

ABSTRACT

Title of Document: THE ASSOCIATION BETWEEN NEGATIVE CONFLICT BEHAVIOR AND SUBCLINICAL LEVELS OF PSYCHOPATHOLOGY SYMPTOMS IN CLINIC COUPLES: AN ACTOR-PARTNER INTERDEPENDENCE MODEL APPROACH EXAMINING MEDIATION BY PERCEIVED CRITICISM AND MODERATION BY POSITIVE COMMUNICATION

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Past research on family members as psychosocial stressors leading to increased symptom distress has been mostly limited to psychiatric populations and has been problem-focused. The current study used behavioral observations and partner reports to examine the relationship between positive and negative partner behavior and individual symptom distress, mediated by perceived criticism, in 96 clinical couples. Results of structural equation modeling showed that male negative behavior had a positive relationship with female symptom severity mediated by perceived criticism. Female negative behavior had a negative relationship with male symptom severity, not mediated by perceived criticism. Warmth displayed no significant relationship with perceived criticism or symptom severity for either gender. Recommendations for future research include examining the role of power in the relationship between negative partner behavior and symptom severity and assessing the ratio between positive and negative behaviors rather than as separate variables. Replication of these results is warranted.

THE ASSOCIATION BETWEEN NEGATIVE CONFLICT BEHAVIOR AND
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MEDIATION BY PERCEIVED CRITICISM AND MODERATION BY POSITIVE
COMMUNICATION

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Chapter 1: Introduction

Statement of the Problem

Mental health problems not only cause considerable personal psychological distress for a significant percentage of the population in countries around the world; they also affect others in the individual's life and result in costs to society. Mental illness is also a family problem and a societal problem. In addition to direct costs of hospital visits, medications, and therapy (Insel, 2008), reported indirect costs to the individual and family (e.g., loss of income) in the U.S. are estimated to be at a mean of an annual \$16,306 per diagnosed person, or a total of about \$193.2 billion nationally. This is a highly conservative estimate, however, as the report did not include the loss in yearly earnings of diagnosed persons who were hospitalized, incarcerated, or under 18 years of age. The estimate also does not take into account major costs to society in terms of lost productivity of workers, hospitalizations, incarceration, homelessness, healthcare for related health problems, social benefits (e.g., disability benefits, food stamps, welfare), and costs to family and friends of identified patients. The addition of just some of these indirect costs brought the estimated total societal cost of mental illness to be \$317.6 billion in 2002. Furthermore, these estimates have only included cases in which individuals' symptoms of psychopathology have been severe enough to warrant a formal diagnosis, but "sub-clinical" levels of symptoms such as those occurring in depression and anxiety also can be highly distressing and debilitating.

Thus the disabling and costly effects of individuals' mental health problems influence not only the people close to the identified patients but also all members of society to some extent. For this reason, it is imperative that more research be conducted

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to identify ways to reduce the incidence and severity of mental illnesses, by addressing risk factors for the development of mental health problems, factors that can exacerbate existing symptoms, and more effective treatments for those who are experiencing them.

Although the mental health field has been dominated for many years by the medical model and has adopted a diagnostic system (APA, 2013), according to the *spectrum approach* to mental illness, diagnoses are constructs created by researchers and professionals to denote a certain level along a spectrum of psychological distress that is assumed to produce especially debilitating effects (Lobo & Agius, 2012). Although diagnosis certainly has its value when it helps guide clinicians' selection of empirically supported treatments for particular syndromes, it should not be used at the exclusion of attention to levels of symptoms that do not meet diagnostic thresholds but nevertheless have significant effects on an individual's functioning, as well as impacts on significant others and society. Furthermore, attention to "sub-clinical" symptoms that do not reach diagnostic criteria opens the door for preventive interventions to decrease the likelihood that the individual will reach a diagnostic threshold (Campion, Bhui, & Bhugra, 2012; Wesselhoeft, Sorenson, Heiervand, & Bilenberg, 2013). The stress-vulnerability model of mental illness focuses on ways in which current stressful life events trigger or exacerbate symptoms in an individual who has an underlying predisposition toward psychopathology that commonly is assumed to be biologically based (Hooley, 2007; Mueser, & Glynn, 1995). If interventions can be identified and used for any of these risk factors, the likelihood of increased dysfunction and distress is lowered, even if the underlying psychopathology cannot be eliminated.

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Among the research studies investigating sources of stress in individuals' lives that can contribute to the expression of psychopathology symptoms, one important focus has been on stresses emanating from the individuals' relationships with significant others. Initially, the interest in family influences on psychiatric illnesses was based on conceptions in which dysfunctional communication processes such as conflicting "double-bind" messages sent by a parent were believed to cause disordered thinking in offspring (Bateson, Jackson, Haley, & Weakland, 1956). Although this model, which has failed to be supported empirically as a causal explanation for disorders such as schizophrenia, led to considerable blaming and stigmatizing of family members, it did stimulate more research on family processes associated with psychopathology, as well as research that identified evidence of genetic vulnerability factors. Eventually the stress-vulnerability model of schizophrenia was developed, in which the major influences on the disorder are the individual's biological vulnerability combined with psychosocial stressors that overwhelm the individual's coping ability (Mueser & Glynn, 1995). Therefore, the interactions among family members still are considered to be important, but as stressors rather than causal factors.

Much of the research on family risk factors influencing the severity of psychopathology symptoms has focused on a process that has been labeled Expressed Emotion (EE). It is a term that has been used primarily to describe the attitudes and emotional responses that family members experience toward individuals diagnosed with disorders such as schizophrenia and bipolar disorder, which have the potential to serve as stressors and affect the identified patient's functioning (Hooley, 2007; Mueser & Glynn, 1995). Although EE research initially focused on major mental disorders such as

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schizophrenia, it has been broadened to investigate influences on many different disorders, such as depression and anxiety disorders (Hooley, 2007).

Although in the relationships between a patient and family members the patient also has been found to exhibit negative forms of communication, research on EE has focused primarily on the other family members' negativity (Hooley, 2007). The components of EE include criticism, hostility, and emotional over-involvement toward the patient, as well as the positive response of warmth toward him or her. Initially EE was primarily assessed through a structured interview (the Camberwell Family Interview; Vaughn & Leff, 1976) conducted solely with a relative. The relative is asked to discuss his or her relationship with a patient, and the interviewer listens for cues of the three negative response patterns. Thus, the person expresses his or her feelings about the patient to an outsider, rather than directly toward the patient. Studies showed that when relatives exhibited higher levels of EE, there was a lower likelihood that the patient's symptoms would respond favorably to treatment, and the risk of symptom relapse was higher, whereas expressed warmth from a family member was a protective factor against relapse (Marley, 2004). These findings have led to relatives being classified as "high EE" if they display a certain amount of criticism, hostility, and emotional over-involvement toward a patient and "low EE" if they do not. It is important to note that although warmth is regularly recorded as part of the standard EE interview, it is not taken into account in classifying relatives (Hooley, 2007). There is very little research available on the relationship between warmth exhibited by significant others and severity of psychopathology symptoms, and even less on whether family members' warmth can moderate effects of their hostility and over-involvement on the patient's symptoms. Such

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information would assist in finding ways that relatives can be beneficial to one another, rather than only less harmful to one another.

A second important stage in research related to EE and psychopathology has focused on the *pathway* through which family members' internal negative attitudes and emotions affect a patient's psychological functioning. In other words, does a family member who is rated as high in EE actually express negativity directly during interactions with the patient? Researchers have shown that family members who are rated higher in EE measured through the common interview method (particular if they are rated as high in criticism) actually behave more negatively toward the symptomatic family member (assessed through behavioral observations of family interactions) than those rated lower in EE (Hahlweg et al., 1989). Furthermore, Hahlweg and colleagues showed that the negative interactions in these families are circular, with the patient reciprocating the family member's negative communication behaviors. This circular pattern means that neither party is at fault and that both parties are caught up in a reciprocal negative interaction, giving the current study cause to examine the behavior of both members of a couple together, rather than targeting one "patient" and one "relative of a patient".

The vast majority of previous studies on EE and severity of mental illness have examined the effects of family members' negativity (expressed indirectly to an interviewer or directly through negative communication toward the patient) on the functioning of a patient whose level of functioning meets the diagnostic criteria for a specific disorder (Hooley, 2007). Less attention has been focused on the link between significant others' negativity and subthreshold levels of psychopathology symptoms. A notable exception has been the line of research examining the association between

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depression and negative communication in couples that include a depressed member, showing that couples in which one or both spouses experience depressive symptoms exhibit more negative communication patterns and less positive communication patterns than couples with no depressed partners (Whisman & Beach, 2012). Given the recent trend toward a spectrum view of psychological disorders, in which psychological disorders are conceptualized as existing along a continuum of symptom severity and can increase in severity over time in the absence of intervention (Lobo & Agius, 2012), it is important to conduct research on associations between family members' negativity and recipients' levels of symptoms that may not have reached a threshold for a formal categorical psychiatric diagnosis. Such an approach would be more inclusive of the range of distressing and potentially debilitating levels of psychopathology symptoms that exist in the larger population. This line of research also could inform the development and application of secondary prevention strategies for the mental health system (Campion et al., 2012).

In addition to the shift that occurred in research from a focus on the subjective thoughts and emotions of higher versus lower EE relatives to the measurement of the relatives' behavior toward the patient, researchers also have investigated *patients'* *perceptions* of the relatives' behavior. In particular, researchers examined perceived criticism from the perspective of the patient, especially as a mediator in the relationship between one person's EE and the other's psychopathology symptoms. Recent research has shown that perceived criticism is a good predictor of psychopathology symptom levels, even surpassing the predictive power of the significant other's EE (subjective feelings about the symptomatic person as measured by structured interviews) (Medina-

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Pradas, Navarro, Lopez, Grau, & Obiols, 2011). Furthermore, more research is needed regarding possible gender differences in the link between significant other negativity and recipient psychopathology symptoms.

Purpose

Because interaction patterns with family members have been demonstrated to be significant psychosocial stressors, it follows that treatments that target these interactions would most commonly be delivered within couple and family therapy. As noted above, much of the previous research on these stressors has not used samples that are representative of clients attending typical outpatient family therapy clinics. The prior research has focused on samples with a specific disorder, whereas many couple and family therapists in a variety of clinical settings see a wide variety of clients who are experiencing some level of psychological distress, but who often may not reach the criteria for a diagnosis of a mental disorder and may not be seeking treatment primarily for a disorder of individual functioning. This present study tested the associations between interactional behaviors and a variety of psychopathology symptoms within a diverse sample of couples who sought therapy from an outpatient clinic for various relationship issues.

To date, almost all research has focused on the relationship of couple and family interactions and perceptions of these interactions to already-developed psychiatric disorders (Hooley, 2007). Some researchers have also tested these effects on individuals with clinical depression against those effects on control groups who do not possess the diagnosis being examined, as if people with and without psychological disorders were two exclusive groups (Meuwly et al., 2012; Tompson et al., 2010). According to the

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spectrum theory of mental illness, however, people may vary along one or more spectra of psychopathology in accordance with different biological, social, and personal factors (Lobo & Agius, 2012). In this view, thresholds for diagnoses are socially/professionally constructed concepts that mark a specific points on particular spectra, even though a person can experience varying levels of distress on either side of a threshold. Rather than categorizing individuals as either meeting or not meeting criteria for a diagnosis, the present study used a sample of individuals attending an outpatient couple and family therapy clinic who reported symptoms varying in severity.

Research on significant others' behaviors and recipients' symptoms has paid limited attention to the recipients' perceptions of the negative behavior, an important aspect of the dyadic interactions that requires further examination (Lopez et al., 2004; Meuwly et al., 2012). The current study addressed this gap in prior research by investigating the role of perceived criticism in the relationship between a partner's behaviors and the receiver's symptoms. Furthermore, given the focus in prior studies on negative partner communication, the present study also examined the degree to which positive partner behavior is associated with the recipient's perceptions of criticism and his or her psychopathology symptoms. This study also investigated whether there were gender differences in relations among positive and negative partner communication behavior, recipient perceived criticism, and psychopathology symptoms.

In short, this study addressed the following research questions:

- What are the relationships between negative and positive partner communication behaviors and the recipient's psychopathology symptoms in individuals who experience sub-threshold symptom levels and sought therapy for relationship issues?

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- To what extent does perceived criticism mediate the relationship between negative expresser behaviors and receiver psychopathology symptoms in couple relationships in which the partners sought help for relationship problems and there is no identified patient?
- Do positive partner behaviors moderate the association between negative partner behaviors and recipient psychopathology symptom levels?
- Are there gender differences in the relations among negative and positive partner behavior, perceived criticism, and psychopathology symptom levels?

Literature Review

Theoretical models. This study was guided by two theoretical models – the vulnerability-stress model of psychopathology and the spectrum theory of mental disorders and symptomatology. Together the models provide a framework for understanding how stressful negative communication between members of a couple can elicit varying levels of psychopathology symptoms that affect the well-being of the individual as well as the relationship. The following are brief descriptions of the models.

Vulnerability-stress model. A widely applied and well-supported conceptualization of how psychopathology symptoms develop and are maintained, and the basis for the approach taken in the current study, is the vulnerability-stress model of psychopathology (Rosenberg, Weissman, & Wong, 2006). This model asserts that individuals who have a vulnerability to psychological distress are more likely to develop psychological symptoms if exposed to higher levels of psychosocial stressors. Within the vulnerability-stress model, vulnerability refers to factors, most often biological

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predispositions, that lower an individual's threshold for coping with stressors. For example, an individual who has an atypically high baseline of dopaminergic activity will be at a higher risk of developing hallucinations when their dopamine system is stimulated by stress (Walker & Diforio, 1997).

The other primary factor in the vulnerability-stress model of psychopathology is the presence of psychosocial stressors (Rosenberg et al., 2006). This model suggests that various factors (most often psychosocial) that activate the hypothalamic-pituitary-adrenal (HPA) axis bring an individual closer to reaching the threshold at which he or she will develop symptoms of distress (Walker & Diforio, 1997). These factors may include, but are not limited to, major life changes, presence of previous psychological or medical symptoms, daily stressors, and (most relevant to the present study) significant relationships (Rosenberg et al., 2006). Both acute and chronic stressors can accumulate and reach the individual's vulnerability threshold, in which case the individual would begin exhibiting symptoms of psychological distress.

The vulnerability-stress model is a broad model that encompasses many possible factors of both vulnerability and stress, many of which have been examined extensively in prior research (Rosenberg et al., 2006), beginning with studies on Expressed Emotion and expanding into research on psychosocial stressors involving negative behavioral interactions between patients and their significant others. The factor that will be the focus of the current study is the psychosocial stressor of dyadic interactions within significant couple relationships.

Spectrum theory of mental disorders and symptomatology. Traditionally, studies on negativity of significant others and recipients' psychopathology have focused

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primarily on subjects with clear, and often severe, diagnosed mental disorders. The rationale for the present study to assess the link between negative behavior from significant others and symptoms in individuals that may or may not reach the threshold for a diagnosis of a mental disorder comes from the emerging spectrum approach to mental health. According to Lobo and Agius (2012), this approach views mental disorders as dimensional spectra rather than as discrete categories. This means that people showing sub-threshold symptoms of psychological distress experience the same symptom dimensions at a less severe level than people who meet the criteria for a specific diagnosis of a disorder. Without intervention, sub-threshold symptom levels may progress to a level at which they qualify for a diagnosis. Furthermore, even if symptoms do not increase to levels meeting full diagnostic criteria, they still may have negative effects on the individual and his or her significant others. It is important to remember that diagnoses are constructs created by mental health professionals and researchers to aid in the categorization of people and their forms of distress, based on the assumption that the existence of a particular diagnosis has specific treatment implications. The spectrum approach to mental health instead views each person as currently having experiences at different, dynamic points on multiple spectra of symptoms (Campion et al., 2012; Wesselhoeft et al., 2013). Therefore, the current study examined the overall symptom severity level of each member of a couple across several dimensions. If this approach holds true, it follows that the stress-vulnerability model can be extended to explain some of the variance in symptom severity levels among couple and family therapy clients whose symptoms do not meet the criteria for a full psychiatric diagnosis.

Family relationships as psychosocial stressors.

Expressed Emotion. Within the vulnerability-stress theory, a concept that has been powerfully influential in the family treatment of mental illness has been Expressed Emotion (EE), which views family interactions as an important psychosocial stressor (Hooley, 2007). Expressed emotion refers to attitudes of a family member toward another that are expressed through five components messages that the individual conveys to a third party, which have been found to be related to the prognosis of receivers with severe mental disorders. These components are criticism, hostility, emotional over-involvement, warmth and positive remarks. When individuals who express high levels of those components to an outsider (e.g., during a structured interview such as the Camberwell Family Interview), studies have shown that the patients they are describing are more likely to have symptom exacerbation or less likely to respond favorably to treatments (Hooley, 2007)). These relationships have been shown for disorders such as schizophrenia, mood disorders, anxiety disorders, eating disorders, substance use disorders, and personality disorders. High EE can develop for many reasons involving the traits of the identified patient and personal factors belonging to the high EE relative. Although the nature of the relationship between EE and identified patient functioning is not fully understood, the evidence consistently shows that contact with high EE relatives is strongly associated with relapse and poor overall functioning.

Expressed emotion has long been known to be a predictor of symptom relapse. As early as 1976, researchers who had noticed their patients with schizophrenia relapsing upon leaving residential treatment showed that EE, particularly critical comments toward the identified patient, is a significant predictor of relapse in patients with schizophrenia

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(Vaughn & Leff, 1976). This relationship was shown to both be independent of and have an additive power with other factors such as medication status and marital status.

Continued research showed that it is not merely membership in a family with high levels of EE that leads to relapse, however. Vital to this relationship is contact between the high-EE relative and the patient. This contact has been shown to be a significant predictor of both re-hospitalization and relapse (Vaughan et al., 1992).

It is important to distinguish the EE model from other, more harmful, family theories related to schizophrenia. In the past, some theorists have blamed families, particularly mothers, for somehow causing schizophrenia (Nichols, 2013). These theorists invented phrases such as “schizophrenogenic mother” and said that these women were responsible for their child’s disorder because of their poor parenting and confusing communication with their offspring. Those theories are now widely rejected, in the face of no empirical support, and the mental health fields recognize that schizophrenia is a primarily biological disorder in which the individual has an inborn vulnerability, and symptoms are exacerbated (but not caused by) a variety of environmental stressors (including family stress) (APA, 2013). The concept of EE and its effects does not blame families for causing schizophrenia or any other disorder. Rather, the EE model recognizes reciprocal influences between mental disorders and family system functioning. On the one hand, an individual’s psychological symptoms can disrupt his or her family system, being a source of stress for other family members. In turn, other family members can be sources of stress for a psychologically vulnerable person, thereby exacerbating the individual’s symptoms (see below for further theoretical explanation of the role of stress in EE). The biological vulnerability within the individual exists with or without high-EE

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family members. An individual who does not have the biological predisposition will not develop schizophrenia solely from living in a critical/hostile environment. Families can, however, serve as either a support system and help maintain the IP's quality of life or a hostile environment and risk factor.

Components of EE. An important contribution of EE research to the vulnerability-stress theory of mental illness was the identification of five components within family relationships that influence the level of psychosocial stressors. These components are criticism, hostility, emotional over-involvement, warmth, and positive remarks. Although the latter two components are recorded as part of the standard Camberwell Family Interview (CFI) (Vaughn & Leff, 1976) that was developed to tap EE in patients' family members (see below), past research has focused heavily on the former three EE components and their ability to predict patient relapse and underemphasized the role of warmth and positive remarks as protective factors (Hooley, 2007).

Negative family member attitudes. In regard to the theoretical model of EE, criticism is defined as a family member's expression of disapproval of the behavior of the IP or the person's disorder through content of speech or negative paralinguistic cues such as tone of voice, as expressed to a third party such as an interviewer (Hooley, 2007). The criticism component of EE has consistently been found to have the highest predictive power for decreases in IP functioning. Hostility refers to a general attitude of disapproval of the IP as a whole and can include rejection (again not directly expressed to the patient). Naturally, hostility and criticism often occur together. Emotional over-involvement consists of "exaggerated emotional response, excessive self-sacrifice...and marked over-protectiveness" (Bhugra & McKenzie, 2003). This component, especially, is

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highly dependent on the cultural context in which it is being measured (see below), so it should be measured with reference to relevant cultural norms. It is important to note that the research on EE is reviewed here primarily due to its historical significance, even though it focused on the attitudes and emotions that significant others expressed to third parties rather than through direct communication with a symptomatic family member. The present study follows more closely the subsequent developments in research that investigated actual behavioral interactions between significant others and patients.

Positive family member attitudes. Throughout much of the research literature, definitions of and examinations of warmth and positive remarks by family members of identified patients are difficult to find. Although the Camberwell Family Interview has long included an assessment of these elements, warmth was determined to be “too complex” of a variable in 1972, and thus was no longer included in the classification of families (Lopez et al., 2004). As an exception to the lack of focus on the positive components of EE, Lopez’s research team defined warmth as “positive affect” that can include the expression of positive sentiments about the patient, empathy for the patient, and positive paralinguistic behavior. There is a remarkable absence of definitions of positive remarks in the EE literature, despite the vast use of the CFI as a measurement of EE. In this absence, positive remarks could be viewed as a subcomponent of warmth. The research is limited on this positive EE component, but there is some evidence that warm attitudes about “patient” family members (as expressed to an interviewer) can serve as a protective factor against symptom relapse (Lopez et al., 2004; Medina-Pradas et al., 2011; Richards et al., 2014). Furthermore, research in other areas has shown that parental warmth (here as perceived by adolescents) can buffer the relationship between parental

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academic pressure (also measured as perceived by adolescents) and adolescents' anxiety and depressive symptoms (Quach, Epstein, Riley, Falconier, & Fang, 2013). These findings provide some evidence that families can be viewed in relation to their positive dynamics and characteristics that can reduce members' symptoms, rather than being viewed simply as potential risk factors who should be assessed for what they are doing wrong. Although the present study did not examine significant others' EE attitudes, it took into account the possibility presented by EE theory that warm components of interactions within relationships have the potential to influence individual psychological functioning, and it included warm partner behaviors toward an individual in the conceptual model. The present study built on the current understanding of the role of relative warmth and psychopathology by using a more diverse sample, including an examination of associations of warmth on a wide range of psychopathology symptoms, and exploring the potential interaction between warmth and criticism in influencing symptoms.

EE attitudes and family interaction behaviors. Expressed Emotion has primarily been measured using structured interview instruments, the Camberwell Family Interview (CFI) and the Five-Minute Speech Sample (Hooley, 2007). In both these instruments, an interview is conducted individually with a family member of the patient. During the audio-recorded interviews, the family member discusses the patient, his or her disorder, and the relationships among the family member, the patient, and the disorder. Interviews are then coded for the five aforementioned elements and family members are classified as being either "high-EE" or "low-EE" based on their scores for criticism, hostility, and emotional over-involvement. Although they are elements of EE and are recorded as part

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of these assessments, warmth and positive remarks are not included in the rating of families as being high or low in EE. This is an indication that the EE model has a problem-focused perspective and assesses risk factors more than protective factors.

Because EE, as it is measured by these instruments, assesses an individual's attitudes about a family member, as expressed to an interviewer and without the family member present, it has been necessary to explore actual family interaction behaviors as mediators between EE and psychopathology symptoms. Multiple studies have explored this role by examining the association between EE as measured by interview assessments and indices of family interactions as measured by videotaped problem-solving communication samples, similar to the behavioral observation method used in the current study (Chambless, Floyd, Rodebaugh, & Steketee, 2007; Hahlweg et al., 1989; Hooley, 1986). Researchers have consistently found in these studies that not only do family members rated as high-EE make more critical remarks and engage in more negative nonverbal communication than low-EE family members, but also these negative interactions occur reciprocally more often in high-EE family interactions. It is important to note that the nature of EE assessments creates difficulties in exploring how warm attitudes expressed during EE interviews translate to warm behaviors toward a family member; therefore, less is known about those components of EE attitudes and actual interactional behaviors.

Although the five EE components are widely used, are good predictors of actual behavior toward the other family member, and have been shown to predict relapse, they focus primarily on the attitudes of the expresser of EE (Hooley, 2007). However, couple and family interactions occur between at least two people, both of whose cognitions and

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actions influence the outcome of the interaction. Because a central goal of this study was to determine the degree to which receiver perceptions of partner behaviors, partners' influences as psychosocial stressors were measured as observed behaviors of the expresser toward the receiver, as it is that behavior that the receiver can directly perceive and react to.

Perceived criticism. According to dyadic theories of human interactions, the receiver of a behavior is not just an object onto which a behavior is projected (Rosenberg et al., 2006). A receiver will have an internal reaction (perception) to the behavior that will lead him or her to experience emotional responses and exhibit behavior of their own. It has long been known that the perception of criticism by a receiver is a strong predictor of the severity of psychological distress (Hooley & Teasdale, 1989). In fact, perceived criticism by a receiver has been shown to be a stronger predictor of psychopathology symptom relapse than the EE attitudes expressed to interviewers as measured by the CFI, in a variety of populations (Medina-Pradas et al., 2011). Theorists have speculated that perceived criticism is actually a measure of how much of the criticism expressed by the sender has gotten through to the receiver of the behaviors (Renshaw, Chambless, & Steketee, 2003).

In support of that speculation, perceived criticism has been shown to be consistent with actual behavior, but also has a powerful relationship with symptom severity independent of partner behavior (Gerlsma, Duihn, Hale, & Hout, 2009). In a recent study in a line of research examining the validity of the perceived criticism construct, Gerlsma and colleagues compared self-reported perceived criticism with both EE interviews and videotaped and coded couple communication samples (a similar measure to the one being

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used in the current study). They found that perceived criticism was significantly related to both partners' EE attitudes and the negative interaction behaviors of both members of the interaction. Some research suggests that perceived criticism can even predict symptoms 5-10 years later (Peterson-Post, Rhoades, Stanley, & Markman, 2014). Furthermore, perceived criticism cannot be explained by an individual's symptom severity and is not mood dependent, lending support to current study's proposed directionality of the relationship between perceived criticism and symptom severity (Gerlsma, Ruiters, & Kingma, 2014).

As with EE research, research on perceived criticism has mostly focused on its relationship to symptom severity in individuals who have already met the diagnostic criteria for a mental disorder. It is less clear how much this relationship holds with individuals who experience sub-threshold symptoms. One unique study examined the interaction of EE and receiver cognitions in their relationship with symptom severity for both members of couples in which one partner had a diagnosable depressive disorder using the aforementioned structured interview, the Dysfunctional Attitude Scale, and self-report depression inventories, respectively (Meuwly et al., 2012). Meuwly and colleagues found support for the role of cognitions as a mediator between partner EE attitudes and patient depression, but found no significance in this pattern in symptoms among the non-IP partners. However, this study only measured depression symptoms, for which the non-IP partner may not have as high a vulnerability. Furthermore, the study only assessed general attitudes and cognitions, rather than partners' perceptions of each other's communication behavior. The present study examined the mediating role of cognitions in

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terms of perceived criticism and also assessed a wider range of symptoms in both members of couples.

Gender as a factor in couple interactions and psychopathology. To date, only limited research in the areas of EE and perceived criticism have examined the role of gender differences, with mixed results. Research on the impact of perceptions of partner behavior in the area of couple therapy, however, has given some evidence for the possibility of gender differences in experiences of psychosocial stressors. Extensive research exists supporting the idea that a person's interpretation of a partner's behavior is a powerful predictor of their relationship satisfaction and relationship dissolution (Hawkins et al., 2002; Robes et al., 2006). Furthermore, this association has been repeatedly shown to be stronger for female perceivers than male perceivers, allowing the possibility that gender differences will also exist in resulting symptom severity. Research also suggests possible differences in the path of the relationship between perception and distress (Croyle & Waltz, 2002). Not only did Croyle and Waltz find that women in relationships were more aware of emotions in their relationships than men, but also that this awareness was associated with decreased relationship satisfaction for women only. In line with this, a study by Heene, Buysse, and Oost (2007) assessing the role of interpersonal factors such as marital adjustment, attachment, and conflict communication on depression using self-report measures showed that depression in female partners had a higher negative association with marital adjustment and positive association with negative communication than did depression in male partners. The current study sought to build on this research and examined a possible gender difference in the impact of perceived criticism in couple relationships on individual psychopathology symptoms.

Variables in the present study.

Partner behaviors (warmth and contention). Because the current study focused on the internal experience of the receiver rather than that of the expresser, it measured the observable behaviors of the expresser directly toward the receiver, as those behaviors are what the receiver perceives. The current study also departed from the typical focus on problematic behaviors in couple interactions, and therefore measured both positive and negative partner communication behaviors.

Because past research has shown that the interviewer-directed constructs of criticism and hostility almost always occur together and because criticism can be considered a component of hostility, the present study combined these two constructs into one partner-directed behavioral construct: *contention* (Hooley, 2007). Contention is defined here as “friction and antagonism between spouses” and encompasses both specific antagonistic behaviors, such as criticism, and the general tone of the affect that is expressed toward the partner, as rated by an outside observer (Tolman & Weiss, 1990, p. 5). This is useful, as past research has shown that a critical atmosphere in a relationship, not necessarily individual critical comments, is associated with hyperarousal in individuals coping with psychological distress (Tarrier & Turpin, 1992).

As previously discussed, warmth and positive remarks have been largely neglected in past research on relational stressors’ effects on psychopathology (Lopez et al., 2004). One of only a few studies to define and examine warmth defined the construct as “positive affect” and included the expression of positive sentiments about a family member to an interviewer. The present study also used positive remarks as a component of warmth, though directed at a partner and not an interviewer, again following the

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premise that it is the overall tone of the relationship, not individual behaviors, that is associated with hyperarousal and therefore changes in distress symptoms. Warmth is defined here as a tone of positivity and amiability in a relationship that may include positive behaviors and expressions of positive affect toward a partner (Tolman & Weiss, 1990).

Psychopathology symptoms. Symptoms are distressing thoughts, feelings, or behaviors that are not representative of a person's desired, typical, or ideal level of functioning; they are manifestations of decreased functioning and elevated emotional distress (Derogatis, 1993). Common forms of these symptoms that were examined in the present study include somatization, obsessive-compulsive tendencies, heightened sensitivity to interpersonal interactions, depressed mood, anxiety, hostility, phobias, paranoid thoughts, and psychotic tendencies. Somatization is a form of psychological distress that presents through physical symptoms that can include chest pain, hot flashes, or numbness/tingling (Derogatis & Melisaratos, 1983). Obsessive-compulsive symptoms consist of intrusive, unwanted thoughts that cause distress and ritualistic behaviors that reduce that distress. Interpersonal sensitivity is composed of the individual's thoughts of inferiority or inadequacy and potential rejection by other people, associated with discomfort in interpersonal interactions. Depression symptoms include low mood, low motivation, low interest in preferred activities, hopelessness and loneliness. General anxiety is a state of hyperarousal characterized by worry and feelings of nervousness or restlessness, whereas phobic anxiety is a fearful response in the presence of certain stimuli that is often paired with avoidance behaviors (Derogatis & Melisaratos, 1983). Hostility as a psychological symptom is the internal experience of or action on having an

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urge or desire to engage in violent behavior. Paranoia involves thoughts that other people cannot be trusted and/or are assumed to have harmful intentions. Finally, psychoticism is a pattern of irrational, unrealistic, or delusional thoughts and experiences (e.g., thinking that another person can control one's thoughts). Although the continuum of this dimension can include such severe symptoms as hallucinations, psychoticism here will mean only mild schizoid symptoms such as social alienation, which are much more likely to appear in a non-psychiatric population than the more severe symptoms. These symptoms represent a wide range of common symptoms of psychological distress used in psychological research and treatment, and therefore provide information in the present study on how partner behaviors are associated with an individual's overall symptom severity.

Hypotheses. Based on the literature on interpersonal stressors that can serve as stressors impinging on individuals' vulnerabilities to experience psychopathology symptoms, this study tested the following hypotheses. Figure 1 illustrates the hypothesized relations among the variables.

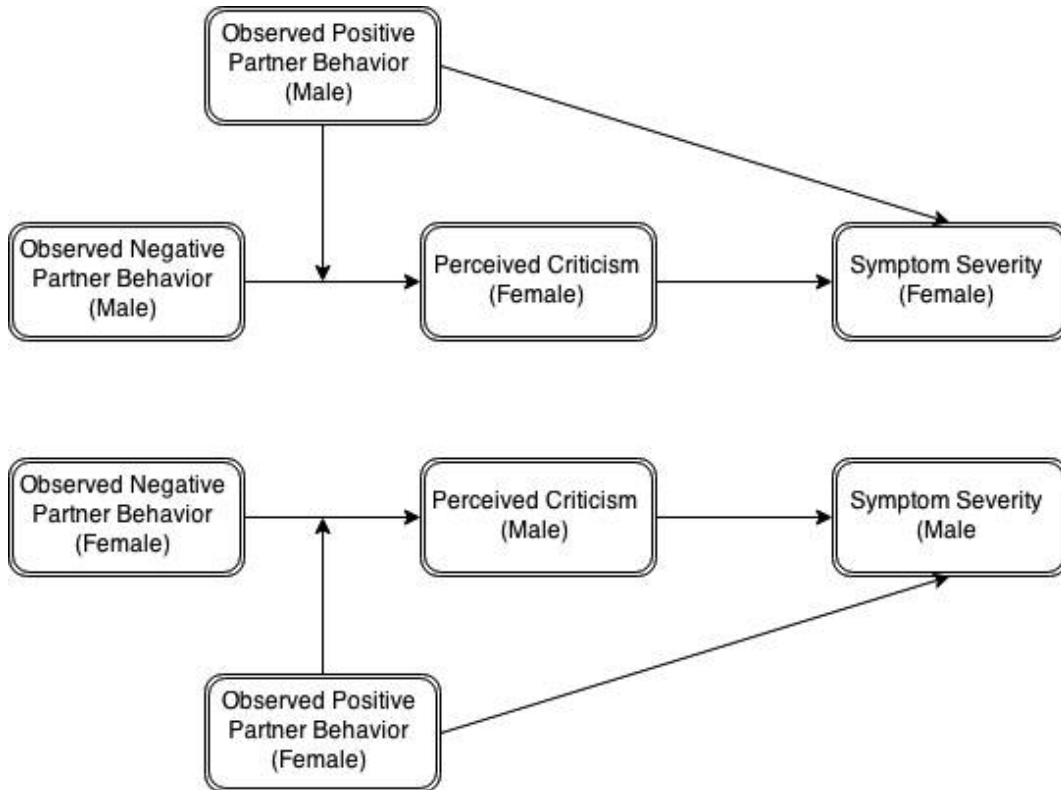
1. Higher levels of contentious behavior displayed by a romantic partner will be associated with higher levels of criticism perceived by the recipient.
2. Higher levels of contentious behavior displayed by a romantic partner will be associated with higher severity levels of psychopathology symptoms in the recipient.
3. Higher levels of criticism perceived by the recipient of a partner's contentious behavior will be associated with higher severity levels of psychopathology symptoms in the recipient.

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4. Level of perceived criticism will mediate the association between the partner's contentious behavior and the severity of the recipient's symptoms.
5. Greater warmth in the partner's communication toward the individual will be associated with lower symptom severity in the recipient.
6. Level of warmth in the partner's communication toward the individual will moderate the association between perceived criticism and symptom severity, decreasing the effect size of the relation between perceived criticism and symptom severity.

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Figure 1. Proposed Model of Partner Interactions



CHAPTER 2: Method

Sample

This study involved a secondary analysis of data that were collected previously from 96 couples' pre-therapy assessments at an outpatient family therapy clinic. The data were derived from a database of couples who had sought couple therapy at the outpatient Center for Healthy Families family therapy clinic at the University of Maryland, College Park. During the therapy assessment process, couples are required to complete a battery of assessments and participate in a recording of the couple discussing a topic of mild to moderate conflict in their relationship. Female partners reported a mean age of 31.9 years (SD = 10.03) and mean income of \$25,533 (SD = \$24,817). Male partners reported a mean age of 34.05 years (SD = 10.68) and a mean income of \$43,912 (SD = \$36,133). Interestingly, some couples in the sample reported their relationship length and number of children in the home slightly differently. Males reported a mean relationship length of 7.35 years (SD = 9.02), while females reported a mean relationship length of 7.59 years (SD = 9.02). Females reported a mean of 1.08 children living in the home (SD = 1.16), and males reported a mean of 1.05 children living in the home (SD = 1.15). The couples in this sample reported on average being mildly dissatisfied with their relationships using the total Dyadic Adjustment Scale (DAS; Spanier, 1976). Males reported a mean DAS score of 92.87 (SD = 20.20) and women reported a mean score of 85.63 (SD = 22.91), with a score of 100 being the established cutoff between distressed and non-distressed couples. See Tables 1-4 for a further breakdown of sample demographics.

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Table 1. Partners' Reported Relationship Status.

	Female Frequency	Male Frequency	Female Percent	Male Percent
Currently married, living together	52	51	54.2	52.6
Currently married, separated	4	4	4.2	4.1
Living together, engaged	21	22	21.9	22.7
Engaged, not living together	2	3	2.1	3.1
Dating, living together	14	14	14.6	14.4
Dating, not living together	3	3	3.1	3.1

Table 2. Partners' Reported Race.

	Female Frequency	Male Frequency	Female Percent	Male Percent
Native American	0	2	0	2.1
African American	36	32	37.5	33.0
Asian/Pacific Islander	1	1	1.0	1.0
Hispanic	10	8	10.4	8.2
White	42	48	43.8	49.5
Other	5	5	5.2	5.2

Table 3. Partner's Reported Highest Level of Education.

	Female Frequency	Male Frequency	Female Percent	Male Percent
Some High School	3	4	3.1	4.1
High School Diploma	8	20	8.3	20.6
Some College	28	23	29.2	23.7
Trade School	10	6	10.4	6.2
Associate Degree	9	8	9.4	8.2
Bachelors Degree	16	11	16.7	11.3
Some Graduate Education	11	11	11.5	11.3
Masters Degree	7	6	7.3	6.2
Doctoral Degree	4	6	4.2	6.2

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Table 4. Partner's Reported Religious Preference.

	Female Frequency	Male Frequency	Female Percent	Male Percent
Mainline Protestant	16	10	16.7	10.3
Conservative Protestant	27	33	28.1	34.0
Roman Catholic	15	17	15.6	17.5
Jewish	4	3	4.2	3.1
Other	11	3	11.5	3.1
No affiliation with any formal religion	23	31	24.0	32.0

Measures

Couple contentious communication and warmth. The Marital Interaction Coding System – Global (Tolman & Weiss, 1990) is a global rating system for interactions between romantic partners that was used in this study to assess both contentious behavior and warmth. Couples are video recorded for 10 minutes as they discuss a topic that they have identified as being a source of mild to moderate conflict in their relationship. Multiple trained observers then watch these videos and rate the interaction behavior of each partner's behavior during each 2-minute segment of the discussion along 6 different rating dimensions: Conflict, Problem Solving, Validation, Invalidation, Facilitation, and Withdrawal. Each of these dimensions is rated along a scale ranging from 0 to 5, with 0 indicating that no content or affect cues for this construct appeared and 5 indicating that the construct's content or affect cues were either present at a very high rate or with a high intensity. Ratings of each partner's behavior across the five 2-minute segments are averaged for each of the six dimensions. For the purposes of the present study, only the dimensions of Conflict and Facilitation were used,

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as they represent constructs very similar to the criticism and hostility (contentiousness), and warmth constructs included in the CFI.

The Conflict dimension of the MICS-G was used to measure contention in the present study and again is defined as a tone of friction and antagonism expressed by one member of a couple toward the other member (Tolman & Weiss, 1990). This construct consists of 5 content cues (complaints, criticism, negative mindreading, insults, and negative commands) and 5 affect cues (hostility, sarcastic voice tone, whining voice tone, angry voice tone, and bitter voice tone). A complaint is defined as a blaming statement of feeling deprived or wronged. Criticism refers to a hostile statement of disapproval of the partner's behavior. Negative mindreading is composed of assumptions of negative attitudes or characteristics in the partner that do not reference a specific behavior. Insults are defined as statements given with the apparent intention to cause emotional harm or discomfort to the partner. Finally, negative commands are considered to be directives to the partner that are delivered in a hostile manner. Using the MICS-G, raters consider the frequency and intensity with which all 10 of these cues are present in order to rate the overall conflict, or contention, of each partner in the interaction.

The Facilitation dimension of the MICS-G was used to measure warmth in the present study. It is composed of 3 content cues (positive mindreading, paraphrasing, and humor) and 4 affect cues (positive physical contact, smiling/laughter, open body posture, and warm/affectionate voice tone) (Tolman & Weiss, 1990). Positive mindreading consists of inferences and assumptions of positive attitudes or characteristics of one's partner. Paraphrasing refers to a mirroring or reflection of the partner as a conveyance of understanding or empathy. Humor is a lighthearted statement that appears to be

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recognized as humorous by both partners and is often paired with smiling or laughter. Positive physical contact is defined as affectionate touch between partners, such as handholding or hugging. Open body posture refers to relaxed body language and orientation toward the partner. Observers consider the frequency and intensity at which all 7 of these cues appear in order to rate the overall facilitation, or warmth, of each partner in the interaction.

The MICS-G has a moderate to high level of inter-rater reliability, with a mean percentage agreement of 83.3% (with a range of 62% to 98% agreement) (Weiss & Tolman, 1990). This assessment measure was also shown to out-perform the original micro-analytic version of the measure, the MICS, with its moderate levels of convergent validity and high validity in being able to discriminate marital distress.

In the Center for Healthy Families, each year teams of undergraduate students are trained to apply the MICS-G with video recordings of client couples' communication samples. The coders learn the coding categories and associated verbal and nonverbal cues from a written manual authored by Weiss and Tolman and take part in weekly training sessions until they reach a high level of interrater reliability before coding the actual client couple discussions.

Perceived Criticism. The Perceived Criticism Measure (PCM) was originally developed by Hooley and Teasdale (1989) as a question to assess perceived criticism by a spouse. The original assessment of perceived criticism was composed of 2 prompts asking "How critical do you think this person is of you?" and "How critical do you think you are of this person?" to be answered with 10-point Likert-type scales anchored at 1 (not at all critical) and 10 (very critical indeed). For use in the assessment at the Center

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for Healthy Families, those prompts were altered to refer to the 10-minute couple discussion that is rated with the MICS-G (“How critical do you think YOUR PARTNER was of you during the discussion you just had?” “How critical do you think YOU were of your partner during the discussion you just had?”) and were supplemented with questions asking how representative the respondent considered his/her own behavior and the partner’s behavior during the 10-minute discussion was of typical interactions in the couple’s relationship.

In its original form, the PCM showed high levels of test-retest reliability both over time and at differing individual treatment stages (Hooley & Teasdale, 1989). It was also shown to be uncorrelated with illness severity, and therefore has good construct validity.

Psychopathology symptoms . Individuals’ psychopathology symptom severity was assessed with the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). The BSI is a 53-item self-report measure used to assess levels of distress experienced from psychological symptoms. This measure was developed as a brief version of its predecessor, the SCL-90-R. The 53 items can be scored along the 9 previously discussed primary symptom dimensions, as well as 3 global symptom dimensions: the Positive Symptom Total, Positive Symptom Distress Index, and the General Severity Index. The PST is a count of the number of different symptoms identified as distressing, with no examination of how much distress those symptoms cause. The PSDI functions as an almost opposite measure, assessing how distressing symptoms are rated, controlling for the indicated number of symptoms, and can be used to measure the style of a patient’s responses. The GSI serves as a combination of the previous two dimensions, and serves as the “single best indicator of current distress levels” (p. 597). The GSI was used in the

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current study to measure symptom distress levels in receivers of positive and negative partner behaviors.

The BSI has been shown to have adequate reliability and validity (Derogatis & Melisaratos, 1983). All nine subscales displayed good internal consistency (Cronbach's alpha between .71 and .85). All measures included in the BSI also display good test-retest reliability, with the GSI displaying a reliability coefficient of .90. The BSI also shows excellent convergence with the MMPI and the BSI's predecessor, the SCL-90-R. Furthermore, factor analyses confirmed the construct validity of each of the nine dimensional subscales, and over 200 reports show good predictive validity in diverse population groups.

Procedure

The hypotheses were tested using existing data from the Center for Healthy Families database. Levels of contention behavior and partner warmth had already been coded from the conflict and facilitation subscales, respectively, of the MICS-G, and scores for perceived criticism existed from the Hooley and Teasdale Scale. Clients' symptom levels were coded from records of responses on the BSI and were scored for the GSI by adding the values of responses from all of the items, based on subjects' Likert scale responses. The associations of client symptom scores were examined in relation to both their partners' observed contention and warmth levels and their own perceptions of their partners' criticism.

Chapter 3: Results

Preliminary Analyses

Along with the main analyses testing the hypotheses, to be discussed below, the investigator conducted *t*-tests to determine possible differences between the male and female samples. The results are shown in Tables 5 and 6.

Table 5. Female and Male Means on Study Variables.

	Mean	<i>n</i>	Standard Deviation
Female Relationship Satisfaction (DAS)	85.65	72	23.00
Male Relationship Satisfaction (DAS)	92.57	72	20.34
Female GSI	0.87	92	0.62
Male GSI	0.59	92	0.45
Female Contention	0.75	96	0.65
Male Contention	0.62	96	0.66
Female Warmth	0.71	95	0.69
Male Warmth	0.77	95	0.62
Female Perceived Criticism	4.84	96	3.12
Male Perceived Criticism	5.44	96	2.91

Note. DAS = Dyadic Adjustment Scale; GSI = Global Severity Index of the Brief

Symptom Inventory.

As seen in Table 6, female partners in this sample were significantly less satisfied in their relationship than male partners [$t(71) = 2.92, p = .005$] and had significantly more symptom distress than the male partners [$t(91) = 3.51, p = .001$]. Furthermore, females engaged in significantly more contentious behavior [$t(95) = 2.63, p = .01$], and males showed a trend toward perceiving more criticism from their partners [$t(95) = 1.71, p = .091$]. No significant difference was found, however, between the amounts of warmth displayed by males and females.

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Table 6. Paired Samples *t*-Tests.

	Mean Gender Difference	Standard Deviation	<i>t</i>	<i>df</i>	Sig. (2-tailed)
Female DAS – Male DAS	-6.92	20.10	-2.92	71	.005
Female GSI – Male GSI	15.07	41.16	3.51	91	.001
Female Contention – Male Contention	0.13	0.48	2.63	95	-.010
Female Warmth – Male Warmth	-0.06	0.40	-1.36	94	.176
Female Perceived Criticism – Male Perceived Criticism	-0.59	3.41	-1.71	95	.091

Note. *Note.* DAS = Dyadic Adjustment Scale; GSI = Global Severity Index of the Brief Symptom Inventory.

Main Analyses

The present study was designed to examine the relationship of positive and negative partner behaviors with individual psychopathology symptoms, considering perceived criticism as a potential mediator. The following analyses were conducted:

The model presented in Figure 1 represents the hypotheses of this study and was tested via Structural Equation Modeling using the STATA 13.0 statistical software program with maximum likelihood estimation. The original model with each partner’s facilitation operating as a moderator between level of contention [conflict] and perceived criticism was found to result in a poor fit to the data. Therefore, an alternative model using each partner’s facilitation as a mediator between conflict behavior and perceived criticism was tested. After this model was fitted, three paths were added based on the

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modification indices that were indicated: a path between each partner's facilitation and conflict, and a direct path from the female's criticism to the male's GSI symptoms.

Model fit was examined with the chi-square test, root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and standardized root means square residual (SRMR) indices. The chi-square test compares the current model and a saturated model; a significant chi-square indicates that the more saturated model is preferable. Values of at least .95 for the CFI and TLI, .06 to .05 for the RMSEA, and .08 (considered adequate) or less than .05 (considered good) for the SRMR indicate a good model fit (Hu & Bentler, 1999). Some indices are known to be sensitive to sample size and overestimate the fit when the sample size is small (e.g., less than 200), whereas the RMSEA and CFI are less sensitive (Fan, Thompson, & Wang, 1999).

Model estimation. The goodness of fit indices showed that the original model (see Figure 1) fit the data poorly ($\chi^2 = 152.78, p = .001$; RMSEA = 0.287; CFI = 0.215; TLI = -0.177; SRMR = 0.144). Based on the Modification Indices (MI), three paths were added, and the final model as presented in Figure 2 yielded a good model fit with $\chi^2 = 13.07 (p = .043)$, RMSEA = 0.007, CFI = 1.000, TLI = 0.999, and SRMR = 0.039. Results from the model estimation are presented in Table 2.

Contrary Hypothesis 5, an individual's warmth (facilitation behavior) was not found to have a direct association with the recipient's lower symptoms; neither did it or moderate the relation between perceived criticism and symptoms (Hypothesis 6). Finally, facilitation behavior did not mediate between an individual's conflict behavior and the recipient's perception of criticism. Nevertheless, some interesting gender differences were found. The male's conflict behavior was *positively* associated with his level of

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facilitation behavior, but his facilitation behavior was not significantly related to the female's perception of criticism from him. In contrast, the female's conflict behavior was *negatively* associated with her facilitation behavior, although her facilitation behavior also was not associated with the male's perception of criticism from her. Furthermore, the male's conflict behavior was positively associated with the female exhibiting facilitation behavior, whereas the female's conflict behavior was unrelated to the male's use of facilitation behavior. Males' and females' levels of conflict behavior were significantly positively associated, as were their levels of facilitation behavior. Males' and females' levels of psychopathology symptoms were not significantly associated.

As proposed by Hypothesis 1, there were links between each individual's level of conflict behavior and the partner's perception of being criticized ($p < .001$ for male conflict and female perceived criticism; a trend at $p = .07$ for female criticism and male perceived criticism). In turn, providing limited support for Hypothesis 3, females' perceptions of criticism tended to be associated with their GSI symptom severity, whereas males' perceptions of criticism were unrelated to their GSI symptoms. An additional significant direct *negative* path was found from females' conflict behavior to males' GSI symptoms, based on the program's model estimation suggestion. Thus, females' conflict behavior had a direct association with males' *lower* levels of symptoms, even though that link was not mediated by perceived criticism (contrary to Hypothesis 4) as it was for male conflict behavior and female symptoms (consistent with Hypothesis 4). The direction of this finding of a direct path between greater female conflict behavior and lower male symptoms was the opposite of that predicted by Hypothesis 2.

Table 7 reports both the unstandardized and standardized path coefficients.

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Table 7. Results from the Structural Equation Model

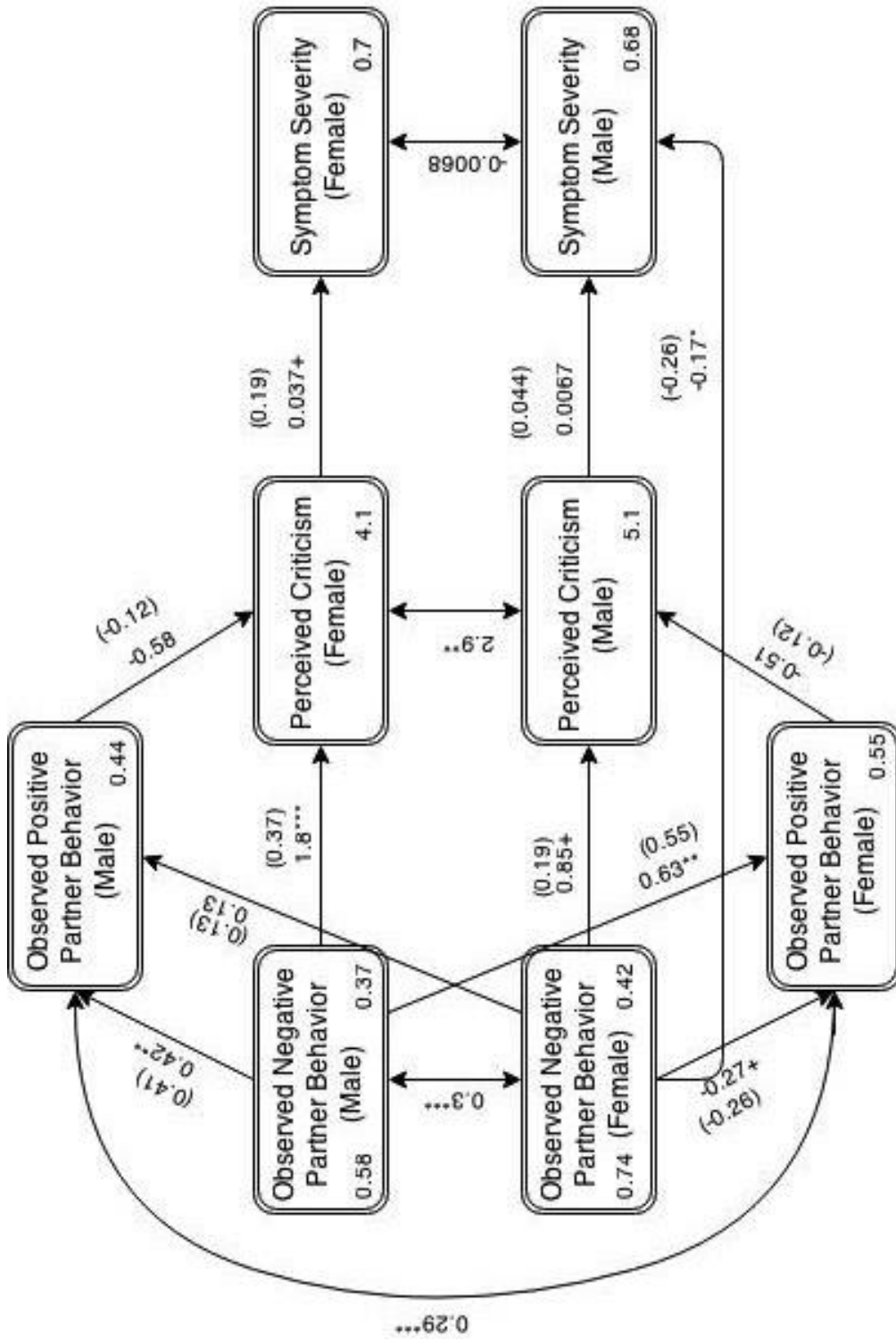
	Unstandardized Coefficient	Unstandardized Coefficient Significance Level	Standardized Coefficient	Standardized Coefficient Significance Level
Perceived Criticism (Female)				
-Male Warmth	-0.58	0.298	-0.12	0.297
-Male Contention	1.8***	0.001	0.37	0.001
Perceived Criticism (Male)				
-Perceived Criticism	2.9**	0.002		
Male Warmth				
-Male Contention	0.42**	0.004	0.41	0.003
-Female Contention	0.13	0.354	0.13	0.353
-Female Warmth	0.29***	0.000		
Female Warmth				
-Male Contention	0.63**	0.000	0.55	0.000
-Female Contention	-0.27+	0.091	-0.26	0.087
Female GSI				
-Perceived Criticism (Female)	0.037+	0.072	0.19	0.067
-Male GSI	-0.0068	0.805		
Perceived Criticism (Male)				
-Female Warmth	-0.51	0.230	-0.12	0.227
-Female Contention	0.85+	0.066	0.19	0.059
Male GSI				
-Perceived Criticism (Male)	.00067	0.671	0.044	0.671
-Female Contention	-0.17*	0.012	-0.26	0.010
Male Contention				
-Female Contention	0.3***	0.000		

Note. + = $p < .10$; * = $p < .05$; ** = $p < .01$; *** = $p < .001$

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Figure 2. Final structural model

(Standardized coefficients are presented in parentheses.)



Chapter 4: Discussion

Based on the vulnerability-stress model of psychopathology, the current study examined the role of perception of partner behaviors as a mediator between partner behaviors and psychological distress (Rosenberg, Weissman, & Wong, 2006). In the vulnerability-stress model, psychological distress levels are seen as a result of the interaction between biological predispositions and psychosocial stressors. In the current study, partner behaviors were examined as a potential psychosocial stressor, following previous research providing evidence of partner attitudes as psychosocial stressors and correlations between partner attitudes and partner behaviors (Chambless, Floyd, Rodebaugh, & Stoketee, 2007; Hahlweg et al., 1989; Hooley, 1986; Hooley, 2007). Furthermore, previous research has primarily focused on partners' negative effects on each other, and has paid less attention to the potential that partners can serve as protective factors against the development of psychopathology. Therefore, the current study also examined the relationship between facilitative partner behaviors and recipients' psychopathology symptom levels. Finally, the few previous studies that examined gender as a possible moderator of these relationships have produced mixed results, and so the current study sought to clarify the role of gender in these relationships.

The results provided mixed levels of support for the study's hypotheses. First, as predicted, males' negative behavior had a significant positive relationship with females' perceived criticism, mediating the relationship between male negative behavior and female symptom severity. However, contrary to the hypothesis, females' negative behavior had a significant and *negative* relationship with male symptom severity, with male perceived criticism having no significant mediation effect. In fact, male perceived

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criticism had no relationship with male symptom severity. Also contrary to the hypotheses, the results showed no significant direct, moderating, or mediating role for positive partner in relation to perceived criticism and psychopathology symptoms. Consistent with this investigator's choice of an actor-partner interdependence model approach that takes into account associations between two partner's experiences within their couple relationship, there were significant positive associations between female and male levels of conflict behavior, facilitation behavior, and perceived criticism. Finally, three paths that had not been hypothesized were added to the model based on modification indices. These indicated that greater conflict behavior by males was associated with greater facilitation behavior by the males, whereas greater conflict behavior by females was associated with less facilitation behavior by the females, and that there was a direct link between females' conflict behavior and males' symptoms, whereas the link between males' conflict behavior and females' symptoms was mediated by females' perceptions of being criticized by their partners.

Explanation of the Findings

Gender differences in the relationship between conflict behavior and symptoms. The nature of the gendered findings in the current study, though not hypothesized, is consistent with previous research identifying females as more focused on and responsible than males for the emotional state of their couple relationships, and experiencing more relationship distress in heterosexual relationships than males (Croyle & Waltz, 2002). The women in the current study exhibited a stronger relationship between their perception of criticism from their partners' criticism and their partner's observed behavior. At the same time, some theorists have speculated that women may

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experience more stress from relationships because they spend more time in a traditional feminine identity role than men, which is characterized by dependence and affiliation, essentially a relationship-focus (Croyle & Waltz, 2002). It is possible that the females in this study experienced greater perceived criticism in relation to their male partners' critical messages, and in turn their level of perceived criticism tended to be associated with greater psychopathology symptoms, because their relational identity was more salient than that of the males. Another factor noted in the prior research showing women's greater relationship distress is that women are more often the partner who initiates couple therapy (Jackson, Miller, Oka, & Henry, 2014). Being that the current sample came from a population of couples seeking couple therapy, the same may be true of this sample. As has been suggested in the previous literature on that pattern, women in this sample may have been the initiator of couple therapy because they were experiencing more stress from their relationship than their partners, thus biasing the sample.

Another possible explanation for the gender differences in the model that achieved a good fit comes from the examination of power in couple relationships. Previous research has shown that, often, men are in a higher power position in heterosexual relationships than women, particularly in regard to control over resources and making decisions (Holley, Sturm, & Levenson, 2010). This may be true of the current sample, given that, on average, male partners had higher salaries than females. This power differential has been shown to play out through partner interactions, with women often in a "pursuer" role and men in a "withdrawer" role (Christensen & Heavey, 1993). Researchers have speculated that this is because the partner in a lower power position will both have more motivation for change in the status quo and depend on the

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higher-power partner for those changes to occur. In the present study, it is possible that the female partners were more negatively influenced by conflict behaviors from their partners due to a perception of having less power to change problems in the relationship and thus greater concern when their partner is exercising power by criticizing them. This would be consistent with previous research findings of a strong relationship between criticism received and symptom levels for “patients” (whose patient status may have put them in a lower power position) and a weaker or no relationship for caregivers (who may have been in a higher power position) (Meuwly et al., 2012).

It also may be important to consider the possible role of locus of control and coping styles in explaining the gender differences that were found in this study. It has been shown that females more often employ emotion-focused coping strategies (that are intended to reduce emotional distress associated with stressors), whereas men more often employ problem-focused coping strategies (intended to alter or remove the stressors) (Matud, 2004). According to Matud, emotion-focused coping strategies have been associated with higher levels of distress, and problem-focused coping strategies have been associated with lower levels of distress. Some theorists have postulated that this does not mean that emotion-focused coping is a “worse” coping style, but that emotion-focused coping is more often used for and may be more appropriate for stressors that are viewed as not under the control of the individual, where problem-focused coping is more appropriate for stressors that are viewed as changeable.

Extensive research has shown that females more often than males believe that they have an external locus of control (meaning that forces outside of the self are viewed as having power over life events), whereas males more often have a more internal locus

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of control (meaning that the self is viewed as having power over life events) than females do, both because of gender role socialization (men and women learning through cultural socialization what they *should* do) and because of differences in the access that males and females have to different coping strategies due to role constraints (men and women being constrained regarding what they *can* do) (Matud, 2004; Sherman, Higgs, & Williams, 1997). In the current study, it is possible that female partners believed that they had a more external locus of control regarding their relationship conflicts than male partners did, and therefore used their available emotion-focused coping style to manage their distress, with their level of distress still increasing in response to the presence of greater stressors. In contrast, male partners may have had a more internal locus of control regarding relationship conflicts, allowing them to use a more problem-focused coping style, so that as their female partners behaved more contentiously, the men used more problem-focused coping strategies, and therefore had less distress than men who used less active coping in the face of less negative partner behavior.

A null finding for warmth as a moderator. Also varying from the hypothesized model was the lack of a relationship between positive partner behavior (facilitation) and either perceived criticism or psychopathology symptom level. Facilitation had neither a direct nor a moderating effect in this study, even though female and male levels of it co-varied and there were actor and partner links between conflict and facilitation behaviors. It is possible that this is because the amount of positive behavior was not enough to have an effect on perceived criticism or symptom distress. In research on relationship satisfaction, Gottman (1998) found that relationship satisfaction was predicted by the ratio of positive to negative interactions, with a ratio of 4 positive interactions for each 1

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negative interaction being the cutoff level needed to distinguish between distressed and non-distressed couples. Because the current sample consisted of distressed couples, and in their communication sample they had been instructed to try to resolve a conflict issue in their relationship (which would be likely to elicit talk about problems), it seems likely that these couples did not meet that ratio. Potentially, a similar pattern could hold true for individual symptom levels, where in order to have an effect on symptoms, positive partner behaviors would need to outnumber negative behaviors by a certain ratio. Even if in daily life partners were providing better ratios of positive to negative communication behavior, the task used to assess couple interaction in this study may have over-represented problem talk, which would be related less to partners' general psychopathology symptom levels. The GSI symptoms that participants reported were for their life in general, not specifically during the structured couple communication sample.

Limitations of the Study

When reviewing the findings of this study, it is important to consider the following limitations. First the sample size was relatively small. When using structural equation modeling, it is generally recommended that the sample size be at least 200 (Lei & Wu, 2007). Unfortunately, only 96 couples within the preexisting dataset fully completed all of the assessment tools needed to test the model. With a sample size this small, the findings of the study must be interpreted with some caution. However, the good model fit suggests that the findings are worth considering.

Second, this study may be limited by the timeline of the data collection. Because the data were collected concurrently, it is not possible to draw causal direction conclusions about the above relationships between variables. When data are collected

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concurrently, it is possible for a significant relationship to exist in either direction of causality (for example, it is possible that individuals' symptom levels influenced their perceptions of criticism in this study). Further studies are needed to test alternative models in concurrent samples or in longitudinal designs in order to confirm the direction of causality proposed in this study. Furthermore, while all of the other measures asked respondents to report behaviors and cognitions that occurred at the time of measurement, the BSI asked about symptom levels *over the past month*. The current study did not take into account other variables that may have influenced changes in symptom severity during that time period, and so did not control for possible confounding variables.

Another limitation of the current study is the biased nature of the sample. As stated above, it is possible that results were skewed by the fact that women are more likely to initiate couple therapy. If this was true for the current sample, which is likely considering the finding that female partners were significantly more distressed regarding both their relationship and their symptoms than male partners, it is possible that the conflicts that the couples discussed during the recorded communication sample more often concerned females' concerns about their male partners' behavior, a pattern for which the current study did not control. Furthermore, the findings from a clinic sample should be generalized with caution to broader samples of couples that have not sought therapy for relationship concerns.

In the current study, the investigator based the selection of the couple communication behaviors to be measured on EE research demonstrating the impact of similar constructs on symptom severity in other populations. This approach limited the range of behaviors analyzed, and there may be other types of positive and negative

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partner behaviors that serve as psychosocial stressors and influence perceived criticism and symptom severity. At the same time, it is possible that the facilitation scale of the MICS-G did not function as an adequate measurement of the construct of warmth, and so it may be useful to examine the dataset for a more valid measure.

Another possible limitation of the current study is the demographic makeup of the behavioral observers. The results indicated that perceived criticism on the part of female partners had a stronger relationship with observer ratings of critical partner behavior than that of male partners. It is important to note that a majority of the behavioral observers (communication coders) in the current study were female and, as noted previously, females have been shown to have greater emotional awareness than males, particularly regarding relationship conflicts. It is unknown whether the results would be replicated with more diverse communication coders.

Implications for Further Research

First and foremost, the nature of the statistical procedures used requires replication of the current study with larger independent samples. This is particularly important, given that the current study had a relatively small sample size and used post-hoc path modifications to create the final well-fitting model. Statisticians highly recommend that replicated studies use independent samples for cross-validation if post-hoc modifications to the proposed model are made in order to fit the data (Lei & Wu, 2007).

Furthermore, the unanticipated results differing by gender raise the question of what differences exist between populations of individuals who are more vulnerable to experiencing distress in response to the psychosocial stressor of family members’

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behaviors and populations who are less sensitive. Previous research based on the stress-vulnerability model has suggested that this difference results from neurological differences in individuals diagnosed with a mental disorder (Hooley, 2007). Results of the current study, however, open up the possibility that differences in vulnerability to family psychosocial stressors result from differences in relational power and coping styles. Future studies could clarify the nature of these differences by examining the role of power and coping styles in the relationship between couple interactional behaviors and symptom distress in both psychiatric and non-psychiatric populations. Furthermore, given the limitations of the present sample's characteristics, future studies could examine the role of gender differences in non-psychiatric, non-clinical populations and psychiatric populations.

Finally, the current study examined specific types of partner behaviors based on previous research on similar constructs, limiting the ways in which partner behavior was assessed. No evidence was found to support the hypothesized influence of warm partner behavior on symptom distress, but warmth is not the only potentially positive partner behavior. Further research could expand knowledge of how family members can serve as risk factors and protective factors by examining other types of interactional behavior (for example, withdrawing from an interaction or providing possible solutions to problems). In addition, research on non-distressed couples or other relationships in which the ratio of positive to negative behaviors is greater could provide more insight into how family members can serve as a protective factors or have a positive impact on individual symptom severity.

Implications for Clinical Application

One of the primary reasons for conducting this research was to seek ways in which family members may be helpful or harmful in the progression of sub-threshold psychological distress to more severe, diagnosable mental disorders. In other words, this study sought to determine areas in which secondary prevention strategies can be developed to reduce the severity, frequency, and impact of psychological distress on individuals, families, and communities.

These results have important implications for providers of mental health services. First, the gender differences in relations among the variables suggest a different pattern than the one typically assumed by family therapists. That is, family and couple therapy often is intended to reduce the amount of criticism as a way to decrease distress in the relationship system. If the pattern found in this study is replicated in future studies, it is possible that criticism targeted at males need not be as high of a priority for intervention as criticism directed at females. Furthermore, if the experience that men have of criticism is different than that of women, men may need more psychoeducation on the reasoning behind interventions targeted at reducing criticism.

At the same time, the findings of this study on the role of warmth in symptom severity would be useful in that therapists should not expect significant changes in individual distress levels following interventions that increase warmth if they are not accompanied by a reduction in contentious behavior. Clinicians may not see changes in individual distress levels until the ratio of positive to negative behaviors has shifted dramatically.

Conclusion

This study was designed to explore the roles of perceived criticism as a mediator and positive partner communication as a moderator in the relationship between negative partner behaviors and individual psychopathology symptom severity. The results indicated that there are gender differences in the way that negative partner behavior (contentious or conflict behavior) is associated with individual symptom severity, and that small variations in positive partner behaviors do not have a significant impact. These findings give cause for a reexamination of past assumptions about the path through which family members act as psychosocial stressors, possibly as a function of power in a relationship or situation. This research may stimulate changes in the lens through which these relationships have been viewed and will provide considerations for way in which clinicians deliver interventions targeting contentious behavior.

Appendix

BSI (DAY 1)

INSTRUCTIONS: Below is a list of problems and complaints that people sometimes have. Read each one carefully, and select one of the numbered descriptors that best describes **HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST MONTH INCLUDING TODAY**. Write that number next to the question. Do not skip any item.

EXAMPLE:

Descriptors:

<p>HOW MUCH WERE YOU DISTRESSED BY:</p> <p>3 Quite a bit</p> <p>_____ Body Aches</p> <p>Extremely</p>	<p>0 Not at all</p> <p>1 A little bit 4</p> <p>2 Moderately</p>
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HOW MUCH WERE YOU
DISTRESSED BY:

- _____ 1. Nervousness or shakiness inside
- _____ 2. Faintness or dizziness
- _____ 3. The idea that someone else can control your thoughts
- _____ 4. Feeling others are to blame for most of your troubles
- _____ 5. Trouble remembering things
- _____ 6. Feeling easily annoyed or irritated
- _____ 7. Pains in heart or chest
- _____ 8. Feeling afraid in open spaces
- _____ 9. Thoughts of ending your life

- _____ 10. Feeling that most people cannot be trusted
- _____ 11. Poor appetite
- _____ 12. Suddenly scared for no reason
- _____ 13. Temper outbursts that you could not control
- _____ 14. Feeling lonely even when you are with people
- _____ 15. Feeling blocked in getting things done
- _____ 16. Feeling lonely
- _____ 17. Feeling blue
- _____ 18. Feeling no interest in things
- _____ 19. Feeling fearful

_____20. Your feelings being easily hurt

_____21. Feeling that people are unfriendly or dislike you

_____22. Feeling inferior to others

_____23. Nausea or upset stomach

_____24. Feeling that you are watched or talked about by others

_____25. Trouble falling asleep

_____26. Having to check and double check what you do

_____27. Difficulty making decisions

_____28. Feeling afraid to travel on buses, subways, or trains

_____29. Trouble getting your breath

_____30. Hot or cold spells

_____31. Having to avoid certain things, places, or activities because they frighten you

_____32. Your mind going blank

_____33. Numbness or tingling in parts of your body

_____34. The idea that you should be punished for your sins

_____35. Feeling hopeless about the future

_____36. Trouble concentrating

_____37. Feeling weak in parts of your body

_____38. Feeling tense or keyed up

_____39. Thoughts of death or dying

_____40. Having urges to beat, injure, or harm someone

_____41. Having urges to break or smash things

_____42. Feeling very self-conscious with others

_____43. Feeling uneasy in crowds

_____44. Never feeling close to another person

_____45. Spells of terror or panic

_____46. Getting into frequent arguments

_____47. Feeling nervous when you are left alone

_____48. Others not giving you proper credit for your achievements

_____49. Feeling so restless you couldn't sit still

_____50. Feelings of worthlessness

_____51. Feeling that people will take advantage of you if you let them

_____52. Feelings of guilt

_____53. The idea that something is wrong with your mind.

Gender: _____ Date of Birth: _____ Therapist Code: _____ Family Code: _____

Please answer the following questions by circling the most appropriate number on each corresponding scale.

1. In general, how critical do you think **YOUR PARTNER** was of you during the discussion you just had?

I	I	I	I	I	I	I	I	I	I
1	2	3	4	5	6	7	8	9	10
								Very Critical	
Not at all								Indeed	
Critical									

2. In general, how critical do **YOU** think you were of your partner during the discussion you just had?

I	I	I	I	I	I	I	I	I	I
1	2	3	4	5	6	7	8	9	10
								Very Critical	
Not at all								Indeed	
Critical									

3. How similar was **YOUR PARTNER'S** behavior to the way he or she typically behaves when the two of you discuss an issue at home?

I	I	I	I	I	I	I	I	I	I
1	2	3	4	5	6	7	8	9	10
								Very	
Not at all								Similar	
Similar									

4. How similar was **YOUR** behavior to the way you typically behave when the two of you discuss an issue at home?

I	I	I	I	I	I	I	I	I	I
1	2	3	4	5	6	7	8	9	10
								Very	
Not at all								Similar	
Similar									

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.
- Bateson, G., Jackson, D.D., Haley, J., & Weakland, J. (1956). Toward a theory of schizophrenia. *Behavioral Science, 1*, 251-264.
- Bhugra, D. & McKenzie, K. (2003). Expressed emotion across cultures. *Advances in Psychiatric Treatment, 9*, 342-348.
- Calam, R. & Peters, S. (2006). Assessing expressed emotion: Comparing the camberwell family interview and five minute speech sample ratings for mothers of children with behaviour problems. *International Journal of Methods in Psychiatric Research, 15*(3), 107-115.
- Campion, J., Bhui, K., & Bhugra, D. (2012). European psychiatric association (EPA) guidance on prevention of mental disorders. *European Psychiatry, 27*, 68-80.
- Cartwright, K. L., Bitsakou, P., Daley, D., Gramzow, R. H., Psychogiou, L., Simonoff, E., Thompson, M. J., & Sonuga-Barke, E. J. (2011) Disentangling child and family influences on maternal expressed emotion toward children with ADHD. *Journal of the American Academy of Child and Adolescent Psychiatry, 50* (10), 1042-1053.
- Chambless, D. L., Floyd, F. J., Rodebaugh, T. L., Steketee, G. S. (2007). Expressed emotion and familial interaction: A study with agoraphobic and obsessive-compulsive patients and their relatives. *Journal of Abnormal Psychology, 116*(4), 754-61.

- Cheng, A. T. (2002). Expressed emotion: A cross-culturally valid concept? *The British Journal of Psychiatry*, *181*, 466-467.
- Christensen, A., & Heavey, C. L. (1993). Gender differences in marital conflict: The demand/withdraw interaction pattern. In S. Oskamp & M. Costanzo (Eds.), *Gender issues in contemporary society* (Vol. 6, pp. 113–141). Newbury Park, CA: Sage.
- Croyle, K. L. & Waltz, J. (2002). Emotional awareness and couples' relationship satisfaction. *Journal of Marital and Family Therapy*, *28*(4), 435-444.
- Derogatis, L.R.(1993). *BSI Brief Symptom Inventory: Administration, scoring, and procedure manual (4th Ed.)*. Minneapolis, MN: National Computer Systems
- Derogatis, L. R., & Melisaratos, N. (1983). The brief symptom inventory: An introductory report. *Psychological Medicine*, *13*, 595-605.
- Eisler, I., Dare, C., Hodes, M., Russell, G., Dodge, E., & Grange, D. L. (2000). Family therapy for adolescent anorexia nervosa: The results of a controlled comparison of two family interventions. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, *41*(6), 727-736.
- Fan, X., Thompson, B., & Wang, L. (1999). The effects of sample size, estimation methods, and model specification on SEM fit indices. *Structural Equation Modeling*, *6*, 56–83.
- Gerlsma, C., Duijn, M. A. J., Hale, W. W., & Hout, W. J. P. J. (2009). Perceived criticism: Associations with perceiver characteristics and interpersonal behavior. *Psychiatry Research*, *170*, 234-240.

- Gerlsma, C., Ruiter, N. M. P., & Kingma, W. (2014). Mood dependence of perceived criticism: A significant null finding. *Psychiatry Research (220)*, 1102-1105.
- Gottman, J. M., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and the Family*, *60*, 5-22.
- Hahlweg, K., Goldstein, M.J., Nuechterlein, K.H., Magana, A.B., Mintz, J., Doane, J. A. ... Snyder, K. S. (1989). Expressed emotion and patient-relative interaction in families of recent-onset schizophrenics. *Journal of Consulting and Clinical Psychology*, *57*, 11-18
- Heene, E., Buysse, A., & Oost, P. V. (2007). An interpersonal perspective on depression: The role of marital adjustment, conflict communication, attributions, and attachment within a clinical sample. *Family Process*, *46*(4), 499-514.
- Holley, S. R., Sturm, V. E., & Levenson, R. W. (2010). Exploring the basis for gender differences in the demand-withdraw pattern. *Journal of Homosexuality*, *57*(5), 666-684.
- Hooley, J. M. (1986). Expressed emotion and depression: Interactions between patients and high versus low-expressed-emotion spouses. *Journal of Abnormal Psychology*, *95*(3), 237-246.
- Hooley, J. M. (2007). Expressed emotion and relapse of psychopathology. *The Annual Review of Clinical Psychology*, *3*, 329-352.
- doi:10.1146/annurev.clinpsy.2.022305.095236

- Hooley, J. M., & Teasdale, J. D. (1989). Predictors of relapse in unipolar depressives: Expressed emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology, 98*(3), 229-235.
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424–453.
- Jackson, J. B., Miller, R. B., Oka, M., & Henry, R. G. (2014). Gender differences in marital satisfaction: A meta-analysis. *Journal of Marriage and Family, 76*, 105-129.
- Insel, T. R. (2008). Assessing the economic costs of severe mental illness. *American Journal of Psychiatry, 165*(6), 663-665. doi: 10.1176/appi.ajp.2008.08030366
- Lei, P. W. & Wu, Q. (2007). An NCME instructional module on introduction to structural equation modeling: Issues and practical considerations. *Educational Measurement: Issues and Practice, 26*(3), 33-43.
- Lobo, D. M. & Agius, M. (2012). The mental illness spectrum. *Psychiatria Danubina, 24*(1), 157-160.
- Lopez, S. R., Hipke, K. N., Polo, A. J., Jenkins, J. H., Karno, M., Vaughn, C., & Snyder, K. S. (2004). Ethnicity, expressed emotion, attributions, and course of schizophrenia: Family warmth matters. *Journal of Abnormal Psychology, 111*, 428-439.
- Marley, J. A. (2004). *Family involvement in treating schizophrenia: Models, essential skills, and process*. Binghamton, NY: Haworth Clinical Practice Press.

- Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences, 37*, 1401-1415.
- Medina-Pradas, C., Navarro, J. B., Lopez, S. R., Grau, A., & Obiols, J. E. (2011). Dyadic view of expressed emotion, stress, and eating disorder psychopathology. *Appetite, 57*, 743-748. doi:10.1016/j.appet.2011.08.016
- Meuwly, N., Bodenmann, G., & Coyne, J. C. (2012). The association between partners' expressed emotion and depression: Mediated by patients' dysfunctional attitudes. *Journal of Social and Clinical Psychology, 31*(7), 690-706.
- Mueser, K. T., & Glynn, S. M. (1995). *Behavioral family therapy for psychiatric disorders*. Boston, MA: Allyn and Bacon.
- Nichols, M. P. (2013). *Family therapy: Concepts and methods*. Upper Saddle River, NJ: Pearson Education, Inc.
- Peterson-Post, K. M., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2014). Perceived criticism and marital adjustment predict depressive symptoms in a community sample. *Behavior Therapy, 45*, 564-575.
- Quach, A. S., Epstein, N. B., Riley, P. J., Falconier, M. K., & Fang, X. (2013). Effects of parental warmth and academic pressure on anxiety and depression symptoms in Chinese adolescents. *Journal of Child and Family Studies, 24*, 106-116.
- Richards, J. S., Vasquez, A. A., Rommelse, N. N., Oosterlaan, J., Hoekstra, P. J., Franke, B., Hartman, C. A. & Buitelaar, J. K. (2014). A follow-up study of maternal expressed emotion toward children with ADHD: Relation with severity and persistence of ADHD and comorbidity. *Journal of the American Academy of Child & Adolescent Psychiatry, 2*, 1-9.

- Renshaw, K. D., Chambless, D. L., & Steketee, G. (2003). Perceived criticism predicts severity of anxiety symptoms after behavioral treatment in patients with obsessive-compulsive disorder and panic disorder with agoraphobia. *Journal of Clinical Psychology, 59*(4), 411-421.
- Robles, T. F., Shaffer, V. A., Malarkey, W. B., & Kiecolt-Glaser, J. K. (2006). Positive behaviors during marital conflict: Influences on stress hormones. *Journal of Social and Personal Relationships, 23*(2), 305-325.
- Rosenberg, G., Weissman, A., & Wong, D. F. K. (2006). *Clinical case management for people with mental illness: A biopsychosocial vulnerability-stress model*. New York, NY: Hawthorne Press.
- Sellers, R., Harold, G. T., Elam, K., Rhoades, K. A., Potter, R., Mars, B., Craddock, N., Thapar, A., & Collishaw, S. (2014). Maternal depression and co-occurring antisocial behaviour: Testing maternal hostility and warmth as mediators of risk for offspring psychopathology. *Journal of Child Psychology and Psychiatry, 55*(2), 112-120.
- Sherman, A. C., Higgs, G. E., & Williams, R. L. (1997). Gender differences in the locus of control construct. *Psychology and Health, 12*, 239-248.
- Smith, L. E., Greenberg, J. S., & Mailick, M. R. (2014). The family context of autism spectrum disorders: Influence on the behavioral phenotype and quality of life. *Child and Adolescent Psychiatric Clinics of North America, 23* (1), 143-155.
- Tarrier, N., & Turpin, G. (1992). Psychosocial factors, arousal and schizophrenic relapse: The psychophysiological data. *The British Journal of Psychiatry, 161*, 3-11.
doi:10.1192/bjp.161.1.3

- Tolman, A. O., & Weiss, R. L. (1990). *Marital interaction coding system – global (MICS-G): Training manual for observers*. Eugene, OR: Oregon Marital Studies Program.
- Tompson, M. C., Pierre, C. B., Boger, K. D., McKowen, J. W., Chan, P. T., & Freed, R. D. (2010). Maternal depression, maternal expressed emotion, and youth psychopathology. *Journal of Abnormal Child Psychology*, 38, 105-117. doi: 10.1007/s10802-009-9349-6
- Vaughan, K., Doyle, M., McConaghy, N., Blaszezynski, A., Fox, A., & Tarrier, N. (1992). The relationship between relative's expressed emotion and schizophrenic relapse: An Australian replication. *Social Psychiatry and Psychiatric Epidemiology*, 27, 10-15.
- Vaughn, C. E., & Leff, J. P. (1976). The influence of family and social factors on the course of psychiatric illness: A comparison of schizophrenic and depressed neurotic patients. *British Journal of Psychiatry*, 129, 125-137.
- Vaughn, C. E., & Leff, J.P. (1976). The measurement of expressed emotion in the families of psychiatric patients. *The British Journal of Social and Clinical Psychology*, 15(2), 157-165.
- Walker, E., & Diforio, D. (1997). Schizophrenia: A neural diathesis-stress model. *Psychological Review*, 104(4), 667-685.
- Weiss, R. L. & Tolman, A. O. (1990). The marital interaction coding system – global (MICS-G): A global companion to the MICS. *Behavioral Assessment*, 12, 271-294.

Wesselhoeft, R., Sorenson, M. J., Heiervang, E. R., & Bilenberg, N. (2013). Subthreshold depression in children and adolescents – a systematic review. *Journal of Affective Disorders, 151*, 7-22.

Whisman, M. A. & Beach, S. R. H. (2012). Couple therapy for depression. *Journal of Clinical Psychology, 68*(5), 526-535.