BRIAR AINSLEE McLEAN
Somatization in Female Adolescent Offenders: An Examination of Psychological, Relational and Family Risk Factors
(Under Direction of BRIAN A. GLASER)

The purpose of the present study was to identify risk factors for somatization in female adolescent offenders by examining the relationship between clinical symptoms, quality of relationships, family functioning and somatization. Relational theory was used as the theoretical framework. The study sample included 120 Georgia female adolescent offenders ages 12-17. Multiple regression analyses revealed that anxiety, depression, social stress and family functioning variables were significant predictors for somatization in female adolescent offenders. Discriminative analyses indicated that a group of somatizing female adolescent offenders differed significantly from a group of nonsomatizing female adolescent offenders on measures of clinical symptomology and adaptive functioning. This study will add to research in the area of somatic complaints in female adolescents and indicate treatment issues for female adolescent offenders.

INDEX WORDS: Somatization, Female Adolescent Offender, Clinical symptoms, Relationships, and Family Functioning.

SOMATIZATON IN FEMALE ADOLESCENT OFFENDERS: AN EXAMINATION OF PSYCHOLOGICAL, RELATIONAL & FAMILY RISK FACTORS

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DEDICATION

This work is dedicated to my family. To my parents, John and Greer, my sister Kimberley and my brother Campbell, thank you for always being there, encouraging me, supporting me and loving me.

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CHAPTER 1

INTRODUCTION

"Silencing one's voice in order to protect a vital relationship often makes sense, and is easily accomplished; it is much harder, yet also possible, to silence the expression of one's body, too" (Griffith & Griffith, 1994).

Adolescence has been acknowledged as a time of a relational crisis for girls (Gilligan, 1982, 1991). The development of self for females is considered to take place in relation to others. Societal demands, however, mean that when a girl reaches adolescence, she is expected to separate and disconnect from her family, placing the needs of others before those of her own. This devaluation of gender relational values during adolescence is considered to be a particularly stressful period for girls where they undergo an identity crisis (Gilligan, Ward & Taylor, 1988), often precipitating both emotional and behavioral problems (Davies & Windle, 1997).

Females represent a rapidly growing proportion of the offending population in the juvenile justice system (OJJDP, 1999). The numbers of arrests in the United States of girls younger than 18 years, totaled 723,000 in 1996. Between 1992 and 1996, arrests for girls surpassed the number of arrests for boys, in every offense category, including violent offenses (Snyder, 1997). In the years 1988 and 1997, the female offending rate increased by 83% (OJJDP, 2000).

This rapid increase in female offending, however, has unfortunately not been matched by policies and treatment interventions that address the specific needs of female juvenile offenders (O'Hara Pepi, 1998). With delinquency being historically a male domain, understandings of female adolescent offending have been based on male models

of offending with the findings having been made to generalize to females (Chesney-Lind, 1989). The increase in offending and severity of offenses among adolescent females has made it necessary for clinicians and policy makers to attend to the different pathways through which adolescent females are introduced to juvenile court, and address their accompanying gender-specific treatment issues.

Statement of Problem

Adolescent females become involved in criminal activity via different pathways than male offenders. For many girls, their introduction into the juvenile justice arena is a consequence of what may be termed 'relational abuse' or the abuse of significant relationships in their lives. Their criminal behavior is often the result of escaping abuse in the home, and protecting relationships (Bowers, 1990). Research indicates that the manifestation of adolescent distress is also gender specific with adolescent females exhibiting higher levels of internalizing problems than adolescent males (Leadbetter, Blatt & Quinlan, 1995). Despite these findings, behavioral problems continue to typically be the targeted treatment area when working with female juvenile offenders. Internalized forms of distress, such as anxiety or depression, are often considered secondary concerns and are relatively ignored.

Overlooking the specific needs of female juvenile offenders and the many forms that distress can take during adolescence only perpetuates the 'silencing' of girls that occurs during adolescence (Gilligan, 1982). Relational cultural theory emphasizes the importance of relationships and connections to female development (Miller & Stiver, 1998). It also addresses the "disavowing of self" (Stern, 1991) or the tendency for

adolescent girls to lose faith in their opinions, leading to a 'loss of voice' for female adolescents (Gilligan, 1991).

Somatization has a strong relationship with emotional disorders in females (Egger, Costello, Erkanli & Angold, 1999), and internalized forms of distress, such as anxiety and depression. (Campo & Fritsch, 1994). The existence of somatic complaints is relatively common amongst children and adolescents and is considered to result from the inability to communicate distress through verbal means (Lloyd, 1986). Distinct gender differences in somatic complaints emerge during adolescence with females endorsing more somatic symptoms than adolescent males (Garber, Walker & Zeman, 1991). Somatization is also associated with problems in school functioning (Bernstein, Massie, Thuras, Perwien, Borchardt & Crosby, 1997), dysfunctional relationships with family (Faull & Nicol, 1986), and peers (Walker, Garber, & Greene, 1993), and the development of psychopathology in later life (Zwaigenbaum, Szatmari, Boyle & Offord, 1999). However, Kirmayer & Robbins (1991) propose that little is known about the social and family worlds of somatizers and that more research is needed in this area.

Kleinman (1986) suggests that when people are caught trapped in dysfunctional relationships or are unhappy about their social circumstances and they are allowed little opportunity for direct criticism or protest of these circumstances, somatic distress may be used to obtain legitimate concern from local power structures. Griffith & Griffith (1994) further propose that somatization occurs when individuals experience an 'unspeakable dilemma' so that mind-body symptoms are the performance of this dilemma.

If maintaining connections through relationships is especially important for females, any threat to, or abuse of, these relationships will be especially distressing. With

the adolescent female being silenced in our society, her body may become a vehicle for self- expression .A communication through bodily complaints rather than through verbal communication, may be one way for the female adolescent offender to express distress, without risking disconnection from significant relationships. Somatization may therefore be a way for the adolescent female offender to convey both a social communication, in order to control or maintain relationships, in addition to an emotional communication, by the expression of an emotional need. There has been a call to more closely examine the personal and social circumstances of those individuals for who the experience of somatic symptoms is an alternative to the expression of emotional distress (Kirmayer, 1999).

As a distinct specialty within the field of psychology, counseling psychology attends to developmental issues, and advocates for a preventative, psychoeducational and remedial approach to psychological problems (Fretz & Simon, 1992). Furthermore, Gilbert (1992) argues that counseling psychology has a unique role to play in it's commitment to effecting change at both the individual and societal level regarding sex-biased practices. This study attempts to contribute to the area of counseling psychology by it's focus on the role of gender-based constraints and contextual variables, such as family and peer relationships, which influence the conceptualization and treatment of female juvenile offenders. This present study may contribute to how professionals work directly with female adolescent offenders, in addition to contributing to effecting change in other systems, such as Department of Juvenile Justice and Juvenile Court, regarding how the problems of the female juvenile offender are conceptualized and which problem areas are targeted for change.

This study has the potential to contribute to the growing literature on understanding the link between somatization in adolescent females, and behavioral and emotional problems. It may increase the ability of professionals, who work with female juvenile offenders, to identify early the presence of internalizing problems, such as anxiety and depression. The results of this study may also extend to adolescents females who are considered "at risk" for developing behavioral and emotional problems but who have not yet entered the juvenile justice system. Professionals in primary care settings or the school system may benefit from further information on the psychological components of somatization that may help them to identify adolescents in these settings who may be at risk for the development of emotional and behavioral disorders.

Research Framework

The present study was supported by a theoretical framework based upon relational cultural theory (Gilligan, 1982). These ideas address the importance of relationships for females during adolescence and the psychological impact of disconnection during this period. The study is also based upon current findings on somatization which point to the increase of somatic complaints for females during adolescence, and the relationship between somatization and stress.

Purpose of Study

The purpose of this study was to identify risk factors for somatization in female adolescent offenders. Assessment and treatment interventions with this population typically focus on the behavioral concerns, often to the neglect of internalizing problems, which can be more difficult to recognize. Campo, Jansen-McWilliams, Comer &

Kelleher (1999) conclude that somatizing children and adolescents are at heightened risk for functional impairment and psychopathology and thus require a careful assessment.

Somatization may be a clue to emotional problems, such as depression and anxiety (McCauley, Carlson & Calderon, 1991) and may be one way for adolescent females to communicate distress. Somatizing female juvenile offenders represent a subset of all offending female adolescents. The results of this study may be useful for professionals working with female juvenile offenders in the identification of internalizing disorders, sources of stress, and areas for treatment and intervention for the female adolescent offenders who do present with somatic complaints.

Research Questions.

Research Question One:

Do the clinical symptoms of anxiety, depression, and social stress, as measured by the BASC-SR, have individual positive relationships with somatization among female juvenile offenders?

Null Hypothesis: The clinical symptoms of anxiety, depression, and social stress, as measured by the BASC-SR do not have positive relationships with somatization among female juvenile offenders.

Variables for hypothesis: Juvenile offenders' index scores on the somatization, anxiety, depression and social stress scales on the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992).

Research Question Two:

When statistically controlling for the clinical symptoms of anxiety, depression and social stress, what is the magnitude of their combined and individual influence on somatization in female juvenile offenders?

Null Hypothesis: The clinical symptoms of anxiety, depression and social stress, have no combined or individual influence on somatization among female juvenile offenders?

Variables for hypothesis: Juvenile offenders's index scores on the somatization, anxiety, depression and social stress scales on the Behavior Assessment System for Children (BASC), (Reynolds & Kamphaus, 1992).

Research Question Three:

Do the quality of relationships with mother, father, female peers, male peers, and teachers, as measured by the Assessment of Interpersonal Relations (AIR; Bracken, 1993), have positive individual relationships with somatization among female juvenile offenders?

Null Hypothesis. The quality of relationships with mother, father, female peers, male peers, and teachers measured by the AIR do not have positive individual relationships with somatization among female juvenile offenders.

Variables for hypothesis: Juvenile offenders' index scores on the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992), and the Assessment of Interpersonal Relations (AIR; Bracken, 1993).

Research Question Four:

When statistically controlling for the quality of relationships with mother, father, female peers, male peers, and teachers, what is the magnitude of their combined and individual influence on somatization in female juvenile offenders?

Null Hypothesis: The quality of relationships with mother, father, female peers, male peers, and teachers, have no combined or individual influence on somatization in female juvenile offenders.

Variables for hypothesis: Juvenile offenders' index scores on the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992), and the Assessment of Interpersonal Relations (AIR; Bracken, 1993).

Research Question Five:

Do the family variables of roles, communication, affective responsiveness, affective involvement, and behavior control as measured by the Family Assessment Device (FAD; Epstein, Baldwin & Bishop, 1983) have positive individual relationships with somatization among female juvenile offenders?

Null hypothesis: The family variables of roles, communication, affective responsiveness, affective involvement, and behavior control as measured by the FAD do not have positive individual relationships with somatization among female juvenile offenders?

Variables for hypothesis: Juvenile offenders' index scores on the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992), and the Family Assessment Device (FAD; Epstein et al, 1983).

Research Question Six:

When statistically controlling for the family variables of roles, communication, affective responsiveness, affective involvement, and behavior control, what is the magnitude of their combined and individual influence on somatization in female juvenile offenders?

Null Hypothesis: The family variables of roles, communication, affective responsiveness, affective involvement, and behavior control have no combined or individual influence on somatization among female juvenile offenders.

Variables for hypothesis: Juvenile offenders' index scores on the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992), and the Family Assessment Device (FAD; Epstein et al, 1983).

Research Question Seven:

When statistically controlling for the clinical symptoms of anxiety, depression and social stress, quality of relationships, and family variables, what is the magnitude of their combined and individual influence on somatization among female juvenile offenders?

Null Hypothesis: The clinical symptoms of anxiety, depression, and social stress, quality of relationships, and family variables, have no combined or individual influence on somatization among female juvenile offenders?

Variables for hypothesis: Juvenile offenders' index scores on the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992), the Family Assessment Device (FAD; Epstein et al, 1983), and the Assessment of Interpersonal Relations (AIR; Bracken, 1993).

Definition of Terms

Female adolescent offender. There is a great deal of variability in the degree of criminal involvement among these adolescents, ranging from status offenses (e.g., running away and truancy) to offenses against persons (e.g., aggravated assault). The operational definition of female adolescent offender in this study was a female adolescent, between the ages of 12-17 years, who was on probation with juvenile court.

Internalizing Problems. In contrast to externalizing problems, which are easily observable behavioral problems, internalizing problems are considered to be emotionally based problems. The operational definition of internalizing problems for this study are emotional problems, such as anxiety or depression.

Somatization. In children and adolescents, somatization is defined as the "tendency to experience and communicate somatic distress and symptoms unaccounted for by pathological findings and to attribute them to physical illness" (Lipowski, 1988, p. 1359). There is a large degree of variability in the number and type of somatic complaints presented in children and adolescents, which can include headaches, fatigue and recurrent abdominal pain (Garber et al, 1991).

Limitations

Participants in this study were obtained from a population of female juvenile offenders, involved in the G.I.R.L.S's (Gaining Insight into Relationships for Lifelong Success) project (a project funded by the Office of Juvenile Justice Delinquency Prevention). There was no randomization of participants as all of the females on probation were given a test battery. Thus, this study is based on the assumption that responses obtained by participants are representative of typical responses from a group in

this population. Adolescents become involved in juvenile court for a broad range of offenses with variability existing among adolescent girls who commit offenses. However, there was no attempt to examine somatization in adolescent female offenders by type of offense.

Somatization can include a wide variety of presenting complaints, such as stomach aches, headaches, and fatigue. However, this study did not attempt to examine the type of somatic complaint in relationship to other variables in the study.

This study relied on self-report instruments. In terms of understanding the link between family functioning and adjustment problems in adolescence, there is some evidence to suggest that the adolescent's perception of family functioning rather than the actual functioning level of the family, is more relevant to understanding why some youth become involved in criminal activities (Rutter, 1976). Despite research showing that children can be reliable sources of information about themselves (Moreau & Weissman, 1993), it is assumed that all participants read at a level that enabled them to comprehend instructions on all the instruments and that they responded to instrument test items in a truthful manner. Information obtained from self-report measures can often be corroborated by gathering information from other people involved in the child's life. Gathering information from parents and teachers may have strengthened this study.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This is the great error of our day, that physicians separate
the mind from the body (Plato, 320 BC)

The fascination with the relationship between the mind and the body can be traced back to Hippocrates, who explained, in his treatise "Illness in Women", that *hysteria*, being the Greek word for *body*, was the result of the womb moving around the female body. These movements of the womb were thought to put pressure on the organs for breathing and cause serious harm, resulting in symptoms such as rolling of the eyes, cold skin, vomiting and loss of speech. With the womb becoming the origin, hysteria became a uniquely female disorder. Treatment, which typically involved using sweet-smelling substances, was targeted at attracting the uterus back to it's proper place (Goodwin & Guze, 1996).

The womb remained the origin of hysteria even into the second century. Galen argued in his treatise "On the affected parts", that hysterical symptoms were due to the 'suffocated womb' resulting from the retention of menstrual blood or the 'female seed'. Since the womb was the prerequisite for the disorder, the hysterical patient was always female, who was outside the norm of marriage and childbirth. Thus, hysteria was connected with the absence of sexual intercourse and the 'suffocated womb' was seen as 'a womb protesting about being kept from its proper social and medical function' (Trillat & King, 1995).

Briquet (1859), a French doctor, studied over 400 cases of hysteria. He attributed the disorder to the build up of emotions and suggested that hysterical symptoms were an exaggerated copy of these emotions. The disorder became known as Briquet's syndrome until the publication of the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (APA, 1980). As Freud began forming his theory for the Psychoses of Defence-hysteria, obsession and phobias, he proposed that hysteria represented the transformation of repressed memories of sexual trauma into bodily symptoms, where the cure is to bring the memories back into consciousness. At the turn of the twentieth century, hysteria lost popularity as an illness, due to it's connection to sexuality. However, the effects of the First World War, saw the reemergence of hysteria being understood within a traumatic framework and resulting from emotional shock.

The definitive answer as to the relationship between organic pain and psychosomatic illness, however, remains unresolved. Despite the long fascination with this mind/body connection in history, very little research has been conducted with children and adolescents. Apley's research in the 1950's initiated modern investigations of "recurrent pains of childhood" in children (Apley, 1975). More recently there has been a resurgence of interest in this area, with increasingly collaborative efforts by the psychological and medical professions to better understand this phenomenon.

The history of somatization can be thought of as a powerful commentary on women's role in society over time. As a predecessor of somatization, hysteria has been a vehicle for conversations regarding social change, deviance, labeling, personality, sexism and disease. The hysterical personality has always been seen as emotionally manipulative, sexually promiscuous and deceitful, all traits which have typically been

linked to females (Trillat & King, 1995). Early explanations linked hysteria to the deficiencies of the womb and the connection of this deficit with the inferiority of women. Feminist critics argue that in the nineteenth and early twentieth centuries, it was diagnosed by men, in women, who were acting contrary to gender roles, by demanding the right to vote, education and divorce. Further, where hysteria has been used historically by men as a social judgment and used to keep women in their place, paradoxically, hysteria can also be seen as an act of resistance, by women, against this control (Trillat & King, 1995)

Definitions & Criteria

Somatoform disorders (American Psychiatric Association, 1994) have been defined by the presence of physical symptoms, for which there is no physical explanation; the symptoms are not intentionally produced and the individual has no sense of control over the presence of the physical symptoms (Campo & Garber, 1998).

The diagnosis of *somatization disorder* in the DSM-III-R required 13 symptoms from a list of 35 somatic symptoms, many of which were sexual or reproductive symptoms. The diagnosis of somatization disorder under these early diagnostic criteria were rare in children and have been argued to be inappropriate for this younger population, given the heavy reliance on post-pubertal symptoms (Garber, Walker, & Zeman, 1991). The DSM-IV (1994) includes the following criteria for Somatization Disorder (300.81)

a) a history of many physical complaints beginning before the age of 30 years that occur over a period of several years and results in treatment being sought or significant impairment in social, occupational, or other important areas of functioning,
b) four pain symptoms such as head, abdomen, back, joints, etc
c) two gastrointestinal symptoms such as nausea, bloating, diarrhea, vomiting, etc
d) one sexual symptom such as sexual indifference, irregular menses, excessive menstrual bleeding,
e) one pseudoneurological symptom such as impaired coordination, difficulty swallowing, a lump in throat, localized weakness (American Psychiatric Association, 1994, pp.449-450).

An individual meets the criteria for somatization disorder if at least 8 symptoms are reported. However, the reliance on a sexual symptom makes it difficult for children and many adolescents to meet these criteria. Thus, it is very rare for children or adolescents to meet the full criteria for somatization disorder (Campo & Fritsch, 1994). Campo and Garber (1998) argue that the diagnosis of *undifferentiated somatoform disorder* may be more applicable for children, based on the less stringent criteria. This category requires one or more physical complaints, persisting for 6 months or more, that cannot be explained by a medical condition and that cause significant impairment in different areas of functioning (American Psychiatric Association, 1994).

Studies on somatization in children show little agreement regarding the definition of somatization. Overlapping illness behaviors (Kirmayer & Robbins, 1991), coupled

with the small number of research studies involving children have only served to increase the imprecision regarding somatization in pediatric populations. Previous investigations have defined "functional somatization" (Kirmayer & Robbins, 1991) as being a cut-off of at least four or more medically unexplained symptoms for males and six for females, or a standardized score that is at least one and one-half standard deviations from the mean on a measure of physical symptom complaints (Abelkop, 1998).

Prevalence of Somatization in Children & Adolescents

Unexplained physical symptoms are quite common in children and adolescents (Campo & Fritsch, 1994; Garralda, 1996). A community sample of 540 children and adolescents from the ages of 3 to 12, found that nearly half of the sample reported at least one physical complaint during a two-week period. The most common complaint was headache (25%), followed by low energy (23%), sore muscles (21%), and abdominal discomfort (17%) (Garber, Walker, and Zeman, 1991). These findings are consistent with other investigations that have found headaches to be the most common complaint (Aro et al., 1987; Larsson, 1991). Physical complaints seem to cluster in different age groups. Recurrent abdominal pain occurs more frequently in younger children. Headaches and limb pain typically occur with increasing age (Apley, 1975), and adolescents are more likely, than younger children, to by polysymptomatic (Achenbach, Conners, Quay, Verhulst & Howell, 1989).

Somatic complaints in children and adolescents vary by both age and gender. Gender differences in somatic complaints increase during adolescence with adolescent females endorsing significantly more somatic symptoms than adolescent males (Garber et al, 1991). Headaches and poor sleep are the most frequent complaints for adolescent girls

(Aro et al., 1987). Several reasons for the gender difference in reporting have been proposed, including the accompanying physical changes for adolescent females, a decline in male reporting, females being more likely to seek out care, and parents, particularly mothers, being more likely to encourage illness behavior in daughters, rather than sons (Walker & Zeman, 1992).

Campo and Garber (1998) have noted that sociocultural factors in pediatric somatization, such as culture, race and ethnicity, have been inadequately studied. Recent studies have yielded conflicting findings. Canino, Ramirez, de Los A. Balzac, Frye & Matos (1999) compared the rates of somatic symptoms associated with anxiety disorder in three ethnic groups: African American, Hispanics, and European American children, aged 9-17 years. Female adolescents had higher rates of somatic complaints than adolescent males and after controlling for other demographic variables, the number of somatic symptoms did not differ by ethnic group, except for cardiovascular symptoms which were more prevalent in African American and Hispanic children. Other findings, however, point to a relationship between somatizing behavior in children and adolescents and being a member of a minority group (Campo et al, 1999).

Correlates of Somatization

Somatizing children are more at risk for emotional and behavioral disturbances than children who do not somatize (Campo, Jansen-McWilliams, Comer, & Kelleher, 1999). Internalizing problems seem to be very common in children who somatize, with behavioral problems being less common. A recent study involving 162 Italian children and adolescents, who were referred to mental health facility for emotional and/or behavioral disorders, investigated whether physical complaints were more frequently

related to specific psychopathologies (Masi, Favilla, Millepiedi & Mucci, 2000). The authors found that 69.2% of participants in this study reported somatic complaints and children with anxiety and/or depression reported higher rates of somatic complaints than children with externalizing disorders. Reports of somatic complaints by a sample of Finnish adolescents were positively associated with anxiety, depression, and alcohol/drug use (Poikolainen et al. 1995). Unexplained somatic symptoms are therefore frequently reported in children and adolescents who are referred for psychological services for emotional and/or behavioral problems. Furthermore, somatic complaints may indicate a neglected anxiety and/or depressive disorder (Masi et al, 2000).

There are gender-specific associations between somatizing behaviors and psychopathology in adolescents. There is a stronger association between somatization and emotional disorders in females, with somatization and disruptive behavior disorders being more common in males (Egger et al, 1999). A strong relationship between somatizing behaviors and the presence of depression and anxiety has been found for females (Campo & Fritsch, 1994; Egger et al, 1999; Hodges, Kline, Barbero, & Woodruff, 1985).

Somatization is associated with problems in school and frequent absences from school. Bernstein et al (1997) found a positive relationship between the reporting of somatic complaints by adolescents, the presence of anxiety and depression, and school absenteeism. The authors concluded that chronic school absenteeism may serve as a warning sign to parents and school officials, that the adolescent may be experiencing anxiety/and or depression and that psychological intervention is warranted.

Somatization in childhood has been linked to the development of psychological problems later on in life. Children and adolescents presenting with somatic complaints are considered a high-risk group for emotional disorders, particularly depression in adulthood (Zwaigenbaum, Szatmari, Boyle, & Offord, 1999). Some research has also indicated that somatizing adult females are at increased risk for criminality and alcohol abuse (Cloniger, Sigvardsson, von Knorring et al, 1984; Liskow, 1988). However there have been no studies to date that have investigated this relationship in adolescent females.

Somatic complaints may be one of the most common ways for emotional and behavioral problems to surface in the primary care setting. Continual visits to these settings can result in the child facing potentially numerous invasive medical procedures, in addition to the substantial costs to society. However, more importantly, due to the prevailing medical approach to such disorders, often psychological problems can go unrecognized in children.

Social Relationships of Somatizing Children & Adolescents

It is widely believed that the family plays a pivotal role in the development of somatizing behaviors in children and adolescents. Minuchin and his colleagues (1975) suggested that the somatizing child served to maintain homeostasis in a dysfunctional family system. Although there has been little research to support this claim, many studies have shown an association between individuals who reported an increase in somatic complaints and the level of dysfunction within the family. Garralda (1996) suggests that children and their families often struggle with psychological problems that may place the children at risk for somatization. These include: difficulties in the child's social relationships, educational or other life stressors, high rates or physical and psychological

illness in the family, dysfunctional familial relationships related to how the family deals with emotionality, how it regulates it's activities and how family members communicate with one another, and finally, severe psychopathology in the child and family members is a risk factor or childhood somatization (Garralda, 1996).

Somatization appears to be related to poor family functioning. It is more common in families who have children with somatizing behaviors, for there to be marital conflict (Aro et al., 1989), difficulties in family communication (Faull & Nicol, 1986; Wasserman et al, 1988), and low support, cohesion, and adaptability (Faull & Nicol, 1986; Walker, McLaughlin & Greene, 1988). Garralda (1996) notes that in small number of families, profound family disorganization and sexual abuse have contributed to somatic complaints in children.

In a study that used a community sample and focused on a sample of 90 children, following them over a 7-year period, von Wright and von Wright (1981) found that satisfaction at home (measured by relation to mother, father and general satisfaction at home) was inversely related to the frequency of somatic symptoms. One recent study (Terre & Ghiselli, 1997) investigated whether specific aspects of family functioning were related to somatic symptomology at specific developmental periods. The findings indicated that adolescents were more likely to report somatic complaints, if they perceived their families as disorganized and less cohesive. Consistent with previous literature, somatic reporting was more strongly associated with being female and having the perception that their families were less interested in political, social, intellectual, and cultural activities (Terre & Ghiselli, 1997). The authors concluded that there are distinct family risk factors for somatizing children at different developmental periods.

Psychopathology within family members has been associated with somatization in children and adolescents (Campo & Fritsch, 1994). For example, children who suffer from recurrent abdominal pain are more likely to have parents with anxiety and/or depression, than parents from control groups (Garber et al, 1990). Parents of these children are also more likely to present with alcoholism, antisocial behavior (Routh & Ernst, 1984). Furthermore, somatization is often familial, with children of somatizing parents, being more likely to present with somatizing behaviors (Livingston, 1993). As yet, a consensus has not been reached in the scientific community, however it is likely that both environmental and genetic factors contribute to shared somatizing behaviors among family members (Bohman, Cloninger, von Knorring, & Sigvardsson, 1984).

In addition to having a poor relationship with one or both parents (Aro et al., 1987), children with somatizing behaviors also perceive themselves as having poor relationships with peers (Walker, Garber, & Greene, 1994). Furthermore, children who lack social skills are more likely to present with somatic complaints (Garralda, Bowman & Mandalia, 1999). These findings are consistent with previous studies that have found a strong relationship between poor peer relationships and children presenting with anxiety and depression (Strauss, Lease, Kazdin, & Dulcan, 1989). Peer support may be particularly important for adolescent females. Walker and Greene (1987) found that, regardless of the severity of negative life events experienced, females with low peer support presented with significantly high levels of physical symptomology.

Social Stress & Somatization

Somatic symptoms and medically unexplained symptoms may result from the experience of psychological and interpersonal distress (Abbey, 2001), resulting from

stressful relationships with family and peers (Colten, Gore, & Aseltine, 1991). The loss, or the threat of loss of significant relationships may be particularly stressful and may result in somatic symptoms for some children. Stressful interpersonal, negative life events, such as serious illness in the family, family discord, break-up of a romantic relationship, and school failure (Poikolaonen, Kanerva & Lonnquist, 1995; Campo & Fritsch, 1994) have been associated with somatization.

Maltreatment, particularly sexual abuse, has often been linked to the development of somatization (Livingston et al., 1988). Several studies have shown a higher rate of sexual abuse in female patients with somatization disorder than in patients with affective disorders (Morrison, 1989a). However other studies have shown that a chaotic family environment better explained the development of somatization than the experience of sexual abuse per se (Morrison, 1989b). More recent findings indicate that when all traumatic experiences are considered, childhood physical abuse has been found to be the best predictor of the development of somatization disorder in adults (Walling & Reiter 1995).

Chronic and daily stressors, such as conflict with family or peers, or difficulty in school (Faull & Nicol, 1986), may be better predictors of maladjustment than major life events, such as death or illness (Compas, 1987). Garralda (1996) suggests that stressful events probably trigger the onset or serve to maintain somatization, particularly for children who are psychologically vulnerable.

Female Adolescent Offenders

Female juvenile offenders represent the fastest growing offending group in the juvenile justice system (Acoca, 1998). The numbers of arrests in the United States of girls

younger than 18 years, totaled 723,000 in 1996. Between 1992 and 1996, arrests for girls surpassed the number of arrests for boys, in every offense category, including violent offenses (Snyder, 1997). In the years 1988 and 1997, the female offending rate increased by 83% (OJJDP, 2000). In response to this dramatic increase in female offending, the country has been faced with the need for intervention services and placements which meet the specific problems of the female offender (OJJDP, 1999).

A Relational Understanding of Female Adolescent Offending

Recently, there has been a call for a different conceptualization of the treatment needs of girls involved in the juvenile justice system (Chesney-Lind, 1989). Historically, the discourse of 'delinquency' has referred to male delinquency, with Chesney-Lind (1989) observing that this gender bias is reflected in the imbalance of research on male delinquency to that of female delinquency. Existing theories on delinquency are based on patriarchal arrangements and were developed to explain male delinquency. Theoretical models of delinquency are considered inadequate to explain the presenting problems of female adolescent offenders (Chesney-Lind, 1989).

There is some evidence to suggest that there are different risk factors for male and female offenders (Chesney-Lind, 1989; Mazerolle, 1998). For example, gender specific risk assessment instruments have been shown to improve classifications of risk for reoffending, particularly for female offenders (Funk, 1999). Historically, the offending adolescent's antisocial or problematic behavior as been the target for treatment, rather than the behavior being seen as symptomatic of underlying distress. With increased efforts toward understanding female adolescent offenders, there is growing recognition that offending behavior in females may be a product of a lifetime of victimization and

traumatic experiences. Furthermore, some have argued that ignoring these gender specific needs, mirrors and even perpetuates the abuse that girls have experienced prior to entering the justice system (Acoca, 1998).

Many of the adolescent females involved in the juvenile justice are victims of abuse, with 64-85% of female offenders having a history of abuse (Calhoun, Jurgens, & Chen, 1993), and many being survivors of rape (Miller, Trapanifeyes-Mendoza, Eggleston & Dwiggins, 1995). The majority of first offenses for females is running away from home, with an estimated 73% of females running away to escape sexual abuse (Bowers, 1990). Some have therefore argued that delinquent behaviors are a consequence of continuous victimization in the form of physical and/or sexual abuse in the home system (Belknap, Holsinger, & Dunn, 1997). Bowers (1990) argues that a history of victimization, experienced through abusive relationships may act as the precursor to offending behavior for adolescent females. Chesney-Lind (1989) states, "girls on the run from homes characterized by sexual abuse and parental neglect are forced, by the very statutes designed to protect them, into the lives of escaped convicts" (p. 24).

The importance that females place on social relationships has been put forth as an explanation for female offending. Relational theory (Gilligan, 1982) or 'relational/cultural' theory as it was renamed in the mid-1990's, is an attempt to explain women's development through their relationships, "an inner sense of connection to others is the central organizing feature of women's [psychological] development" (Miller & Stiver, 1998, p. 16). A relationship is defined as "a set of interactions over a length of time" (Miller & Stiver, 1998, p.26) and the relational development of women is considered to be interactive, flexible and dynamic. The basic tenants of relational/cultural

theory include: the centrality of relationships in female development, connection and disconnection, characteristics of growth-enhancing relationships, the "five good things" (zest or high energy, action, knowledge, self-worth and a greater sense of connection and a desire for more connection), and the belief that an understanding of female development can further our understanding of both men and women (Jenkins, 2000). Relational/cultural theory therefor posits that when there is connection in the women's lives, there is healing and personal growth.

Female adolescents are thought to experience a relational crisis during adolescence when there are increasing expectations for separation and disconnection from family. Adolescent females face a threat to self-esteem with societal demands for separation from parental figures and a lack of emphasis on gender specific relational needs (Gilligan, Ward & Taylor, 1988). Psychological problems result when there are disconnections that are considered to result from early parentification, emotional inaccessibility, and family secrets (Miller & Stiver, 1998).

Disruptions in family, peer or school relationships may have particularly negative consequences for female adolescents, such as a decrease in self-esteem and an increased likelihood of social isolation (Funk, 1999), placing the female at risk for engaging in offending behaviors. Furthermore, involvement in criminal activities may also be a way for her to maintain close connections with her peers or family members who are involved in illegal activities. Discontinuing her involvement in these activities may mean disconnection from significant others. Furthermore, disconnection from one's racial/ethnic group can have deleterious effects. For African American female adolescents, group identity carries great meaning (McClain, 1986), within which the self

is formed and reformed (Stevens, 1997). Disconnection for African American adolescent females from their racial/ethnic group may result "can be problematic, painful, and may contribute to poor mental health" (Stevens, 1997, p.150). The implication of disconnection for female adolescents is that risk-taking may be less violative and more oriented toward protecting relationships and emotional commitments (Steffensmeier & Allan, 1996).

Family Relationships of Female Juvenile Offenders

Research on delinquency and family functioning has generally looked at the relationship between family functioning and adolescent functioning (Wierson & Forehand, 1992), family structure (Farnsworth, 1984) and parent-child relationships (Henggeler, 1989). Typically this research has been oriented toward understanding the relationship between the dysfunction of families and their delinquent children. For example, there is some evidence to suggest that conflictual parent-child relationships are associated with psychosocial difficulties in adolescence, including delinquency (Henggeler, 1989) and these conflictual relationships are thought to reflect problem-solving difficulties. In a study that investigated whether families of delinquency girls were especially conflictive, Williams and Borduin (1997) found no gender differences in the family-conflict outcomes of juvenile offenders and contrary to expectations, families of delinquent and well-adjusted girls did not differ on conflict outcomes. Rueter & Conger (1995) found that for girls, parent-adolescent warmth was related to family success in solving conflicts.

Findings from The Adolescent Health Program (1989) show that a lack of family connectedness, or the degree to which the adolescent feels disconnected from her family

and believes that her family does not care about her, is the strongest predictor of internalized distress, evident through emotional distress, negative body image, disordered patterns of eating, suicide attempts, and pregnancy risk. Similarly, adolescent girls have been found to have a greater vulnerability to intrafamilial stress, exhibited through an increase in depressive symptoms and other emotional difficulties (Gore, Aseltine, & Colten, 1993). These findings indicate that the quality of the relationship the girl has with her family may be an important variable in the development of psychological distress for female juvenile offenders.

The majority of female juvenile offenders are being raised in single parent homes with the mother having the dominant care-taking responsibility. In these households, the "mothering" role is sometimes undertaken by Grandmothers and Aunts. Regardless of whom is performing this role, there is little doubt that the "mother" is the dominant adult in the lives of these girls. It seems that forming and maintaining a close relationship with at least one adult is important during adolescence and compared to males, healthy adjustment in females is related to parent-child cohesion (Wentzel & Feldman, 1996). However the expectations from society are that youth begin to emotionally disengage from parents when they reach adolescence. This severing of familial bonds when females reach adolescence negates the importance of continuity, care and connection for adolescent girls (Levene, 1990). Furthermore, emotional disengagement from family promotes the notion of individualism and isolation which devalue both her gender and her fictive kinship group or cultural reference group (Stevens, 1997).

Rather than moving away from relationships with parents and adults, adolescent girls are looking to adult women in particular for meaningful connections. Unfortunately

much of the research that has focused on the relationship between familial factors and juvenile delinquency has blamed mothers for problems in their children. One study identified 70 mental health problems that authors have attributed to pathological mothers, including aggressiveness, anorexia, incest, suicidal behavior and truancy (Caplan & Hall-McCorquodale, 1985). For example, "A follow-up of female delinquents: Maternal contributions to the perpetuation of deviance" (Lewis, Yeager, Cobham-Portorreal, Klein, Showalter & Anthony, 1991) identifies female delinquency as a leading cause of delinquency in offspring and blames mothers for the continuation of delinquency in subsequent generations.

However other research suggests that girls' relationships with their mothers are considered a crucial area for the development of "hardiness" (Debold, Mikel Brown, Weseen & Kearse Brookins, 1999) or the protective factors individuals use to respond to stressors. Mothers are considered to be significant role models for their daughters by influencing their self-esteem through their proximity, their gender, sex role, their psychological closeness and their familial relationship (Tessor & Campbell, 1982).

Previous research on juvenile delinquency has tended to focus on what families are doing wrong and how various negative aspects of family functioning or parenting may be related to delinquent behavior. Furthermore, very little of this research has focused exclusively on female juvenile offenders. One recent study (McLean, Glaser, Calhoun & Bartolomucci, 2000) investigated the perceptions of female juvenile offenders regarding the familial context. The quality of the girls' relationship with mother was found to be related to the perception of clear roles, communication and increased affective responsiveness in the family, suggesting that how the family is perceived by

these girls, is influenced by the degree to which their relational needs are being met in the home.

Peer Relationships of Female Juvenile Offenders

Unsatisfactory relationships within the family means that the female adolescent offender often has to look beyond the family for emotional connections. Maintaining friendships is important for these girls (Marcus, 1996), however recent research indicates that these friendships are very gender specific. Female juvenile offenders place little importance on their female friendships, while relationships with male peers are given priority (Bartolomucci, Calhoun, McLean, 1999). Female juvenile offenders seem to reject their female peers, regarding them as untrustworthy. Self –worth is therefore maintained primarily through establishing relationships with male peers, despite findings that suggest that these girls place their own needs below those of their male peers. Often these male friends are several years older than the females, and the relationship becomes a sexual relationship. Lacking the emotional maturity to engage in a sexual relationship with an older male, these females often find themselves engaging in relationships for which they are ill equipped. These experiences may resemble the relational abuse the girls have experienced elsewhere in their lives.

Adolescent Psychopathology

Trauma and abuse are clear risk factors for the development of psychopathology in adolescence. Females who have experienced abuse are more likely to exhibit internalizing behaviors and less likely to engage in violent offending behaviors than abused males (Chandy, Blum, & Resnick, 1996). Despite findings indicating that females experience depression at twice the rate of males (Rutter & Giller, 1983) and evidence that

adolescent depression is comorbid with disobedience and oppositional tendencies, there is a general lack of knowledge in this area by the juvenile justice system and professionals working with this population (Miser, 1996). The consequence for female adolescent offenders is that their internalizing symptoms are often overlooked, in favor of the more evident externalizing behaviors.

In an investigation of possible explanations for gender differences in adolescent psychopathology, Leadbetter, Blatt and Quinlan (1995) distinguished between interpersonal depressive vulnerability for individuals who fear abandonment and seek attention and nurturing, to self-critical depressive vulnerability for individuals who experience guilt and self-blame and avoid interpersonal intimacy. Adolescent girls were found to have greater interpersonal depressive vulnerability and greater reactivity to stressful events involving others. The effects of this stress and distress involving social relationships are seen in girls' offending behavior with increases in substance abuse, gang activity, truancy and teen pregnancy (Debold, Mikel Brown, Weseen & Kearse Brookins, 1999).

CHAPTER 3

METHOD

Research Question

This study explores the presence and nature of somatization in female juvenile offenders. The purpose of the study is to identify predictors of somatization in female juvenile offenders. These possible predictors include clinical symptoms of anxiety, depression, and social stress, quality of relationships, and specific family variables as predictors of somatization.

Data Collection

Data was collected as part of a screening process for a group treatment intervention for female juvenile offenders. The test battery was administered by Masters'-level and Doctoral level clinicians who participate in the G.I.R.L.S. (Gaining Insight Into Relationships for Lifelong Success) Project. This project is a gender specific program that is a collaborative partnership with the juvenile justice system, a university counselor-training program and the community to address the psychological, emotional, and educational needs of female juvenile offenders and their families.

Research Design

The present study is a descriptive study.

Participants

Participants were 120 female adolescents on probation in a small southeastern city. The age of the population ranged from 12-17 years old ($\underline{M}$ = 14.8 years). The racial composition of the participants consisted of 86 African Americans, 32 Caucasians, 2

Hispanics. Participants completed a Behavioral Assessment System for Children (BASC; Reynolds & Kamphaus, 1992), an Assessment of Interpersonal Relationships (AIR; Bracken, 1993), and a Family Assessment Device (FAD; Epstein et al, 1983).

Procedures

The Institutional Review Board of the University of Georgia approved the Research protocol employed in this study, including consent forms and all other materials described here. In all cases, participants were treated with respect and every effort was taken to preserve confidentiality. At the time of the assessment, all of the adolescents were on probation with the Department of Juvenile Justice. The data was collected as part of a screening process for a group treatment intervention, supported by the G.I.R.L.S's project.

The test battery was administered by graduate students who participate in the G.I.R.L.S. Project. The duration of the assessment sessions approximated 1.5 hours. All assessment instruments were scored by the Masters-level and Doctoral-level clinicians and the results were entered into a computer database.

Research Instruments

The instruments used in this study were the Behavior Assessment System for Children (BASC) Self-Report of the Personality-Adolescent (SRP-A), the Assessment of Interpersonal Relations (AIR), and the Family Assessment Device (FAD). Behavior Assessment System for Children (BASC) Self-Report of the Personality-Adolescent (SRP-A; Reynolds & Kamphaus, 1992). The BASC (SRP-A) is a 186-item self-report instrument that was developed to evaluate personality and behavior problems in children and adolescents.

Table 1.

A Description of the BASC's (SRP-A) Clinical Scales.

Scale	Definition
Anxiety	Assesses generalized fears, oversensitivity & irrational thoughts & worries
Depression	Feelings of loneliness, sadness & inability to enjoy life
Somatization	Complaints of physical problems & health-related fears & concerns
Social Stress	Stress experienced in relationships. Measures pervasive & chronic stress.

Table 1. Adapted from Reynolds & Kamphaus (1992).

The 10 clinical scales are: attitude to school, attitude to teachers, sensation seeking, atypicality, locus of control, social stress, anxiety, depression, sense of inadequacy, and somatization. In addition there are four adaptive scales: relations with parents, interpersonal relations, self-esteem, and self-reliance. The BASC (SRP-A) was standardized on a sample of 4,448 adolescents from throughout the United States and Canada. The sample included African Americans (16%), Hispanics (11%), White (70%) and Other (3%). Internal consistency among subscales averaged near .80.

The Somatization subscale contains eleven items that target behavioral manifestations of somatic complaints in adolescents. For example, items on this scale ask adolescents to rate whether they have shortness of breath, dizziness or headaches (see Appendix A).

Assessment of Interpersonal Relations (AIR; Bracken, 1993). The Assessment of Interpersonal Relations (Bracken, 1993) is a self-report instrument created to assess the quality of adolescent relationships with mothers, fathers, male and female peers, and teachers. The AIR consists of 35, four point Likert scale items, which are collapsed into 5 subscales that examine the youth's perceptions of their relationships with their mother, father, male peers, female peers, and teachers. The items address 15 factors that are associated with quality of relationships including (1) companionship, (2) emotional support, (3) guidance, (4) emotional comfort (mutuality), (5) reliance, (6) trust, (7) understanding, (8) conflict, (9) identification (sameness), (10) respect, (11) empathy, (12) intimacy, (13) affect, (14) acceptance, and (15) shared values (Bracken, 1993).

The standardization sample consisted of 2, 501 children ranging in age from 9-19. The sample was gathered from 17 sites across the United States. The sample was approximately 47% male and 53% female. The racial/ethnic make-up of the standardization sample was approximately 10% African American, 82% Caucasian, and 8% other. Thorough reliability and validity research has been conducted on this instrument (e.g., Bracken & Cain, 1994). Regardless of age or gender, the individual subscales and Total Relationship Index have an internal consistency and test/re-test reliability exceeding the .90 level (Bracken, 1993).

Scores are classified as follows: Very positive relationship (126 and above), Moderately positive relationship (110-125), Average relationship (90-110), Moderately negative relationship (76-89), and Very negative relationship (75 and below), (Bracken, 1993). Therefore, the higher the relationship score, the more positively the adolescent rated the specific relationship.

Family Assessment Device (FAD). Epstein et al. (1983) developed the FAD to evaluate the role of family functioning in a variety of medical and psychiatric disorders. The FAD describes the structure and organization of the family group, in addition to the transactions among family members.

The FAD is a 60-item self-report questionnaire that measures seven dimensions of family functioning (Table 2.): Problem Solving, Communication, Roles, Affective Responsiveness, Affective Involvement and Behavior Control. The General Functioning dimension assesses the family's overall health/pathology. Each item on the instrument is scored on a four-point scale from 'strongly agree' to 'strongly disagree'. The FAD has been used both for clinical and research purposes to differentiate healthy from unhealthy families by establishing cut-off scores. The FAD responses range from 1.0 to 4.0, with a mean greater than 2.0 indicating that a greater number of items have been endorsed in an unhealthy direction than a healthy direction. The FAD health/pathology cut-offs have acceptable rates of sensitivity (57-83%) and specificity (64-79%) as well as high rates of diagnostic confidence (68-89%). Thus, the FAD cut-off scores discriminate well between families who have an identified problem and non-clinical families (Miller, Epstein, Bishop & Keitner, 1985) and can effectively identify the presence of significant family dysfunction.

The FAD was developed based on the responses of 503 individuals. Results from a series of studies on the FAD indicate that it has adequate test-retest reliability, (ranging from .66 for Problem Solving to .76 for Affective Responsiveness), low correlations with social desirability (ranging from -.06 for Behavior Control to -.19 for Affective Involvement), and moderate correlations with other self-report measures of family

Table 2.

A Description of the FAD's Family Functioning Scales.

Scale	**Definition**
Problem Solving	Family's ability to solve problems (issues that threaten the integrity and functional capacity of the family) at a level that maintains effective family functioning
Communication	Exchange of information among family members. Whether verbal messages are clear and direct
Roles	Established patterns of behavior for handling a set of family functions, including provision of resources, nurturance and support, supporting personal development. Whether tasks are clearly and equitably assigned and carried out responsibility.
Affective Responsiveness	Ability of family members to experience appropriate affect over a range of stimuli.
Affective Involvement	Extent to which family members are interested in and place value on each other's activities and concerns.
Behavior Control	How the family expresses and maintains standards for the behavior of it's members

Table 2. is adapted from Epstein et al., 1983.

functioning (Miller et al., 1985). A further study investigating the internal reliability of the scales and factorial validity for both clinical and nonclinical samples provide support for the continued use of the FAD (Kabacoff, Miller, Bishop, Epstein and Keitner, 1990).

Statistical Analyses

A series of correlations and multiple regression analyses were used.

Limitations

Participants in this study were obtained from a population of female juvenile offenders, involved in the G.I.R.L.S's project. There was no randomization of participants as all of the females on probation were given a test battery. Thus, this study is based on the assumption that responses obtained by participants are representative of typical responses from a group in this population. Adolescents become involved in juvenile court for a broad range of offenses with variability existing among adolescent girls who commit offenses. However, there was no attempt to examine somatization in adolescent female offenders by type of offense. The study is also cross-sectional and correlational. No inferences of causality can be made.

This study relied on self-report instruments. Despite research showing that children can be reliable sources of information about themselves (Moreau & Weissman, 1993), it is assumed that all participants read at a level that enabled them to comprehend instructions on all the instruments and that they responded to instrument test items in a truthful manner. Information obtained from self-report measures can often be corroborated by gathering information from other people involved in the child's life. Gathering information from parents and teachers may have strengthened this study.

CHAPTER 4

RESULTS

Purpose of Study

The purpose of this study was to identify risk factors for somatization in female adolescent offenders. Risk factors were identified as clinical symptoms, quality of relationships and family functioning. Data were collected from 120 female adolescents, ages 12-17yrs, who were on probation with the Athens-Clarke County Juvenile Court. The data were analyzed using Pearson product-moment correlations and multiple regression analyses. Two groups emerged from this data and were identified as 'somatizers' or 'nonsomatizers'. Together, these groups accounted for approximately 60% of the original data set. These groups were then analyzed using a between-groups design. A series of one-way multivariate analysis of variance (MANOVA) and univariate analysis of variance (ANOVA) procedures were employed to examine between-group differences in clinical symptoms, adaptive functioning, quality of relationships and family functioning. In cases where a number of ANOVAs would be needed to examine between-groups differences across a set of related dependent variables, a MANOVA was examined before univariate ANOVAs were computed to reveal essential between-group differences. Finally a descriptive discriminative analysis was employed to provide a profile of significant variables that would further differentiate somatizing female juvenile offenders from nonsomatizing female juvenile offenders. Results from the ANOVA's were used to screen for predictor variables in the discriminative analysis.

Consideration of Demographic Factors

Demographic variables of age and race were examined to determine whether these variables play important roles in the somatization of female juvenile offenders. Participants were grouped into two age groupings; 12-14yrs and 15-17yrs, and three racial groupings; African American, White and Hispanic. The results of the ANOVA showed no statistically significant effect of age on somatization with the means scores of 12-14 year olds ($M = 53.88$, $SD = 12.18$) not differing significantly to the mean scores of 15-17 year olds ($M = 51.73$, $SD = 10.86$), $F(1, 108) = 2.68$, $p > .05$, $\eta^2 = .10$. There was also no effect of race on somatization with the mean scores of African American females ($M = 51.65$, $SD = 11.08$), not differing significantly to Caucasian females ($M = 54$, $SD = 11.97$) or to Hispanic females ($M = 49.50$, $SD = 6.36$), $F(2, 107) = .73$, $p > .05$, $\eta^2 = .49$.

Findings

Description of Clinical Symptoms:

The means and standard deviations for the dependent and independent variables were computed and are displayed in Table 3. The mean scores for all measures of clinical symptomology, as measured by the BASC (BASC; Reynolds & Kamphaus, 1992), exceeded the BASC's normed means, which included both female and male norms. This indicates that, on all clinical scales, the female adolescent offenders perceived themselves as having more problems in the areas of somatization, social stress, anxiety and depression, that the norm group.

Hypothesis 1 stated that the clinical symptoms of anxiety, depression and social stress, as measured by the Behavior Assessment System for Children-Self-Report of Personality-Adolescent form (SRP-A; Reynolds & Kamphaus, 1992), would have

individual positive relationships with somatization among female juvenile offenders. Pearson product-moment correlations were used to examine relationships among anxiety, depression and social stress and somatization among female juvenile offenders. These results are reported in Table 4. These findings showed that somatization and the predictor variables were highly correlated. There were no correlations in the .80 to .90 range which might have suggested multi-collinerarity. That is, none of the variables were so highly related that they no longer provided a unique contribution to understanding the factors related to somatization.

Hypothesis 2 stated that the clinical symptoms of anxiety, depression and social stress would account for a significant amount of the variance of somatization among female juvenile offenders. A multiple regression analysis, using the enter method, was conducted to evaluate how well the clinical symptoms of anxiety, depression and social stress predicted somatization among female juvenile offenders. The results of this analysis (see Table 5) indicated that social stress, anxiety and depression combined, accounted for a significant amount of the somatization variability, $\underline{R}^2 = .38$, $\underline{F}\ (3, 106) = 21.33$, $\underline{p} < .001$. The results suggest that those female juvenile offenders who score high on the somatization scale also tended to have higher scores on measures of social stress, anxiety and depression.

Description of Quality of Relationships:

Means and standard deviations for the dependent and independent variables are displayed in Table 3. The mean scores for all measures of quality of relationships, as measured by the AIR (AIR; Bracken, 1993), exceeded the AIR's normed means, which included only female mean scores, only for relationships with mother, father and female

peers. This indicates that the female adolescent offenders perceived themselves as having more problems in their relationships with mother, father and female peers than the norm group. However they perceived themselves as having better relationships, than the norm group, with male peers and teachers.

Hypothesis 3 stated that the quality of relationships with mom, dad, female peers, male peers and teachers, as measured by the Assessment of Interpersonal Relations (AIR; Bracken, 1993), would have individual positive relationships with somatization among female juvenile offenders. Pearson product-moment correlations were used to examine associations among quality of relationships with mom, dad, female peers, male peers and teachers and somatization among female juvenile offenders. The results are reported in Table 4. Significant correlations were found between somatization and relationship with male peers, and between somatization with female peers.

Table 3

Means and Standard Deviations for Somatization, Clinical Symptoms, Quality of Relationships and Family Functioning

Measure	M	SD	Norm M
BASC-Somatization	52.34	11.25	48.9
BASC-Social Stress	50.76	11.11	48.6
BASC-Anxiety	49.61	10.61	47.5
BASC-Depression	53.00	11.20	48.7
AIR-Relationship Mom	95.83	13.12	111.91
AIR-Relationship Dad	92.98	13.01	102.52
AIR-Relationship Female Peers	89.35	14.41	114.93
AIR-Relationship Male Peers	101.57	13.20	96.73
AIR-Relationship Teacher	100.19	15.80	93.84
FAD-Family Problem Solving	2.25	.59	2.2
FAD-Family Communication	2.25	.42	2.2
FAD-Family Roles	2.28	.41	2.3
FAD-Family Affective Respon	2.34	.45	2.2
FAD-Family Affective Involv	2.37	.54	2.1
FAD-Family Behavior Control	1.95	.43	1.9

Table 4

Correlations of Measures of Clinical Symptoms, Quality of Relationships and Family Functioning

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Somat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Soc stress	.56**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.	Anxiety	.50**	.76**	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Depression	.52**	.64**	.47**	-	-	-	-	-	-	-	-	-	-	-	-
5.	Rel Mom	-.14	-.27**	-.16	-.30**	-	-	-	-	-	-	-	-	-	-	-
6.	Rel Dad	.02	-.012	.00	-.10	.26*	-	-	-	-	-	-	-	-	-	-
7.	Rel MPeers	-.22*	-.30**	-.26*	-.14	.38**	-.05	-	-	-	-	-	-	-	-	-
8.	Rel FPeers	-.21*	-.28**	-.07	-.23*	.32**	.18	.47**	-	-	-	-	-	-	-	-
9.	Rel Teach	-.17	-.18	-.15	-.26*	.33**	.10	.33**	.22*	-	-	-	-	-	-	-
10.	F-ProbSol	.07	.05	-.11	-.08	-.04	.01	-.14	-.12	-.08	-	-	-	-	-	-
11.	F-Comm	.06	.30**	.40**	.27*	-.54**	-.27*	-.28**	-.25*	-.27*	-.12	-	-	-	-	-
12.	F-Roles	.27*	.39**	.50**	.23*	-.46**	-.26*	-.30**	-.24*	-.23*	-.08	.62**	-	-	-	-
13.	F-AffRes	.16	.34**	.26*	.35**	-.54**	-.25*	-.16	-.25*	-.19	-.10	.53**	.48**	-	-	-
14.	F-Aff Invo	.35**	.49**	.43**	.33**	-.11	.02	-.14	-.23*	-.09	.01	.28**	.50**	.40**	-	-
15.	F-BehContr	.24*	.19	.15	.13	-.32**	-.12	-.27*	-.22*	-.25*	-.04	.45**	.56**	.29**	.46**	-

Note. Somat = Somatization; Soc Stress = Social Stress;Rel Mom= Relationship with Mom; Rel Dad = Relationship with Dad; Rel Mpeers = Relationship with Male Peers; Rel Fpeers = Relationship with Female Peers; Rel Teach = Relationship with Teacher; F-ProbSol =Family Problem-Solving; F-Comm = Family Communication; F-Roles = Family Roles; F-AffRes = Family Affective Responsivness; F-Aff Invo = Family Affective Involvement; F-BehContr = Family Behavior Control.

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

Table 5

Regression Analysis Summary for Clinical Symptoms Predicting Somatization in Female Adolescent Offenders

Variable	B	SEB	β
Social Stress	.25	.14	.24
Anxiety	.20	.12	.19
Depression	.28	.10	.28*

Note. $R^2 = .38$ ($N = 110$, $p < .001$).

* $p < .01$.

Hypothesis 4 stated that the quality of relationships with mom, dad, female peers, male peers and teachers would account for a significant amount of the variance of somatization among female juvenile offenders. A multiple regression analysis, using the enter method, was conducted to evaluate the degree to which the quality of relationships with mom, dad, female peers, male peers and teachers predicted somatization among female juvenile offenders (see Table 6). The results of this analysis indicated that relationships with mom, dad, female peers, male peers and teachers combined did not account for a significant amount of the somatization variability, $R^2 = .09$, $F (5, 60) = 1.16$, $p = .34$, indicating that quality of relationships did not explain a significant amount of the variance in somatizing female juvenile offenders, when statistically controlling for all AIR variables.

Table 6

Regression Analysis Summary for Quality of Relationships Predicting Somatization in Female Adolescent Offenders

Variable	B	SEB	β
Relationship Mom	-.10	.11	-.12
Relationship Dad	.00	.10	.01
Relationship F. Peers	-.10	.10	-.15
Relationship M. Peers	-.03	.12	-.05
Relationship Teachers	-.10	.09	-.10

Note. $R^2 = .088$ ($N = 66$, $p > .05$).

Description of Family Functioning:

Means and standard deviations for the dependent and independent variables are displayed in Table 3. The mean scores for all measures of family functioning, as measured by the Family Assessment Device (FAD; Epstein et al, 1983), exceeded the FAD's normed means. This indicates that, for all family veriables, the female adolescent offenders perceived themselves as having more problems in family functioning that the norm group.

Hypothesis 5 stated that the family variables of roles, communication, affective responsiveness, affective involvement, and behavior control, would have individual positive relationships with somatization among female juvenile offenders. Pearson product-moment correlations were used to examine associations among family functioning and somatization among female juvenile offenders. The results are reported in Table 4.

Significant positive correlations were found between somatization and roles, affective responsivness and behavior control.

Hypothesis 6 stated that the family variables of roles, communication, affective responsiveness, affective involvement, and behavior control would account for a significant amount of the variance of somatization among female juvenile offenders. A multiple regression analysis, using the enter method, was conducted to evaluate how well family functioning predicted somatization among female juvenile offenders (see Table 7). The results of this analysis indicated that the family variables of roles, communication, affective responsiveness, affective involvement, and behavior control combined accounted for a significant amount of the somatization variability, $R^2 = .17$, $F\ (6, 84) = 2.82$, $p < .05$, indicating that female juvenile offenders who score high on the somatization scale also tended to have more problems in family functioning.

Hypothesis 7 stated that the clinical symptoms of anxiety, depression and social stress, the quality of relationships, and family variables would account for a significant amount of the variance of somatization among female juvenile offenders. A multiple regression analysis, using the enter method, was conducted to evaluate how well clinical symptoms, quality of relationships and family functioning predicted somatization among female juvenile offenders (see Table 8).

Table 7

Regression Analysis Summary for Family Variables Predicting Somatization in Female Juvenile Offenders

Variable	B	SEB	β
Problem Solving	3.42	2.70	.18
Communication	-7.33	4.12	-.29
Roles	3.30	3.85	.13
Affective Responsiveness	.69	3.07	.03
Affective Involvement	6.04	2.59	.31*
Behavior Control	2.84	3.34	.11

Note. $R^2 = .16$ ($N = 90$, $p < .05$).

- $p < .05$.

The results of this analysis indicated that the clinical symptoms of anxiety, depression and social stress, quality of relationships and family functioning combined accounted for a significant amount of the somatization variability, $R^2 = .47$, F (14, 44) = 2.84, $p < .01$, indicating that female juvenile offenders who score high on the somatization scale also tended to have more clinical symptoms and more problems in relationships and family functioning.

Table 8

Regression Analysis Summary for Clinical Symptoms, Quality of Relationships and Family Variables Predicting Somatization in Female Adolescent Offenders

Variable	B	SEB	β
Anxiety	-.116	.242	-.100
Depression	.377	.149	.428*
Social Stress	.359	.296	.296
Relationship Mom	-.150	.132	-.193
Relationship Dad	1.377E- 02	.097	.017
Relationship F. Peers	-3.464E –02	.102	-.048
Relationship M. Peers	-9.820E –02	.123	-.113
Problem Solving	-.392	3.25	-.022
Communication	-4.90	5.23	-.200
Roles	4.78	5.02	.183
Affective Responsiveness	-3.72	3.97	-.160
Affective Involvement	-.80	3.07	-.04
Behavior Control	-.31	4.63	-.011

Note. $R^2 = .47$ ($N = 58$, $p < .05$).

* $p < .05$.

Comparison of somatizing group with non-somatizing group:

Following the initial analyses, an additional research question was proposed to test the hypothesis that the profile of a group of female juvenile offenders classified as "somatizers" would differ significantly from the profile of a group of female juvenile offenders classified as "nonsomatizers". Subjects were classified as 'somatizers' or 'nonsomatizers' using the t-score cut-offs for clinical scales on the BASC (Reynolds & Kamphaus, 1992). Individuals attaining t-scores on the somatization scale, between 41-59 are considered in the average range. Scores below 41 are considered Low, scores between 60-69 are considered At-Risk, and scores higher than 70 are considered Clinically Significant. Twenty-four subjects from the initial data set had t-scores of 60 or higher on the Somatization scale and twelve subjects had t-scores of 41 or below. To obtain equivalent sample sizes, twelve subjects were then randomly selected from the group of subjects scoring in the 41-45 range. Thus, approximately 30% of the initial population were classified as 'somatizers' and 30% were classified as 'nonsomatizers'.

Description of Clinical Symptoms:

To obtain a more compete clinical profile of a somatizing group compared to a nonsomatizing group, additional BASC scales were included in the statistical analyses. Means and standard deviations are displayed in Table 9 and Table 10. A one-way MANOVA was conducted to determine whether differences existed between a group of somatizing female juvenile offenders and a group of nonsomatizing female juvenile offenders on clinical symptomology and adaptive functioning. Significant differences were found between the two groups on clinical symptomology

Table 9

Means and Standard Deviations for Somatizers and Nonsomatizers On Clinical Scales

Measure	Somatizers		Nonsomatizers	
	M	SD	M	SD
Social Stress	56.26	9.73	46.75	8.11
Anxiety	54.09	7.76	46.67	10.94
Depression	60.48	12.84	47.13	9.30
Atypicality	59.09	11.97	45.08	6.88
Sensation Seeking	56.91	12.55	48.17	9.42
Locus of Control	55.39	11.06	49.96	8.16
Inadequacy	57.39	9.44	47.38	10.17
Attitude to School	59.65	10.70	48.33	8.07
Attitude to Teachers	56.96	9.80	47.33	6.99

Table 10

Means and Standard Deviations for Somatizers and Nonsomatizers on Adaptive Scales

Measure	Somatizers		Nonsomatizers	
	M	SD	M	SD
Interpersonal Relations	44.52	12.53	54.21	5.31
Relations with Parents	37.65	14.08	46.42	15.04
Self-Esteem	45.13	10.92	55.29	8.06
Self-Reliance	44.61	13.84	52.58	10.64

and adaptive functioning, Wilks' $\Lambda = .42$, $F\ (13, 33) = 3.51$, $p < .01$, $\eta^2 = .58$. An ANOVA for each dependent variable was computed as a follow-up test to the MANOVA. The results of the ANOVAs (Table 11) showed that Depression in somatizing female offenders ($M = 60.48$, $SD = 12.84$), was statistically significant from Depression in nonsomatizing female offenders ($M = 47.13$, $SD = 9.30$), $F\ (1,46) = 16.83$, $p < .0001$, $\eta^2 = .27$; Atypicality in somatizing female offenders ($M = 59.09$, $SD = 11.97$), differed significantly to Atypicality in nonsomatizing female offenders ($M = 45.08$, $SD = 6.88$), $F\ (1, 46) = 25.35$, $p < .0001$, $\eta^2 = .36$;; Attitude to School by somatizing female offenders ($M = 59.65$, $SD = 10.70$), differed significantly to Attitude to School by nonsomatizing female offenders ($M = 48.33$, $SD = 8.07$), $F\ (1, 46) = 16.4$, $p < .0001$, $\eta^2 = .26$; and Attitude to Teachers by somatizing female offenders offenders ($M = 56.96$, $SD = 9.80$) differed significantly to Attitude to Teachers by nonsomatizing female offenders ($M = 47.33$, $SD = 6.99$),

F (1, 46) = 16.36, p < .0001, η^2 = .26. At the .001 level of significance, Social Stress in somatizing female offenders (M =56.29 , SD =9.52) differed significantly to Social Stress in nonsomatizing female offenders offenders (M =46.75 , SD =8.11), F (1,46) = 13.97, p < .001, η^2 = .23; Inadequacy in somatizing female offenders offenders (M =57.96 , SD =9.64) differed significantly to Inadequacy in nonsomatizing female offenders (M =47.38 , SD =10.17), F (1, 46) = 13.68, p < .001, η^2 = .23. At the .01 level of significance, Anxiety in somatizing female offenders offenders (M =53.96 , SD =7.62) differed significantly to Anxiety in nonsomatizing female offenders (M =46.67 , SD =10.94), F (1,46) = 7.18, p = .01, η^2 = .14; Sensation Seeking in somatizing female offenders (M =56.91 , SD =12.55) differed significantly to Sensation Seeking in nonsomatizing female offenders (M =48.17 , SD =9.42), F (1, 46) = 7.34, p < .01, η^2 = .14. The ANOVA was not significant for Locus of Control, F (1, 46) = 3.71, p = .06, η^2 = .08.

The results of the ANOVAs for the adaptive scales (Table 12) showed that Interpersonal relations of somatizing female offenders (M =43.96 , SD =12.56), was statistically significantly different to Interpersonal Relations of nonsomatizing female offenders (M =54.21, SD =5.31), Self-Esteem of somatizing female offenders (M =45.17, SD =10.68), differed significantly to Self-Esteem of nonsomatizing female offenders (M =55.29, SD =8.06), Relations with Parents for somatizing female offenders offenders (M =37.83, SD =13.80), were found to be significantly differed from Relations with Parents for nonsomatizing female offenders offenders (M =46.42, SD =15.04) and Self-Reliance of somatizing female offenders (M = 44.0, SD =13.86),was found differ significantly to Self-Reliance of nonsomatizing female offenders (M =52.58, SD =10.64).

Table 11

One-Way Analyses of Variance for Relationship between Somatizers and Nonsomatizers and scores on the BASC Clinical Scales

Source	SS	MS	F (1, 46)	η^2
Social Stress				
Between Groups	1092.52	1092.52	13.97***	.23
Within Groups	3597.46	78.21		
Anxiety				
Between Groups	638.02	638.02	7.18**	.14
Within Groups	4086.29	88.83		
Depression				
Between Groups	2067.19	2067.19	16.83****	.27
Within Groups	5649.13	122.81		
Atypicality				
Between Groups	2338.02	2338.02	25.35****	.36
Within Groups	4242.79	92.24		
Sensation Seeking				
Between Groups	898.46	898.46	7.34**	.14
Within Groups	5505.16	122.34		
Locus of Control				
Between Groups	341.33	341.33	3.71	.08
Within Groups	4229.92	91.96		
Inadequacy				
Between Groups	1344.08	1344.08	13.68***	.23
Within Groups	4518.58	98.23		
Attitude to School				
Between Groups	1452.0	1452.0	16.4****	.26
Within Groups	4072.67	88.54		
Attitude to Teachers				
Between Groups	1160.33	1160.33	16.36****	.26
Within Groups	3262.67	70.93		

Note. η^2 = effect size.

*$p < .05$. **$p < .01$. ***$p < .001$. **** $p < .0001$

Table 12.

One-Way Analyses of Variance for Relationship between Somatizers and Nonsomatizers and scores on the BASC Adaptive Scales

Source	SS	MS	F(1, 46)	η^2
Interpersonal Relations				
Between Groups	1260.75	1260.75	13.55***	.23
Within Groups	4278.92	93.02		
Relations with Parents				
Between Groups	884.08	884.08	4.25*	.08
Within Groups	9581.17	208.29		
Self-Esteem				
Between Groups	1230.19	1230.19	13.75***	.23
Within Groups	4116.29	89.49		
Self-Reliance				
Between Groups	884.08	884.08	5.79*	.11
Within Groups	7021.83	152.65		

Note. η^2 = effect size.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 13

Means and Standard Deviations for somatizers and nonsomatizers

For Quality of Relationships

Measure	Somatizers		Nonsomatizers	
	M	SD	M	SD
Relationship Mom	91.96	10.06	99.61	12.28
Relationship Dad	91.56	12.14	92.05	13.98
Relationship Female Peers	84.83	11.34	94.32	16.05
Relationship Male Peers	95.75	10.76	101.47	11.88
Relationship Teacher	93.44	15.55	101.53	12.02

Description of Quality of Relationships:

Means and standard deviations of the quality of relationships with mother, father, male peers, female peers and teachers, for somatizers and nonsomatizers are displayed in Table 13. Compared to the somatizing group, nonsomatizing female adolescent offenders, perceived themselves as having better relationships with mother, father, male peers, female peers and teachers.

A one-way MANOVA was conducted to determine whether differences existed between a group of somatizing female juvenile offenders and a group of nonsomatizing female juvenile offenders on quality of relationships. The MANOVA was not statistically significant, Wilks' $\Lambda = .77$, F (5, 29) = 1.73, $p > .05$, $\eta^2 = .23$, suggesting that between group differences do not exist for quality of relationships. To convey essential between-

Table 14.

One-Way Analyses of Variance for Relationship between Somatizers and Nonsomatizers and Quality of Relationships

Source	df	SS	MS	F	η^2
Mom					
Between Groups	1	687.39	687.39	5.48*	.11
Within Groups	45	5642.44	125.39		
Dad					
Between Groups	1	2.09	2.09	.01	.00
Within Groups	33	5728.89	173.60		
Female Peers					
Between Groups	1	1032.61	1032.61	5.43*	.11
Within Groups	44	8368.11	190.18		
Male Peers					
Between Groups	1	262.29	262.29	1.71	.04
Within Groups	44	6758.92	153.61		
Teachers					
Between Groups	1	230.42	230.42	1.07	.02
Within Groups	45	9695.50	215.46		

Note. η^2 = effect size.

*$p < .05$.

group differences and to screen for predictor variables in the discriminative analysis, one-way ANOVAs were conducted as follow-up tests to the MANOVA. As shown in Table 14, relationship with mom for somatizing female adolescent offenders (M =91.96, SD =10.06), was statistically significant from the relationship with mom for nonsomatizing female adolescent offenders (M =99.61, SD =12.28), F (1, 45) = 5.48, $p < .05$, $\eta^2 = .10$. Relationship with female peers for somatizing female adolescent offenders (M =84.83, SD =11.34), was also statistically significant from the relationship with female peers for nonsomatizing female adolescent offenders (M =94.32, SD =16.05), F (1, 44) = 5.43, p = <.05, $\eta^2 = .11$. No between group differences were found for relationship with dad, F (1,

33) = .01, p = .91, η^2 = .0, relationship with male peers, F (1, 44) = 1.71, p = .20, η^2 = .04, or relationship with teachers, F (1, 45) = 1.07, p = .31, η^2 = .02. In light of the family-wise error rate, the Bonferroni method was used to test each ANOVA at the .01 level. These findings show that, at the .01 level of significance, between-group differences did not exist for the predictors, relationships with mom, dad, female peers, male peers and teachers.

Description of Family Functioning:

Means and standard deviations of family functioning variables; problem solving, communication, roles, affective responsiveness, affective involvement and behavior control, for somatizers and nonsomatizers are shown in Table 15. A one-way MANOVA was conducted to determine whether differences existed between a group of somatizing female juvenile offenders and a group of nonsomatizing female juvenile offenders on family functioning. The MANOVA was not significant, Wilks' Λ= .87, F (6, 41) = 1.006, p > .05, η^2 = .128, suggesting that between group differences do not exist for family functioning. To convey essential between- group differences and to screen for predictor variables in the discriminative analysis, one-way ANOVAs were conducted as follow-up tests to the MANOVA (see Table 16). The ANOVAs were not statistically significant for problem-solving, F (1,46) = .096, p = .76, η^2 = .002, communication, F (1, 46) = .073, p = .79, η^2 = .002, roles, F (1, 46) = 1.25, p = .27, η^2 = .03, affective responsiveness, F (1, 46) = 3.63, p = .06, η^2 = .07, affective involvement, F (1, 46) = 1.68, p = .20, η^2 = .04, or behavior control, F (1, 46) = .22, p = .64, η^2 = .01. These findings show that there were not significant differences between groups for the predictors of family functioning, roles, communication, affective responsiveness, affective involvement, and behavior control.

Table 15

Means and Standard Deviations for somatizers and nonsomatizers for Family Functioning

Measure	Somatizers		Nonsomatizers	
	M	SD	M	SD
Family Problem Solving	2.32	.66	2.27	.59
Family Communication	2.22	.32	2.25	.43
Family Roles	2.36	.37	2.24	.40
Family Affective Respon	2.38	.33	2.15	.47
Family Affective Involv	2.51	.46	2.31	.58
Family Behavior Control	2.04	.40	1.99	.38

Table 16

One-Way Analyses of Variance for Relationship between the somatizers and nonsomsatizers and Family Functioning

Source	SS	MS	F (1, 46)	η^2
Problem Solving				
Between Groups	3.80E-02	3.80E-02	.096	.002
Within Groups	18.17	.395		
Communication				
Between Groups	1.05E –02	1.05E –02	.073	.002
Within Groups	6.65	.144		
Roles				
Between Groups	.189	.189	1.250	.026
Within Groups	6.95	.151		
Affective Responsiveness				
Between Groups	.596	.596	3.63	.073
Within Groups	7.55	.164		
Affective Involvement				
Between Groups	.456	.456	1.68	.035
Within Groups	12.50	.272		
Behavior Control				
Between Groups	3.307E –02	3.307E-02	.219	.005
Within Groups	6.93	.151		

Note. η^2 = effect size.

Discriminative Analysis

A discriminative analysis was conducted to identify differences among somatizing and nonsomatizing female adolescent offenders on measures of clinical symptoms, adaptive functioning and quality of relationships. The objective was to provide a statistical evaluation of the differences that are most pertinent to differentiating a group of somatizing female adolescent offenders from a group of nonsomatizing female offenders. Discriminative analysis determines differences between the groups by controlling for multiple variables (Betz, 1987). Scales were selected as predictor variables in the discriminative function analysis based on their p-values at the .05 level for the ANOVA. Fourteen predictor variables were included in the analysis (Table 17) The overall Wilks' lambda was significant, $\Lambda = .40$, η^2 (14) = 32.83, $p < .01$, indicating that overall the predictors differentiated among the two groups. The within-groups correlations between the predictors and the discriminative functions as well as the standardized weights are presented in Table 17. Based upon these coefficients, atypicality, attitude to school attitude to teachers, depression, social stress, and inadequacy demonstrate the strongest relationship with the discriminative function, while the adaptive scales of self-esteem and interpersonal relations show a negative relationship. On the other hand, the adaptive scales of self-reliance and relations with parents, in addition to the clinical scales of sensation seeking, anxiety and relationships with mothers and relationships with female peers, show a weaker relationship with this function.

Classification analysis, also referred to as predictive discriminative analysis, was used to determine whether or not the somatizing and nonsomatizing groups could be classified as a function of the selected predictors at a rate greater than that expected by chance. It was found that 91.3 % of the cases were correctly classified in terms of

somatizing or nonsomatizing female juvenile offenders as a function of the selected predictor variables (Table 17). Four standard normal statistics (Huberty, 1994) were also computed to answer the question of whether or not the observed classification accuracy was better than what may be expected by chance for each group and the entire sample. These statistics are calculated using estimated prior probabilities, group participant sizes, and observed frequencies. The prior probability of the somatizing group was .51, and the percentage of somatizing female juvenile offenders correctly classified was 91.3 %, z = 3.86, $p < .001$. For the nonsomatizing group, the prior probability was .489, while the percentage of nonsomatizing female juvenile offenders correctly classified was 90.9%, z = 3.94, $p < .001$. For the entire sample, holding .75 as the prior probability, 91.1% of the females were correctly classified, $z = 2.49$, $p < .01$. These findings suggest that the obtained classification results greatly exceed chance probability.

Table 17

Correlation of Somatization Predictor Variables with Discriminative Functions and Standardized Discriminant Function Coefficients

Predictor Variable	Correlation with Discriminative functions Function 1	Standardized discriminant function coefficients Function1
BASC- Atypicality	.574	1.038
BASC- Attitude to School	.485	.302
BASC- Attitude to Teachers	.484	.657
BASC- Depression	.482	.372
BASC- Self Esteem	-.425	-.020
BASC- Interpersonal Relations	-.413	-.337
BASC- Social Stress	.409	-.677
BASC- Inadequacy	.406	-.284
BASC- Self Reliance	-.310	.479
BASC- Sensation Seeking	.298	-.280
BASC- Anxiety	.291	.434
AIR-Relations Female Peers	-.273	-.394
AIR- Relations Mom	-.251	-.291
BASC Relations with Parents	-.220	.316

Note. BASC = Behavior Assessment System for Children; AIR = Assessment of Interpersonal Relations

CHAPTER 5

DISCUSSION

Summary of Study

Females represent a rapidly growing proportion of the offending population in the juvenile justice system (OJJDP, 1999). However, there is a paucity of information regarding female adolescent offending. Current models of adolescent offending behavior, based predominately on male offending patterns, are inadequate for the understanding of female adolescent offending. Female adolescents are considered to differ from their male peers in terms of the issues experienced during adolescence (Gilligan et al., 1988), their responses to stress and how emotional and behavioral problems are manifested (Leadbetter et al., 1995). Consequently female adolescents are thought to enter the juvenile justice system via different pathways than male adolescent offenders (Bowers, 1990) and require gender-specific approaches to the conceptualization of offending behavior and the formulation of treatment interventions.

Healthy female adolescent development is dependent on relationships and connections to others (Miller & Stiver, 1998). Disconnection or the abuse of significant relationships in her life, or rather 'relational abuse', may prove stressful for the adolescent female, precipitating an array of emotional and behavioral consequences. Somatization may be a non-threatening way for the female adolescent offender to 'voice' (Gilligan, 1989) her distress regarding this 'relational abuse' and may be a strong

indicator that a number of clinical issues are present that should be addressed in treatment interventions.

Purpose of Study

The purpose of this study was to better understand the social and family realms of somatizing female adolescent offenders and to identify predictors for somatization in this population. Behavioral problems are often considered the more immediate and urgent problems to address in treatment with female adolescent offenders. The result is that internalizing problems, such as anxiety and depression, are often neglected in treatment interventions and in the overall conceptualization of the psychological functioning of offending adolescent females. Somatization is considered to be one way for children and adolescents to communicate stress and distress in their lives when verbal means have proven fruitless. Furthermore, somatizing children and adolescents are considered to be a particularly "at risk" group for psychopathology and functional impairment later in life (Campo et al, 1999). It is hoped that the results of this study will help clinicians and other professionals working with somatizing female adolescent offenders, in the identification of psychological problems and target areas for treatment and intervention. Further, it is hoped that these results may extend to the identification of internalizing problems for any professional working with adolescent females in other contexts, such as teachers, social workers and church and youth group leaders.

Research Hypotheses & Conclusions

Research questions 1 and 2 - Clinical Symptomology:

Research questions 1 & 2 evaluated the relationship between the clinical symptoms of anxiety, depression and social stress and somatization among female

juvenile offenders. The hypothesis was that somatization would be related to anxiety, depression and social stress. Somatizing children and adolescents are at risk for both emotional and behavioral disturbances (Campo et al, 1999), however internalizing problems have been shown to be particularly common in youth who have unexplained physical symptoms. For example, of those children and adolescents who presented with somatic complaints at a mental health facility, anxiety and depression were reported at higher rates than problems with externalizing behaviors (Masi et al, 2000). Particularly for females, a strong relationship has been found between somatizing behaviors and emotional problems, such as anxiety and depression (Hodges et al, 1985).

Prior research therefore suggests that somatic complaints may be indicative of an unidentified anxiety or depressive disorder (Masi et al, 2000). In the current study, significant correlations were found between somatization and anxiety, depression and social stress. Furthermore, all three clinical symptoms were found to explain a significant amount of the variance in somatization among female juvenile offenders. The results of the current study support the findings of previous research which points to the strong relationship between somatization and anxiety and depression (e.g., Masi et al, 2000; Hodges et al, 1985; Campo & Fritsch, 1994; Poikolainen et al, 1995). These findings point to the importance for conducting a thorough psychological assessment of an adolescent who is presenting with unexplained physical complaints. The goal of such an assessment would be to rule out the presence of an internalizing disorder, such as anxiety or depression, which, following diagnosis, could be subsequently treated.

The relationship between somatization and social stress has been less well studied in the past, however the results from some studies suggest that somatization may result

from stressful interpersonal relationships (Abbey, 2001; Colten et al, 1991). Both dysfunctional family (Faull & Nicol, 1986; Wasserman et al, 1988) and peer relationships (Walker, Garber & Greene, 1994) are more common in somatizing children and adolescents than in youth who do not somatize. The findings of this study indicate that the experience of stress in social situations is related to somatization in a group of female adolescent offenders. Female adolescents offenders may be at increased risk for social stress over a non-offender population. Both somatization in adolescents, and adolescent offending populations have been associated with childhood abuse and maltreatment (Calhoun et al, 1993; Livingston et al, 1988). It is probable that personal violations of this nature are experienced by the adolescent as violations of interpersonal relationships and cause considerable stress to the adolescent female. Females involved in the juvenile justice system also typically experience instability in their personal relationships, such as friends and extended family members living in their homes for short periods of time, frequent fights with female peers and intimate relationships with men far older than themselves in which there is an often an inbalance of power.

Research questions 3 and 4 - Quality of Relationships:

Research questions 3 and 4 evaluated the relationship between quality of relationships with mom, dad, female peers, male peers and teachers and somatization among female adolescent offenders. This question sought to address the influence of quality of relationships on the presence of somatic complaints in female adolescent offenders. It was hypothesized that poor relationships would predict the presence of somatic complaints. Significant correlations with somatization were found only for male peers and for female peers. However, quality of relationships overall did not explain a

significant amount of the variance in somatization among female juvenile offenders. This finding was surprising given the recent research on the importance of relationships to the psychological well-being of female adolescents (Gilligan, 1982; Miller & Stiver, 1998). One explanation of female offending is that females place considerable importance on social relationships and when disruptions occur in these relationships, the resulting negative consequences place the female at risk for offending behaviors (Funk, 1999). Previous research findings have found somatization to be inversely related to perceived satisfaction with relationships with mother and father (von Wright & von Wright, 1981)

One explanation of the findings from the present study is that this group of females may be unlikely to disclose poor relationships with significant others. Quality of relationships may therefore not be a useful predictor for somatization in female adolescent offenders. Adolescent females typically protect important relationships (Gilligan, 1982; Steffensmeier & Allan, 1996) and may be unwilling to disclose, for example, that they do not have a good relationship with their mother or father. Furthermore, somatization is thought to be a communication of stress when conventional means of communication are unacceptable or pose too much of a risk (Kleinman, 1986). It is possible that even though stress may be experienced as a result of unsatisfactory relationships, the communication of this stress via a written self-report format does not sufficiently lessen the risk posed by verbal communication. Alternatively, perhaps, following years of 'relational abuse' the somatizing female adolescent offender is unable to recognize or judge the quality of her relationship with parents or peers but is able to experience stressful relationships and to communicate this stress via somatic complaints. For example, during group counseling work with female adolescent offenders, one

somatizing female explained during a group session that she had a "wonderful relationship with her boyfriend but often becomes worried and anxious about his controlling and obsessive tendencies." In support of this argument, childhood abuse has previously been associated with the development of somatization (Walling & Reiter, 1995). However children and adolescents who have been abused often protect the perpetuator by denying the abuse or dissociating the actions of the abuser from their relationship with that person. Another girl disclosed during a group counseling session that her father, during a violent episode when he was intoxicated, had hurled objects at her, imbedding splinters of glass over her entire body. The following session she said that she was excited about moving in with her father because "he's really cool, we get along so well".

Research questions 5 and 6 - Family Functioning:

Research questions 5 and 6 evaluated the relationship between the family variables of roles, communication, affective responsiveness, affective involvement, and behavior control and somatization among female juvenile offenders. There were significant correlations between somatization and roles, affective responsiveness and behavior control. Family variables were also found to explain a significant amount of the variance in somatization among female juvenile offenders.

The finding in the current study that somatization was related to family functioning has been well-documented in previous literature. Poor family functioning has been associated with the reporting of somatic complaints in children and adolescents (e.g., Faull & Nicol, 1986; Wasserman et al, 1988; McLaughlin & Greene, 1988). For example, if the family deals poorly with communication, emotionality and the regulation

of it's activities (Garralda, 1996), has low cohesion, support and adaptibilty (Faull & Nicol, 1986) and has family disorganization (Garralda, 1996), somatic complaints are more likely to be exhibited in the children and adolescents. Furthermore, as a developmental group, adolescents are more likely to present with somatic complaints if they perceive their families as being disorganized and less cohesive (Terre & Ghiselli, 1997).

The majority of the female adolescent offenders who participated in the current study came from families who have limited resources and multiple competing demands. Many of these girls are also seen in a therapeutic context, in which they relate stories of the day-to-day struggles of their families, such as caring for a number of children in small house or making sure the children in the house are fed while also taking care of his/her mother who is at the neighbor's house getting her weekly supply of crack. These girls live in family systems that are characterized by, not only the struggles of individual family members with their own psychological issues, but by problems in the family's ability to relate, coordinate efforts and function as a family unit. These problems, combined with the lack of skills and resources available to these families, create a context for an extremely stressful home environment. Perhaps, it is possible that when the family is perceived as functioning poorly and neither individual nor familial needs are being met in the home, a communication of distress and a 'cry for help' via a somatic complaint seems like the only option open to the adolescent female.

It is difficult to infer causality from these findings, however, and conclude that family variables caused somatization in this sample of female adolescent offenders. It is possible that the tendency to somatize may influence the perceptions and self-reports of

the individual. For example, if the female adolescent offender sees the world as hopeless through her stress or depression, this may color her perceptions of other aspects of her life, such as the way her family communicates or solves it's problems. Alternatively, a somatic child in the family may put a strain on family resources and limit the functioning capacity of the family.

Research Question 7:

Research question 7 evaluated the relationship between the clinical symptoms of anxiety, depression and social stress, the quality of relationships, and family variables, and somatization among female juvenile offenders. It was hypothesized that somatization would have a relationship to poorer quality relationships, poor family functioning and would be related to additional clinical symptoms of anxiety, depression and social stress. These predictors were found to explain a significant amount of the variance in somatization., suggesting that a combination of relational, family and individual psychological symptoms are useful in explaining somatization in female adolescent offenders.

A Profile of Somatizing Female Juvenile Offenders:

A further research question was proposed to examine the differences that were pertinent to differentiating a group of somatizing female adolescent offenders from a group of nonsomatizing female adolescent offenders. Somatizing female adolescent offenders were found to differ significantly from nonsomatizing female adolescent offenders in depression, social stress, atypicality, inadequacy, attitude to school and attitude to teacher and were also found to have significantly more problems with self-esteem and interpersonal relations. These results indicate that somatizing female

adolescent offenders are likely to be experiencing stress and problems related to their interpersonal relationships, have low self-esteem, believe that they are unsuccessful, are unable to meet expectations at school and have developed a poor attitude toward their teachers and school.

The school findings in the present study were interesting because they were not included in the original hypotheses. Attitude toward teacher and attitude toward school were not expected to significantly differentiate somatizers from nonsomatizers. The majority of female adolescents involved in the juvenile justice system experience difficulties in school. For example, truancy is typically a problem, serving to decrease their time in the classroom thus significantly affecting their chances of comprehending schoolwork and passing examinations. However it was interesting to find that, when compared to nonsomatizing female adolescent offenders, somatizing female adolescent offenders had significantly poorer attitudes toward both their teachers and the school environment. There have been few studies that have investigated educational outcomes for somatizing children and adolescents. However those studies that have investigated this area have shown a relationship between school problems and somatization. For example, educational stressors such as high expectations and poor progress have been related to somatic symptomology (Faull & Nicol, 1986), and Hurrelmann, Engel, Holler, and Nordlohne (1988) found that a group of German children failing school had significantly more somatic symptoms that children who were not failing school.

Again, it is not possible to infer a cause and effect relationship from these findings. While it is possible that negative relationships with teachers and negative experiences in the school environment have produced a somatic response in these girls, it

is also possible that having unexplainable physical symptoms makes it difficult to concentrate on schoolwork and makes it difficult to form relationships with peers. Somatizers may also be likely to be labelled as a "complainer" with teachers, making it difficult for the teacher to form a strong relationship with the student, thus contributing to a negative school experience for the somatizing female adolescent. Regardless of the direction of this relationship, however, it is clear that somatization in female adolescent offenders is strongly associated with negative perceptions of teachers and the school context in general. In terms of clinical implications we can assume that these are symptoms of distress, "declines in academic achievement, frequent short absences from school, multiple somatic complaints, and social withdrawal may be early internalizing expressions of distress" (Leadbetter, Blatt & Quinlan, 1995).

An interesting finding was that anxiety only weakly differentiated a group of somatizing from a group of nonsomatizing female adolescent offenders, despite prior research that has pointed to the strong relationship between anxiety and somatization (e.g., Hodges et al, 1985; Campo & Fritsch, 1994). Nor did the groups differ on locus of control. Both these findings suggest that generalized fears and worries and a perceived lack of control over the events that affect their lives, do not help to differentiate somatizing female juvenile offenders from nonsomatizing female adolescent offenders.

Surprisingly, the measures of family functioning or quality of relationships were not variables that differentiated the groups. Based on the assumptions of relational/cultural theory, that relationships are important for the adolescent female and that disconnection from significant relationships can precipitate emotional problems (Funk, 1999), it was predicted that a group of somatizing female adolescent offenders

would have poorer relationships and more problems in family functioning. It is possible that somatic complaints are not an indication of poor relationships at all, but are perhaps, one response to stress, where other offending females may choose an alternative means to express their distress, such as self-harm or violence against others. Alternatively, somatization may be a learned response. It is possible that observing somatizing family members or friends may precipitate a somatic response in others. It is also possible that to have unexplained physical symptoms gathers more attention from family and friends than not having these problems, and that the somatic response is one way for the female adolescent to have others attend to her needs.

Interestingly, the more global measures of relational problems, such as the social stress and interpersonal problems scales on the BASC-SRP (Reynolds & Kamphaus, 1992) significantly differentated between somatizing and nonsomatizing groups. It is possible that somatizing female adolescent offenders experience problems throughout all of their relationships. This would mean that differentiating relationships measuring the quality of specific relationships through the AIR (Bracken, 1993) for this group of females, was not meaningful because social stress produced by poor relationships was pervasive rather than identifiable to particular relationships. This would explain why the more general relational measures, such as social stress and interpersonal problems on the BASC (Reynolds & Kamphaus, 1992), were highly significant in differentiating somatizing from nonsomatizing female adolescent offenders. It is also possible that, if all female adolescent offenders experience difficulty with relationships, it is not quality of relationships that is a predictor of somatization, but the specific events or different stressors that are experienced as difficulties, or even different interpretation of events

within these relationships, that may predict somatization. It is possible that variables related to interpersonal functioning that have not been measured in the present study, could help explain the association between relational problems and somatization in this population. For example, perhaps females who somatize experience different problems in their relationships than females who do not somatize. At this time, the results from this study do not support relational/cultural theory as an explanation of the link between somatization and quality of relationships in this population of offending female adolescents. However, future research that includes different relational variables may establish such a relationship.

Implications

Female adolescent offenders indicated they had more clinical symptoms, more problems with their relationships with parents and female peers, and more problems in family functioning than the norm groups. What clearly emerged from the results of this study is that somatizing female adolescent offenders are confronted with an array of clinically relevant individual and interpersonal issues, which deserve attention within treatment contexts. It was not difficult to obtain sufficient numbers of somatizing participants for this study which suggests that professionals who work with this population can be expected to encounter female adolescent offenders who will present with somatic complaints. Based on prior research, and the findings of the present study, there is strong evidence to indicate that somatic complaints in this population are symptomatic of underlying distress and manifested through the clinical symptoms of anxiety and depression.

Often standardized testing instruments that can assess for the presence of clinical symptoms and assess functioning in other domains, such as relational problems, are inaccessible to clinicians or other professionals. Somatization is a behavioral manifestation of internalized distress, is usually observable, with physical symptoms that are relatively easy to identify. Becoming knowledgeable in how somatizing behavior presents in adolescent female offenders, and other young people, may be one way for professionals to identify early the presence of emotional problems in young people. This should help identify problems, target treatment appropriately, and prevent misdiagnosis or inappropriate treatment. It is also possible that the early identification of emotional problems may help prevent the development of behavioral problems in these youth.

Based upon the findings of the present study and previous research, it is reasonable to assume that somatizing female adolescent offenders are probably dealing with clinically significant problems, such as such as depression, atypical thought processes and feeling inadequate, as well as having interpersonal problems, and having a negative outlook on their school experience. Treatment should therefore attend to both individual and interpersonal issues. For example, it may be important to address the individual's significant relationships and interactions with others and how these relationships influence her thoughts, feelings and perception of self. Therapeutic work with somatizing female adolescents should focus on the idea that the somatic symptoms may be forms of communication "their symptoms are a form of language that needs to be respected for the physical pain it describes and understood for the metaphor of emotional pain it also represents" (Seaburn, 1995). The role of language is therefore highlighted in the treatment of somatizing adolescents. For example, these young people should be

encouraged to talk about their physical symptoms (McDaniel et al, 1990), respect that they may not have words to express their emotional pain, listen for the metaphoric communication in how their symptoms present, introduce new forms of language gradually and include others in the conversation (Seaburn, 1995), such as family, probation officers, teachers and peers.

Limitations

Although many of the results were significant, the research design and method of inquiry included limitations with regard to internal validity. It is possible that the physical complaints expressed by the female adolescents in this study had an organic basis. Campo and Fritsch (1994) suggest that many symptoms indicating somatization can be present can also be present in individuals with a physical illness. Furthermore, there have been many reports of patients who have been diagnosed with a somatizing disorder only to be found on follow-up that many had physical disease (Caplan, 1970). Thus, it is important to consider the possibility that a physical illness may have been present for some of the somatizing female adolescent offenders. Screening for a physical illness, via a medical assessment, prior to classifying these females as "somatizers" which would have strengthened this study.

Another limitation to this study relied on the self-reports of the female adolescents who participated in the study. Self-reports provide an important view of an individual's perception of their functioning, the quality of their relationships and family functioning. However additional information that may have corroborated reports of somatization, such as medical records, visits to school nurse, in addition to parental and teacher perceptions

or the individual's relationships and psychological functioning, would have strengthened this study.

Finally, the female adolescent offenders who participated in this study were predominately African American. Comparisons of risk factors for somatization between racial/ethnic groups and inferences regarding cross-cultural differences were unable to be made. The results of this study may limit the generalizability of the current findings to other racial and ethnic groups.

Future Research

Longitudinal research which investigates the course of physical symptoms and their relationship to stress encountered through interpersonal problems could help the early identification of at-risk children and adolescents. For example, it would be important to determine whether a relationship exists between the onset of somatic complaints and development of offending behaviors and the females' introduction into the juvenile justice system. If such a relationship is established this information could be used by professionals to identify those females at risk for internalizing problems and to offset the development of future emotional and behavioral problems. From this research the following questions may be important: Are there developmental differences in the risk factors faced by somatizing children and adolescents? Is there a history of somatizing behavior in female adolescents who are currently involved with the juvenile justice system? For those children or adolescents who are identified early as 'somatizers' does this lessen their risk of risk of developing serious emotional and behavioral disturbances?

Future research should investigate the importance of educating professionals, such as teachers and probation officers, about somatization in children and adolescents and

how this knowledge can benefit the early detection of emotional and behavioral problems. The following questions may be important: What do teachers/probation officers know about somatization in children and adolescents and can they identify individuals who somatize? What are the benefits of improving the ability to professionals to identify somatizing behavior in children and adolescents in terms of preventing the development of severe emotional and behavioral disturbances, referrals for psychological interventions, cost savings for schools, juvenile justice systems and primary care facilities?

The current study suggests that for adolescent female offenders, there is a relationship between somatization and multiple clinically relevant issues. If the somatic response is a form of communicating distress, how do we help these girls move to finding verbal ways to communicate distress? In other words how can clinicians and other professionals empower these girls to find their "voices" (Gilligan, 1982) in the expression of emotional distress?

Very little research has been undertaken on the influence of sociocultural factors, such as culture, race and ethnicity, on somatization in children and adolescents (Campo & Garber, 1998). Conflicting results have emerged, from their being no difference in the number of somatic symptoms between ethnic groups (Canino et al, 1999) to a relationship being shown between somatization and being a member of a minority group (Campo et al, 1999). Disconnection from parental figures and from one's racial/ethnic group is thought to minimize the opportunity for African American female adolescents to develop a strong racial identity. According to Stevens (1997), those females who have been unable to develop a strong racial identity would be at risk for antisocial and

delinquent behaviors. Future research could address the relationship between disconnection from both the racial/ethnic group and significant relationships, racial identity and the development of somatization.

Establishing a broader context for the adolescent female presenting with somatic complaints is crucial. For example, it is necessary to understand more about the coping strategies of somatizing adolescents and how these differ to the coping strategies of adolescents who do not respond to stress with somatic complaints. Further, how does the history, social support, parental illness behaviors, and individual and social resources differ for somatizing adolescents and nonsomatizing adolescents? Future research should also address more specifically the connection between somatization and the school environment. How is stress manifested in schools to produce a somatic response in adolescent females?

Counseling psychologists attend to developmental issues and argue for a preventative approach to intervention (Fretz & Simon, 1992). Counseling psychologists are having an increasingly professional role in diverse working contexts, where they are often able to work collaboratively with various professionals and approach problem-solving from multiple perspectives. Further research should examine both the current status and future possibilities for counseling psychologists in this area. Research should investigate the benefits of counseling psychologists working collaboratively, with school and medical personnel, in the education and early identification of emotional and behavioral problems in children and adolescents by understanding better their connection with somatization.

REFERENCES

Abbey, S.E. (2001). Somatization and somatoform disorders. In J.R. Rundell & M.G. Wise, (Eds.), American Psychiatric Press Textbook of Consultation- Liaison Psychiatry (2nd ed.). American Psychiatric Press.

Abelkop, A.S. (1998). Somatization in Children and Adolescents: A Comparison of Predictive Models. Unpublished Masters Thesis: University of Georgia.

Achenbach, T.M., Conners, C.K., Quay, H.C., Verhulst, F.C.,Howell, C.T. (1989). Replication of empirically derived syndromes as a basis for taxonomy of child/adolescent psychopathology. Journal of Abnormal Child Psychology, 17, 299-323.

Acoca, L. (1998). Outside/Inside: The Violation of American Girls at Home, on the Streets, and in the Juvenile Justice System. Crime and Delinquency, 44(4), 561-589.

American Psychiatric Association (1980). The diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

American Psychiatric Association (1994). The diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Apley, J. (1975). The child with abdominal pain. Oxford: Blackwell.

Aro, H., Hanninen, V., & Paronen, O. (1989). Social support, life events and psychosomatic symptoms among 14-16 year old adolescents. Social Science Medicine, 29, 1051-1056.

Bartolomucci, C., Calhoun, G., & McLean, B. (in press). The influence of peer relations in the psychological health of female juvenile offenders.

Belknap, J., Holsinger, K., & Dunn, M. (1997). "Understanding Incarcerated Girls: The Results of a Focus Group Study." The Prison Journal, 77(4), 381-404.

Bernstein, G.A., Massie, E.D., Thuras, P.D., Perwien, A.R., Borchardt, C.M., & Crosby, R.D. (1997). Somatic symptoms in anxious-depressed school refusers. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 661-68.

Betz, N.E. (1987). Use of discriminative analysis in counseling psychology research. Journal of Counseling Psychology, 34, 393-403.

Bohman, M., Cloninger, C.R., von Knorring, A.L., & Sigvardsson, S. (1984). An adoption study of somatoform disorders: III. Cross-fostering analysis and genetic relationship to alcoholism and criminality. Archives of General Psychiatry, 41, 872-878.

Bowers, B. (1990). Traumas precipitating female delinquency: Implications for assessment, practice and policy. Child and Adolescent Social Work, 7 (5).

Bracken, B.A. (1993). Assessment of Interpersonal Relations: Examiners Manual. PRO-ED. Austin:Texas.

Briquet, P. (1859). Traite clinique et therapeutique a l'hysterie. Paris: J.B. Bailliere et fils.

Calhoun, G., Jurgens, J., & Chen, F. (1993). The neophyte female delinquent: A review of the literature. Adolescence 28 (110), 461-471.

Campo, J.V., & Fritsch, S.L. (1994). Somatization in children and adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 33, 1223-1235.

Campo, J.V., & Garber, J. (1998). Somatization. In. R. Ammerman & J. Campo (Eds.), Handbook of pediatric psychology and psychiatry. Needham Heights, MA :Allyn & Bacon.

Campo, J.V., Jansen-McWilliams, L., Comer, D.M., & Kelleher, K.J. (1999). Somatization in pediatric primary care: Association with psychopathology, functional impairment, and use of services. Journal of the American Academy of Child and Adolescent Psychiatry, 38(9), 1093-101.

Canino, G., Ramirez, R., de Los A. Balzac, M., Frye, A., & Matos, B. (1999). Somatic symptoms in children from three ethnic groups. In. Y. Ono., A. Janca., Asai, M., & Sartorius, N. (Eds.), Somatoform Disorders: A Worldwide Perspective. Tokyo: Springer-Verlag.

Caplan, H.L. (1970). Hysterical "conversion" symptoms in childhood. Thesis, University of London.

Caplan, P., & Hall-McCorquodale, I. (1985). Mother-blaming in major clinical journals. American Journal of Orthopsychiatry, 55, 345-353.

Chandy, J., Blum, R., & Resnick, M. (1996). Gender-specific outcomes for sexually abused adolescents. Child Abuse and Neglect, 20, 1219-1231.

Chesney-Lind, M. (1989). Girls' crime and woman's place: Toward a feminist model of female delinquency. Crime and Delinquency, 35(1), 5-29.

Cloniger, C.R., Sigvardsson, S., & von Knorring, A., (1984). An adoption study of somatoform disorders: II. Identification of two discrete somatoform disorders. Archives of General Psychiatry, 41, 863-871.

Colten, M.E., Gore, S., & Aseltine, R.H. (1991). The patterning of distress and disorder in a community sample of high school aged youth. In M. Colten & S. Gore (Eds.), Adolescent stress: Causes and consequences. New York: Aldine De Gruyter.

Compas, B. (1987). Stress and life events during childhood and adolescence. Clinical Psychology Review, 7, 275-302.

Davies, P.T., & Windle, M. (1997). Gender-specific pathways between maternal depressive symptoms, family discord, and adolescent adjustment. Developmental Psychology, 33(4), 657-668.

Debold, E., Mikel Brown, L., Weseen, S., & Kearse Brookins, G. (1999). Cultivating hardiness zones for adolescent girls: A reconceptualization of resilience in relationships with caring adults. In N.G. Johnson, M.C. Roberts & J. Worell (Eds.), Beyond appearance: A new look at adolescent girls. Washington, DC: American Psychological Association.

Egger, H.L., Costello, E.J., Erkanli, A., & Angold, A. (1999). Somatic complaints and psychopathology in children and adolescents: stomach aches, musculoskeletal pains, and headaches. Journal of the American Academy of Child and Adolescent Psychiatry, 38(7), 852-860.

Epstein, N.B., Baldwin, L.M., & Bishop, D.S. (1983). The McMaster Family Assessment Device. Journal of Marital and Family Therapy, 9(2), 171-180.

Farnsworth, M. (1984). Family structure, family attributes, and delinquency in a sample of low-income, minority males and females. Journal of Youth and Adolescence, 13, 349-363.

Faull, C., & Nicol, A.R. (1986). Abdominal pain in six-year-olds: an epidemiological study in a new town. Journal of Child Psychology & Psychiatry, 27, 251-260.

Fretz, B., & Simon, N. (1992). Professional issues in counseling psychology: Continuity, change, and challenge. In S. Brown & R. Lent (Eds.), Handbook of Counseling Psychology. John Wiley & Sons.

Funk, S. (1999). Risk assessment for juveniles on probation: A focus on gender. Criminal Justice and Behavior, 26(1), 44-68.

Garber, J., Walker, L.S., & Zeman, J. (1991). Somatization symptoms in a community sample of children and adolescents: Further validation of the children's somatization inventory. Psychological Assessment, A Journal of Consulting and Clinical Psychology, 3, 588-595.

Garber, J., Zeman, J., & Walker, L.S. (1990). Recurrent abdominal pain in children: Psychiatric diagnoses and parental psychopathology. Journal of the American Academy of Child and Adolescent Psychiatry, 29, 648-656.

Garralda, M.E. (1996). Somatization in children. Journal of Child Psychology and Psychiatry, 47, 13-33.

Garralda, M.E., Bowman, F.M., & Mandalia, S. (1999). Children with psychiatric disorders who are frequent attenders to primary care. European Child and Adolescent Psychiatry, 8(1), 34-44.

Gilbert, L.A. (1992). Gender and counseling psychology: Current knowledge and directions for research and social action. In S. Brown & R. Lent (Eds.), Handbook of Counseling Psychology. John Wiley & Sons.

Gilligan, C. (1982). In a different voice: Psychological theory and women's development. Cambridge: Harvard University Press.

Gilligan, C. (1991). Women's psychological development: Implications for psychotherapy. In. C. Gilligan, A. Rogers, & D. Tolman (Eds.), Women, Girls & Psychotherapy: Reframing Resistance. New York:The Haworth Press.

Gilligan, C., Ward, J., & Taylor, J. (1988). Mapping the moral domain: A contribution of women's thinking to psychological theory and education. Cambridge, MA: Harvard University Press.

Goodwin, D., & Guze, S. (1996). Psychiatric diagnosis (5th ed.). New York: Oxford University Press.

Gore, S., Aseltine, R., & Colten, M. (1993). Gender, social-relational involvement, and depression. Journal of Research on Adolescence, 3, 101-125.

Griffith, J.L., & Griffith, M.E. (1994). The Body Speaks: Therapeutic dialogues for mind-body problems. New York:Basic Books.

Henggeler, S. (1989). Delinquency in adolescence. Newbury Park, CA: Sage.

Hodges, K., Kline, J., Barbero, G., & Woodruff, C. (1985). Anxiety in children with recurrent abdominal pain and their parents. Psychosomatics, 26(11), 859-866.

Huberty, C.J. (1994). Applied discriminative analysis. New York: Wiley.

Hurrelman, K., Engel, U., Holler, B., & Nordlohne, E. (1988). Failure in school, family conflicts, and psychosomatic disorders in adolescence. Journal of Adolescence, 11, 237-249.

Jenkins,Y.M. (2000). In L. Jackson & B. Greene, (Eds.), Psychotherapy with African American women: Innovations in psychodynamic perspective and practice. New York:The Guilford Press.

Kabacoff, R.I., Miller, I.W., Epstein, N.B., & Keitner, G.I. (1990). A Psychometric Study of the McMaster Family Assessment Device in Psychiatric, Medical, and Nonclinical Samples. Journal of Family Psychology, 3(4), 431-439.

Kirmayer, L.J. (1999). Rhetorics of the body: Medically unexplained symptoms in sociocultural perspective. In Y. Ono, A. Janca., Asai, M., & Sartorius, N. (Eds.), Somatoform Disorders: A Worldwide Perspective. Tokyo: Springer-Verlag.

Kirmayer, L.J, Robbins, J. (1991). Current concepts of Somatization: Research and Clinical Perspectives. Washington, DC: American Psychiatric Press, Inc.

Kleinman, A. (1986). Social origins of distress and disease. New Haven, CT, Yale University Press.

Larsson, B.S. (1991). Somatic complaints and their relationship to depressive symptoms in Swedish adolescents. Journal of Child Psychology and Psychiatry, 32(5), 821-832.

Leadbetter, B., Blatt, S., & Quinlan, D. (1995). Gender-linked vulnerabilities to depressive symptoms, stress, and problem behaviors in adolescents. Journal of Research on Adolescence, 5(1), 1-29.

Levene, M. (1990). Female adolescent development: Reflections upon relational growth. Melanie Klein & Object Relations, 8(1), 31-42.

Lewis, D.O., Yeager, C.A., Cobham-Portorreal, C.S., Klein, N., Showalter, C., & Anthony, A. (1991). A follow-up of female delinquents: Maternal contributions to the

perpetuation of deviance. Journal of American Academy of Child and Adolescent Psychiatry, 30(2), 197-201.

Liskow, B. (1988). Briquet's syndrome, somatization disorder and co-occurring psychiatric disorders. Psychiatric Annuals, 18, 350-352.

Livingston, R. (1993). Children of people with somatization disorder. Journal of the American Academy of Child and Adolescent Psychiatry, 32, 536-544.

Livingston, R., Taylor, J.L., & Crawford, S.L. (1988). A study of somatic complaints and psychiatric diagnosis in children. Journal of the American Academy of Child & Adolescent Psychiatry, 27, 185-187.

Lloyd, G.G. (1986). Psychiatry syndromes with a somatic presentation. Journal of Psychosomatic Research, 30, 113-120.

Marcus, R.F. (1996). The Friendships of Delinquents. Adolescence, 121, 145-158.

Masi, G., Favilla, L., Millepiedi, S., & Mucci, M. (2000). Somatic symptoms in children and adolescents referred for emotional and behavioral disorders. Psychiatry, 63(2), 140-159.

Mazerolle, P. (1998). Gender, general strain, and delinquency: An empirical examination. Justice Quarterly, 15, 65-91.

McClain, L. (1986). The middle-class black's burden. In C. Page (Ed.), A foot in each world (pp.12-14). Evanston, IL: Northwestern University Press.

McDaniel, S., Campbell, T., & Seaburn, D. (1990). Integrating the mind-body split: A biopsychological approach to somatic fixation. In Family-oriented primary care: A manual for medical providers (pp. 248-262). New York: Springer-Verlag.

McLean, B., Glaser, B., Calhoun, G., & Bartolomucci, C. (in press). Affective involvement as a mediator in the female juvenile offenders' relationship with mother.

Miller, I., Epstein, N., Bishop, D., & Keitner, G. (1985). The McMaster family assessment device: Reliability and validity. Journal of Marital and Family Therapy, 11, 345-356.

Miller, J.B., & Stiver, L. (1998). The healing connection. Boston: Beacon Press.

Minuchin, S., Baker, L., Rosman, B., Liebman, R., Milman, L., & Todd, T. (1975). A conceptual model of psychosomatic illness in children. Archives of General Psychiatry, 32, 1031-1038.

Miser, M. (1996). Specializations and clinical judgments of social workers in cases involving acting-out female adolescents. Family & Community Health, 19 (3), 1-13.

Morrison, J. (1989a). Childhood sexual histories of women with somatization disorder. American Journal of Psychiatry, 146, 239-241.

Morrison, J. (1989b). Childhood molestation reported by women with somatization disorder. Annuals of Clinical Psychiatry, 1, 25-32.

Office of Juvenile Justice and Delinquency Prevention (OJJDP). (1999). Juvenile Offenders and Victims: 1999 National Report. Washington, DC: Office of Justice Programs, U.S. Department of Justice.

Office of Juvenile Justice and Delinquency Prevention (OJJDP). (2000). OJJDP Fact Sheet: Female Delinquency Cases, 1997. Washington, DC: U.S. Department of Justice.

O'Hara Pepi, C.L. (1998). Children without childhoods: A feminist intervention strategy utilizing systems theory and restorative justice in treating female adolescent offenders. In. J. Harden & M. Hill (Eds.), Breaking the rules: Women in prison and feminist therapy. New York: The Haworth Press, p. 85-101.

Poikolainen, K., Kanerva, R., & Lonnquist, J. (1995). Life events and other risk factors for somatic symptoms in adolescence. Pediatrics, 96, 59-63.

Reynolds, C.R., & Kamphaus, R.W. (1992). The Behavior Assessment System for Children. Circle Pines, MN: American Guidance Service.

Routh, D.K., & Ernst, A.R. (1984). Somatization disorder in relatives of children and adolescents with functional abdominal pain. Journal of Pediatric Psychology, 9, 427-437.

Rueter, M., & Conger, R. (1995). Interaction style, problem-solving behavior, and family problem-solving effectiveness. Child Development, 66, 98-115.

Rutter, M. (1976). Helping troubled children. New York: Plenum.

Seaburn, D.B. (1995). Language, silence, and somatic fixation. In S. McDaniel (Ed.). Counseling families with chronic illness (The family psychology and counseling series). Alexandria,Virginia: American Counseling Association.

Snyder, H.K. (1997). "Juvenile Arrests 1996". Juvenile Justice Bulletin. Office of Juvenile Justice and Delinquency Prevention (OJJDP), November.

Steffensmeier, D., & Allan, E. (1996). Gender and crime: Toward a gendered theory of female offending. Annual Review of Sociology, 22, 459-487.

Stern, L. (1991). Disavowing the self in female adolescence. In. C. Gilligan, A. Rogers, & D. Tolman (Eds.), Women, Girls & Psychotherapy: Reframing Resistance. New York: The Haworth Press.

Stevens, J.W. (1997). African American female adolescents identity development: A three dimensional perspective. Child Welfare League of America, 126 (1), 145-172.

Strauss, C.C., Lease, C.A., Kazdin, A.E., Dulcan, M. (1989). Multimethod assessment of the social competence of children with anxiety disorders. Journal of Clinical Child Psychology, 18(2), 184-189.

Terre, L., & Ghiselli, W. (1997). A developmental perspective on family risk factors in somatization. Journal of Psychosomatic Research, 42(2), 197-208.

Tessor, A., & Campbell, J. (1982). Self-definition and self-evaluation maintenance. In J. Suls & A. Greenwald (Eds.), Psychological perspectives of the self (Vol 2). Hillsdale, NJ: Lawrence Erlbaum.

The Adolescent Health Program (1989). The social health of adolescent women in Minnesota: Patterns of risk behaviors and resiliency. Minneapolis, MN: Author.

Trillat, E., & King, H. (1995). Conversion disorders and hysteria. In. G. Berrios & R. Porter (Eds.), A history of clinical psychiatry: The origin and history of psychiatric disorders. New York: New York University Press.

Von Wright M.R., & von Wright, J. (1981). A longitudinal study of psychosomatic symptoms in healthy 11-18 year old girls and boys. Journal of Psychosomatic Research, 25, 525-534.

Walker, L.S., Garber, J., & Greene, J.W. (1993). Psychosocial correlates of recurrent childhood pain: A comparison of pediatric patients with recurrent abdominal

pain, organic illness and psychiatric disorder. Journal of Abdominal Psychology, 102, 248-258.

Walker, L.S., McLaughlin, F.J., & Greene, J.W. (1988). Functional illness and family functioning: A comparison of healthy and somaticizing adolescents. Family Process, 27, 317-325.

Walker, L.S., & Zeman, J.L. (1992). Parental response to child illness behavior. Journal of Pediatric Psychology, 17, 49-71.

Walling, M.K., & Reiter, R.C. (1995). Chronic pelvic pain. In. M.W. O'Hara, & R.C. Reiter, (Eds.), Psychological aspects of women's reproductive health. New York: Springer Publishing.

Wasserman, A.L., Whitington, P.F., & Rivera, F.P (1988). Psychogenic basis for abdominal pain in children and adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 27, 179-184.

Wentzel, K., & Feldman, S. (1996). Relations of cohesion and power in family dyads to social and emotional adjustment during early adolescence. Journal of Research on Adolescence, 6(2), 225-244.

Wierson, M., & Forehand, R. (1992). Family stressors and adolescent functioning: A consideration of models for early and middle adolescents. Behavior Therapy, 23, 671-688.

Williams, R.A., & Borduin, C.M. (1997). Verbal conflict resolution in families of serious juvenile offenders. The Journal of Genetic Psychology, 158(4), 498-501.

Zwaigenbaum, L., Szatmari, P., Boyle, M.H., & Offord, D.R. (1999). Highly somatizing young adolescents and the risk of depression. Pediatrics, 103, 1203-09.

APPENDIX A

SOMATIZATION ITEMS ON BASC-SRP-A

1. I am a healthy person
2. I have fainting spells
3. I am afraid I have cancer
4. Other people are healthier than I am
5. I often have headaches
6. Sometimes my ears hurt for no reason
7. My stomach gets upset more than most people
8. Often I feel sick in my stomach
9. Sore throats are a common problem of mine
10. I think I have heart trouble
11. I have trouble swallowing my food