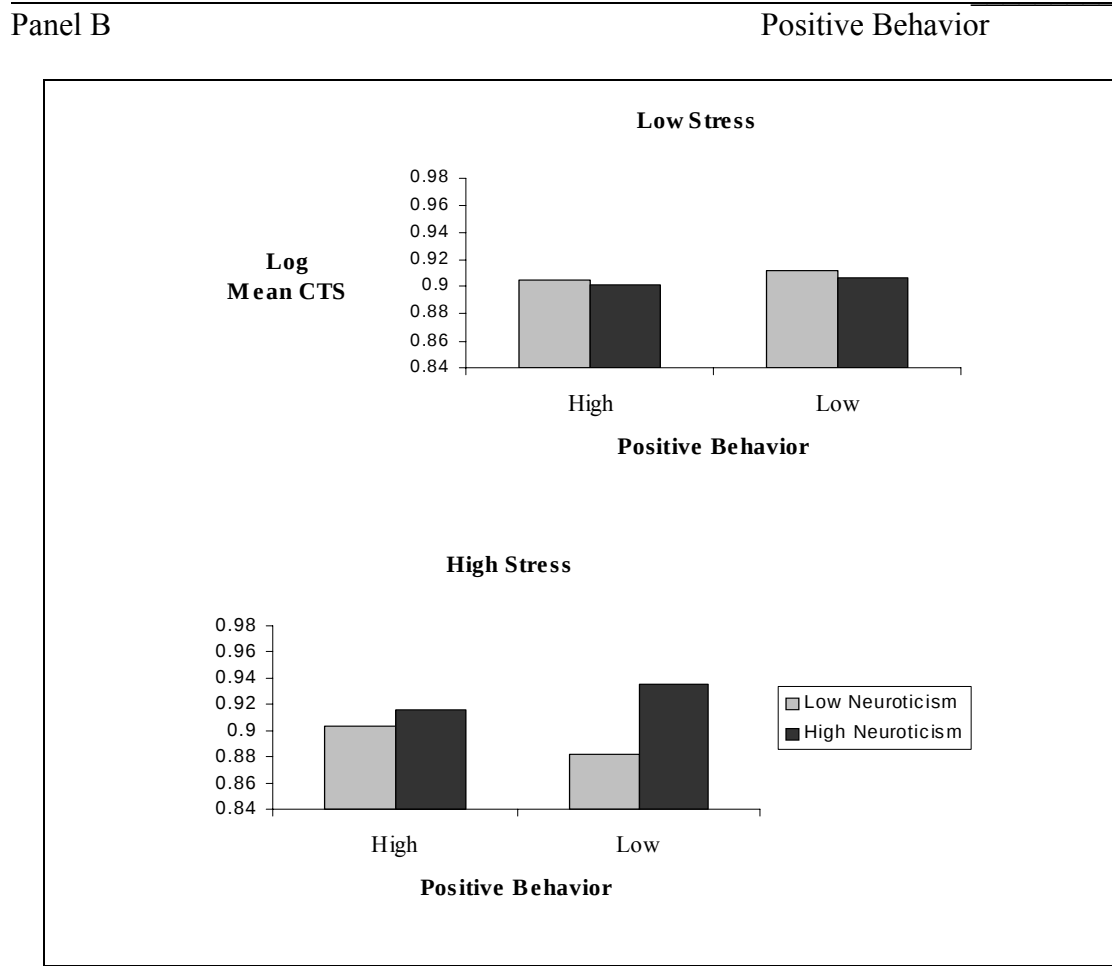


Figure 2. Three-way Interactions among Husbands' Neuroticism, Stress, and Problem-Solving Behavior

Figure 2, cont.



VITA

Julianne C. Hellmuth was born in Point Pleasant, New Jersey, on June 23, 1981. She was raised in Lanoka Harbor, New Jersey and attended Lakewood Prep, now known as Monmouth Academy, from Kindergarten through her high school graduation in May of 1999. Julianne completed her Bachelor of Arts degree in Psychology from the University of Vermont in May of 2003 and went on to work in a senior research assistant position at Butler Hospital in Providence, Rhode Island until June 2005. Julianne is currently pursuing her doctorate degree in Clinical Psychology at the University of Tennessee, Knoxville.