THE RELATION BETWEEN EXPRESSED EMOTION AND ADOLESCENT PSYCHOPATHOLOGY

DISSERTATION

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By

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* * * * *

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ABSTRACT

Past research has linked expressed emotion (EE) to a range of mental disorders and poor outcomes, including relapse of schizophrenia and depression in clinical populations. The present study attempted to demonstrate exploratory relationships between EE and psychopathology in a clinical sample ($n = 61$) of male and female adolescents placed in residential care. Additionally, this study included an examination of the potential impact that adolescent gender would have on the association between EE and psychopathology. While previous studies have documented differences between female and male adolescent rates of depression and other mood disorder-related issues, to date there has been little evidence regarding the impact gender may have on EE levels within the family system.

A self-report adjective checklist designed to measure EE levels provided measurement of the adolescents’ perspective on their mothers’ recent affective attitudes
displayed toward them, as well as the adolescents’ own affective attitudes toward their mothers. Adolescent psychopathology was assessed through the use of a self-report measure completed by the adolescent. Results indicated that higher levels of EE were significantly related to higher levels of Hostility, Psychoticism, and Somatization. There were no significant gender differences on indicators of either EE or psychopathology. Subsequent analyses, after combining sub-scales of the EE measure, revealed that higher levels of EE negative adjectives were significantly associated with higher levels of the Global Severity Index (a sub-scale indicating global psychopathology), Hostility, and Psychoticism sub-scales, while the positive EE adjectives were significantly associated with the Somatization sub-scale. Finally, utilizing a multivariate analysis, positive EE adjectives were significantly associated with the Somatization sub-scale. The practical implications of the present study are discussed, as well as suggestions for future research.
Dedicated to my wife, family, friends, and to the memory of Patrick McKenry.
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CHAPTER 1

INTRODUCTION

Prevalence rates for mental illness in preschoolers, preadolescents, and adolescents have been approximated at 12%, 15%, and 18% respectively (Roberts, Attkisson, & Rosenblatt, 1998). Overall, this translates into approximately 2.7 million (almost 5%) children and adolescents who are reported by parents to have severe emotional and/or behavioral problems (National Institute Child Health & Human Development, 2005). With such high prevalence rates of psychopathology in youth, the impact on family units, schools, communities, and taxpayers is enormous, especially when these disorders go untreated (Office of the Surgeon General, 2001).

There is a strong need for research on family environment variables that relate to mental disorders and poor clinical outcomes. One particular family environment concept, known as expressed emotion (EE), has emerged over the years as a robust correlate of mental illness
(Butzlaff & Hooley, 1998). While the relationship between EE and psychopathological conditions is well established across a wide spectrum of mental health outcomes in adults (Wearden, Tarrier, Barrowclough, Zastowny, & Rahill, 2000), relatively few studies have investigated the relationship between EE and child (especially adolescent) psychopathology (McCleary & Sanford, 2002; Stubbe, Zahner, Goldstein, & Leckman, 1993).

The concept of EE has generated considerable interest in the literature as an environmental variable within the family system that is strongly associated with family members’ mental health, and has been viewed as an index of the emotional climate in the home (Asarnow, Tompson, Hamilton, Goldstein, & Guthrie, 1994). Originally conceptualized in terms of family member criticism and emotional overinvolvement, EE emerged as a predictor of relapse in schizophrenic patients returning to their families (Brown, Birley, & Wing, 1972; Brown, Monck, Carstairs, & Wing, 1962), work that later was extended to bipolar disordered and depressed patients (Vaughn & Leff, 1976a; 1976b; 1981).

EE, conceptualized as high criticism and/or emotional overinvolvement, has been related to other family
functioning variables. This includes work on family interactive style (Doane, West, Goldstein, Rodnick, & Jones, 1981; Miklowitz, Goldstein, Falloon, & Doane, 1984), emotional climate in the home (Asarnow, et al., 1994), emotional enmeshment in the family (Cook, Strachen, Goldstein, & Miklowitz, 1989), and family differentiation levels (Fristad, Gavazzi, Centolella, & Soldano, 1996; Gavazzi, Goettler, Solomon, & McKenry, 1994).

**EE and Psychopathology**

*Diathesis Stress Model.* The relationship between EE levels and relapse may be best explained through the employment of the diathesis (or vulnerability) stress model (Barrowclough & Tarrier, 1998; Rosenthal, 1970; Zubin & Spring, 1977).

The diathesis stress model essentially contains three elements: the diathesis (vulnerability), the stress, and adaptation. Zubin and Spring (1977) defined the vulnerability (diathesis) side of the model as a range of both inborn and acquired components. Inborn vulnerability is genetic, and is exhibited as the neurophysiology of the individual. The acquired component includes the cumulative influences of childhood diseases and traumas that increase the individual’s susceptibility levels.
The stress side of the model has been described in terms of the challenges that an individual is facing in their lives at a given point in time (Zubin & Spring, 1977). Some of the variables that are taken into account here include the severity of the stress, the individual’s perception of the stress, and the competence of the individual to deal with the stress.

Finally, adaptation refers to the extent that an individual is able to function in light of their vulnerabilities and stresses. Here, the level of vulnerability, coupled with the severity and number of stressors, either increases or decreases the ability of the individual to adapt and maintain a certain homeostatic balance in their lives.

Hence, the “diathesis stress” model postulates that an inherited predisposition or enduring vulnerability, usually caused by genetic factors, toward mental illness may be influenced by life events and important social contexts, including factors related to the family (Hahlweg & Goldstein, 1987). In general, a family environment characterized as supportive would be thought of as a protective factor, whereas a highly emotionally charged
family environment containing members that were critical and emotionally over involved would be thought to increase the risk or likelihood for poor outcomes.

Measurement of EE

The Camberwell Family Interview. The measurement of EE adapted and changed alongside the research evidence generated regarding EE as a predictor of poor outcomes in families. Vaughn (1989) published a historical account of the measurement of EE, which began with the development of the Camberwell Family Interview (CFI; Vaughn & Leff, 1976b). During the 1950’s, research in London, England included a series of epidemiological studies investigating environmental factors that could account for relapse in schizophrenia. In the seminal study of EE on 229 schizophrenia patients returning to their homes, Brown, Carstairs, and Topping (1958) reported that family living arrangements and the amount of contact that a patient had with family members was related to symptom fluctuations.

Following this first set of results, a second study was conducted that sought to include more direct measures of the family environment. Brown et al. (1962) observed and measured interactions between mothers and their schizophrenic offspring returning home (n = 128). These
interactions subsequently were used to categorize family environments as either “high emotional homes” or “low emotional homes.” Patients returning to “high emotional homes” following hospitalization were more likely to relapse than those patients returning to “low emotional homes.”

This research team continued to develop their observational methods, culminating in the development of the Camberwell Family Interview (CFI; Vaughn & Leff, 1976b). Using a semi-structured interview format, this standardized instrument contained five scales that were used to code comments that family members made about the index patient: criticism, hostility, positive remarks, warmth, and emotional overinvolvement (Brown, et al., 1972). Brief details of the original five scales are provided by Hooley (1985) and are summarized below:

1. Critical comments, often denoted as criticism, was the sum total of critical comments made by family members about the patient. These comments were coded on the basis of both the tone and the content of these comments (resentment, disapproval, or dislike).
2. Hostility included those negative feelings expressed by family members about the patient more globally, rather than criticism of specific actions or behaviors.

3. Emotional overinvolvement was exemplified by obvious over-protective remarks and behaviors displayed by the family members toward the patient.

4. Positive remarks were the sum of positive comments made about the patient, including praise, approval, and appreciation.

5. Warmth was assessed through tone of voice used by the family members when discussing the patient.

Utilizing the CFI with a sample of 101 schizophrenic patients, Brown and colleagues (1972) examined the relationships between these five aspects of family environment and post discharge relapse rates. Three of the five scales from the CFI were reported to be significantly associated with relapse: critical comments, hostility, and emotional overinvolvement. Hence, warmth and positive comments were dropped because they were thought to add little additional predictive power to the EE
construct, leaving emotional overinvolvement, hostility, and critical comments as the principle components that predicted relapse in schizophrenia. Hostility eventually was dropped as well due to its overlap with critical comments. Hence, research typically assesses EE through the remaining primary components: emotional overinvolvement and critical comments (Leff & Vaughn, 1985).

Currently, the CFI has well-established reliability and validity evidence, and is an accurate predictor of relapse in schizophrenic and depressed patients (Hooley, 1985; Vaughn & Leff, 1976a; Vaughn & Leff, 1976b; Vaughn & Leff, 1981). At the same time, the CFI takes over one and a half hours to administer, and an additional two hours to score (Vaughn & Leff, 1976b). Moreover, one has to go through extensive training in order to administer and score the CFI. Hence, over the years there have been attempts to construct measures of EE that are shorter and thus more practical.

Five-Minute Speech Sample (FMSS). One such briefer method for measuring EE was developed by Magana et al. (1986). The Five-Minute Speech Sample (FMSS; Magana et al., 1986) was designed specifically with the purpose of
reducing the length of time it takes to measure EE levels as compared to the time it takes using the CFI. The FMSS is an interview protocol that asks a family member of the patient to speak freely for five minutes concerning what kind of person the patient is and what the relationship is like between the relative and the patient. The speech sample is audio taped and subsequently coded by a trained rater in terms of critical comments and emotional overinvolvement.

While the FMSS is obviously a briefer measure in comparison to the CFI, it has been asserted that the FMSS underestimates scores of the CFI in 20-30% of the samples and thus lacks its predictive power (Van Humbeeck, Van Audenhove, De Hert, Pieters, & Storms, 2002). In addition, the FMSS also requires extensive training in interview methodology and coding procedures.

**Self-report.** The search for briefer methods to assess EE also has included the development of self-report measures. One of the first self-report measures developed was the Level of Expressed Emotion Scale (LEE; Cole & Kazarian, 1988) that measures a family’s affective environment through the use of 60 true-false items. This questionnaire is given to a key relative of the
schizophrenic patient, and includes four dimensions suggested by Vaughn and Leff (1981): (1) intrusiveness; (2) emotional response; (3) negative attitude toward the illness; and (4) tolerance and expectations of the patient. While internal reliability evidence was reported, associations between the LEE and other measures of EE have not been established.

Another measure, the Questionnaire Assessment of Expressed Emotion (QAEE; Docherty, Serper, & Harvey, 1990) was developed as a self-report measure of EE that included 99 items measuring two scales: criticism/hostility and emotional overinvolvement. Both sub-scales within this self-report measure were reported to display solid internal consistency. In a sample of 25 relatives of schizophrenic patients, results regarding the comparison of the CFI with the self-report measure indicated that, 88% and 68% of the subjects were similarly classified on the criticism scale and the EOI scales respectively. Also, similar overall distinctions between high and low EE families were reported, with the CFI and the self-report measure demonstrating a 76% congruence rate.

More recently, the Family Emotional Involvement and Criticism Scale (FEICS; Shields, Franks, Harp, McDaniel, &
Campbell, 1992) was developed as a self-report measure of EE, using 23 items to assess perceived criticism (PC) and perceived emotional overinvolvement (EI) that were analogous to criticism and emotional over involvement. In a sample of 83 adult healthcare patients, the FEICS demonstrated acceptable reliability, with coefficient alphas of .82 and .74 for the PC and EI sub-scales respectively. Initial evidence regarding construct validity was reported. The FEICS demonstrated significant associations with other family functioning measures. The authors did not measure concurrent validity with the CFI or establish any predictive power, thus leaving it rather unclear as to whether the FEICS is a good substitute for the CFI (Van Humbeeck et al., 2002).

Finally, the Expressed Emotion Adjective Checklist (EEAC; Friedmann & Goldstein, 1993) was developed as a self-report questionnaire of EE by first assessing family member behavior toward the patient, and then assessing the patient’s behavior toward the family member. There are ten positive adjectives (accepting, active, clear, considerate, cooperative, devoted, easy to get along with, friendly, good-natured, and loving) and ten negative adjectives (angry, bored, contrary, deceitful, hostile,
irresponsible, irritable, lazy, mean, and rude). Internal consistency was reported to be high and EEAC negative adjectives scale was significantly associated with both the CFI and the FMSS.

While the EEAC was theorized to utilize the two most salient indices of EE, namely critical comments and emotional overinvolvement as originally conceptualized (Brown et al., 1972; Vaughn & Leff, 1976b), the two positive and negative scales were thought to provide parallel measures of criticism and emotional overinvolvement (Friedmann & Goldstein, 1993).

Van Humbeeck et al. (2002) provided a review regarding the EEAC’s internal consistency evidence and concurrent validity with the CFI and FMSS, and this measure was utilized as an indicator of EE change over time as a result of psychoeducation intervention (Fristad, Arnett, & Gavazzi, 1998). Thus the psychometric utility of this measure has been demonstrated for treatment outcomes.

The Proposed Study

The current project will examine EE as a correlate of psychopathology in a sample of adolescents. EE will be assessed through the use of a brief self-report measure
completed by a clinical population of adolescents referred to a residential treatment setting. Residential treatment is being characterized as a level of care for children and adolescents designed to stabilize mental health and behavioral problems prior to returning to the community and/or reunifying with their families. Because this research project is a field study in adolescent residential treatment, methods and results are primary descriptive and exploratory.

Against the backdrop of this project’s general aims regarding the role of EE in adolescent psychopathology, this study seeks to extend the target population of EE studies to include residential youth more specifically, and to validate the utility of a self-report measure with such a population. Further, this effort will investigate any potential gender differences in the relationship between EE and adolescent psychopathology. The association between EE and levels of adolescent psychopathology and psychological distress in clinical samples largely has been under-researched, and few investigators have paid attention to potential gender differences regarding EE and its association with other variables. This is contrasted with a larger body of
findings that have noted gender differences regarding susceptibility to psychopathology (Gavazzi & Schock, 2000).

This study will highlight the importance of assessing EE as part of a broader effort to understand the onset, course, relapse, and treatment of psychopathology in adolescents. Furthermore, it will help strengthen the premise that EE is an indicator of family environment that is related to the well being and functioning of both male and female youth. Based on previous literature, it was hypothesized that adolescent reported levels of parental EE would significantly be related to a general indicator of adolescent psychopathology and that the reports of EE and psychopathology would not be significantly impacted by adolescent gender.

Hypotheses
1. Scores on a measure of expressed emotion will be significantly and positively related to scores on the measure of adolescent psychopathology. More specifically, greater levels of expressed emotion will be significantly associated with higher levels of adolescent psychopathology.
2. Gender will not significantly impact adolescent reports of expressed emotion. More specifically, male and female scores on the EE variable will not display statistically significant differences.

3. Gender will not significantly impact adolescent reports of psychopathology. More specifically, male and female scores on the psychopathology variable will not display statistically significant differences.
CHAPTER 2

LITERATURE REVIEW

Introduction

This section reviews the empirical literature that supports each of the three hypotheses formulated for this study. With regard to the first hypothesis, this review focuses on empirical studies that demonstrate the association between EE levels in families and various outcomes in child and adolescent populations. Beyond relating broad study questions and salient findings, particular interest is paid to EE measurement tools; the review is organized by the age of the population being studied. With regard to the second and third hypotheses, this review covers findings from the EE literature regarding adolescent gender differences, as well as empirical efforts in which the use of the BSI was used in the measurement of child and adolescent psychopathology.
Studies Relating EE to Child/Adolescent Psychopathology

Hypothesis one. Scores on a measure of expressed emotion will be significantly and positively related to scores on the measure of adolescent psychopathology. More specifically, greater levels of expressed emotion will be significantly associated with higher levels of adolescent psychopathology.

While high parental EE increasingly has been identified as a risk factor related to child internalizing and externalizing indicators of psychopathology, as well as to specific disorders (Volstanis & Nicholls, 1992), others have stated that the relationship between EE and child and adolescent psychopathology has not been well investigated (McCleary & Sanford, 2002). On the whole, adolescent populations have been examined with less thoroughness than child populations, and none of the studies reviewed utilized self-report measures for EE.

Child populations. In one early study investigating EE in younger populations, Marshall, Longwell, Goldstein, and Swanson (1990) investigated family EE levels and their relationship with the presence or absence of aggression in a sample of 29 boys. One group was diagnosed as having ADHD, and the other group had a comorbid diagnosis of ADHD and one other diagnosis (either oppositional defiant disorder or conduct disorder). Parental EE levels were
assessed through the use of the Five Minute Speech Sample (FMSS; Magana et al., 1986), and children rated their parent’s EE level through a modified version of the FMSS using a three-minute interview rather than five. Results indicated the children’s EE levels seemed to mirror those of their parents, as parental EE and child EE were significantly correlated. The hypothesis that high EE would relate more to the aggressive ADHD child over the non-aggressive ADHD child was not supported, however.

In a community sample of 108 children, Stubbe, et al. (1993) studied the relationship between parental EE assessed through the FMSS and child psychiatric disorders. The authors reported that a high level of parental criticism, a component of EE, was related to disruptive behavior disorders, whereas emotional over-involvement was associated with anxiety. While no age or gender differences were indicated, Roman Catholics demonstrated higher criticism levels than non-Catholics.

Hibbs et al. (1993) investigated family and marital relationships in a sample of parents with children in one of three groups: disruptive behaviors (n=45), obsessive-compulsive behaviors (n=49), and normal controls (n=45). High EE as measured by the FMSS was associated with child
psychopathology, higher levels of family conflict, and a high achievement orientation in mothers. Low EE was related to satisfactory family and marital environments.

Asarnow et al. (1993) examined parental EE levels as measured by the FMSS in a sample of 26 children with diagnoses of major depression and dysthymic disorder. Results indicated a strong association between high maternal EE and childhood depression and dysthymic disorders after one year, such that children were less likely to show signs of recovery from their disorders when returning to high EE homes.

Asarnow, Tompson, Hamilton, Goldstein, and Guthrie (1994) examined levels of EE through the use of the FMSS in families of 86 children ages 6-13 categorized in one of three groups: children with depressive disorders, children with schizophrenia spectrum disorders, or normal controls without any disorders. Findings indicated EE was significantly higher in families of children with depressive disorders in comparison to families of children with schizophrenia spectrum disorders and the control group. In addition, within the depressed group, the high critical dimension of EE more specifically was associated with the presence of comorbid disruptive behavior
disorders. The authors noted EE may have some specificity in its association with a form of child disorders, i.e. depression, versus the hypothesis that EE is a non-specific correlate with child psychopathology in general.

Vostanis, Nicholls, and Harrington (1994) assessed EE levels through the use of the CFI with mothers and children representing three groups; 30 children with conduct disorder, 30 children with emotional disorders, and 30 normal controls. Maternal EE warmth was higher in the control group than in the emotionally disturbed group, and lowest in the conduct disorder group. Maternal EE criticism levels were significantly higher in the conduct disorder group in comparison to the other two groups, and were significantly associated with externalizing behaviors in all three groups.

Vostanis and Nicholls (1995a) used a sample of parents with children in one of three groups (30 children with conduct disorders, 30 children with emotional disorders, and 30 normal controls) in order to examine the associations between EE, other family environment variables, and measures of child psychopathology. Both parents completed the CFI as well as the Family Environment Scale (FES; Moos & Moos, 1986) to assess the
concurrent validity of these instruments. The association between maternal EE criticism and conflict, as measured by the FES in the group of children with conduct disorders, was the only significant relationship found between these two indicators of family environment. Additionally, in the conduct disorder group, a lack of maternal EE warmth and higher levels of EE critical comments displayed significant relationships with child externalizing symptoms. While there were no significant findings reported in the emotional disturbance group, the control group displayed a significant association between EE criticism and both internalizing and externalizing symptoms.

In a follow-up study to Vostanis et al. (1994), Vostanis and Nicholls (1995b) used a sample of mothers of clinically referred children in two groups (29 children with emotional disturbance and 28 children with conduct disorders), and reported that mothers displayed significantly higher levels of EE warmth coupled with lower levels of EE criticism following 9 months of psychiatric treatment. Additional findings indicated that lower levels of maternal warmth at time one predicted the presence of conduct disorders in the children at the
subsequent 9-month measurement point. Interestingly, child behaviors as assessed by the CBCL were reported to have improved significantly over the 9-month period, although statistically independent of EE influence.

Jacobson, Hibbs, and Ziegenhain (2000) investigated the relationship between EE and mother-child attachment security, and more specifically, high EE and attachment disorganization. In the sample of 33 children and mothers who were assessed at the child’s age of 12 and 18 months, and again at age six. The authors found maternal EE levels assessed through the FMSS to be significantly related to mother-child attachment security. Results also indicated that high EE was related to disorganized attachment patterns in the children.

More recently, Peris and Baker (2002) used a community sample of 91 children to test the stability of EE over a two-year period, as well as examining the association between EE and disruptive behaviors. Maternal EE was measured at preschool and first grade using the FMSS, while the children’s behavior was rated through the use of the CBCL. Findings indicated that, over the two-year period, EE ratings remained statistically stable. In addition, EE ratings were significantly related to
externalizing behaviors displayed by the children in the first grade. Further, when maternal stress levels were controlled, EE ratings were reported to predict ADHD diagnosis four years later.

Most recently, Caspi et al. (2004) investigated EE and child psychopathology in a large sample of twins and their mothers. The researchers interviewed 565 five-year old monozygotic (MZ) twin pairs at age five and seven through the use of the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), while mothers of the twins were assessed on EE levels via the FMSS. Results indicated that maternal EE was significantly correlated to antisocial behaviors (externalizing dimension on the CBCL) both at age 5 and 7 years. Because the authors were able to establish which twin received higher negativity levels from their mother and which twin received more warmth, further analysis of the MZ pairs indicated the child receiving more maternal negativity and less warmth had more antisocial behavior problems.

Child and adolescent populations. In an early follow-up study extending the EE construct to adolescents as well as to non-schizophrenic spectrum disorders, Valone, Goldstein, and Norton (1984) investigated
psychophysiological reactivity in high versus low EE family members during conflicted encounters using a clinical sample of 52 adolescents (ages 14 to 19 at time one) and their parents. EE levels were assessed utilizing the CFI. Results indicated that both high EE parents and their adolescents demonstrated significantly greater psychophysiological reactivity in conflictual episodes.

Schwartz, Dover, Beardslee, Lavori, and Keller (1990) published a seminal investigation of maternal EE and child and adolescent psychopathology. EE as measured by the CFI was used with a sample of 273 youth (143 of whom had a prior affective diagnosis; aged 6-19) and their parents. Findings indicated that higher levels of maternal EE were predictive of increased risk for a child’s subsequent disorder such as depressive disorder, substance abuse problem, or conduct disorder.

Hibbs et al. (1991) investigated the relationship between EE and both parent and offspring psychopathology in a sample of 128 children and adolescents ages 8 to 17 (and their families). Using a sample containing three groups of children and adolescents (those with obsessive-compulsive diagnosis, disruptive behavior disorders, and normal controls), levels of parental EE were assessed
through the use of the FMSS. Findings demonstrated that both high parental EE and parental psychiatric disorders were associated with child and adolescent disruptive behavior disorders and obsessive-compulsive disorders. Parental psychiatric disorders were also significantly related to high EE levels for both mothers and fathers, while low parental EE was related to the absence of disorders.

Hibbs, Zahn, Hamburger, Kruesi, and Rapoport (1992) studied increased spontaneous fluctuations in skin conductance (SC) as a response to high parental EE in a sample of 122 children and adolescents ages 8 to 18 that were divided into three groups; disruptive behavior disorders; obsessive-compulsive disorders, and normal controls. EE levels were assessed through the use of the FMSS in this study. Results demonstrated that children with two high EE parents had higher overall SC activity, while paternal EE and maternal psychiatric diagnosis were related to higher SC activity primarily for the OCD group.

Le Grange, Eisler, Dare, and Hodes (1992) investigated EE levels in a sample of 18 adolescents ages 13-17 and families referred for treatment of anorexia nervosa, examining the prognostic value of EE and whether
EE changed over the course of therapy. Parents of adolescents were assessed for EE levels utilizing a structured, modified version of the CFI. Findings indicated that EE scores from the parents generally were low, in contrast to the higher EE levels typically found in parents of adolescents with other clinical problems. Other findings indicated levels of criticism at the start of therapy were predictive of progress six months later. Additionally, levels of criticism were found to be significantly higher for families of adolescents who responded poorly to treatment as compared to those who responded better.

In a longitudinal study assessing the long-term impact of EE and communication deviance on long-term social competence, Albers, Doane, and Mintz (1986) examined a group of 47 parents determined to have high EE 15 years earlier when their offspring were adolescents. Parental EE originally had been assessed through the use of the CFI. Results indicated a lack of statistical relationship between family environmental variables (including EE) and measures of social competence. However, high EE scores from the parents of the adult offspring assessed 15 years prior predicted lower scores
on an intimacy index for the adult offspring. These same EE scores, however, failed to predict other dimensions of adult social functioning.

Kershner et al. (1996) investigated EE and psychopathology in a sample of 39, two-parent families of children and adolescents between the ages of 7-16. Of these, 20 were from a clinical group and 19 were a non-clinical comparison. Interestingly, both groups contained a high proportion of high EE families as measured by the FMSS. Findings indicated that levels of EE significantly discriminated between clinical and non-clinical family groups. The authors suggested that high EE combined with family dysfunction increases the risk for children to have subsequent poor outcomes. Additionally, the authors noted that only criticism was a significant predictor for psychopathology.

Asarnow et al. (2001) examined EE and its relation with child and adolescent psychopathology in a sample that consisted of three groups of families and their children and adolescents ages 6-18: a group with depressive disorders, a non-depressed with ADHD, and community control with neither depression nor ADHD. EE was measured by the FMSS. Results indicated an overall rating for EE
(criticism and emotional overinvolvement) as well as the specific component of criticism were significantly higher for the depressed youth group over the control group. The non-depressed ADHD group was not significantly different from the other two groups in this comparison. Further, maternal EE as indicated by criticism was significantly higher among mothers of depressed adolescents in comparison to the other two groups. Finally, paternal EE was significantly higher in the non-depressed ADHD group when compared to the community control group.

McCarty and Weisz (2002) used a sample of 258 clinically referred children ages 7-17 in order to investigate the relation between EE, as measured by the FMSS, and psychopathology. The EE components of criticism and emotional overinvolvement were tested separately regarding their individual relationship to psychopathology, specifically scores on the CBCL. Results indicated that criticism related positively to maternal reports of child psychopathology and most significantly, externalizing problems. Emotional overinvolvement was also related to child psychopathology, although less robust than criticism. Subsequent analysis supported that
criticism mediates the relationship between maternal psychopathology and child externalizing problems.

McCleary and Sanford (2002) studied 57 clinically referred adolescents, diagnosed with major depression disorder, ages 13-18, as a sub-sample of a larger longitudinal study on the clinical course of depression. Parents of the adolescents were assessed for levels of EE through the FMSS. Results of the study indicated high EE levels were strongly associated with worse adolescent social functioning and more depression symptoms in the adolescents. Additionally, low EE levels predicted major depression remission in those adolescents who did not have a comorbid ADHD diagnosis.

In a community sample of 522 Austrian families, Brennan, Hammen, Katz, and Brocque (2002) investigated the relationship between maternal depression and paternal psychopathology with adolescent diagnostic outcomes. In this follow-up to a larger cohort study, adolescents were age 15. Paternal EE, chronic family stress, and marital satisfaction were examined as potential mediators between parental psychopathology and adolescent outcomes. Fathers were assessed on levels of EE via the FMSS. Among other findings, results indicated that chronic family stress and
father’s EE levels mediated the relationship between parental psychopathology and youth depression.

McCarty, Lau, Valeri, and Weisz (2004) examined specific components of EE, criticism and emotional overinvolvement through the use of the FMSS, and their relation to parent-child interactions in a sample of 252 clinically referred children and adolescents (ages 7-17). Major findings indicated that parents who scored high on Critical EE were more antagonistic, negative, disgusted, harsh, and less responsive in interacting with their child when compared with parents in the low criticism range. There were no significant associations noted for the EE component of emotional overinvolvement.

In summary, the above literature demonstrates strong support for the first hypothesis in this study that focuses on the relationship between EE and psychopathology. The linkage between EE and child and adolescent psychopathology has been found across inpatient, outpatient, and community samples (Asarnow et al., 1994; Hibbs et al., 1991; Le Grange et al., 1992; McCleary & Sanford, 2002; Schwartz et al., 1990; Stubbe et al., 1993).
It is important to note that for all of the reviewed studies assessing youth populations, EE levels were analyzed through the use of the CFI or the FMSS (two of the studies used modified versions of the FMSS and the CFI). Although the reliability and validity of the CFI and the FMSS have been indicated repeatedly in the research literature, the length of time required to administer and score the measures makes such usage unwieldy. Le Grange et al. (1992) acknowledged the impracticability that clinicians face utilizing the CFI in clinical practice due to the time intensive methodology it employs. Hence, a next critical step in the measurement of the EE construct will necessarily involve the utilization of measures that are briefer.

While the employment of self-report provides a briefer alternative to the use of either the CFI or FMSS, it also provides an alternative perspective, measuring the adolescent’s own perspective concerning the family environment. To date, however, there are no known studies utilizing self-report measures in the assessment of EE levels on youth populations.
Gender Differences and EE

Hypothesis two. Gender will not significantly impact adolescent reports of expressed emotion. More specifically, male and female scores on the expressed emotion variable will not display statistically significant differences.

This section explores the EE literature on child and adolescent populations regarding the potential impact of adolescent gender. Although gender traditionally has not been a variable given critical attention in this area of research, it has been noted as a potential influence on the family system in some EE studies.

In an early study investigating EE levels and family environment factors in families of well-adjusted children, Vostanis and Nicholls (1992) investigated the role of parental EE in a well-adjusted non-clinical child population. These researchers were investigating whether EE is part a normal range of parental reactions to children’s behaviors. Two school populations from two different SES backgrounds were studied. Students were between the ages of 6-11 years old, were Caucasian, and had never been referred for psychiatric services. EE was assessed through the CFI. Results indicated maternal EE critical comments were significantly related to internalizing and externalizing behaviors, while there
were no significant relationships between paternal EE scores and child problem behaviors. However, gender differences were reported regarding father’s warmth, as fathers expressed more warmth toward sons than towards daughters. Mothers were higher on criticism and emotional overinvolvement overall, but were more positive toward their daughters than were the fathers.

In another study that detected gender differences, Hirshfeld, Biderman, Brody, Fraone, and Rosenbaum (1997) assessed two samples of children in order to examine the relationship between child psychopathology, child behavioral inhibition, and EE. The first sample was considered “at risk” and consisted of 30, 4 to 10 year old children with or without panic disorders and their mothers. The second sample consisted of 41 children who, at age 21 months were categorized as either behaviorally inhibited or uninhibited, and were subsequently followed up at age 11 for testing in this study. In both samples, mothers’ EE was measured through the use of the FMSS. In the at-risk sample, results indicated high maternal criticism was significantly related to child behavioral inhibition, whereas high emotional overinvolvement was significantly related with child separation anxiety.
disorder. When the two samples were added together, maternal criticism was significantly associated with mood and behavior disorders, externalizing symptoms, and gender. More specifically, the female gender was significantly related to maternal criticism (differentiating high versus low levels).

Cook et al. (1989) found gender differences when they investigated interactions in families characterized as being either high EE or low EE parent-adolescent dyads. The adolescents and families were part of a longitudinal study involving adolescents (n = 48) and their families deemed at risk for schizophrenia. Results indicated that in mother-adolescent dyads that were typified as high EE, adolescents were more oppositional, although adolescents from low EE mother-adolescent dyads demonstrated more stability in their affective interactions. Findings also indicated a significant gender effect regarding male adolescents. More specifically, males (as compared to their female counterparts) were over-represented (71%) as being conflictual in a sub-sample categorized as high EE mothers. For paternal EE levels, there were no reported gender differences.
Last, Nelson, Hammen, Brennan, and Ullman (2003) investigated the impact of maternal EE levels on child and adolescent psychopathology and also discovered some gender differences regarding the relationship between EE and externalizing symptoms. The sample consisted of a cohort of 816 fifteen year old adolescents of mothers with a history of depression as well as non-depressed control mothers, and EE was assessed through the FMSS. Findings indicated an independent relationship between EE and psychopathology. A very small gender effect was detected. Externalizing indicators in the relationship between indicators for psychopathology were slightly higher for males over females. Additional findings indicated that high maternal EE criticism was an intervening variable between maternal depression and child externalizing symptoms and functional impairment. Emotional overinvolvement had no significant relationship with either adolescent psychopathology or maternal depression.

Of the 21 remaining studies, there were no gender differences reported in a relationship with EE directly, neither were there differences reported in the child and adolescent dependent variables tested with EE. Astonishingly, 30% of the reviewed studies did not remark
on gender in methods, results, or discussions about any analysis concerning gender. The other 70% reported gender as a statistical control, part of the analytical procedures ruling gender out as a contaminant, or had small sample sizes and were exploratory in nature.

Conversely, gender has demonstrated differences in internalizing and externalizing behaviors in child and adolescent outcomes (Achenbach, 1991). In a chapter on mental illness, Gavazzi and Schock (2000) stated “there appear to be several gender differences in the vulnerability to mental illness” (p. 230). In younger populations, gender differences have been demonstrated in areas such as depression, where prevalence rates are as high as 2:1 for adolescent females over males (Birmaher, et al., 1996a; Cole, Peeke, Martin, Truglio, & Seroczynski, 1998). In a sub-clinical event like depressed mood, female adolescents demonstrate a higher prevalence over their male counterparts (Allgood-Martin, Lewinsohn, & Hops 1990; Casper, Belanoff, & Offer, 1996; Lewinsohn, Clarke, Seeley, Rohde, 1994). Hence, the risk for developmental psychopathology can vary as a function of gender, among other factors such as age and ethnicity. (Kazdin & Kagan, 1994).
Since there was little evidence found in the literature review regarding gender differences in the relationship between EE and psychopathology for younger populations, this study hypothesized there would be no gender differences detected. Yet in the EE literature cited above investigating child and adolescent populations, either scant attention was paid to gender differences, or was ruled out in its potential influence due to procedures that did not take in to account the possible influence of gender on EE that might account for additional variance in adolescent psychopathology. Thus, an examination of gender, especially in relation to EE and psychopathology, is thought to be a critical next step in research endeavors involving adolescent populations.

Gender Differences and the BSI

Hypothesis three. Gender will not significantly impact adolescent reports of psychopathology. More specifically, male and female scores on the psychopathology variable will not display statistically significant differences.

While research in adolescent populations has lagged with respect to detecting gender differences, measurement of psychopathology in general has not. There have been many well-developed measures that have been utilized to measure symptoms of adolescent psychopathology. Some of
these include the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), Children’s Depression Inventory (CDI; Beck, 1978), and the Symptom Checklist 90-Revised (SCL-90-R; Derogatis, 1977). This project utilized a brief version of the SCL-90-R, the Brief Symptom Inventory (BSI; Derogatis, 1993).

Unfortunately, there has been a relative dearth of studies utilizing the BSI in adolescent populations as an outcome or dependent measure. The manual for the BSI (Derogatis, 1993) published population norms for three types of adults (adult psychiatric inpatient, adult psychiatric outpatient, and adult non-patient) and one type of adolescent: non-patients only. These adolescent non-patient norms (reportedly separately for males and females) were based on a sample of 2,408 youth (1601 males and 807 females). In order to understand the potential influence of gender on adolescent psychopathology in this study, the literature review sought to examine both clinical and non-clinical adolescent samples where either the BSI or the SCL-90-R was utilized. Because correlations between the two measures are reported to be in the .90’s according to the BSI manual (Derogatis,
1993), it was determined that evidence of gender differences (or the documented absence of gender’s influence) in studies using either of these measures would be relevant to the present study.

McCaskill, Toro, and Wolfe (1998) compared 118 homeless adolescents ages 12 to 17 against 118 housed adolescents who were matched on age, gender, and race. The authors used the BSI to detect levels of psychopathology among the adolescents in the sample. Results indicated the BSI detected higher levels of psychopathology in the homeless group over the housed group, and that there were significant gender differences on four of the six BSI subscales employed in this study (the three remaining BSI subscales and global severity index were not utilized in this study). More specifically, females were reported to have significantly higher scores than males on the following BSI subscales: Depression, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The two remaining scales employed (Anxiety and Hostility) did not demonstrate any significant gender differences.

In the remaining studies reviewed there were no reported gender differences. Canetti and Bachar (1997)
used a sample of 847 Israeli high school adolescents (365 males and 482 females) to examine the relationship between parental bonding and subsequent mental health outcomes as measured by the BSI. No gender differences were detected on the BSI in this study.

Geist, Heinmaa, Katzman, and Stephens (1999) studied adolescents ages 12-17 diagnosed with an eating disorder (21 males and 136 females) in order to ascertain any gender-related differences regarding eating disorder diagnostic sub-type, comorbid psychiatric disorder, perception of family functioning, and individual psychopathology. Because the prevalence for eating disorders is higher for females over males, the authors examined other psychological variables for gender differences. The BSI was utilized as the measure of individual psychopathology. Although there were disproportionate differences in terms of the number of males and females in the study, the authors controlled for this difference statistically, and subsequently reported that there was no gender differences found on BSI scores in this clinical population.

Bachar, Canetti, Galilee-Weisstub, Kaplan-DeNour, and Shalev (1998) investigated parental bonding, transitional
object attachment, and psychopathology as measured by the BSI in a sample of 871 non-clinical Israeli adolescents (375 males and 496 females). Among other findings, results indicated that adolescents who reported an attachment to a transitional object in adolescence demonstrated significant associations with psychopathology as measured through the BSI. Regarding the scores from the BSI, there were no procedures reported addressing potential gender differences.

Silverman et al. (1999) examined the impact of visiting a concentration camp on 87 non-clinical Jewish American adolescents (36 males and 51 females), using the SCL-90-R at four time intervals in order to detect changes of symptoms over time regarding PTST or distress. Major findings indicated the subjects demonstrated significant changes in trauma symptoms as measured by the SCL-90-R after exposure to concentration camps. For all data across the time intervals from the SCL-90-R sub-scales, there were no significant gender differences reported.

Cavaiola and Lavender (1999) examined a sample of adolescents who were either chemically dependent suicide attempters (13 males and 37 females), non-chemically dependent suicide attempters (29 males and 21 females), or
normal controls (21 males and 29 females), administering the SCL-90-R to the three groups in order to discriminate levels of psychopathology. Overall results indicated that levels of psychopathology as measured by the SCL-90-R were related to suicidal, chemically dependent adolescents. In this study, the authors reported no analysis related to the detection of possible gender differences on any of the measures employed.

Swedo et al. (1991) examined 21 adolescent suicide attempters (4 males and 17 females) in comparison to 15 at-risk adolescents who had not attempted suicide (5 males and 10 females), and 34 controls (15 males and 19 females). Results indicated that suicide attempters differed from the controls on several variables including: substance abuse, depression, self-image, interpersonal relationships, communication, family, support, and problem behaviors. Interestingly, there was no attempt to examine potential gender differences for the SCL-90 measure, although the authors reported findings of non-significance regarding gender differences on other measures of functioning.

Bonynge (1993) investigated the factor structure and internal consistency of the SCL-90-R in both adult (90
males and 94 females) and adolescent (93 males and 120 females) samples of subjects who had consecutive admissions to a crisis unit. The author reported that the factor structure of the SCL-90-R items across all 9-symptom domains and the three global indices were invariant for males and females in both the adult and adolescent samples.

Piersma, Boes, and Reaume (1994) investigated the factor structure of the BSI in both adolescent (88 males and 100 females) and adult (89 males and 128 females) psychiatric inpatient samples. Factor structures were reported to be similar for males and females in both the adolescent and adult samples.

Finally, Derogatis and Savitz (2000) addressed the use of the BSI and its normative populations. Although there were no reported norms for adolescent inpatients, norms were provided for non-clinical adolescent populations regarding both males and females. The same authors argued that reporting norms for males and females was important when measuring EE or psychological distress, as there are more likely to be gender differences when measuring emotional distress.
In sum, there is little empirical evidence supporting the notion that gender differences will be found when the BSI is used as an outcome measure. However, the BSI is normed for male and female adolescents in non-clinical populations though it is not normed for clinical populations (Derogatis, 1993). Although this study proposes a null hypothesis with regard to gender differences and adolescent psychopathology as measured by the BSI, there is other literature that suggests such gender differences do exist when adolescent psychopathology is assessed with other measures (Achenbach, 1991; Achenbach & Rescorla, 2001; Rutter and Garmezy, 1983).
CHAPTER 3

METHODOLOGY

Sample

This study utilized existing data from a sample of adolescents in treatment at a large residential center in the central Ohio area. Respondents completed all measures at intake as part of an ongoing outcome assessment project conducted by the residential center’s research department. A representative of the research department constructed a de-identified data set to insure the confidentiality of the study subjects.

The original sample included 66 adolescents (40 males and 26 females). Of the 66 adolescents sampled, 36 were White, 27 were African-American, two were Bi-racial, and one was designated “other” (Asian, Hispanic, or Native American, etc.).

Regarding the adolescent’s report on mother EE levels, there were five separate parent types represented in the sample; 38 reported on biological mothers; 12
reported on foster mothers; four reported on other significant female relatives who were deemed to be “social mothers”; five reported on adoptive mothers; and two reported on step-mothers. Since father representation was available for less than half of the data ($n = 26$), the adolescent’s reports on fathers were dropped from subsequent analyses. In order to analyze the data for potential ethnicity effects, the two Bi Racial and one other subject were dropped from the sample. The remaining sample consisted of 61 adolescents ranging in age from 13-18 with a mean age of 15.3 ($SD = 1.51$) years. In regard to ethnicity and gender, Table 1 depicts the cross-tabulations.

Concerning the actual sample, all adolescents surveyed had been placed in residential treatment after referral for this level of care by county child welfare agencies, county mental health boards, or the juvenile court in the county that they live. All were seen by a psychiatrist at intake and exhibited the following frequency of DSM-IV (American Psychiatric Association, 1994) Axis I diagnosis: schizophrenia, paranoid type (1), major depressive disorder, single episode, moderate (2), major depressive disorder, recurrent, unspecified (2),
major depressive disorder, recurrent, in partial remission (1), bipolar I disorder, most recent episode mixed, severe with psychotic features (1), bipolar disorder, NOS (1), mood disorder, NOS (7), psychotic disorder, NOS (1), pervasive developmental disorder, NOS (1), anxiety disorder (2), dysthymic disorder (1), cannabis dependence (5), polysubstance dependence (2), cannabis abuse (1), adjustment disorder with mixed anxiety and depressed mood (1), adjustment disorder with mixed disturbances of emotions and conduct (1), posttraumatic stress disorder (17), conduct disorder (3), conduct disorder, childhood onset (1), oppositional defiant disorder (7), attention deficit hyperactivity disorder, predominantly hyperactive-impulsive type (3). The above diagnoses were subsequently collapsed into the following categories: 22 internalizing (36%), 8 AOD (13%), 17 PTSD (28%), and 14 externalizing (23%). See Figures 1 and 2 for a visual representation of the means for the indicator of EE and psychopathology according to the four general diagnostic categories, split by gender.

Instruments

The measures used in this study included the Brief Symptom Inventory (BSI; Derogatis, 1993), and the
Expressed Emotion Adjective Checklist (EEAC; Friedman & Goldstein, 1993).

Expressed Emotion Adjective Checklist (EEAC). The EEAC (Friedman & Goldstein, 1993) is a brief self-report measure consisting of a 20-item list of positive and negative adjectives tapping the two dimensions of the EE construct: criticism and emotional overinvolvement. The EEAC measures EE levels similarly to both the Camberwell Family Interview and the Five-Minute Speech Sample (Friedmann & Goldstein, 1993), which have been the standard measures for obtaining EE ratings from families.

Adolescents are given the paper/pencil measure to assess their beliefs about their parent or caretaker's behavior toward the adolescent. Each adjective is rated on scale from 1 (never) to 8 (always). The positive adjectives are: accepting, active, clear, considerate, cooperative, devoted, easy to get along, friendly, good-natured, and loving. The negative adjectives include: angry, bored, contrary, deceitful, hostile, irresponsible, irritable, lazy, mean, and rude. Conceptually, the negative adjectives represent the criticism component of EE and the positive adjectives represent emotional overinvolvement (EOI).
The EEAC questionnaire was modified from its original format in order to ask the adolescent to self-report both about their parent’s behavior toward them as well as the adolescent’s own behavior toward their parents (the original EEAC asks the parent to report on their adolescents). The Cronbach alpha coefficient for the adolescent’s report of their parent’s behavior toward the positive adjectives was .88. The adolescent’s report of their own behavior toward their parent regarding the positive adjectives was .89. The corresponding alphas for the negative adjectives were .75 and .82 respectively. After combining the two perspectives for both positive and negative adjectives, reliability (Cronbach alpha) for the positive total scale was .93, and for the negative total the reliability was .85.

*Brief Symptom Inventory (BSI).* The BSI (Derogatis, 1993) is a 53-item version of the Symptom Checklist-90-Revised (Derogatis, 1997), which is a multidimensional paper-and-pencil measure designed to assess levels of psychopathology. Likert-type responses ranged from *not at all* (1) to *extremely* (5). Some of the symptoms assessed include items such as *feelings of worthlessness, feeling blue,* and *feeling easily annoyed or irritated.* This
measure generates three global and nine dimensions of clinical syndromes and is used in adolescent and adult populations. The nine domains and their published Cronbach alpha scores are: Somatization (.80), Depression (.85), Anxiety (.81), Paranoid Ideation (.77), Hostility (.78), Psychoticism (.71), Interpersonal Sensitivity (.74), Phobic Anxiety (.77), and Obsessive Compulsive (.83). The Global Severity Index (GSI) is an overall indicator of distress generated from the nine primary dimensions as an average of those symptom scores and had published test-retest reliability reported at .90 (Derogatis, 1993). Unfortunately, alpha coefficients for the present study were not available.

Procedure

Information regarding procedures were provided by the residential agency’s own research department. Residents were either admitted into the intensive level of care or into the open residential campus. As an example regarding the number of youth admitted to the campus, during the year 2004, 166 total residents were admitted, 70 (42%) to the intensive care residential campus and 96 (58%) to the open residential campus. Of the 96 residents admitted to
the open campus, 36 (37.5%) were transfers from the intensive care residential campus.

At the time of admission, residents are seen by a licensed clinician and psychiatrist in order to complete a mental health assessment and to create a treatment plan and discharge criteria. Residents are administered the research questionnaires from the first day of admission to one month. All respondents are at least 13 years of age and are provided two paper-pencil questionnaires to complete. Each of the two questionnaires takes up to 20 minutes to complete. If the respondents are not able to read the test (6th grade reading level required to read), a mental health worker will read the questionnaire to the respondent and mark the appropriate response. At the same time, respondents are queried about their demographic data. It should be noted that respondents are able to refuse any part of the testing procedures as part of their client rights. Clinicians or intake workers administer the questionnaires, and have been previously trained by the agency research department. However, there are multiple test administrators, and the testing conditions are not standardized.
Data for the present study were collected over the course of approximately one year as new admits trickled into the residential facility. Data were recorded and subsequently entered into a database by the agency research department. Mean substitution techniques were employed by the agency research department in order to account for any missing data, although testing practice included a procedure to re-query respondents at the time of testing to fully complete the questionnaires.

Data Analysis

To test the first hypothesis, Pearson correlations were conducted between the four self-report perspectives (adolescent behavior directed toward parent, EE positive adjectives, adolescent behavior directed toward parent, EE negative adjectives, parent behavior directed toward adolescent, EE positive adjectives, and parent behavior directed toward adolescent, EE negative adjectives) of the EEAC and the global indicator scale from the BSI, known as the Global Severity Index (GSI). The GSI scale is an average of the nine symptom sub-scales.

Additional correlations were computed between the four EEAC perspectives and the nine clinical sub-scales of the BSI. Perspectives on the EEAC subsequently were
combined in order to create total positive and negative adjective scales for purposes of additional data analyses. Pearson correlations were computed between both of the total positive and negative EEAC ratings and the nine clinical BSI sub-scales, as well as the Global Severity Index. Finally, a multivariate analysis utilizing the general linear model (GLM) was computed to examine the relationship among the combined EEAC positive and negative adjective scales and the nine clinical dimensions of the BSI.

In order to test the second and third hypothesis, $t$-tests were conducted across all study variables to ascertain any potential gender differences regarding both the EEAC and BSI scores.
CHAPTER 4

RESULTS

Descriptive Statistics

Descriptive statistics on the maternal EE levels for the male and female adolescents are presented in Table 2 and in Figure 2. Also, means and standard deviations for levels of psychopathology by gender are reported in Table 3 and in Figure 1. Comparison means and standard deviations by gender for a non-patient sample on BSI levels are reported in Table 4 and in Figure 3. Comparison data from an inpatient sample of mother report EEAC data are presented in Table 5 and Figure 4 respectively.

Data analyses ruling out any possible influences of parent type, ethnicity, and age were conducted. In t-test procedures examining ethnicity, there were no significant differences between the responses of White (n = 35) and African American (n = 26) adolescents across any of the six perspectives on the EEAC scales, the BSI nine symptom
dimensions, and the BSI global severity index. In terms of possible age effects (range: 13 to 18, $M = 15.3$, $SD = 1.52$) Pearson correlations computed between adolescent’s age ($n = 61$) and the independent and dependent variables revealed no statistically significant relationships. One-way ANOVA procedures were used to assess the potential impact of maternal parent types (biological mothers ($n = 38$), foster mothers ($n = 12$), female relatives ($n = 4$), adoptive mothers ($n = 5$), and step-mothers ($n = 2$) across the independent and dependent variables. No significant differences were found.

**Hypothesis One**

Scores on a measure of expressed emotion will be significantly and positively related to scores on the measure of adolescent psychopathology. More specifically, greater levels of expressed emotion will be significantly associated with higher levels of adolescent psychopathology.

As an initial test of the first hypothesis, Pearson correlations were conducted between the four self-report perspectives (adolescent behavior directed toward parent, EE positive adjectives, adolescent behavior directed toward parent, EE negative adjectives, parent behavior directed toward adolescent, EE positive adjectives, and parent behavior directed toward adolescent, EE negative adjectives).
adjectives) of the EEAC and the global indicator scale from the BSI, the Global Severity Index (GSI). Initial tests between the four perspectives of the EEAC and GSI scores did not indicate any significant associations. Upon further examination, however, there were several significant correlations between the four EEAC perspectives and the nine clinical dimensions of the BSI. These exploratory relationships also are reported in Tables 6 through 9. Concerning adolescent behavior directed toward the parent, EE positive adjectives were significantly associated with Somatization ($r = .23, p < .05$). Regarding adolescent behavior directed toward the parent, EE negative adjectives were significantly associated with Psychotocism ($r = .21, p < .05$) and Hostility ($r = .31, p < .01$). Regarding parent behavior directed toward the adolescent, EE negative adjectives were significantly associated with Hostility ($r = .31, p < .01$).

In summary, there was partial support for the first hypothesis as evidenced by the significant associations between scales from the EEAC and certain clinical domains from the BSI. However, there were no statistically significant relationships between the four scales of the
EEAC and the global indicator of the BSI (the Global Severity Index).

**Hypothesis Two**

Gender will not significantly impact adolescent reports of expressed emotion. More specifically, male and female scores on the expressed emotion variable will not display statistically significant differences.

In order to test the second hypothesis regarding potential gender differences on reported levels of EE, t-tests were conducted across all four perspectives of the EEAC. Means and standard deviations by gender for the EEAC scales are depicted in Table 2. Results indicated there were no statistically significant relationships between gender and any EEAC scale, providing evidence in support of the second hypothesis that no differences between males and females would be obtained.

**Hypothesis Three**

Gender will not significantly impact adolescent reports of psychopathology. More specifically, male and female scores on the psychopathology variable will not display statistically significant differences.

In order to test the third hypothesis regarding potential gender differences (36 males and 25 females) on the indicator of adolescent psychopathology, t-tests were conducted on GSI scores. The means and standard deviations by gender are presented for the GSI in Table 3.
(including the nine clinical domains). Results indicated that there were no statistically significant relationships between gender and the GSI, or for any of the nine clinical dimensions of the BSI.

Further Tests of Hypotheses

The two negative perspectives (adolescent behavior toward the parent and parent behavior toward the adolescent) were significantly associated ($r = .50, p < .01$) with each other, as were the two positive perspectives ($r = .72, p < .01$). Because other researchers (Fristad, et al., 1998) have combined perspectives to create total positive and negative adjectives scales utilizing the EEAC, the two perspectives were combined for purposes of further data analysis. Cronbach alpha data were reported in methods for the combined scales. While Pearson correlations between total positive EEAC ratings, representing the EE construct of emotional overinvolvement, and the Global Severity Index from the BSI were non-significant, there was a statistically significant association with Somatization (somatic complaints) ($r = .22, p < .05$). Additionally, the total negative scale from the EEAC, representing the EE construct of criticism, was significantly associated with
the Global Severity Index ($r = .22$, $p < .05$), Hostility ($r = .36$, $p < .01$), and Psychoticism ($r = .23$, $p < .05$). These exploratory relationships are also reported in Tables 10 and 11.

In order to further examine the relationship among the combined EEAC positive and negative adjective scales and the nine clinical dimensions of the BSI, a multivariate analysis utilizing the general linear model (GLM) procedure was computed, utilizing a one-way MANOVA with two levels for 9 dependent variables. The negative and positive EE total sub-scales were entered as independent variables and the nine symptom sub-scales from the BSI were entered simultaneously as the dependent variables. Results revealed a significant main effect (Wilkes’ Lambda) for positive total adjectives representing emotional overinvolvement (EOI), $F(9,50) = 2.14$, $p < .05$, indicating that EOI accounted for a significant amount of variance in the combination of the nine BSI sub-scales of psychopathology. Regarding the main effect of the combined positive adjectives (EOI), subsequent univariate $F$ tests revealed significant effects between EOI and Somatization (somatic complaints) $F(1,58) = 5.04$, $p < .05$). In this multivariate analysis, higher
levels of EOI were associated with higher levels of the clinical dimensions of the BSI, and particularly with somatic complaints, an indicator of psychopathology.

Because there were more males than females in the overall sample, a random subset of males was selected to test potential gender effects with equal sample sizes. No significant gender effects were found for any of the variables.
CHAPTER 5

DISCUSSION

General Overview

The present study examined the relationship between EE and adolescent psychopathology in a clinical sample of adolescents self-reporting about their maternal EE levels within their family environments, as well as their own level of psychopathology. The present field study is primarily descriptive and exploratory in its purpose, examining associations between family environment and adolescent psychopathology.

Regarding the first hypothesis, initial analyses revealed little evidence concerning a significant association between maternal EE levels and a global indicator of adolescent psychopathology. Specifically, the four perspectives of the EEAC were not significantly related to the GSI scale of the BSI. There were, however, several significant correlations between the four EEAC perspectives and specific sub-scales of the BSI. For
instance, when adolescents reported about their behavior directed toward their parent, EE positive adjectives were significantly associated with the Somatization sub-scale. With the same perspective, but utilizing the negative adjectives, there were significant associations with the Psychotocism and Hostility sub-scales. In addition, using the perspective of how the adolescent perceives the parents’ behavior as directed toward the adolescent, EE negative adjectives were significantly associated with the Hostility sub-scale. Hence, there was evidence of a significant association between particular perspectives of EE and certain sub-scales indicating types of psychopathology.

Non-significant associations between the EEAC scales and the GSI scale as a global indicator of psychopathology may be due to the following. The GSI scale is an average of the nine clinical domain scores (Derogatis, 1993). While Derogatis supplied a global index of psychopathology, EEAC scales demonstrated significant associations with only select BSI sub-scales and not with others. Thus the average of the nine domains may have attenuated the linear relationships between the EEAC sub-scales resulting in non-significant results.
When EEAC scales were combined into total positive and total negative scales in order to supply additional tests of the first hypothesis, findings indicated that negative adjectives were significantly related with the GSI scale, as well as with the Hostility and Psychoticism sub-scales.

Although no statistically significant effects occurred between the four EEAC scales and the GSI scale, when the EEAC perspectives were combined into total positive and negative scales, significant associations were found. A plausible explanation is the increased power. By collapsing sub-scales, the number of items for the EEAC doubled in size. The likelihood of true score variance increased, thus providing additional power to make the linear relationship (i.e., total negative adjectives and GSI) significant.

As the negative adjectives represent the criticism dimension of the EE construct (Friedmann & Goldstein, 1993), and because Hostility was defined as “...thoughts, feelings, or actions that are characteristic of the negative affect state of anger” (Derogatis, 1993, p. 8), these two variables may in fact be consistent with previous findings. It is believed that items from the
Hostility sub-scale are similar to items from the aggressive behaviors sub-scale, part of the externalizing syndrome from the CBCL (Achenbach & Rescorla, 2001). In fact, the present study provides similar findings regarding EE and externalizing symptoms in youth. Additionally, the present findings do not articulate the directionality of the association between EE and hostility. This relationship may in fact be bi-directional such that the aggressive or hostile adolescent may actually elicit levels of criticism or emotional overinvolvement from parent figures.

More specifically, McCarty and Weisz (2002) utilized SEM procedures and reported a significant relationship between maternal criticism and a latent construct of externalizing problems including indicators from the externalizing syndrome of the CBCL; conduct disorder symptoms, and oppositional defiant symptoms. Similarly, Nelson et al. (2003) found that maternal criticism was a significant predictor for a latent construct of child externalizing symptoms. In sum, the relationship between negative adjectives and Hostility parallel and support previous findings regarding maternal criticism and externalizing symptoms in youth populations.
Another very interesting finding regarding the negative adjectives that may shed additional light on the EE construct as applied to youth populations is the relationship between maternal EE levels and the Psychoticism sub-scale. The Psychoticism dimension was defined as “...a graduated continuum from mild interpersonal alienation to dramatic psychosis” (Derogatis, 1993, p.9). Psychoticism is a self-report indicator of psychotic features and is not a diagnosis of psychosis per se, but it does seem to emulate schizophrenic type outcomes (including, but not limited to Psychosis) predicted by EE in early research efforts for adult patients (Brown, Carstairs, & Topping, 1958).

Regarding the positive EE adjectives, the total positive scale from the EEAC was significantly associated with the Somatization sub-scale of the BSI. As the positive adjectives from the EEAC originally were conceptualized as emotional overinvolvement (EOI) (Friedmann & Goldstein, 1993), the Somatization sub-scale had been defined as “...distress arising from perceptions of bodily dysfunction” (Derogatis, 1993, p.7), which is similar in scope to the somatic complaints sub-scale of the CBCL (Achenbach & Rescorla, 2001). Because somatic
complaints are part of the internalizing domain of the CBCL, the relationship between positive adjectives (from the perspective of how the adolescent perceives the mothers’ behavior directed toward the adolescent, as well as the combined positive scale) and the Somatization subscale may be related to other research findings regarding the relationship between maternal emotional overinvolvement (EOI) and internalizing symptoms such as anxiety or separation anxiety (Hirschfeld et al., 1997; Stubbe et al., 1993). Other studies, however, have not found that same relationship (McCarty et al., 2004; McCarty & Weisz, 2002; Nelson et al., 2003).

Regarding the second hypothesis that examined potential gender differences on reported levels of EE, results indicated there were no significant relationships between gender and any EEAC scale. This is consistent with EE studies covered in this project’s literature review that generally have not demonstrated gender differences (Asarnow et al., 2001; Brennen et al., 2002; Caspi et al., 2004; Hibbs et al., 1991; Kershner et al., 1996; McCarty & Weisz, 2002; McCarty et al., 2004; McCleary & Sanford, 2002; Schwartz et al. 1990).
At the same time, these results contradict other research findings outside the EE literature regarding gender differences in the family environment. For example, gender differences were reported in three separate studies involving court involved youth as part of an assessment process that examined risks and needs of both the youth and their families (Gavazzi, in press; Gavazzi, Yarcheck, & Chesney-Lind, in press; and Gavazzi, Yarcheck, & Lim, 2005).

The first of these studies found that female adolescents (and especially African American females) reported greater family related risks (Gavazzi, in press). In the second study, Gavazzi, Yarcheck, and Chesney-Lind (in press) indicated that adolescent females scored higher than males on the family domain and were more likely to be detained for family related offenses (i.e. domestic violence and incorrigible unruly behaviors). In the third study, Gavazzi et al. (2005) reported that female repeat status offenders scored higher than their male counterparts on the family/parenting domain. In sum, these three studies highlighted the importance of examining the relationship between gender and family variables environment, and the findings replicated other researchers
such as Funk (1999). For the third hypothesis, findings indicated that there were no significant relationships between gender and the GSI or any of the nine clinical dimensions of the BSI. These present findings are consistent with the review of the BSI literature (i.e. gender differences have not been found in adolescent populations except one).

However, these findings contradict other evidence of reported gender differences associated with adolescent psychopathology (Casper et al., 1996). For instance, other research has indicated that depression in adolescence occurs at a ratio of 2:1 for females in comparison to males (Birmaher, et al., 1996a). Also, female adolescents tend to express their problems in a more internalized manner, whereas males tend to express their problems in a more externalized manner, and that adolescent males report lower levels of psychological distress than females, as well as having lower rates of anxiety disorders, depressive disorders, and eating disorders (Casper et al., 1996). Further, males have been characterized as being higher on hyperactivity rates, and specific findings for males related anger, tension,
concentration, and school problems as symptoms that were not the same for females (Casper et al.).

**Limitations**

One significant limitation of this project was the use of self-report measures for the adolescent populations. Hence, the present findings need to be interpreted with caution. Kerlinger (1986) noted that a major weakness of rating scales was rater bias. Youth in mandated treatment such as those in the sample for this study may "fake good" and thus under-report their symptoms. Other inherent limitations of self-reporting adolescents include: symptoms may not be psychopathology per se, but reactions to developmental stressors, adolescents may deny the presence of symptoms, and in cross-sectional studies, psychiatric symptoms in general can be underreported due to the reliance on recall (Casper et al., 1996). Another inherent limitation regarding the use of self-report for adolescents were noted by Derogatis and Savitz (2000) who stated that an underlying assumption of self-report measures is that respondents can and will answer truthfully to the questions, but validity can be compromised if there are cognitive limitations, language barriers, and falsification of items.
According to Friedmann and Goldstein (1993), the positive adjectives provide the opportunity for subjects to report behaviors in a more favorable light. The use of self-report adjective rating scales in adolescent populations, and especially those in mandated residential treatment in particular, may increase the potential for falsification. More specifically, those adolescents in residential treatment do not have a choice regarding their placement and therefore can deny their symptoms in an effort to “fake good” for discharge or simply want to appear in a more favorable light. Thus, it is plausible that resident respondents may be motivated to rate their family interactions in a more favorable light in order to deny symptoms or shorten their length of stay.

Another large limitation for the present study was the small \( n = 61 \) sample size. The sample size may not have yielded adequate power to identify differences as a function of gender. Caution is necessary when interpreting findings regarding non-significant gender differences for the EEAC and BSI scales because of the risk for Type I error. There may have been actual gender differences on EE and psychopathology indicators, but the small sample may have precluded significant findings from
the gender analyses. Although some effort was made to rule out the possible confound of disproportionate sample sizes between males and females for the second and third hypotheses, the present findings still do not allow strong conclusions to be drawn concerning gender differences.

The small sample size may also have confounded the potential effect of race. The sample consisted of 36% White males, a rather disproportionate size, potentially skewing the results, although gender and race effects were not detected through the use of t-test procedures.

Another major limitation was that the majority of the data were only drawn on mothers. Therefore caution is needed when interpreting findings because father data were dropped due to the small size of the father sample. Oftentimes fathers are left out of research, limiting understanding about fathers and their role in families as compared to mothers (Phares, 1992). The construct of EE in general has been criticized for blaming families, and reporting only maternal data may perpetuate mother blaming more specifically (Vaughn, 1989). Unfortunately, researchers continue to focus on the measurement of maternal EE only (Caspi et al., 2004; Nelson et al., 2003)
with little or no mention of the exclusion of paternal data in the discussion or limitations.

The cross-sectional nature of this study is a further limitation. Perceptions and symptoms were assessed through recall for the previous three months for the EEAC, and one week for the BSI. Psychiatric symptoms can be under-reported in cross-sectional designs because of the reliance on recall (Casper et al., 1996) and that symptoms reported in this study may be unstable over time and therefore limited in the conclusions that can be drawn.

Regarding the assessment of a family environment variable such as EE, there are conceptual and psychometric limitations posed by this project’s methodology. For example, this project took a first step measuring EE levels through the perception of the adolescent. However, others (Bartle-Haring & Gavazzi, 1996; Bartle-Haring, Kenny, & Gavazzi, 1999; Sabatelli & Bartle, 1995) have argued that the unit of analysis in the assessment of family functioning should be the family as a whole. Reliance on one family member’s perspective places limitations on the measurement of complex processes such as the family system.
Hence, the measurement of EE from only the adolescent perspective may be limiting our knowledge base regarding this family systems variable and its impact on adolescent psychopathology. In particular, one perspective may provide only an idiosyncratic view of the family and the researcher cannot measure agreement or shared reality between family members. In fact, Sabatelli and Bartle (1995) suggested that in order to obtain a systemic perspective of the family (in this case EE levels) multiple perspectives must be utilized. Unfortunately, parent report data was not available.

There may be limitations concerning the indicator for psychopathology. Although the BSI was designed to detect psychological distress and provide a global indication of psychopathology among other domains (Derogatis & Savitz, 2000), it may not have been sensitive enough to detect potential gender differences, especially from a more behaviorally oriented perspective. In fact, the literature review produced no examples of the BSI being used in EE studies as an indicator for adolescent psychopathology. Instead, most studies predominantly utilized the CBCL, which is a more behavioral-oriented outcome measure.
Another potential weakness of the BSI is that there are no published norms for male and female adolescents in inpatient settings, a setting analogous to residential care. Therefore, in the present study, the lack of findings regarding gender differences may have been an artifact of the measure itself. It may be the case if the BSI had gender specific norms for inpatient settings, there may have increased chances to detect the potential gender differences. Use of an alternative measure such as the CBCL (Achenbach & Rescorla, 2001), which has gender specific norms, may have been more sensitive to detect differences by adolescent gender.

With respect to the use of the EEAC, this project utilized a modified version of the original instrument in order to capture the viewpoint of the adolescent. The measure was originally developed for completion by the parent. To date there are no validity studies that have utilized such a modified version of the EEAC. Thus the examination of EE levels through the use of the EEAC in an adolescent residential population extended the use of the measure beyond that for which it was originally defined.

A final limitation is the lack of heterogeneity in the sample. Subjects were predominantly white (57%) or
black (43%) adolescents with a relatively high level of clinical acuity mandated to residential level of care. Demographics such as SES, religion, birth order, etc were not available. Males were over-represented compared to females, and all subjects had to have a rather severe level of behavioral acuity in order to be placed in residential treatment. There were no comparison data from adolescents in outpatient level of care or from community controls that may have expanded the diversity of the sample, which in turn may have impacted this study’s findings. For example, gender differences clinical domains may have been found in a less severely symptomatic population.

Implications

Although this project demonstrated significant limitations regarding self-report, sample size, and methodology, there were several important contributions. Perhaps the largest contribution was this study’s measurement of EE levels and psychopathology in an adolescent residential care setting, which is likely the first of its kind. Residential care is a treatment context in which early detection of high EE levels in children and families can substantially enable clinicians
to reduce EE levels prior to reunification, with the hope of lowering the risk of relapse and recidivism. Residential is out-of-home placement, not defined as a hospital level of care, but with substantially longer lengths of stay. There is merit for both research and clinical attention due to the behavioral and emotional acuity represented in this level of care. In addition, residential is typified as expensive and controversial in regard to its effectiveness as a level of care.

In addition, previous investigations concerning familial EE levels and adolescent psychopathology have relied mostly upon assessment instruments such as the Camberwell Family Interview (Vaughn & Leff, 1976b) and the Five-Minute Speech Sample (Magana et al., 1986), which require the researcher to engage in long and cumbersome training procedures and interview protocols. These two measures, although widely used in research, are not efficient clinical tools. Additionally, they do not take into account the perspective of the patient or client. The present findings suggest that the EEAC may suffice as a brief clinical measure that can help determine the association between EE levels and psychopathology.
This project took this first step of utilizing the perspective of the adolescent, providing an initial examination of the EEAC’s use in an at-risk sample of youth. The preliminary findings suggest that clinicians may be able to assess EE levels even when parental figures are either not present, not involved in the treatment process, or there is some alternative family structure such as planned foster placement in which more traditional assessment of EE through the use of adult perspectives is not possible. Unfortunately, the adolescent perspective may be the only means to detect familial levels of EE for certain children who are placed in residential care. Also, family involvement is limited when a child is placed in such restrictive level of care. If EE levels were detected and addressed prior to family reunification, then the risk for poor outcomes and relapse may be averted.

The findings from this study and those of others have important treatment implications regarding the underlying reasons for EE components of criticism and emotional overinvolvement (Barrowclough & Tarrier, 1998; Kershner, et al., 1996). Criticism and family dissatisfaction are indistinguishable from a clinical practice standpoint according to Barrowclough and Tarrier (1998). Identifying
the specific dissatisfactions of family members, which are often the specific sources of stress in the family, allow the practitioner to assess the impact on the client’s feelings and behavior, the ability of the family member to acknowledge client improvement, and the extent that the client will be able to successfully meet positive expectations set by the family member. Hence, the use of the EEAC in therapy sessions can serve to target sources and levels of EE and therefore help the clinician to reduce family dissatisfaction levels.

Likewise, utilizing the EEAC in practice can also begin to help with the identification and nature of emotional overinvolvement. This supports specific interventions with family members in order to change their coping style in response, and to their adolescent’s need to be protected from harm without the family becoming inappropriately over-involved in their lives.

Because this study extended measurement of EE to the adolescent’s point of view by use of the modification to a self-report version, it may become more widely used in practice with adolescents. Although the EEAC has been specifically recommended as a clinical tool, (Van Humbeeck et al., 2002), past studies have only supported its use
with adult perspectives. The present study supports a continued examination for the use of the EEAC in an adolescent inpatient setting, eliciting information about the adolescent’s family system in a self-report manner.

Using the EEAC in clinical practice without the family present has specific limitations. Residential treatment frequently does not have acceptable levels of family involvement at the time of admission or during the treatment process. Research targeting the family as the unit of analysis and clinical practice that aims to intervene at a family systems level cannot advance when only the child or adolescent is present to report on family-related phenomena. Thus, the effectiveness of the EEAC as a clinical tool is compromised when other family members are not present and available to the researcher or practitioner. Future endeavors should include increasing the degree of family involvement in residential care, providing the most practical means to both assess and intervene at a family systems level.

**Future Directions**

Future research should include replication with a larger and more diverse sample size. In this study, the sample size was small, where additional effects may have
emerged with a larger sample. Accordingly, a larger sample would help decrease the chances for disproportionate male and female samples, or at least allow for greater statistical control in addressing this potential confound. If the sample size were larger, the probability for Type I error would decrease, providing more certainty regarding the non-significant gender differences, as well as ensuring greater heterogeneity among the sample. Another way to increase the heterogeneity of the sample assessing EE levels and psychopathology would be to extend the sampling to outpatient and community subjects.

Multiple perspectives should be included in order to generate a family EE level through the measurement of mother’s, father’s, and adolescent’s perspectives similar in scope to other published studies. For instance, Cook and Goldstein (1993) used a latent variables model that incorporated multiple family members’ adjective ratings of their interpersonal relationship with their adolescent. Measuring the adolescent and family member’s perspectives in this manner would provide researchers the opportunity to incorporate multiple perspectives for similar
comparisons on reporting, as well as to create a latent construct of family EE.

In similar fashion, the use of structural equation modeling (SEM) procedures would provide a sophisticated means to create a latent construct for EE levels as a family systems variable. McCarty and Weisz (2002) recently used SEM methods for EE-related data gathered from a child and adolescent sample. This study used latent constructs of internalizing and externalizing dimensions as the dependent measures of adolescent functioning. EE and mother psychopathology were variables that predicted adolescent psychopathology. More specifically, mother EE criticism partially mediated the relationship between maternal psychopathology and child psychopathology.

Nelson et al. (2003) also used SEM techniques, creating constructs for indicators of adolescent psychopathology and maternal depression. In the model, maternal EE variables of criticism and EOI served as intervening variables. In this study, findings indicated that maternal criticism, a component of EE, as well as maternal depression, predicted externalizing symptoms in adolescents. Criticism was also a significant intervening
variable between maternal depression and adolescent externalizing symptoms.

Taken together, these research efforts demonstrated the use of SEM methodology for generating knowledge about EE levels in families. Both studies utilized single measurement indicators for the EE variables. Therefore, future research efforts should incorporate multiple perspectives including adolescent self-report generating a latent construct for EE.

Last, future research should continue the development of the modified version of the EEAC used in this study. More specifically, the EEAC needs to be developed with established psychometric properties, developing the positive and negative dimensions through factor analysis procedures. This effort can increase the use of the EEAC in both research and clinical applications.

Final Conclusions

The present study attempted to demonstrate some initial support for the hypothesis that levels of maternal EE reported by a clinical population of adolescents were related to levels of adolescent psychopathology. The study did not identify differences as a function of gender in either EE levels or indicators of psychopathology,
although the sample size may have limited the ability to detect potential gender differences. Overall, the current study supports and extends prior research regarding the EE construct in its relationship with adolescent psychopathology. Furthermore, the findings supported the use of a brief measure of EE utilizing the perspective of the adolescent. Findings underscore the need for further evaluation of self-reported EE levels, as well as the use of brief assessment measures of EE in clinical practice.
LIST OF REFERENCES


development and problematic behaviors. Contemporary Family Therapy, 16, 431-448.


expressed emotion in families with schizophrenics. 
*British Journal of Psychiatry, 144*, 482-487.


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$n = 61$

Table 1: Adolescent Gender * Adolescent Ethnicity Crosstabulations
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Table 2: Descriptive statistics for expressed emotion indicators by gender
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Table 3: Descriptive statistics for indicators of adolescent psychopathology by gender (rounded to nearest hundredth).
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Table 4: BSI raw scores comparison data (means and standard deviations) for adolescent non-patients by gender (rounded to nearest hundredth). Note. Adapted from “BSI: Brief symptom inventory, administration scoring and procedures manual,” by L. R. Derogatis, 1993, p. 36.
This study mother EE data by adolescent self-report

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Comparison inpatient mother EE data by parent report

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Table 5: Comparison of this study maternal EE (adolescent report) descriptive statistics compared to an inpatient sample of maternal EE (maternal report) at time one. Note. Adapted from “The impact of psychoeducation workshops on families of mood-disordered children,” by M. A. Fristad, M. M. Arnett, and S. M. Gavazzi, 1998, *Family Therapy*, 25, p. 156.
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* $p < .05$

$n = 61$

Table 6: Pearson correlation coefficients for EEAC scale adolescent behavior directed toward the parent, positive adjectives and BSI clinical domains (rounded to nearest hundredth).
### Table 7: Pearson correlation coefficients for EEAC scale parent behavior directed toward the adolescent, positive adjectives and BSI clinical domains (rounded to nearest hundredth).

* $p < .05$

$n = 61$

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* $p < .05$
* $p < .01$

$n = 61$

Table 8: Pearson correlation coefficients for EEAC scale adolescent behavior directed toward the parent, negative adjectives and BSI clinical domains (rounded to nearest hundredth).
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* $p < .05$
* $p < .01$

$n = 61$

Table 9: Pearson correlation coefficients for EEAC scale parent behavior directed toward the adolescent, negative adjectives and BSI clinical domains (rounded to nearest hundredth).
Table 10: Correlation coefficients for EEAC positive adjectives total and BSI domains (rounded to nearest hundredth).

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</tbody>
</table>

* $p < .05$
* $p < .01$

$n = 61$
**Brief Symptom Inventory Dimensions** | **EEAC Negative Adjectives Total**
--- | ---
Global Severity Index | .22*

Somatization | .16
Obsessive-Compulsive | .21
Interpersonal-Sensitivity | .06
Depression | .21
Anxiety | .19
Hostility | .36**
Phobic-Anxiety | .16
Paranoid Ideation | .14
Psychotocism | .23*

* *p < .05
* *p < .01
n = 61

Table 11: Correlation coefficients for EEAC negative adjectives total and BSI domains (rounded to nearest hundredth).
APPENDIX B

FIGURES
Figure 1: Means of BSI sub-scales by diagnostic category and gender.
Figure 2: Means of EEAC total positive and negative sub-scales by diagnostic category and gender.
Figure 3: Raw mean scores for adolescent non-patients by gender. Note. Adapted from “BSI: Brief symptom inventory, administration scoring and procedures manual,” by L. R. Derogatis, 1993, p. 36.
Figure 4: Mean scores of maternal EE (maternal report) at time one from an inpatient sample. Note. Adapted from “The impact of psychoeducation workshops on families of mood-disordered children,” by M. A. Fristad, M. M. Arnett, and S. M. Gavazzi, 1998, *Family Therapy*, 25, p. 156.