2003

Two temperaments, one relationship : the interpersonal context of traits as a predictor of self-silencing.

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TWO TEMPERAMENTS, ONE RELATIONSHIP: THE
INTERPERSONAL CONTEXT OF TRAITS AS A PREDICTOR OF
SELF-SILENCING

A Thesis Presented

by

ELIZABETH M. SEELEY

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE

February 2003
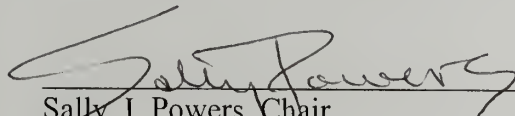
Clinical Psychology

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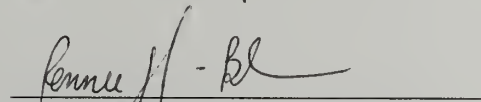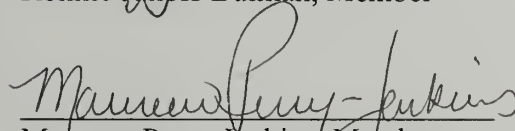by

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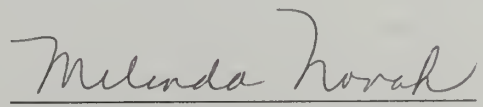
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ACKNOWLEDGMENTS

ABSTRACT

TWO TEMPERAMENTS, ONE RELALATIONSHIP: THE INTERPERSONAL

CONTEXT OF TRAITS AS A PREDICTOR OF SELF-SILENCING

FEBRUARY 2003

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This study examines the relations between self-silencing and individual differences (self-reported temperament and hypothalamic-pituitary adrenocortical functioning). Both members of 97 couples (N = 194) completed the EAS Temperament Survey and the Silencing the Self Scale. A subset (N = 130) of participants' HPA functioning was assessed via basal salivary cortisol and reactivity to an anticipated conflict discussion task. Results reveal that self-reported EAS temperaments of distress and fear are associated with self-silencing for both males and females. Further, the relation between an individual's temperament and self-silencing is moderated by his or her partner's temperament. Couple-combinations of one member with a temperament high in Emotionality (anger, fear or distress) and a member low in Emotionality, predicted self-silencing in the low-Emotionality member. Finally, HPA functioning, although different than self-reported EAS temperament, is related to self-silencing in gender-specific ways. This study offers first evidence that self-silencing is not only contextually influenced but is also influenced by personal traits.

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CHAPTER 1

INTRODUCTION

Partners employ various types of coping styles when faced with conflict in a romantic relationship. One form of behavioral coping is self-silencing: thoughts and behaviors that keep individuals' feelings and desires to themselves and from their romantic partners. Research has shown that self-silencing is associated with depression, particularly in women (Duarte & Thompson, 1999; Thompson, 1995). However, there has been little research examining the factors that predict self-silencing.

Self-silencing theory originates from Dana Jack's qualitative study of 12 depressed women (1987; 1991; Jack & Dill, 1992). Depression researchers have consistently found that women are approximately twice as likely to suffer from depression than men (Kessler, McGonagle; Swartz; Blazer; Nelson, 1993; Nolen-Hoeksema, 1987; Weissman & Klerman, 1977; Weissman, Leaf, Holzer, Myers, & Tischler, 1984). Based on her findings, Jack formed hypotheses to help explain this gender difference. Specifically, she hypothesized that women's thoughts and beliefs about developing and maintaining relationships underlie their vulnerability for depression. Silencing the self theory postulates that women whose backgrounds or current contexts encourage them to meet their relational needs in self-sacrificing ways are more likely to adopt gender-specific understandings of how to make and maintain relationships. Jack has proposed that this in turn leads to decreased possibilities for intimacy, decreased self-esteem, alienation, and a heightened vulnerability to depression (Jack, 1999).

CHAPTER 2

A CLOSER LOOK AT SELF-SILENCING

Gender Differences in Self-Silencing

Jack (1991) originally hypothesized that, relative to men, women would be more likely to self-silence. Subsequent research, however, has found that this is not the case. In fact, men have been shown to endorse self-silencing as much or more than women as evidenced by their consistently higher scores on the Silencing the Self Scale (STSS) (Cowan, Bommersbach, & Curtis, 1995; Hart & Thompson, 1996; Jack & Dill, 1992; Page & Stevens, 1996; Thompson, 1995). Whereas initially this finding appeared to create a problem for construct validity, researchers found that the correlates of self-silencing vary by gender in predicted ways; for example, depression appears to be more consistently associated with self-silencing for women than for men (Duarte & Thompson, 1999; Thompson, 1995). Given that men score higher on the STSS and yet yield lower depression scores, gender may moderate the relation between self-silencing and depression (Duarte & Thompson, 1999; Thompson, 1995). More research is needed to uncover why men who self-silence seem less vulnerable to depression than women who self-silence.

The reasons for self-silencing and how these behaviors are interpreted may be, in part, dependent on gender. Jack (1999) has speculated that particularly for women, silencing the self often intentionally leads to the outer appearance of passivity and dependence. Further, she has stated that because the actions required to silence the self are outwardly invisible, researchers have mistakenly focused on depressed women's

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supposed passive style of coping (McGrath, Keita, Strickland, & Russo, 1990; Nolen-Hoeksema, 1991). The result is that the "cognitive activity required to appear outwardly passive and compliant," traditional female behaviors expected by certain partners and social contexts, is overlooked (Jack, 1991, pp. 129-139). Jack (1999) has hypothesized that from the outside women look passive and compliant for an intended effect: to keep outer harmony and to preserve the relationship.

Jack (1999) has theorized that men's self-silencing does not typically derive from powerlessness or indicate depression. As a group, men enjoy different levels of material and social power than women, and therefore, their ideas about how to make and maintain relationships may differ from women's. In distressed couples, for example, men are more likely to use "stonewalling" – withdrawal through silence or passive resistance – from the partners' "demand" behaviors for change, intimacy, or engagement (Babcock, Waltz, Jacobson, & Gottman, 1993; Gottman, 1994). These researchers have hypothesized that men's withdrawal behavior (which can look like self-silencing) may be an attempt to create distance, to control interactions in the relationship, and to maintain the status quo of power relations. Researchers interested in understanding these differences may need to look behind self-silencing for its gendered meanings and its intent.

Self-silencing, therefore, refers to removing critical aspects of self-expression from dialogue for specific relational purposes and these may vary by gender (Jack, 1999). However, how a person uses his or her voice is significantly influenced by the anticipated response from the social context. Women face different cultural and relational outcomes from voicing their anger, oppositional feelings, or demands than

men, as women are often more at risk for negative economic, physical, or interpersonal consequences (Christensen & Heavey, 1990; Dobash & Dobash, 1979; Jacobson & Gottman, 1998). For women and men, behavior that appears outwardly similar (such as self-silencing) may come from a different origin and carry a different intent regarding its desired effect on relationships.

Critical Assumption of the Silencing the Self Theory

Many leading theories of depression are based on diathesis stress models that assume that an individual's particular vulnerability interacts with the environment to promote psychopathology. Jack (1999) has posited that the silencing the self theory is based on assumptions which differ greatly from those of diathesis stress models, including Beck's (1983) cognitive-personality model, Blatt, Quinlan, Chevron, McDonald, and Zuroff's (1982) psychodynamic personality model, and Nolen-Hoeksema's (1991) coping response model, in two fundamental respects: first, stability of trait, and second, location of the problem. An individual's ideas about how to make and maintain relationships that are measured by the STSS, rather than being stable or internal, are assumed to be responses to the environment. These ideas are thought to be reflexive, as they interact with an individual's life history and with situational variables, especially how social contexts and close relationships "expect" a person to behave (Jack, 1999). Although diathesis-stress models do include consideration of the social environment, the vulnerability factor is presumed to reside within the individual (Coyne, 1992). It has been hypothesized that although these diathesis-stress models attempt to take social context into account more fully than did earlier cognitive-

behavioral models, they still inadequately account for the impact of social context on the person (Coyne & Whiffen, 1995).

Perhaps due to the assumption that self-silencing is unrelated to internal or stable traits, no one has studied the relations between self-silencing and traits. This author believes that understanding the influence of social and contextual variables on the promotion of coping behaviors like self-silencing is vitally important. Therefore, context on an interpersonal level has been examined in this study. However, the basic assumption that self-silencing and internal traits are unrelated had never been tested prior to this study. Given that developmental researchers have suggested that the study of temperament is instrumental to our understanding of behavioral coping in close relationships (Gunnar, 1994; Gunnar, Manglesdorf, Larson, & Hertsgaard, 1989; Kagan, Reznick, & Snidman, 1987), one of the primary goals of this study was to examine the relation between self-silencing and temperament for the first time.

Jack has posited that it is the environmental context that elicits self-silencing in individuals. It is no wonder that contextual variables, rather than trait variables have been emphasized in the study of self-silencing. Considering that self-silencing is thought not to be a stable trait but brought about by specific contexts, and even *specific relationships* (Jack, 1999), an important question examined in this thesis was whether in heterosexual romantic relationships, the partner's temperament moderates the relation between an individual's temperament and his or her self-silencing. Moreover, the relative strength of the correlations of the trait variable (individual's own temperament) versus the contextual variable (partner's temperament) to self-silencing was tested.

CHAPTER 3

TEMPERAMENT

There is little consensus regarding the definition of temperament. For example, in a roundtable discussion on *What Is Temperament?*, eight discussants gave eight different definitions for temperament (Goldsmith, et al., 1987). The variability in the understanding of this concept is especially problematic when distinguishing temperament from personality as some authors regard temperament as a synonym for personality. When authors do so, they are often defining personality narrowly. For example, Eysenck (1970) limited the concept of "personality" to dimensions, such as extraversion, neuroticism, and psychoticism. When researchers use temperament and personality to describe the same or indistinguishable phenomenon, they often refer to the personality traits as "basic." Zuckerman (1983) included sensation-seeking, extraversion, and impulsivity in his listing of basic personality traits and he asserted that these dimensions are mediated by biological mechanisms. He, like several other researchers, has not used the word "temperament" in his writings but rather "personality." Other researchers see temperament as a subset of stable personality traits. Buss (1991) has written: "temperaments are … a subclass of personality traits, defined by appearance during the first year of life, persistence in later life, and the contribution of heredity" (p. 43).

Despite these differences in defining temperament, researchers in this field have agreed that there are several common features that fall under the label of "temperament." Temperament reveals itself in relatively stable individual differences

of behavior that are present since early childhood (see Bates, 1987; Buss & Plomin, 1984; Thomas & Chess, 1977), may be seen not only in humans but also in animals (see Broadhurst, 1975; Eysenck & Eysenck, 1985; Zuckerman, 1979), and is determined to a high degree by biological factors (see Buss & Plomin, 1984; Eysenck & Eysenck, 1985; Strelau, 1983; Zuckerman, 1985).

Temperament and Close Relationships

Researchers have been interested in understanding the influence of stable individual traits on close relationships for several decades. Unfortunately, early in the study of individual differences and relationships, many researchers studied only one member of the couple and relied exclusively on self-report data for the trait measure (Robins, Caspi, & Moffitt, 2000). However, there are several reasons to believe that stable individual variables can play a prominent role in relationship research. First, despite its flaws, the early research did provide some evidence that stable personality traits play a crucial role in determining the nature of a relationship (Buss, 1991; Eysenck & Wakefield, 1981). For example, a number of early studies compared happily married and unhappily married couples and found relatively strong personality correlates (see Barry, 1970; Bentler & Newcomb, 1978; Burgess & Wallin, 1953; Dean, 1966; Eysenck & Wakefield, 1981; Kelly & Conley, 1987). Second, there is a much better understanding of stable traits now than there was 20 years ago. More is known about their heritability, developmental origins, neurobiological substrates, and how they relate to a host of other social and psychological variables across the lifespan. Also, the field now has measures with stronger psychometric properties. Third, behavioral

genetic research provides another reason to believe that stable traits matter in relationships. Evidence from twin studies shows that heritable personality traits can precipitate relationship problems and contribute to marital dissolution (Jockin, McGue, & Lyken, 1996). Finally, previous attempts to understand the role of stable traits in relationships were not fruitful, in part because they did not take into account how the stable traits of both couple-members *jointly* influence the relationship.

A significant portion of the temperament research also exists within developmental psychology. Many of these studies are focused on early parent-child relationships and show that temperament does affect these relationships (for reviews, see Crockenburg, 1986; Hubert, Wachs, Peters-Martin, & Gandour, 1982;). However, more research is needed in order to understand the influence of temperament on psychosocial development across the lifespan. Some researchers have begun to examine adolescent temperament. For example, in a longitudinal study conducted by Berzirganian & Cohen (1992), it was found that girls' difficult temperament was related to less father-daughter closeness, involvement and identification, and boys' difficult temperament was related to greater maternal control and punishment. Their results suggest that temperament and adolescent-parent relationships are related in gender-specific ways. Also in this literature, even though the theoretical emphasis is placed on the potentially facilitative or deleterious influence of temperament on close relationships, little has been done to examine the interaction of two temperaments in a close relationship.

HPA Functioning as a Measure of Temperament

There are two major neuroendocrine stress-sensitive systems in the human body: the sympathetic-adrenomedullary system and the hypothalamic-pituitary adrenocortical (HPA) system (Palkovitz, 1987). Both systems affect metabolism, thereby increasing the energy available for action (Palkovitz, 1987). Both systems also influence emotions and cognitions (deWied & Croiset, 1991) as well as activity of the immune system (Borysenko, 1984).

The primary hormonal product of the HPA system, the system of focus in this study, is cortisol. Known as a stress hormone, in addition to physical trauma, psychological events are known to produce elevations in cortisol (Mason, 1968). Increased HPA activity giving rise to elevations in cortisol levels is often associated with reports of emotional distress. Ursin, Baade, and Levine (1978) noted such results in a factor analytic study of cortisol and emotion and parachute trainees. These researchers found that among the trainees, increased HPA activity accompanied fear and distress.

The activity of the HPA system has traditionally been a central focus of physiological studies of stress (Mason, 1975; Rose, 1980). There are more studies that measure cortisol response to stressors than for any other hormone and these have been extensively reviewed (Rose, 1980, 1984). Some studies have focused on the effects of a stressor and measure cortisol changes pre and post stressor. Other studies have focused on individuals' HPA reactivity to the *anticipation* of a potential stressful event like the anticipation of surgery (Czeisler, Moore, & Regestein, 1976); the anticipation of a

medical examination (Mason, 1968) and the anticipation of exhausting exercise (Mason, et al., 1973).

Investigators have long been interested in identifying and tracing the development of individual differences particularly in children's stress reactivity (Boyce & Jemerin, 1990; Kagan, Reznick, & Snidman, 1987, 1988). Much of the research in this area has used behavioral or physiological response to stressful situations as measures of temperament for infants and young children (see Boyce & Jemerin, 1990; Granger, Weisz, McCracken, Ikeda, & Douglas, 1996; Gunnar, 1994; Kagan, et al., 1987, 1988). And much of the research of the physiology of temperament has been directed at understanding the psychobiology of behavioral inhibition (Clarke, Mason, & Moberg, 1988; Davidson, 1992; Kagan, et al., 1988). For example, Kagan, Snidman, and Arcus (1992) have argued that about 15-20% of all Caucasian children are born with a physiology that biases them to become behaviorally inhibited at age two when confronted with unfamiliar people, places, or events. Another 30-35%, they have argued, are born with a physiology that biases them to approach the unfamiliar.

Temperament, although assessed by physiological indicators of stress for infants and children, has most often been measured by self-report questionnaires for adults (see Dubuis-Stadelmann, Fenton, Ferrero, & Preisig, 2001; Lusk, MacDonald, & Newman, 1998; Worobey, 2001). This is exemplified by the fact that the literature on individual differences for children and adults has grown in divergent ways. In this study of young adults, temperament has been assessed by self-report using the EAS Temperament Survey (Buss & Plomin, 1984) and the physiological variable most often used by developmental researchers – HPA functioning, was also examined. In order to add to

the field's knowledge of individual differences, this study investigated whether individuals' temperaments as assessed by self-report questionnaire are correlated with their basal cortisol levels and cortisol reactivity to an anticipated conflict discussion task.

CHAPTER 4

THE CURRENT STUDY

This study first examined the relations between self-silencing and self-reported EAS temperament (Buss & Plomin, 1984). Given the position that some developmental researchers have regarding the importance of the role of temperament in behavioral coping, and that no studies had tested the assumption that self-silencing is unrelated to individual factors, the first question this study asked is whether there is a relation between an individual's temperament and her or his self-silencing. It was hypothesized that fearful and distressed temperaments would be positively related to self-silencing.

Jack's (1991) silencing the self theory posits that self-silencing is precipitated by context and even influenced by current relationships. In addition, research in close relationships supports the notion that both partners' personalities are integral to the outcome of the relationship. Therefore, another question this study addressed is whether partner temperament predicts an individual's self-silencing. Moreover, this study examined whether the relation between an individual's temperament to self-silencing is moderated by the partner's temperament. It was anticipated that partner temperament would moderate the relation between an individual's temperament and his or her self-silencing and that this relation may vary depending on gender. Theoretically, the Emotionality subscales of EAS temperament (anger, distress, and fear) seem to be more clearly related to self-silencing. Therefore, it was hypothesized that these three subscales: anger, distress, and fear would be significantly related to silencing the self. In addition, the relative strength of the correlations of the trait

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variable (an individual's own temperament) versus the contextual variable (partner's temperament) to self-silencing was tested.

As noted, several researchers have found that men self-silence as much or even more than women. Another question this study poses is if, in this sample of young adults, there are gender differences in self-silencing. Given previous findings, it was hypothesized that the males would self-silence more than the females in this sample.

With respect to temperament, given its broad nature, its physiological ties, and that cortisol is often a measure of temperament in infant and child studies, this study examined whether participants' basal cortisol levels or their cortisol reactivity to an anticipated conflict discussion task is empirically related to their self-reports of temperament.

CHAPTER 5

METHOD

<u>Participants</u>

This thesis utilized participants recruited for an ongoing study testing a

biopsychosocial model of adolescent depression conducted by Dr. Sally Powers at the

University of Massachusetts (UMass), Amherst. Couples are recruited from a voluntary

prescreening questionnaire administered to approximately 2,500 undergraduate students

enrolled in introductory psychology courses at UMass and via posters distributed on the

campuses of the five-college system of the Pioneer Valley as well as surrounding

community locations. Non-college community members are recruited through posters

placed in public locations. In order to participate, participants must be between the ages

of 18 and 20, and involved in a romantic relationship for at least two months.

Individuals in both same sex and opposite sex romantic relationships are invited to

participate. Both partners are required to participate and couples that meet these criteria

are asked to participate in the study, paid a total of $80 each and may earn class credit.

As of May 2002, 210 individuals had been recruited. The participants consisted

of 97 males and 113 females for the EAS temperament and self-silencing analyses with

a subset consisting of 65 males and 68 females for the cortisol analyses. The

differences in the number of participants was due to incomplete data for some of the

male participants and because there were two female same-sex couples in this sample.

Same-sex couples were included in all analyses except those that required both

members of the couple. The ages of the participants ranged from 18 to 20 years old

with a mean age of 19.3 years old (SD = .87). To date, this sample consists of 9 (5.3%)

Asian or Asian-Americans, 1 (0.6%) Native American, 2 (1.2%) African-American, 12 (7.1%) Hispanics, and 137 (80.6%) European-Americans. Eight (4.7%) participants chose "Other" as their racial backgrounds and 1 participant did not report his ethnic background. The ethnic distribution reported for the youth in this community by census data statistics collected in 2000 by the Massachusetts Institute for Social and Economic Research is: 6.1% Asian-American or Native American, 3.3% African-American, 3.9% Latino or Hispanic, and 86.7% European-American. The ethnic distribution for this sample is similar to that of the youth in the community; however, the sample for this study has a slightly higher total proportion of ethnic minorities. Despite the total proportion of ethnic minorities, there is a smaller percentage of Asian, Native American and African-American participants in this study than in the community.

Procedures

During an initial telephone-screening interview, participants were informed that this was a study about conflict negotiation between romantic partners and individuals' physiological reactions to these discussions. They were told to refrain from drinking alcohol, using illegal drugs, or visiting the dentist within 24 hours prior to participating in the study. They were asked not to exercise, eat, drink (except water), smoke cigarettes, or brush their teeth for up to 2 hours prior to the study as well. These guidelines were in place in order to avoid saliva contamination, which may alter the accuracy of the cortisol measurements. In addition, because cortisol levels follow a circadian rhythm, all participants in the study were invited into the lab at 4pm, as this is

during a period in the day during which cortisol levels are the most stable (Kirschbaum & Hellhammer, 1989).

When the participants arrived at the laboratory they were welcomed and given a review of the purpose and procedures of the study. They were told that the purpose of the study is to learn more about how romantic partners communicate with each other and about their physiological reactions to discussions with their partners. Participants were seated in one room at individual tables with computers, separated by a curtain. Their vision of each other was obstructed by the curtain in order to deter the couple from speaking and to maintain the confidentiality of their answers to questionnaires.

Participants were given two copies of the informed consent form as they were to take a copy home with them. Participants' temperatures were taken in order to ensure that they were not ill, as this can affect HPA functioning. If participants had elevated temperatures, reported feeling ill, or drank alcohol, used illegal drugs, experienced any mouth or gum abrasion in the past 24 hours, they were asked to reschedule. Finally, if either participant reported brushing teeth, eating, or drinking caffeinated beverages or exercising during the past two hours, the couple was asked to reschedule.

Next, participants filled out an Admission Questionnaire that asked questions about factors that can affect the accuracy of the cortisol measurement. These factors include: number of hours of sleep the previous night, daily medications or vitamins, the use of oral contraceptives, phase of menstrual cycle, and the possibility of pregnancy.

When the admissions form was completed, each participant was asked to submit the first saliva sample. Salivary cortisol was collected from each participant in accordance with the procedures set forth by Salimetrics, LLC, the laboratory that had

been contracted to analyze and calculate the cortisol levels in the participants' samples. Following advice from Salimetrics, participants were instructed to use a "passive drool method" when submitting their samples. Participants were asked to hold a small straw into a plastic vial and dispense saliva in this manner. After they did, the vial was tightly sealed and immediately placed into frozen storage (-20 degrees C) until shipped on dry ice to Salimetrics for analysis.

The first saliva sample was considered the baseline sample of cortisol for that individual. After the couple submitted their first sample, the couple was given a detailed description of the conflict task they were about to engage in and they filled out a form that asked them to name a topic of disagreement between them that currently remained unresolved. Participants separately chose a conflict topic with the understanding that they would be asked to discuss one of the topics they had submitted during the upcoming conflict task. Fifteen minutes following the detailed description of the task, during which the couple was told that, "for some couples, this discussion may take the form of an argument," each participant submitted a second saliva sample. This sample, when compared to the baseline sample, reflected any changes in that individual's cortisol level and revealed that person's physiological reactivity to the anticipated interpersonal conflict task. After the participants filled out the STSS and EAS questionnaires, data collection for this thesis was completed. However, for the rest of this session, the couple engaged in the actual conflict task and over the course of approximately two hours, submitted five additional saliva samples and completed other individual questionnaires.

<u>Measures</u>

<u>Assessment of Silencing the Self.</u> The Silencing the Self Scale (STSS; Jack & Dill, 1992) consists of 31 statements describing beliefs and behaviors in relationships, which each respondent endorsed on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5) (See Appendix A for a sample STSS questionnaire). Five scores, a global score (global self-silencing) and four subscale scores may be derived. A global self-silencing score, the sum of all the item scores, can range from 31 to 155, with higher scores reflecting greater silencing the self.

Initial research appears to support the validity of Jack's theory. She has found significant correlations between STSS and depressive symptoms, as measured by the Beck Depression Inventory (BDI) in three distinct samples of predominantly Caucasian women. Jack and Dill (1992), conducting the first study on the psychometric properties of the STSS, administered the measure to women in battered women's shelters, women who used cocaine during their pregnancies, and female college students. The validity of the scale was evident in that they found global STSS scores differed significantly as a function of the women's social and relational contexts. The women in the shelters obtained the highest scores and the undergraduate females, the lowest scores. Analyses also yielded high internal consistency with alpha coefficients for the global scores ranging from .86 to .94 across the three samples. Internal consistency has been demonstrated by other researchers as well with alpha coefficients ranging from .86 to .94 (Carr, Gilroy, & Sherman, 1996; Hart & Thompson, 1996; Jack & Dill, 1992; Page & Stevens, 1996). In the current study, internal consistency for the global score was also demonstrated with an alpha of .87.

Construct validity has also been affirmed through several studies of the scale's association with other predicted variables. Examples include: eating disorders in Cawood's 1998 study (as cited in Jack, 1991), "loss of self" in Drew and Heesacker's 1998 study (as cited in Jack, 1991), lack of mutuality in Penza, Reiss, and Scott's 1997 study (as cited in Jack, 1991), marital distress (Thompson, 1995), perceived power in relationships, insecure attachment, and a lack of intimacy among women (Cowan, Bommersbach, & Curtis, 1995). Furthermore, construct validity of the scale has been demonstrated through replication of subscale structures with samples of Asian American, African American, Hispanic, and non-Hispanic Caucasian women and men (Duarte & Thompson, 1999; Gratch et al., 1995; Stevens & Galvin, 1995). Page and Stevens (1996) established the test-retest reliability of the STSS (r = .88 to .93).

Assessment of Temperament. The Emotionality, Activity, and Sociability Adult Temperament Survey (EAS) (Buss & Plomin, 1984) was selected for use in this study because of its brevity, established reliability, grounding in behavior genetics, and suitability for young adults. The EAS consists of 20 items that are endorsed on a scale from *not characteristic of oneself* (1) to *very characteristic* (5) (See Appendix B for a sample EAS Temperament Survey). This instrument has been shown to have three independent dimensions of Emotionality, Activity, and Sociability; and Emotionality has three subscales: Distress, Fear, and Anger. Buss and Plomin (1984) report test-retest correlations for these five dimensions that range from .75 to .85, and the dimensions also show good discriminant validity. Internal consistency for the EAS temperament subscales for this study ranged from .60 to .75.

Distress, fear, and anger (the EAS Emotionality subscales) measure variation in the tendency for negative emotional arousal. Activity is defined as the expenditure of physical energy and it refers to an individual's tempo or pace. It consists solely of movements of the head, arms, legs, and body and excludes potentially related cognitive processes. Persons with temperaments high in activity are seen as active and energetic. Sociability assesses an individual's preference for social interaction. Sociability is defined as a preference for being with others rather than remaining alone. Individuals high on sociability enjoy others' company and dislike being alone. Those who are low on the trait of sociability also like to be with others but they are less motivated to do so and they easily tolerate being alone (Buss & Plomin, 1984; Digman, 1990).

Assessment of HPA Functioning. HPA functioning was assessed by measuring basal cortisol levels and anticipatory cortisol reactivity (ACR) to a conflict discussion task. The first sample submitted by participants in this study was considered the basal level of cortisol for that individual. It was taken prior to giving the participants questionnaires to complete. Each individual's ACR to the conflict discussion task was evaluated using the first and second samples of salivary cortisol. The second sample was submitted 15 minutes after the couple was given a description of the conflict task they were to engage in and reminded that, "this task may take the form of an argument." This sample contained cortisol level changes that were in response to the anticipation of the conflict discussion task. Subtracting a participant's basal level (B) from the anticipatory level (A) was considered to reveal that participant's anticipatory cortisol reactivity (ACR) to the conflict task (ACR=A-B).

Analytic Strategy

Prior to addressing the major questions of this study, descriptive statistics were run for all independent and dependent variables. Correlational analyses were then used to examine the relations between the individual EAS temperament subscales and self-silencing. Then, correlations were run for partner EAS temperament subscales and self-silencing to reveal the relations between self-silencing and the context provided by the partner's temperament. Next, simultaneous multiple regression analyses were conducted to investigate the moderating effects of the context variables (partner temperaments) on the relation between individuals' temperaments and self-silencing.

For the second half of this study, in order to uncover the relations between HPA functioning, a physiological indicator of stress, to self-reported temperament, correlations were run between the EAS temperament variables to individuals' basal cortisol and to ACR. Similar to the analyses used for EAS and self-silencing, correlational analyses were next conducted to examine the relations between individuals' HPA functioning (basal cortisol and ACR) to self-silencing. Then, correlations for partner HPA functioning and self-silencing were conducted. Simultaneous multiple regression analyses were run to assess the moderating effects of partner HPA functioning and gender on these relationships.

Finally, Fischer's z statistic was calculated to evaluate the relative strength of correlations of the trait variables (individual temperament and cortisol reactivity) to self-silencing versus the context variables (partner temperament and cortisol reactivity) to self-silencing.

CHAPTER 6

RESULTS

Gender Differences and Similarity Between Couple-Members

Prior to addressing the major questions of this study, descriptive statistics on the independent and dependent variables were calculated for males and females. Means and standard deviations are reported in Table 1. Gender differences were found for self-silencing and for EAS temperament subscales. Females reported significantly higher levels of distress, fearfulness, activity, and sociability temperaments than males. Males reported significantly higher levels of self-silencing than females. No significant gender differences were found for basal cortisol or ACR.

To examine similarity between couple-members, males' and females' scores for each EAS temperament subscale were correlated. The weak correlations for the temperament subscales (ranging from .00 to .14) indicate that there was relatively little assortive mating with regard to temperament in the present sample. This is consistent with previous research on personality (Robins et al., 2000; Krueger, Moffitt, Caspi, Bleske & Silva, 1998; Waller & Shaver, 1994) and temperament (Stevenson & Fielding, 1985).

Relations Between Individual and Partner Self-reported Temperament to Self-silencing

As hypothesized, persons with temperaments characterized by fear and by distress tended to self-silence (see Table 2). For males and for females, fearful temperaments and distressed temperaments were significantly associated with self-

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silencing. There were no significant gender differences between males' and females' correlation coefficients as Fischer's z statistic ranged from .149 to 1.17. As shown in Table 2, no other significant correlations were found among the individual EAS temperaments and self-silencing. There were no significant correlations between partner temperament and self-silencing (see Table 3).

In order to test the relative strength of the correlations of the trait variable (individual self-reported temperament) versus the context variable (partner self-reported temperament) to self-silencing, Fischer's z statistic was calculated to compare correlation coefficients for the relations between individual EAS temperament variables to self-silencing and between partner EAS temperament variables to self-silencing. Only for males was there a significant difference and a difference approaching significance. The correlation between individual distressed temperament and self-silencing was significantly different from the correlation between partner distressed temperament and self-silencing, ($\underline{z} = 1.65$, $\underline{p} = .05$). Also for males, there was a difference approaching significance between the relations for individual fearful temperament to self-silencing and partner fearful temperament to self-silencing, ($\underline{z} = 1.24$, $\underline{p} = .10$). In both cases, males' own temperament was more strongly related to their self-silencing than was their partners' temperament.

The Moderating Role of Partner Self-reported Temperament on the Relation Between Individual Self-reported Temperament and Self-silencing

One of the primary interests of this study was to test the hypothesis that partner temperament moderates the relation between an individual's temperament to his or her self-silencing. Simultaneous multiple regression analyses were conducted to explore

the hypothesis (see Tables 4 and 5). Regression equations were conducted separately for males and for females. Self-silencing was regressed on individual temperament, partner temperament and the interaction between individual and partner temperament. When a significant interaction was found between individual and partner temperament, a mean-split method was used to divide participants into a high and a low scoring group based on the relevant temperament subscale score. Correlations between self-silencing and the temperament subscale were then run separately for the high and low scoring groups in order to interpret the interactions. Main effects found in these analyses confirmed earlier correlations.

Same Temperament. As shown in Table 4, simultaneous multiple regressions were conducted using the same EAS temperament for each couple-member. Individual and partner sociable temperaments significantly interacted to predict self-silencing in males only. Subsequent correlations conducted to interpret this interaction revealed that for males with temperaments high in sociability, there was a negligible negative relation between partner sociability and these males' self-silencing (r = -.01, p = .93). For males with temperaments low in sociability, there was a significant positive relation between partner sociability and these males' self-silencing (r = .21, p = .04). These results indicate that when partners are matched on sociable temperament, males' self-silencing is not affected but when there is a difference in partners' sociability levels and the male has a temperament low in sociability, he is more likely to self-silence.

A significant interaction was found between individual and partner distressed temperaments predicting self-silencing in males and a similar trend was found for

females. Correlations between partner distress and self-silencing were run separately for the high and low distress groups for both males and females.

For males with temperaments high in distress, there was a small positive relation between partner distressed temperament and these males' self-silencing ($r = .13$, $p = .16$). For males with temperaments low in distress, there was a significant positive association between partner distress and these males' self-silencing ($r = .40$, $p = .00$). Thus, particularly for males with temperaments low in distress, the higher the level of distressed temperament their partners have, the more they self-silence.

A similar pattern was found for females. For females with temperaments high in distress, there was a positive yet negligible correlation between partner distress and these females' self-silencing ($r = .06$, $p = .66$). For females with temperaments low in distress, there was a significant positive relation between partner distress and these females' self-silencing ($r = .31$, $p = .00$). The higher the level of distressed temperament their partners have, the more females with temperaments low in distress will self-silence.

Also found was a trend toward an interaction between individual and partner fearful temperament predicting self-silencing for males. Subsequent correlations revealed that for males with temperaments high in fearfulness, there was a negligible positive correlation between partner fearfulness and these males' self-silencing ($r = .09$, $p = .37$). For males with temperaments low in fearfulness, there was a positive correlation approaching significance between partner fearfulness and these males' self-silencing ($r = .21$, $p = .06$). For a male with a temperament low in fearfulness, the more fearful his partner's temperament, the more his self-silencing increases.

<u>Particular Combinations.</u> Simultaneous multiple regressions were conducted using every possible combination of EAS couple-temperaments (see Table 5). Several significant findings and results approaching significance were found. Individual fearful temperament and partner distressed temperament interacted to significantly predict self-silencing in females only. Subsequent correlations revealed that for females with temperaments high in fearfulness, there was a small positive association between partner distressed temperament and these females' self-silencing ($\underline{r}$ = .12, $\underline{p}$ = .34). For females with temperaments low in fearfulness there was also a positive, yet in this case significant, relation between partner distressed temperament and these females' self-silencing ($\underline{r}$ = .27, $\underline{p}$ = .00). For a female, the more distressed her partner, the more she will self-silence and this is particularly true for a female with a temperament low in fearfulness.

An interaction was found for individual distressed temperament and partner fearful temperament to significantly predict self-silencing in males only. Relevant correlations showed that for males with temperaments high in distress, there was a negligible positive correlation between partner fearful temperament and these males' self-silencing ($\underline{r}$ = .09, $\underline{p}$ = .34). For males with temperaments low in distress, there was a significant positive association between partner fearfulness and these males' self-silencing ($\underline{r}$ = .31, $\underline{p}$ = .01). For a male with a temperament low in distress, the more fearful his partner, the more he will self-silence.

Individual angry temperament and partner distressed temperament interacted to significantly predict self-silencing in females only. Subsequent correlations showed that for females with temperaments high in anger, there was a negligible positive

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relation between partner temperament and these females' self-silencing ($r = .09$, $p = .41$). However, there was a significant positive relation between partner distressed temperament and self-silencing for females with temperaments low in anger ($r = .33$, $p = .00$). For a female with a temperament low in anger, the more distressed her partner, the more she will self-silence.

Individual fearful temperament and partner active temperament interacted to significantly predict self-silencing for females only. Subsequent correlations revealed that for females with temperaments high in fear, a moderate negative association was found between partner active temperament and these females' self-silencing ($r = -.48$, $p = .08$). For females with temperaments low in fear, a negligible correlation was found between partner active temperament and these females' self-silencing ($r = .02$, $p = .89$). The more active her partner, the less females with temperaments high in fear will self-silence.

Individual active temperament and partner fearful temperament interacted to significantly predict self-silencing in males only. Relevant correlations demonstrated that for males with temperaments high in activity, there was a negligible positive association between partner fearful temperament and these males' self-silencing ($r = .01$, $p = .96$). For males with temperaments low in activity, there was a significant positive correlation between partner fearful temperament and these males' self-silencing ($r = .35$, $p = .00$). For males with temperaments low in activity, the more fearful their partners' temperaments, the more these males will self-silence.

For females only, individual angry temperament and partner sociable temperament interacted at a trend level to predict self-silencing. Subsequent

correlations showed that for females with partners whose temperaments were high in sociability, there was a small positive correlation between these females' angry temperaments and their self-sileneing ($r = .15$, $p = .14$). For females with partners whose temperaments were low in sociability, the association between these females' angry temperaments and their self-sileneing was small, yet this time, negative ($r = -.14$, $p = .27$). These results show that for females whose partners have temperaments high in sociability, the more angry these females' temperaments, the more they self-silence. However, for females whose partners have temperaments low in sociability, the more angry their temperaments, the less they will self-silence.

Individual distressed temperament and partner sociable temperament interacted at a trend level to prediet self-sileneing in females only. Relevant correlations revealed that for females with temperaments low in distress, there was a negligible positive association between partner sociability and these female's self-sileneing ($r = .03$, $p = .70$). For females with temperaments high in distress, there was a positive relation between partner sociable temperament and these females' self-sileneing ($r = .20$, $p = .13$). The more social their partners are, the more females with temperaments high in distress will self-silence.

Individual fearful temperament and partner angry temperament interacted on a trend level to prediet self-sileneing in males only. Relevant correlations conducted to interpret this interaction showed that for males with temperaments high in fearfulness, there was a negligible negative association between partner angry temperament and these males' self-silencing ($r = -.03$, $p = .75$). For males with temperaments low in fearfulness, a significant positive correlation was found between partner angry

temperament and these males' self-silencing ($r = .25$, $p = .02$). These results indicate

that for a male with a temperament low in fearfulness, the more angry his partner's

temperament, the more he will self-silence.

For males only, individual distressed temperament and partner active

temperament interacted on a trend level to predict self-silencing. Subsequent

correlations were run for males with partners whose temperaments were high or low in

activity. For males with partners whose temperaments were low in activity, there was

negligible positive association between these males' distressed temperaments and their

self-silencing ($r = .05$, $p = .63$). For males with partners whose temperaments were high

in activity, these males' distressed temperaments and their self-silencing were

significantly and positively correlated ($r = .28$, $p = .01$). As shown by earlier

correlational analyses, males distressed temperaments and self-silencing are positively

associated. However, these results indicate that for males, when their partners have

temperaments low in activity, the association between these males' distressed

temperament and self-silencing is negligible.

Is HPA Functioning Related to EAS Self-reported Temperament?

This study examined the relation between individuals' HPA functioning (as

assessed by basal cortisol level and anticipatory cortisol reactivity to the conflict

discussion task) and EAS self-reported temperament. Correlations between these

variables were run separately for females and males (see Table 6). Only one relation

approached significance: EAS activity and basal cortisol was related on a trend level for

males. No significant correlations were found between EAS temperament subscales and ACR.

Relations Between Individual and Partner HPA Functioning to Self-silencing

The other primary interest of this study was to understand the relation between HPA functioning and self-silencing. Correlations were run for basal cortisol and self-silencing, as well as for anticipatory cortisol reactivity (ACR) and self-silencing. Then, correlations were run for partner basal cortisol and self-silencing, as well as partner ACR and self-silencing. All correlations were conducted separately for males and females (see Table 7). Fischer's z statistic was calculated for males' and females' correlation coefficients to reveal any significant gender differences.

Basal Cortisol. Basal cortisol levels were positively correlated with self-silencing for females, but not for males. Using Fischer's z statistic, it was found that the difference between males' and females' correlation coefficients approached significance, ($z = 1.39$, $p = .08$). No significant relation was found between partner basal cortisol and self-silencing for either males or females.

Anticipatory Cortisol Reactivity. No significant correlations were found between individual ACR and self-silencing for either males or females. However, a significant negative correlation was found between partner ACR and own self-silencing for males only. Using Fischer's z statistic, it was found that males' and females'

correlation coefficients for these variables were significantly different from each other ($\underline{z} = 2.55$, $\underline{p} = .01$).

To test the relative strength of the correlations of the trait variable (individual HPA functioning) versus the context variable (partner HPA functioning) to self-silencing, Fischer's z statistic was calculated for the individual HPA functioning and self-silencing correlations and the correlations for partner HPA functioning and self-silencing for males and females. For females, the association between individual basal cortisol level and self-silencing was significantly stronger than the correlation between partner basal cortisol level and self-silencing, ($\underline{z} = 1.91$, $\underline{p} = .03$). The trait variable (individual basal cortisol level) had a stronger relation to females' self-silencing than the context variable (partner basal cortisol level).

For males, partner ACR had a significantly stronger association to their self-silencing than individual ACR and self-silencing, ($\underline{z} = 2.07$, $\underline{p} = .02$). For males, the context variable (partner ACR) had a stronger association to their self-silencing than the trait variable (individual ACR).

<u>The Moderating Role of Partner HPA Functioning on the Relation Between Individual HPA Functioning to Self-silencing</u>

<u>Basal cortisol.</u> Simultaneous multiple regression analyses were run to examine if partner basal cortisol level moderates the relation of an individual's basal cortisol level to his or her self-silencing. Regressions were conducted separately for males and females. Self-silencing was regressed on basal cortisol for the individual and on basal cortisol for the partner, as well as on the interaction term for individual and partner

basal cortisol. As shown in Table 8, no interaction effects were revealed in these analyses and main effects confirmed prior correlational analyses.

Anticipatory cortisol reactivity. Simultaneous multiple regression analyses were run to examine if partner ACR moderates the relation of an individual's ACR to his or her self-silencing. These regressions were also run separately for males and females. Self-silencing was regressed on ACR for the individual, ACR for the partner, as well as on the interaction term for individual ACR and partner ACR. Like the analyses using basal cortisol, no interaction effects were revealed and main effects confirmed prior correlational analyses (see Table 8).

CHAPTER 7

DISCUSSION

The first half of this study confirms that self-reported EAS temperaments of distress and fear are associated with self-silencing for both males and females. This finding demonstrates that self-silencing is not only contextually influenced but is also influenced by personal traits. In addition, this study found that the relation between an individual's temperament and self-silencing is moderated by his or her partner's temperament. Consistently, the couple-combinations in this study that consisted of one member with a temperament high in Emotionality (anger, fear or distress) and a member with a temperament low in Emotionality, predicted self-silencing in the low-Emotionality member. The second half of this study contributes exploratory findings that HPA functioning, although different from self-reported temperament, is related to self-silencing. In addition, the relation between HPA functioning and self-silencing is different for males and females. Thus, for the couples in this study, both trait and interpersonal context predict self-silencing.

Gender Differences in Self-Silencing and EAS Temperament Subscales

Adding to the literature on gender differences in self-silencing, this study found that for this sample of young adults, males self-silenced significantly more than females. Although originally thought to occur more frequently with females (Jack, 1991), other studies have also found that males self-silence more than or as much as

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females (Cowan, et al., 1995; Hart & Thompson, 1996; Jack & Dill, 1992; Page & Stevens, 1996; Thompson, 1995)

The gender differences for the EAS temperaments subscales reported in this study replicate the findings of previous studies (see Buss & Plomin, 1984; Lusk, et al., 1998; Worobey, 2001). Like this study, Buss and Plomin (1984) and other researchers (Lusk, et al., 1998; Worobey, 2001) have reported that females score higher on fearfulness than males. The finding that females scored significantly higher on distress, although not reported by Buss and Plomin (1984), has been found in other studies (see Lusk et al., 1998; Worobey, 2001). The findings that females endorse higher levels of fearfulness and distress are compatible with evolutionary (MacDonald, 1988, 1995) and social- structural perspectives (for reviews see Koss, Goodman, Browne, Fitzgerald, Keita, Russo, 1994; Szockyj & Fox, 1996). From the evolutionary perspective, females are expected to take fewer risks and to be more prone to fear and behavioral inhibition. From a social-structural perspective, women's pervasive victimization in the home, workplace and in the community may induce higher levels of fearful and distressed temperaments in females by adolescence.

The finding that females score higher on the fearfulness and the distress subscales is also consistent with how males and females have been socialized. Buss (1991) has theorized that since girls are allowed to express their fears and boys are expected to deny these feelings, that by adolescence, the impact of socialization may be strong enough to produce a clear sex difference with respect to fear. This socialization hypothesis also seems compatible with this study's gender difference in distress.

The finding that the females in this study scored themselves significantly higher on sociability has been found in at least one other recent study using a college sample (Worobey, 2001). This finding is not surprising as starting in late childhood, girls have been found to be significantly more sociable than boys and this difference becomes more stable in adolescence and remains during adulthood (Buss, 1991).

The Relation of Individual Self-reported EAS Temperament to Self-silencing

As hypothesized in Chapter 1, individuals' distressed and fearful temperaments are significantly related to self-silencing. Fear and distress are at the heart of silencing the self theory. Specifically, the theory postulates that self-silencing is a form of behavioral coping which is utilized due to the fear of loss of relationship and the subsequent distress of the "overwhelming feelings of loss of connection, inauthenticity, and loss of self" (Jack, 1999, p. 227). However, fearful and distressed temperaments are different from reacting with fear and distress to loss. This finding argues that individual differences in typical tendencies of perceiving or reacting also matter in self-silencing.

The centrality of negative emotions that this study found to be related to self-silencing fits with other relationship literatures, particularly the marital quality literature. Gottman (1994), using the Multidimensional Personality Questionnaire (Tellegen, 1982), found that High Negative Emotionality individuals are prone to express four behaviors that he identified as detrimental to relationships. One of these behaviors is "stonewalling" – withdrawal through silence or passive resistance from partner "demand" behaviors for change, intimacy, or engagement. Although it is

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beyond the scope of this study to assess the impact of self-silencing on relationship quality, stonewalling has been identified by Jack (1999) as a form of behavioral coping males employ that is similar in appearance to silencing the self. Research is needed to empirically assess the impact of self-silencing on relationship quality.

The Moderating Role of Partner Self-reported Temperament on the Relation of Individual Self-reported Temperament to Self-silencing

This study's finding that partners' temperaments moderate the relation of individual temperament to self-silencing shows that predictions of self-silencing are not simply "individual trait" or "context" dependent, but are in some cases affected by an interaction of individual traits and context. Like other temperament researchers, Buss (1991) has posited that a person's temperament can affect the proximal environment by setting a tone in interactions with others. The most prominent pattern found among the results in this study is that when couple-members who have temperaments low in Emotionality (anger, distress or fear) are paired with persons with a temperament high in Emotionality, the low-Emotionality members are more likely to self-silence. This robust finding was found for both males and females.

Jack (1999) has theorized that self-silencing behaviors and cognitions are environment-dependent and that even certain close relationships can be environments that will elicit self-silencing. The findings of this study support her theory. It may be that the experience of being in a romantic relationship with a person who is prone to anger, fear or distress elicit self-silencing cognitions in the low-Emotionality partner like: "Caring means putting the other person's needs in front of my own"; "I think it's better to keep my feelings to myself when they do conflict with my partner's"; "Instead

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of risking confrontations in close relationships, I would rather not rock the boat"
(STSS; Jack & Dill, 1992). It is also possible that couple-members low in anger,
distress or fear are simply more *able* to inhibit their self-expression and are attempting
to take care of their partners in order to make interactions less difficult with partners
whose temperaments are prone to anger, distress or fear. This raises the question,
"When is self-silencing an adaptive form of coping?" As it is beyond the scope of this
study to speculate about this, a follow-up study, using this sample will attempt to
address this question.

Activity.   As no theoretical link was made with regard to the activity subscale
and self-silencing, these exploratory findings were unexpected. As the activity subscale
is purely an assessment of expenditure of physical energy and is not to reflect
cognitions which may underlie it, it is difficult to understand its role in self-silencing.
Buss (1991) has described a person with a temperament high in activity as not only
engaging in large physical movements, but also one who may raise the level of sound
and the pace of an interaction. It is possible that couple-members who have tendencies
to do this, via speaking loudly or quickly, may influence their partners' and their own
self-silencing. More research is needed in order to understand the role the activity
temperament dimension may play in couples' interactions and coping.

Sociability. Exploratory analyses revealed that the match between partners'
sociability predicted self-silencing for men only. Moreover, the more discrepant the
sociability levels between couple members, the more self-silencing increased in males,

particularly for males with temperaments low in sociability. Buss (1991) discussed the sociability subscale as a measurement of the preference to be with others rather than alone. It is possible that these males cope with this difference in preferences by self-silencing. Although quality of relationship was not tested in this study, it is interesting to note that some researchers have found that when spouses differ along the extraversion personality dimension (similar to sociability), their quality of marriage is slightly worse (Russell & Wells, 1991). Trend-level findings that sociability plays a role in predicting self-silencing in females further indicate that more research is needed in order to understand the role sociability plays in romantic relationships.

HPA Functioning and EAS Temperament

The most consistent finding in HPA research is that when individuals are challenged with the same environmental events, the experience has minimal physiological consequences for some, but substantial physiological sequelae for others. This robust pattern of individual differences led to this study's interest in examining the relation of self-reported temperament to a physiological measure of stress. Furthermore, given that temperament is often assessed by physiological indicators of stress for infants and children (see Boyce & Jemerin, 1990; Granger, et al., 1996; Gunnar, 1994; Kagan, et al., 1987, 1988) but adult temperament is most often measured by self-report questionnaires (see Dubuis-Stadelmann, et al., 2001; Lusk et al., 1998; Worobey, 2001), in order to add to the field's knowledge of individual differences, this relation was investigated.

Only one relation which approached significance was found between the EAS temperament subscales to basal cortisol. Males' basal cortisol was positively correlated at a trend level to their active temperament. This exploratory finding was not expected but may be understood as a physiological reflection of a tendency to be physically active. No significant relation was found between ACR and the EAS temperament subscales. Thus, for these couples, for the most part, self-reported temperament dimensions are not reflected in neither their resting cortisol levels nor their anticipatory stress reactivity. It is possible that reactivity to the actual conflict task may have revealed more of a relation to participants' EAS temperaments; future analyses using this sample will investigate this question. However, this finding indicates that substantially different aspects of individual differences were being measured in the current study.

HPA Functioning and Silencing the Self

In the hopes of understanding further the relations between different types of individual-level variables on self-silencing, this study is the first to examine the relation between HPA functioning and self-silencing. The exploratory findings that HPA functioning is related to self-silencing contribute further evidence of the importance of combining psychophysiological and behavioral research. In addition, gender differences found among these relations highlight the relevance of considering gender in investigations of behavioral coping in romantic relationships.

Basal cortisol levels were associated to self-silencing for females only. One of the best-replicated findings in biological and psychopathology research is that depressed

individuals often hypersecrete cortisol, presumably because of activation of the HPA (see Joyce, Mulder, Cloninger, 1994). As noted earlier, depression and self-silencing is strongly associated for females. Although no implications for causality can be drawn from this statistical study, it is possible that the association between basal cortisol levels and self-silencing reflect depressive symptomatology for the females in this study. Further, in a study of temperament and hypercortisolemia in depression, it was found that the dependence and extravagance dimensions of temperament, not depressive symptoms, were the major determinants of the hypercortisolemia observed in depressed patients (Joyce, et al., 1994). Although there are no obvious links between extravagance and self-silencing, it is possible that self-silencing cognitions are similar to those of a dependent temperament. Further research on the biology of individual differences and behavioral coping should continue to elucidate these relations.

Also found was a negative relation between female partners' ACR and males' self-silencing. For females, as partners' self-silencing decreased, their ACR increased. Interestingly, this finding can be interpreted as cortisol reactivity to a romantic partner's interpersonal conflict style. It is possible this finding reflects females' apprehension to a conflict task with partners they know are *not* self-silencers. A person who scores low on self-silencing is not discussed much by Jack but would be a person who may endorse these reverse scored items, for example: "I think it is best to put myself first as no one else will look out for me," or "I speak my feelings with my partner, even when it leads to problems or disagreements," (STSS; Jack & Dill, 1992). This finding offers insight into the possible effects of a couple-member's coping style on a member's physiological reactivity.

Tests of the relative strength of the correlations of the trait variable (individual HPA functioning) versus the context variable (partner HPA functioning) to self-silencing also revealed different results for females and males. For females, there was no significant difference between the relation of individual ACR and partner ACR to their self-silencing. In contrast, individual basal cortisol had a stronger relation to females' self-silencing than did their partners' basal cortisol. With respect to this basal indicator of physiological individual differences, the trait rather than the context had a stronger relation to females' self-silencing.

For males, the relative strength of individual basal cortisol versus partner basal cortisol was not significantly different. Instead, for males, partner anticipatory cortisol had a stronger association to their self-silencing than their own anticipatory cortisol levels. Here, the context rather than the trait had a stronger relation to males' self-silencing. It is possible that with a larger sample, this finding would also have surfaced for the females in this study as the significance level approached a trend level.

Analyses of the moderating role of partner HPA functioning on the relation between individual HPA functioning and self-silencing revealed no significant results. Physiological responses of a partner may simply exert too little influence on the relation between an individual's own HPA activity and his or her self-silencing. In addition, a possible explanation for this is that the cortisol subset sample size in this study was not large enough to reveal moderation effects.

Although these particular analyses did not reveal significant results, this study did show that HPA functioning is related to self-silencing. It is important to include physiological measures in investigations of behavioral coping in relationships as they

offer more information about how an individual enters into a conflict in a specific close relationship (feeling fearful or feeling angry, for example). Using physiological indicators also offers insight into the relation of stress and behavioral coping. Basal cortisol levels offer a window into typical HPA activity which, as shown by the findings of this study, may offer evidence of the relation between physiology and behavioral coping. In addition, unlike a global assessment of temperament indicating whether an individual tends to be fearful across situations, measuring cortisol reactivity to an actual anticipated interpersonal conflict may be a more sensitive indicator of an individual's temperamental reaction to specific contexts. This may be particularly true in terms of close relationships and in terms of finding individual differences related to behavioral coping within close relationships.

Limitations

Besides the small subset sample size for the HPA analyses, this study has several other limitations. As true with all studies of this nature, it is impossible to determine causality in this study. Beyond this study's correlational contributions and evidence of the moderating role partner temperament plays in the relation of an individual's temperament and self-silencing, we do not know what other variables may moderate and mediate these relations. In addition, it would have been helpful to have had antecedent or longitudinal romantic relationship information for the participants to verify if indeed these participants' self-silencing would vary depending on their previous or future partners' temperaments. Further, this sample was nearly entirely comprised of young adults in relationships while in college. It is possible that the

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present findings will not generalize to older adults or to long-term marital relationships. Finally, these findings may appear to some readers to be too weak to be clinically significant. However, relationship outcomes are determined by a complex set of factors and it is not expected that temperament will exhaustively account for an individual's self-silencing. Yet, it is reasonable to believe that it is of vital significance to explain even a small percentage of the variance when it comes to relationship research and behavioral coping in romantic relationships.

Conclusions

This study makes several important contributions. First, it provides empirical evidence that predictors of self-silencing are not simply "trait" or "context" based. Interestingly, for the couples in this study, an interaction of both their traits and the context of their temperaments predicted their self-silencing. With respect to self-silencing, this study demonstrates that predictions can be made based on combinations of certain temperamental dimensions. High Emotionality persons paired with low Emotionality persons predicted self-silencing in the low-Emotionality couple-members. Given the previous correlational evidence which shows that low distress and low fear individuals are not likely to self-silence, it is interesting to see that when these individuals are in a specific context – that is, they are paired with a high-Emotionality partner – they are now likely to self-silence. As Jack has postulated, contexts matter when it comes to self-silencing in relationships. However, this study offers the first evidence that traits also affect self-silencing; for example, EAS temperaments of distress and fearfulness are associated with self-silencing.

Second, beyond its specific findings, this study highlights the importance of including individual differences in relationship research. It is important to study the individual parts of a relationship – like couple-members' temperaments or HPA functioning. However, even these traits are a part of a dynamic system within which the *combination* of couples' temperaments may predict partners' behavioral coping.

This study found that in addition to self-reported temperament, HPA functioning is related to self-silencing. Physiology, specifically HPA functioning, may play a role in behavioral coping for persons in romantic relationships. It is important that researchers include physiological indicators of individual differences in their investigations of behavioral coping in romantic relationships.

Finally, these findings further relay the importance of bridging seemingly disparate areas of research. This study has combined elements of feminist and individual differences research. It is this author's hope that this study will inspire more investigations utilizing varied literatures.

APPENDIX A

MEASURES

THE SILENCING THE SELF SCALE

(Jaek & Dill, 1992)

Please circle the number that best describes how you feel about eaeh of the statements listed below.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree

1. I think it is best to put myself first beeause no one else will look out for me.

       1   2   3   4   5

2. I don't speak my feelings in an intimate relationship when I know they will eause disagreement.

       1   2   3   4   5

3. Caring means putting the other person's needs in front of my own.

       1   2   3   4   5

4. Considering my needs to be as important as those of the people I love is selfish.

       1   2   3   4   5

5. I find it is harder to be myself when I am in a elose relationship than when I am on my own.

       1   2   3   4   5

6. I tend to judge myself by how I think other people see me.

       1   2   3   4   5

7. I feel dissatisfied with myself beeause I should be able to do all the things people are supposed to be able to do these days.

       1   2   3   4   5

8. When my partner's needs and feelings confliet with my own, I always state mine elearly.

       1   2   3   4   5

9. In a close relationship, my responsibility is to make the other person happy.

       1   2   3   4   5

10. Caring means choosing to do what the other person wants, even when I want to do something different.

       1   2   3   4   5

11. In order to feel good about myself, I need to feel independent and self-sufficient.

     1   2   3   4   5

12. One of the worst things I can do is be selfish.

     1   2   3   4   5

13. I feel I have to act in a certain way to please my partner.

     1   2   3   4   5

14. Instead of risking confrontations in close relationships, I would rather not rock the boat.

     1   2   3   4   5

15. I speak my feelings with my partner, even when it leads to problems or disagreements.

     1   2   3   4   5

16. Often I look happy enough on the outside, but inwardly I feel angry and rebellious.

     1   2   3   4   5

17. In order for my partner to love me, I cannot reveal certain things about myself to him/her.

     1   2   3   4   5

18. When my partner's needs or opinions conflict with mine, rather than asserting my own point of view I usually end up agreeing with him/her.

     1   2   3   4   5

19. When I am in a close relationship I lose my sense of who I am.

     1   2   3   4   5

20. When it looks as though certain of my needs can't be met in a relationship, I usually realize that they weren't very important anyway.

     1   2   3   4   5

21. My partner loves and appreciates me for who I am.

     1   2   3   4   5

22. Doing things just for myself is selfish.

     1   2   3   4   5

23. When I make decisions, other people's thoughts and opinions influence me more than my own thoughts and opinions.

       1   2   3   4   5

24. I rarely express my anger at those close to me.

       1   2   3   4   5

25. I feel that my partner does not know my real self.

       1   2   3   4   5

26. I think it's better to keep my feelings to myself when they do conflict with my partner's.

       1   2   3   4   5

27. I often feel responsible for other people's feelings.

       1   2   3   4   5

28. I find it hard to know what I think and feel because I spend a lot of time thinking about how other people are feeling.

       1   2   3   4   5

29. In a close relationship, I don't usually care what we do, as long as the other person is happy.

       1   2   3   4   5

30. I try to bury my feelings when I think they will cause trouble in my close relationship(s).

       1   2   3   4   5

31. I never seem to measure up to the standards I set for myself.

       1   2   3   4   5

EAS ADULT TEMPERAMENT SURVEY

(Buss and Plomin, 1984)

Rate each of the items using the following scale:

1 = Not at all characteristic of me
2 = Somewhat uncharacteristic of me
3 = Neither characteristic nor
    uncharacteristic of me
4 = Somewhat characteristic of me
5 = Very characteristic of me

_____ 1 I like to be with people.

_____ 2 I usually seem to be in a hurry.

_____ 3 I am easily frightened.

_____ 4 I frequently get distressed.

_____ 5 When displeased, I let people know right away.

_____ 6 I am something of a loner.

_____ 7 I like to keep busy all the time.

_____ 8 I am known as hot-blooded and quick-tempered.

_____ 9 I often feel frustrated.

_____ 10 My life is fast-paced.

_____ 11 Everyday events make me troubled and fretful.

_____ 12 I often feel insecure.

_____ 13 There are many things that annoy me.

_____ 14 When I get scared, I panic.

_____ 15 I prefer working with others than alone.

_____ 16 I get emotionally upset easily.

_____ 17 I often feel as if I'm bursting with energy.

EAS ADULT TEMPERAMENT SURVEY (Continued)

_____ 18 It takes a lot to make me mad.

_____ 19 I have fewer fears than most people my age.

_____ 20 I find people more stimulating than anything else.

APPENDIX B

TABLES

Table 1

Means, Standard Deviations and T-Test Results for Independent and Dependent
Variables By Gender

Independent Variable	Females (n = 113)		Males (n = 96-97)		
	M	SD	M	SD	t
EAS Temperament Subscale					
Activity	3.35	.75	3.07	.71	-2.66**
Anger	2.77	.86	2.76	.85	-.08
Distress	2.80	.85	2.21	.78	-5.16***
Fearfulness	2.68	.87	2.01	.65	-6.27***
Sociability	3.80	.72	3.52	.72	-2.86**
HPA Functioning					
Basal Cortisol	.215	.123	.229	.143	.60
ACR	.031	.084	.056	.102	1.45
Dependent variable					
Global Silencing-the-Self	70.42	13.73	79.22	14.35	4.54***

Note. ACR = Anticipatory Cortisol Reactivity.
*p ≤ .05. **p ≤ .01. *** p ≤ .001.

Table 2

Correlations Between Females' and Males' Individual EAS Temperament Subscales to Self-Silencing and HPA Functioning to Self-Silencing

	Self-Silencing	
	Females (n = 109)	Males (n = 97)
EAS Subscale		
Activity	.064	.064
Anger	-.056	.080
Distress	.198*	.355**
Fearfulness	.207*	.226*
Sociability	.019	.092
	(n = 68)	(n = 65)
HPA Functioning		
Basal Cortisol	.278*	.032
ACR	-.004	.116

Note. ACR = Anticipatory Cortisol Reactivity.
*p ≤ .05. **p ≤ .01.

Table 3

Correlations Between Females' and Males' EAS Partner Temperament Subscales to Self-Silencing and HPA Functioning to Self-Silencing

	Self-Silencing	
	Females ($\underline{n} = 96$)	Males ($\underline{n} = 96$)
EAS Subscale		
Partner Activity	.061	-.082
Partner Anger	.058	.161
Partner Distress	.146	.124
Partner Fearfulness	.005	.045
Partner Sociability	.019	.029
	($\underline{n} = 65$)	($\underline{n} = 65$)
HPA Functioning		
Partner Basal Cortisol	-.059	.062
Partner ACR	.198	-.250*

Note. ACR = Anticipatory Cortisol Reactivity.
*$\underline{p} \leq .05$.

Table 4

<u>Summary of Simultaneous Regression Analyses for Same EAS Temperaments Predicting Self-Silencing in Males and Females</u>

Variable	Females ($\underline{n}$ = 95)				Males ($\underline{n}$ = 95)			
	$\underline{B}$	$\underline{SE}$	β	R²	$\underline{B}$	$\underline{SE}$	β	R²
EAS Temperament								
Own Activity	2.27	1.83	.13	.02	1.23	2.08	.06	.02
Partner Activity	.84	1.94	.05		-1.30	2.00	-.07	
O x P Activity	.86	2.21	.04		2.09	2.33	.09	
Own Anger	-.34	1.61	-.02	.00	1.61	1.75	.10	.04
Partner Anger	.85	1.64	.06		2.83	1.72	.17	
O x P Anger	.34	1.84	.02		-1.70	1.97	-.09	
Own Distress	2.55	1.58	.17	.10*	9.10	1.90	.50***	.22***
Partner Distress	3.78	1.88	.24*		-.84	1.80	-.05	
O x P Distress	-3.06	1.59	-.23†		-6.86	2.21	-.35**	
Own Fearfulness	1.61	1.68	.11	.04	7.18	2.51	.33**	.09*
Partner Fearfulness	1.31	2.35	.07		-.85	1.79	-.05	
O x P Fearfulness	-3.06	2.47	-.15		-4.83	2.63	-.22†	
Own Sociability	.67	2.06	.04	.02	2.69	2.06	.13	.08†
Partner Sociability	-.36	1.94	-.02		-1.47	2.16	-.07	
O x P Sociability	-2.29	2.48	-.104		-6.69	2.61	-.28**	

<u>Note.</u> O = Own and P = Partner.
† $\leq$ .10. *$\underline{p} \leq$ .05. **$\underline{p} \leq$ .01. ***$\underline{p} \leq$ .001.

Table 5

<u>Summary of Simultaneous Regression Analyses for Combinations of EAS Temperaments Predicting Self-Silencing in Females and Males</u>

Variable	Females ($\underline{n} = 95$)				Males ($\underline{n} = 95$)			
	<u>B</u>	<u>SE</u>	β	R²	<u>B</u>	<u>SE</u>	β	R²
EAS Temperament								
Own Activity	2.10	1.82	.12	.02	1.75	2.09	.09	.04
Partner Anger	.38	1.67	.02		2.68	1.73	.16	
O Activity x P Anger	1.59	2.15	.08		-1.88	2.69	-.07	
Own Activity	1.70	1.83	.10	.04	2.14	2.34	.11	.03
Partner Distress	2.96	1.94	.19		1.85	1.94	.11	
O Activity x P Distress	-1.88	2.37	-.10		-1.51	2.72	-.07	
Own Activity	2.32	2.11	.13	.02	4.67	2.52	.23†	.06
Partner Fear	-.36	2.33	-.02		-.29	1.70	-.02	
O Activity x P Fear	.28	3.21	.01		-6.20	2.63	-.30*	
Own Activity	2.40	1.90	.14	.02	1.67	2.22	.08	.01
Partner Sociability	-.16	2.00	-.01		.26	2.19	.01	
O Activity x P Sociability	1.00	2.65	.04		-1.49	3.09	-.06	
Own Anger	-.38	1.60	-.02	.01	1.32	1.83	.08	.02
Partner Activity	1.06	1.96	.06		-1.74	1.99	-.09	
O Anger x P Activity	-2.30	2.53	-.10		.89	2.35	.04	
Own Anger	-1.72	1.64	-.11	.07†	2.24	1.99	.13	.03
Partner Distress	3.40	1.69	.21*		2.08	1.77	.12	
O Anger x P Distress	-4.06	1.93	-.22*		-2.33	2.27	-.12	
Own Anger	-.88	1.84	-.06	.01	1.18	1.89	.07	.01
Partner Fear	.46	2.18	.02		.72	1.69	.04	
O Anger x P Fear	-1.73	2.70	-.08		.51	2.09	.03	
Own Anger	-.02	1.59	-.00	.03	1.86	1.86	.11	.02
Partner Sociability	-.20	1.92	-.01		-.02	2.13	-.00	
O Anger x P Sociability	4.23	2.47	.18†		-2.26	2.40	-.10	
Own Distress	2.97	1.69	.19†	.07†	6.67	2.01	.37***	.14**
Partner Activity	2.17	2.12	.12		-2.12	1.90	-.11	
O Distress x P Activity	-2.37	2.47	-.12		-.03	2.65	-.00†	
Own Distress	3.54	1.57	.23*	.06	6.35	1.79	.35***	.15**
Partner Anger	.89	1.83	.06		.90	1.76	.05	
O Distress x P Anger	-.72	1.93	-.04		-3.07	2.53	-.13	
Own Distress	3.08	1.69	.20†	.06	8.50	1.80	.47***	.22***
Partner Fear	1.03	2.42	.05		-.84	1.54	-.05	
O Distress x P Fear	-1.62	2.39	-.09		-6.29	1.90	-.33***	
Own Distress	3.45	1.53	.23*	.08*	6.22	1.92	.34**	.13**
Partner Sociability	-1.60	2.05	-.09		.81	2.14	.04	
O Distress x P Sociability	3.83	2.22	.19†		.93	2.43	.04	

<u>Note.</u> O = Own and P = Partner.
† $\leq$ .10. *$\underline{p} \leq$ .05. **$\underline{p} \leq$ .01. ***$\underline{p} \leq$ .001.

Continued Table 5

<u>Summary of Simultaneous Regression Analyses for Combinations of EAS Temperaments Predicting Self-Silencing in Females and Males</u>

Variable	Females (n = 95)				Males (n = 95)			
	<u>B</u>	<u>SE</u>	β	R²	<u>B</u>	<u>SE</u>	β	R²
EAS Temperament								
Own Fear	1.32	1.50	.09	.14**	4.45	2.47	.20†	.07†
Partner Activity	4.77	2.21	.25*		-1.28	2.24	-.07	
O Fear x P Activity	-8.16	2.33	-.41***		3.03	3.39	.11	
Own Fear	2.42	1.53	.16	.04	6.02	2.25	.27**	.11*
Partner Anger	1.36	1.70	.09		1.06	1.91	.06	
O Fear x P Anger	-1.57	1.90	-.09		-4.87	2.79	-.20†	
Own Fear	1.98	1.52	.13	.08*	7.25	2.54	.33**	.10
Partner Distress	3.54	1.79	.22*		.68	2.01	.04	
O Fear x P Distress	-2.97	1.47	-.22*		-4.61	2.84	-.21	
Own Fear	2.50	1.57	.17	.03	4.98	2.31	.23*	.05
Partner Sociability	-.32	2.08	-.02		.33	2.44	.02	
O Fear x P Sociability	.14	2.14	.01		-.06	2.91	-.00	
Own Sociability	.46	1.98	.03	.03	1.20	2.17	.06	.03
Partner Activity	2.01	2.05	.11		-.90	2.06	-.05	
O Sociability x P Activity	-4.55	2.86	-.18		3.28	2.86	.13	
Own Sociability	1.49	1.96	.08	.02	1.73	2.53	-.91	.03
Partner Anger	.29	1.71	.02		2.53	1.73	.15	
O Sociability x P Anger	1.87	2.21	.09		-.91	2.69	-.04	
Own Sociability	1.03	2.28	.06	.01	2.54	2.28	.13	.02
Partner Fear	.17	2.16	.01		.39	1.71	.02	
O Sociability x P Fear	-.78	2.73	-.04		-2.10	2.38	-.10	
Own Sociability	.55	2.04	.03	.04	.68	2.25	.03	.04
Partner Distress	3.04	1.83	.19†		2.18	1.76	.13	
O Sociability x P Distress	-2.05	2.21	-.11		3.35	2.63	.14	

<u>Note.</u> O = Own and P = Partner.
† ≤ .10. *p ≤ .05. **p ≤ .01. ***p ≤ .001.

Table 6

Correlations Between Females' and Males' EAS Temperaments to HPA Functioning
Levels for Self and Partner

	Basal	Partner Basal	ARC	Partner ARC
		Females (n = 65-68)		
EAS Subscale				
Self Activity	.026	-.016	.105	-.101
Partner Activity	-.065	-.233	-.147	.049
Self Anger	-.060	-.025	-.011	-.123
Partner Anger	.119	.175	-.066	.099
Self Distress	.010	-.042	.025	-.060
Partner Distress	.087	.076	-.025	.086
Self Fearfulness	-.061	-.062	-.020	.013
Partner Fearfulness	-.012	.168	-.107	.033
Self Sociability	.062	.012	-.136	.021
Partner Sociability	-.068	.121	-.169	.059
		Males (n = 65)		
EAS Subscale				
Self Activity	-.233†	-.064	.049	-.109
Partner Activity	-.016	.023	-.101	.088
Self Anger	.175	.124	.099	-.064
Partner Anger	-.025	-.084	-.123	.010
Self Distress	.040	.073	.075	.012
Partner Distress	-.084	-.008	-.081	.052
Self Fearfulness	.168	-.028	.033	-.092
Partner Fearfulness	-.062	-.098	.013	.040
Self Sociability	.121	-.064	.059	-.167
Partner Sociability	.012	.047	.025	-.137

Note. ACR = Anticipatory Cortisol Reactivity.
† $p \le .10$. * $p \le .05$.

Table 7

Correlations Between Females' and Males' Global Self-Silencing to HPA Functioning for Self and Partner

	Basal	Partner Basal	ARC	Partner ARC
		Females ($\underline{n}$ = 65-68)		
Global Self-Silencing	.278*	-.059	-.004	.198
		Males ($\underline{n}$ =65)		
Global Self-Silencing	.032	.062	.116	-.250*

Note. ACR = Anticipatory Cortisol Reactivity.
*$\underline{p} \le$ .05.

Table 8

Summary of Simultaneous Regression Analyses for HPA Functioning (Basal Cortisol or ARC) Predicting Global Self-Silencing in Females and Males

Variable	Females ($n = 64$)				Males ($n = 64$)			
	B	SE	β	R²	B	SE	β	R²
Cortisol Level								
Own Basal	35.45	13.39	.32**	.11†	11.35	15.21	.11	.03
Partner Basal	-.58	12.95	-.01		10.09	15.79	.08	
Own x Partner Basal	163.17	176.29	.13		241.55	207.63	.17	
Own ACR	.73	21.14	.00	.04	17.80	17.17	.13	.10
Partner ACR	24.57	15.70	.20		-52.87	23.22	-.29*	
Own x Partner ACR	69.47	189.47	.05		207.19	-223.70	.14	

Note. ACR = Anticipatory Cortisol Reactivity.
*$p \leq .05$. **$p < .01$.

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