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Allison Marie Schettini

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DEPRESSION WITH AND WITHOUT COMORBID ANTISOCIAL INVOLVEMENT: FACTORS THAT CONTRIBUTE TO COMORBIDITY IN AN ADOLESCENT INPATIENT SAMPLE

By

Allison Marie Schettini

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Submitted to Michigan State University in partial fulfillment of the requirements for the degree of MASTER OF ARTS

Department of Psychology

ABSTRACT

DEPRESSION WITH AND WITHOUT COMORBID ANTISOCIAL INVOLVEMENT: FACTORS THAT CONTRIBUTE TO COMORBIDITY IN AN ADOLESCENT INPATIENT SAMPLE

By

Allison Marie Schettini

Although depressed adolescents frequently are involved in antisocial activity, most are not comorbidly antisocial. This study assessed several factors proposed to discriminate between depressed adolescents with and without comorbid antisocial involvement: gender, ADHD, depressogenic concerns, reactance and school failure. Depressed adolescent inpatients (N=284), ages 11 to 17 (M=14.89 years), admitted over 36-months, completed the Functional Impairment Scale for Children and Adolescents – Self Report (FISCA-SR); Depressive Experiences Questionnaire -Adolescent Version (DEQ-A); Therapeutic Reactance Scale –Adolescent Version (TRS-A); and Reynold's Adolescent Depression Scale (RADS). All participants reported severe impairment on the FISCA-SR Moods scale and reported clinically significant depression on the RADS and/or had a discharge diagnosis of depression. Comorbid patients were more often boys, had an ADHD diagnosis, reported more school impairment and were more reactant. A discriminant function analysis indicated that regardless of gender, school impairment and reactance were the best discriminators of comorbid and non-comorbid patients.

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INTRODUCTION

Research indicates that depressed adolescents frequently are involved in antisocial activity (Compas, Connor, & Hinden, 1998; Compas, & Hammen, 1994; Donnelly & Wilson, 1994; Messier & Ward, 1998). However, most depressed adolescents are not comorbidly antisocial. The factors distinguishing those who report depression and involvement in antisocial activity from those who report severe depression alone remain unclear. This study will consider several factors, suggested by the literature, that potentially discriminate between depressed adolescents with and without comorbid antisocial involvement. These factors are gender, ADHD, depressogenic concerns, reactance, and school failure.

Depression

Confusion and contradictions in research on childhood and adolescent depression are common because of the various uses of the word "depression." Depression is conceptualized in three different ways – mood, syndrome, or disorder. More specifically, some researchers indicate "depression" by assessing the current feelings (of sadness, disphoria, etc.). Others identify a constellation of mood and other symptoms forming a depressive syndrome. Still others indicate "depression" by using diagnostic criteria established by well-known professional organizations (DSM-IV; American Psychiatric Association, 1994 or ICD-10; World Health Organization, 1996).

The three notions of depressive constructs have some commonalties; however, inherent to each is a unique set of assumptions and assessment procedures. The three constructs share a common set of symptoms reflecting negative affectivity but differ in their implications in duration and severity of the symptoms they include (Compas, Ey, &

Grant, 1993). Mood measures assess depression, indicated as a symptom of sadness or unhappiness, and typically is evaluated using self-report rating scales. As a syndrome, depression is indicated by a constellation of symptoms (for example, lethargy, anhedonia, and insomnia/hypersomnia) occurring together as a recognizable and statistically coherent pattern (Achenbach, 1991). A depressive syndrome is often measured by self-report measures or by parent/teacher reports based on rating scales. A depressive disorder is diagnosed in the presence of certain established indicators, as seen in the DSM-IV (American Psychological Association, 1994); in particular, for Major Depressive Episode, five or more of a list of nine symptoms must have been present during the same 2-week period and represent a change from previous functioning in addition to evidence of impairment. Bearing in mind the definitional differences in "depression," it is important to interpret research on childhood and adolescent depression with a certain degree of caution.

Depression, as a syndrome or diagnosis, has not always been acknowledged in children and adolescents as a major mental health concern (Compas et al., 1998). Earlier psychoanalytic views held that depression could not occur during childhood because of inadequate development of the superego (Pozinski & Mokros, 1994), or else argued that if it did occur, it would be overshadowed by other factors (Pozinski & Mokros, 1994). It is only recently that these views have been challenged and that researchers have begun to show that children may show features of, or meet criteria for clinical depression (Cantwell & Carlson, 1983). In particular, many researchers advocate that children and adolescents can and do, manifest a constellation of affective, cognitive, and behavioral

symptoms that reflect major depression as well as other forms of depressive disorders (Carlson & Cantwell, 1980; Hammen & Compas, 1994).

Research on depression during these earlier years of development shows that the rate and symptoms of depression increase from childhood to adolescence (Leadbeater, Blatt, & Quinlan, 1995; Nolen-Hoeksema & Girgus, 1994). Despite differences in methods of assessment and case identification processes, many researchers report that the prevalence of depression increases during adolescence with 5% to 10% of teenagers manifesting a major depressive disorder at any point in time (Fleming & Offord, 1990) as compared to 2% to 3% of children (Angold & Rutter, 1992) and less than 1% of preschool children (Kashani & Carlson, 1987). At the high end, Peterson et al. (1993) has found that one third of all adolescents meet criteria for clinical depression. Additionally, researchers have found that when self-report symptom scores are used, rather than diagnoses, approximately 10% to 30% (and sometimes even more) of adolescents exceed cutoffs for clinically significant levels (Albert & Beck, 1975; Roberts, Lewinsohn, & Selley, 1991) Even when diagnostic criteria are not met, subsyndromal depressive symptoms appear to be present frequently. For example, Cooper and Goodyer (1993) reported that 20.7% of their sample of 11 to 16 year old girls had significant symptoms but fell short of diagnostic criteria. Notably, there is evidence to suggest that the prevalence of depression in children and adolescence is increasing (e.g., Klerman et al., 1985).

Early to middle adolescence is also considered the developmental period when girls begin to experience significantly more depression than boys (Angold & Rutter, 1992; Nolen-Hoeksema & Girgus, 1994; Peterson, Sarigiani, & Kennedy, 1991). Studies

of preadolescent children provide mixed findings regarding gender differences. Some have found that there are higher rates of depression in boys in comparison with girls during childhood (Anderson, Williams, McGee, & Silva, 1987). In contrast, other researchers purport that there are no gender differences prior to age 11 (Angold & Rutter, 1992). Despite the contradictions found in samples of children, most researchers agree that gender differences, in the direction of higher prevalence rates for girls, are evident during adolescence (Cicchetti, Rogosch, & Toth, 1998). For example, Cohen et al. (1993) reported a prevalence of 7.6% in 14 to 16 year old girls compared with 1.6% for boys of the same ages.

Given the nature of the symptoms of depression, it is not surprising that depression (both syndromal and diagnostic) would be related to functional impairment. For example, Whitaker et al. (1990) report that ratings of functional impairment (as indicated by the Global Adjustment Scale) evidenced significant impairment in the majority of youth with major depression (85%) and dysthymic disorder (87%). Depression often disrupts multiple areas of functioning, such as school, family, and interpersonal relationships and when depressive mood and depressive symptoms lead to functional impairment, intervention is imperative. This disruption in functional impairment is partly recognized in the present criteria for diagnosing depression; however it is usually intuitively decided rather than concretely measured. This study recognizes and emphasizes the importance of functional impairment and therefore, concretely measures functional impairment in addition to either a diagnosis or a self-reported rating of depressive symptoms.

Antisocial Involvement.

Several different terms also have been used, often interchangeably, to describe involvement in antisocial activity, such as conduct disorder, conduct problems, externalizing behavior, and delinquency. Strictly speaking, conduct disorder (CD) refers to a psychological disorder, as articulated in the DSM-IV (American Psychological Association, 1994) whereas delinquency refers to a legal term for behaviors that are against the law. Delinquent behaviors are part of the CD syndrome; however, some behaviors included in the syndrome (e.g., pushing and verbally acting-out) are not considered delinquent. Conduct problems refer to externalizing behaviors (illegal or not) and are synonymous with antisocial behaviors. Antisocial behavior includes both overt, confrontive behaviors (such as arguing, temper tantrums, and fighting) and covert, concealed behaviors (such as stealing, truancy, and fire setting); again these behaviors may or may not be illegal, but both are examples of externalizing behaviors as opposed to internalizing behaviors (such as anxiety and depression). The present paper will restrict use of the term delinquency to refer to behaviors that are illegal; conduct disorder to refer to a syndrome of problems defined as a disorder by DSM-IV; and the terms conduct problems, externalizing behaviors, and antisocial activity to refer to acting out behaviors in general.

Evidence For Comorbidity of Depression and Externalizing Problems

Despite its prevalence and profound importance in understanding childhood and adolescent problems, the implications of comorbidity have often been overlooked by focusing exclusively on one disorder and disregarding the impact of symptoms of other disorders. Yet, researchers continually find that comorbidity, in general, and comorbidity

involving depression, in particular, is highly prevalent during childhood and adolescence (Angold, & Costello, 1993, Biederman, Newcorn, & Spirch, 1991; Brady & Kendall, 1992; Compas & Hammen, 1994).

Depression is most often comorbid with other internalizing problems, particularly anxiety. In both clinical and epidemiological samples, anywhere between 30% to 75% of children and juveniles with major depression also report high rates of anxiety disorders, and endorse more anxiety items on anxiety/depression symptom checklists than children and juveniles not evidencing depression (Angold and Costello, 1993; Biederman, Farone, Mick, Moore, & Lelon, 1996; Finch, Lipovsky, & Casa, 1989). Nonetheless, evidence for a high degree of overlap between depression and externalizing problems exists as well. In general, research studies in the late 1980's and early 1990's identify high rates of conduct or oppositional defiant disorder, ranging from 21% to 83%, among juveniles with major depression (see Angold and Costello (1993) review). A somewhat later study of 16-year-olds in a general population sample also showed comorbidity between affective disorders (which include depression) and conduct disorders, and found that dimensionally scored measures of affective and conduct disorder symptoms were correlated in the region of .35 (Fergusson, Lynskey, & Horwood; 1996). Likewise, researchers studying 11 to 17 year olds have found a high rate of co-morbidity between depression and externalizing behaviors, with depression highly comorbid with substance abuse disorders (14% overlap) as well as disruptive behavior disorders (8% overlap; Compas et al. 1998).

How do we explain comorbidity? Achenbach (1990/1991) presents three general models for understanding why psychological problems or disorders co-occur, all of which may be applicable to the particular case of depression and externalizing behaviors. First,

overlap may be due to chance. For example, if disorder B has a high prevalence rate in boys in general, than it is likely, among boys, that disorder B will overlap with disorder A, especially if disorder A also has a high prevalence rate in boys. In the strict sense of the term, this chance co-occurrence, to be referred to as a "prevalence" model of comorbidity, is not true comorbidity. A second model, to be referred to as a "common etiology" model, maintains that comorbidity results from a shared etiology. For example, the same variable, C, that predicts disorder A also predicts disorder B, accounting for the overlap between A and B. However, the relationship between A and B disappears after controlling for the common factor, C. Lastly, a third model posits that the presence of one disorder increases the risk for another disorder. For example, the associated risks or consequences of disorder A increase vulnerability for disorder B (or vice versa). This model will be referred to as the "linked risk" model.

One or more of these models, the prevalence model, the common etiology model, and/or the linked risk model, can be used heuristically to provide a conceptual foundation for the study proposed here. Although this study is unable to rule in favor of one over another, each helps to provide a rationale for predicting that the variables identified here (gender, ADHD, academic failure, depressogenic concerns, and reactance) will be able to distinguish between depressed adolescents with and without comorbid antisocial involvement.

Family Factors

In attempting to explain why depression and conduct problems so frequently cooccur, researchers have focused a good deal on parenting variables; hypothesizing that both externalizing and internalizing problems have common etiological roots in family

dysfunction. The data generally support hypotheses demonstrating a robust link between parenting practices and both externalizing problems and internalizing problems (Burbach & Borduin, 1986; Capaldi, 1991; Conger et al., 1992, 1993; Conger, Ge, Elder, Lorenz, & Simons, 1994; Gelfand & Teti, 1990; Rutter, 1989). However, these results do not provide information on ways to distinguish between children at risk for internalizing problems and those at risk for externalizing problems. In this regard, studies by Ge, Best, Conger and Simons (1996) suggest that differences may be a matter of degree. In particular, these researchers have found that parents of 10th graders with elevated conduct problems were more hostile than parents of 10th grades with elevated depressive symptoms when these adolescents were in 7^{th} , 8^{th} , and 9^{th} grades. However, parents of 10th graders with both elevated depressive symptoms and conduct problems were most hostile and least warm suggesting an interaction between the two types of disorders. The present study takes a different approach looking at factors that potentially are specific to depressed adolescents with and without comorbid conduct problems as opposed to those with depression alone.

<u>Gender</u>

One difference between depressed adolescents with and without conduct problems, already suggested by the research literature, is that those who are comorbidly antisocial are more often boys than girls. This may have to do with the greater prevalence of conduct problems, per se, in boys as compared to girls. During adolescence, the incidence of depression, especially in clinical samples, typically is greater for girls than boys (Angold & Rutter, 1992; Compas et al., 1997; Nolen-Hoeksema & Girgus, 1994). However, in both younger and older children, externalizing behaviors in the form of

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delinquency, antisocial behavior, conduct disorder, and conduct problems are more consistently found in boys as compared to girls (Thorne & Luria, 1986; Biederman, et al., 1996). Accordingly, in samples of depressed adolescents, depressed boys are more likely to be antisocial than depressed girls (Loeber & Keenan, 1994; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998) just as in samples of antisocial adolescents, antisocial girls are more likely to be depressed than antisocial boys. These gender-related patterns of comorbidity have been found with children and adolescents in both general population samples and clinical populations.

The "linked risk" model, in addition to the "prevalence" model, may further account for the greater incidence of antisocial behavior among depressed boys as compared to depressed girls. Although the former model posits that, in general, the factors associated with or exacerbated by depression might increase the risk for externalizing problems, certain "linked risk" factors may be more importent for one gender as compared to the other. For example, depression has been linked to feelings of anger among both delinquent and non-delinquent boys and girls (Silver, 1996; Mirowsky & Ross, 1989). However, boys and girls cope with anger in different ways, such that "acting out" of angry feelings is more common in boys than girls. In particular, whereas adolescent boys' anger is often accompanied by contempt for, and inflicting pain on others, anger in adolescent girls is more likely to coincide with surprise, shyness, shame, guilt, sadness, and self-directed hostility (Silver, 1996). Accordingly, anger accompanying depression in girls may only serve to intensify feelings of dysphoria whereas in boys anger paired with depression may direct negative affect towards others and away from the self.

Gender differences in anger coping strategies may themselves be rooted in a differential emphasis on autonomy as opposed to connection: whereas girls place considerable value on connection with others, boys are more likely to place value on achieving autonomy and are less likely to value maintaining connections. (Blatt, Shaffer, Bars, & Quinlan, 1992; Gilligan & Attanucci, 1998). Accordingly, preserving the integrity of the self by blaming or inflicting pain on others is a more "palatable" defense for adolescent boys as compared to adolescent girls.

Attention Deficit Hyperactivity Disorder

Attention Deficit Hyperactivity Disorder (ADHD) is another factor that may increase the likelihood of comorbid antisocial behavior in the face of adolescent depression, with ADHD as an etiological factor in both types of difficulties. ADHD, as defined by DSM-IV (1994), is a disorder characterized by pervasive inattention and/or hyperactivity-impulsivity. In order to diagnose an individual with ADHD, symptoms of hyperactivity-impulsivity must persist for at least 6 months and to a degree that is maladaptive and inconsistent with developmental level. In addition, there must be clinically significant impairment in social, academic, or occupational functioning (American Psychiatric Association, 1994). ADHD by definition, has its onset during childhood, although its symptoms persist into adulthood (Compas et al., 1998).

Recent research speaks to the importance of studying ADHD in children and adolescents; however, one of the foremost limitations in this research stems from failure to consider comorbidity. Only a limited number of studies of ADHD both include children with other comorbid disorders and directly examine the implications of comorbidity. More typically, some studies screen for comorbidity and focus exclusively



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on children with ADHD alone, which ultimately limits generalizeability (Foley, Carlton, & Howell, 1996). Alternatively, when children with comorbid conditions are included, the comorbid factors are not sufficiently described or considered.

When it comes to comorbidity, ADHD has often been implicated in the onset of antisocial behavior, found in both retrospective and prospective studies (Farrington, Loeber, & Van Keammen, 1990b; Windle, 1993). This link is fairly easily understood; by definition, individuals with ADHD are hyperactive and impulsive. Hyperactivity often manifests itself in the form of fidgetiness, excessive running or climbing in situations where it is inappropriate, difficulty playing or engaging quietly in leisure activities, and a predilection to be "on the go" as if "driven by a motor" (American Psychological Association, 1994). Impulsivity as well refers to difficulty with behavior control and hyperactivity and impulsivity, together, suggest an inability to regulate behaviors according to rules; often an underlying mechanism in antisocial behavior (Barkely, 1990). Accordingly, although ADHD does not invariably lead to CD, children with ADHD or high levels of ADHD symptomatology are at high risk for conduct disorder, as well as substance abuse and criminality (Dalteg & Levander, 1998; Foley, et al., 1996; Mendelson, Johnson, & Stewart, 1971). This link has been found in retrospective assessments of attention deficit hyperactivity disorder in juvenile delinquent boys (Dalteg & Levander, 1998; Foley et al., 1996) and non-delinquents (Mendelson et al., 1971) ranging in ages from 12 to 16 years

Less obvious, yet also significant, is the association between ADHD and depression. In fact, in both epidemiological and clinical studies, mood disorders and ADHD co-occur in 20% to 30% of children and adolescents diagnosed with one or the



other disorder as primary (Angold & Costello, 1993; Fergusson, et al., 1996; Loeber et al., 1998; Schmidt, Stark, Carlson, & Anthony, 1998; Wilson & Marcotte, 1996), with this pairing found in both longitudinal and cross-sectional work.

Researchers initially wondered whether the ADHD-mood disorder overlap was truly indicative of comorbidity. However, to a large extent these questions have been resolved, with research suggesting that ADHD and depression are in fact separate disorders that often co-occur. The earlier argument was that both disorders include psychomotor disturbance and a diminished ability to concentrate so that the appearance of comorbidity was an artifact of overlapping symptoms rather than a true co-occurrence (Mannuzza, Fyer, & Klein, 1993). Milberger, Biederman, Farone, and Murphy (1995) used both a "subtraction" method and a "proportion" method to disentangle overlapping symptomatology. The subtraction method requires the researcher to re-diagnose subjects using criteria modified to remove overlapping symptoms; subjects must reach DSM-III-R threshold for diagnosis in spite of the removal of overlapping symptoms. In contrast, the proportion method lowers the threshold, so that the proportion of symptoms endorsed (minus the overlapping symptoms) is the same as the proportion required by DSM-III-R (including the overlapping symptoms). Milberger et al. (1995) found that despite the adjustments for overlapping symptoms, children with ADHD continued to show increased rates of depression, thereby supporting the phenomenon of comorbid depression and ADHD.

Using a different approach, Biederman et al. (1996) suggested that comorbidity of depression and ADHD was due to interviewer and assessment biases. Accordingly, they conducted a study that controlled for both overlapping symptoms as well as interviewer



and assessment biases. Nonetheless, they found that children with major depression plus ADHD differed in several ways from those with either major depression alone or ADHD alone. The combined group had significantly higher rates of aggressive behavior and more marked irritability and oppositionalism than the pure major depression group; and higher rates of delinquency than the pure ADHD group. Therefore, after controlling for possible confounds, the link between depression, delinquency and ADHD remains.

Obviously the comorbid occurrence of ADHD and antisocial behavior on the one hand, and ADHD and depression on the other hand, does not in and of itself provide sufficient evidence for ADHD as a common etiological factor in the co-occurrence of depression and antisocial involvement. However, longitudinal studies show that ADHD precedes both antisocial behavior and depression, which is a necessary (although, still not sufficient) condition for the "common etiology" model. Barkely (1990), for example, conducted an 8-year longitudinal study of psychosocial outcomes of 123 hyperactive children and 66 normal controls (initial ages 4 to 22 years). At the end of the study they found that 80% of the hyperactive children continued to qualify for an ADHD diagnosis, with 60% of the sample also qualifying for Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) at follow-up. These findings suggest that ADHD and hyperactivity often lead to behavioral problems, which in turn may result in antisocial involvements. Importantly, the same study also pointed to a specific mechanism by which ADHD can result in depression, with the link between the two mediated by child functional impairment. ADHD at time one was predictive of school problems at time two. School failure has consistently been shown to relate to depressed mood in adolescence (Patterson, DeBaryshe, & Ramsey, 1989; Rossen, 1997), suggesting that

ADHD can also lead to depression in adolescents via its link to school (or other types of functional) impairment. Generally stated, ADHD compromises children's social competence and social role performance (Wilson & Marcotte, 1996). ADHD children have been shown to have difficulties processing and responding to social cues and intentions (Dodge & Shwartz, 1997; Matthys, Cuperus, Van Engeland, 1999; Sprouse, Hall, Webster, & Bolen, 1998). These difficulties, in turn, may lead to a trajectory of social role failure that increases feelings of inadequacy and subsequently results in depressed mood. Therefore, this research suggests that ADHD is directly related to antisocial activity as an etiological factor, and also indirectly related to depression via increased risk for social role failure, thereby supporting a linked risk model of comorbidity between depression and antisocial activity.

Academic Achievement

The discussion above implies a relationship between ADHD and depression via school dysfunction, a specific example of functional impairment. However, the poor school functioning-depression link may be sufficiently critical, to warrant independent consideration. From the perspective of a common etiological factor model, poor academic achievement maybe associated with higher rates of depression as well as antisocial activity. Research offers support for this perspective.

School problems, in the sense of academic difficulties, along with low measured intelligence, have been positively related to depression. Research conducted with three groups of clinic-referred youth (ages 8 to 27 years), one assessed before therapy and two afterward found that in all three groups, low levels of perceived academic competence were significantly correlated with children's Childhood Depression Inventory (CDI)

scores (Weisz, Weiss, Wasserman, & Rintoul, 1987). Another study demonstrated a similar relationship between depressive symptoms and levels of competence in adolescents in both a "normal" subset of individuals as well as in a group of "severely depressed" individuals. School competence was found to be significantly negatively correlated with the adolescent's level of depressive symptoms (Rossen, 1997). Tulipan (1981) argues that it is possible that school failure may not only be a factor precipitating or resulting from depression but that it may be one of many factors that mask disturbing feelings more truly typical of depression.

Research also indicates that involvement in antisocial activity, also is predictive of academic difficulties (as reviewed in Anderson & Hammen, 1993; Hammen & Rudolph, 1996; Kaslow & Racusin, 1990; Huizinga & Jakob-Chien, 1998). Some studies suggest that the child's disobedience and undercontrolled behavior impede learning whereas others imply that antisocial children do not possess the skills necessary to excel in the classroom, such as attending to the teacher and remaining in their seats (Hops & Cobb, 1974). However, the interplay of academic achievement, depression, and involvement in antisocial activity may be quite complex and reciprocal, with low academic achievement leading to both depression and antisocial activity, and antisocial activity precipitating school failure. Regardless of the direction of the relationship, the interplay among the three types of difficulties has been consistently demonstrated (Paterson 1986; Patterson et al., 1989; Messier & Ward, 1998; Quay & Peterson, 1987). For example, Patterson and his colleagues (1984, 1986, 1989) have found that coercive and antisocial behaviors exhibited by children are likely to result in rejection by members of the normal peer group as well as academic failure, both of which increase risk for and can lead to depressive

symptomatology and even greater involvement with deviant peer groups (Patterson, 1986; Patterson, et al., 1989; Patterson, Dishion, & Bank, 1984). Consequently, it is assumed that children following this developmental sequence are at high risk for engaging in chronic delinquent behavior.

Other researchers have found that the nature of the relationship between depression and antisocial involvement changes when academic achievement is considered. Without taking into account academic achievement, Messier and Ward (1998) found that a sample of incarcerated juvenile delinquents scored higher on depression indices than normal populations, but lower than clinical samples (Messier & Ward, 1998). In fact, the results showed that slightly over one third of the sample had depression index scores in the range considered indicative of clinical depression as compared to 15% to 18% in normal populations. However, the nature of this relationship changes considerably when academic achievement and ability are taken into consideration. The findings show that high ability youth who are involved in antisocial activity are more likely to be depressed than low ability youth who are involved in antisocial activity (Cornell, 1992; Messier & Ward, 1998). In sum, among depressed youth, school failure may be an outcome as well as a precipitating factor that increases depression and/or antisocial behavior, with the link between antisocial involvements and depression especially high among high ability youth.

Depressogenic Concerns

The prevalence of two different types of depressive concerns, referred to by Blatt and colleagues as interpersonal and self-critical concerns (Blatt, 1974) may also effect rates of comorbid depression and antisocial activity. Past research on comorbidity in

depression has often overlooked these different dimensions of depression. Self-critical concerns are fueled by fears of failure and guilt and the need for achievement and autonomy. Self-critically preoccupied individuals want others' approval, respect, and admiration but are afraid of being judged, criticized, or controlled (Blatt & Shichman, 1983). They try to avoid dependency at all costs and seek to dominate others. Presumably, depression is most likely to occur in these individuals in response to perceived achievement failure or lack of control over the environment (Robins & Block, 1988).

In contrast, interpersonal concerns revolve around issues of dependency, helplessness, and feelings of loss and abandonment (Blatt, 1974; Blatt, D'Afflitti, & Quinlin, 1976; Blatt, et al., 1992). Interpersonally preoccupied individuals dread the potential loss of gratifying, protective relationships. Consequently, they have been described clinically as highly dependent, conformist, and bent on pleasing others. Depression in these individuals is most likely to occur in response to perceived loss or rejection in social relationships (Robins & Block, 1988).

Researchers have found each type of depressogenic concerns to be linked to distinct personality characteristics suggested in clinical studies. (Blatt, 1974; Blatt, Hart, Quinlin, Leadbeater, & Auerbach, 1993). Evidence stemming mostly from research with adults suggests that self-critical individuals are more inclined to be involved in antisocial activity whereas interpersonally preoccupied individuals are more conformist and less likely to engage in antisocial activity. In contrast to interpersonally concerned individuals, self-critical individuals are more likely to be irritable, hostile or unlikable; and they often have discordant peer and family relationships (Blatt, 1991; Mongrain, 1993). Such

personality characteristics are likely to result in counteractive attempts to challenge authority by becoming involved in many forms of antisocial behavior (Loeber, 1990). Their alienation from others and their personal drive for success and autonomy help explain self-critical persons' inclination for externalizing behaviors.

Similar research (with adult samples) shows that, in contrast to self-criticals, interpersonally preoccupied individuals have difficulty expressing opinions that oppose those of other individuals, find it difficult to express their anger and are overly conforming and hyperresponsible (Blatt & Maroudas, 1992; Fichman, Koestner, & Zuroff, 1996; Mongrain, 1993). Presumably, excessive concerns with maintaining close relationships diminish engagement in aggressive behaviors or delinquent acts which potentially, could push others away.

Although the great majority of research on depressogenic concerns focuses on adult populations, studies with younger populations verify that personality characteristics associated with self-critical and interpersonal concerns in adults are similar in adolescent samples (Blatt, et al., 1993; Frank et al., 1997b). Accordingly, this research shows that during adolescence, self-critical concerns, but not interpersonal concerns, are linked to antisocial activity for boys and girls (Blatt, et al., 1993). For example, one study with an inpatient sample found that interpersonal concerns were positively associated with social introversion and negatively with family discord and deviance whereas self-critical preoccupations were associated with deviance, family discord, and general maladjustment/alienation (Frank et al., 1997b). These findings are consistent across various adolescent age groups (Blatt, 1991). However, the number of studies of depressogenic concerns during childhood and adolescents is still relatively small.

The attachment literature is also relevant to the discussion because of the theoretical correspondence between the two types of depressogenic concerns and the two types of insecure attachment styles, with self-critical concerns corresponding to dismissing attachment styles and interpersonal concerns to preoccupied attachment styles (Blatt & Maroudas, 1992). Both object relations theorists and attachment theorist argue that the self-critical/dismissing attachment styles and interpersonal/preoccupied attachment styles are rooted in earlier parent-child relationships and that the nature of these attachment bonds shape subsequent interpersonal relations as well as personality development and mental health (Kobak & Sceery, 1988; Main, 1981). In contrast, securely attached individuals typically have experienced responsive and sensitive parenting, allowing them to manifest positive emotions as well as heightened social interactions and competence (Kobak & Sceery, 1988). Childhood and adult outcomes are more problematic for those with either type of insecurity (George, Kaplan, & Main, 1985).

Dismissing/self-critical attachments stem from parenting that is deprecating and rejecting of the child's desires for love and attention (Blatt et al., 1992; Kobak, 1986; Main, 1981). This attachment organization and related self-cognitions and self-critical preoccupations are both associated with behaviors that seek compensation for feelings of failure and inadequacy. Individuals with dismissing attachments and self-critical concerns are both more distressed by signs of failure than rejection and are more focused on achieving positive results (Blatt & Maroudas, 1992). In attempting to achieve such results, coupled with a disregard for connection with others, these individuals often ignore the effect that their actions may have on others (Blaney & Kutcher, (1991). These
individuals are uncomfortable in social interactions, are likely to appear irritable or hostile in these situations, and often have overtly conflicted and discordant relationships with family and peers (Kobak & Sceery, 1988; Mongrain, 1993).

Preoccupied attachments, accompanied by excessive interpersonal concerns, are a result of early disruptions in caring relationships consisting of deprivation, inconsistency, or overindulgence that leads to an inordinate fear of loss of love, abandonment, and impoverishment. Both are linked to fears of rejection and excessive neediness to maintain close bonds with others (Blatt & Maroudas, 1992; Kobak & Sceery, 1988). Individuals characterized by these attachment styles and preoccupations are usually unable to openly express their feelings of anger or hostility and are more likely to conform to the wishes of others (Mongrain, 1993; Zuroff, Moskowitz, Wielgus, Powers, & Franko, 1983).

Given this correspondence between attachment styles and depressogenic concerns, it is not surprising to find similar links between depressogenic concerns and antisocial activity on the one hand and attachment styles and antisocial activity on the other hand. Just as there is a link between self-critical preoccupations and antisocial activity, research suggests that individuals with dismissing attachments, are more likely to engage in antisocial activity than are individuals with preoccupied attachments or interpersonal concerns (Mongrain, 1993; Zuroff, et al., 1993). This relationship is seen with both children (Kobak & Sceery, 1988) and adolescents (Rosenstein & Horowitz, 1996). Additionally, Frank et al.'s (1997b) work supports the hypothesized link between depressogenic concerns and comorbidity of depression and antisocial involvement. Presumably, self-critical preoccupations are likely to lead to depressed mood, by nature of

the preoccupation itself, and to antisocial involvement as a result of an over-emphasis on independence and autonomy and a devaluing of connection to others.

Reactance

Psychological trait reactance is another factor that might help to account for depression comorbid with antisocial activity. Reactance originally was regarded as situationally induced (Brehm, 1966). When individuals were placed in situations that both emphasized the value of their personal freedom as well as threatened this freedom, they would, in turn, engage in behaviors directed at re-establishing their initial sense of freedom and control (Brehm, 1966; Brehm & Brehm, 1981). However, more recent research argues that reactance can be defined as a trait-like variable as well as a state-like variable (Dowd & Sanders, 1994). When reactance refers to stable aspects of personality, high reactant individuals are described as hypervigilant to threats to personal freedom, more likely to perceive a wide array of situations as potentially threatening their freedom, and generally are more oppositional than low reactant individuals (Beutler & Clarkin, 1990; Dowd & Wallbrown, 1993).

Although the majority of studies have been situated in the laboratory rather than in "real world" clinics, and almost exclusively have been done with adult populations, they nonetheless suggest that reactance is highly correlated with antisociality (Beutler, 1991; Dowd & Wallbrown, 1993; Graff & Luborsky, 1977; Weisz, Han, & Weiss, 1995). Pertinently, a recent study conducted with adolescent inpatients found that reactance correlated with anger, conduct problems, immaturity, authority problems, ego inflation, cynicism, social alienation, and proneness to, as well as actual use of, alcohol and drugs (Frank et al., 1998). Similarly, Frank, Schettini, and Lower (2000b) identified a strong

relationship between reactance and both undercontrolled aggression and delinquency in a sample of fourth through eighth graders.

To some extent, reactance during adolescence appears to be normative. Research both in general population and clinic samples suggests a curvilinear relationship between age and trait reactance, with reactance during adolescence higher than during other periods of development (Frank et al., 1998; Tennen, Press, Rohrbaugh, & White, 1981), but with disturbed adolescents appearing unusually reactant, even more-so than normal college students (Frank et al., 1998). A recent study conducted with adolescents in a school setting suggested that reactance increases between 10 and 15 years of age (Frank, et al., 2000b), whereas a second investigator using an adult Australian sample found that levels of reactance decreased with age from 18 to 40 years. Somewhat heightened levels of reactance during adolescence may underlie a parallel increase in antisocial activity during the same developmental period. Some researchers suggest that reactance provides the context for adolescents to attain their developmental needs. For example, Dowd and Sieble (1990) suggest that reactance is instrumental in creating and maintaining autonomy, which is a critical developmental task for adolescents. In order to establish their independence, adolescents become resistant to advice and direction from others. Reactance can manifest itself in the form of argumentation, hostility, and oppositionality (Frank et al., 1998), which are often at the crux of adolescent antisocial activity. However, whereas "developmentally-normative reactant" adolescents may be oppositional and argumentative with their parents over relatively mundane and trivial matters, they are less-so regarding serious matters, and at worst, commit "minor" acts of delinquency, such as violating curfew or writing graffiti (Steinberg & Silverberg, 1986).

In contrast, atypically high reactant adolescents appear to be more pervasively oppositional and more deviant than their "developmentally-normative reactant" counterparts, and in turn, are more involved in antisocial activity of a serious nature (Frank, et al., 1998; Frank, et al., 2000b).

Although the link between reactance and antisocial involvement is fairly well documented, the relationship between reactance and depression remains ambiguous. Although many researchers argue that there is no relationship between reactance and depression, one study conducted with a large population of Australian adults, ages 17 to 40 years, found that self-reports of psychological reactance were positively related to depression (Hong & Giannakopoulos, 1994). A recent study helps to account for these mixed findings. Frank, et al. (2000b) found that children and early-adolescents (grades 4 to 8), reporting intrapsychic conflicts regarding separation-individuation (also known as conflictual dependency) also reported greater reactance and greater emotional impairment. In turn, more reactant children were more likely to be antisocial. However, whereas conflictual dependency was linked to both reactance and mood disturbance, reactance was not directly associated with emotional difficulty. Rather, this study suggests that depression is likely to be accompanied by antisocial behavior when conflicts over separation-individuation produce reactance as well as emotional dysfunction.

An alternative, though not mutually exclusive argument, is that reactance and depression co-occur because both are rooted in self-criticism. Frank et al. (1997a) showed that self-criticism is a "by-product" of conflictual dependency. Because self-critical adolescents are excessively concerned with preserving their autonomy, it is reasonable to presume a relationship between self-criticism and reactance. Moreover,

because both reactance and self-critical preoccupations are both rooted in struggles with authority, they may independently result in greater antisociality. In short, various research findings argue that the relationship between depression, delinquency, reactance, and self-critical concerns all can be explained using a "common etiology" model, with conflictual dependency being the common source.

Another Look At Gender

The above discussion argues that there are several factors that potentially discriminate between depressed adolescents who are comorbidly antisocial and depressed adolescents who are not comorbidly antisocial. One such factor mentioned above is gender; however, gender may be both a discriminating factor as well as a moderating factor. Gender is linked to each of the other discriminating factors and in some circumstances gender may change the nature of the relationships between the different factors and the existence of comorbidity of depression and antisocial activity. Therefore, the factors that discriminate comorbid depression and antisocial involvement may be different when gender is considered.

For example, ADHD is more common in boys than girls; hence, it follows that there is a greater rate of comorbid depression and antisocial behavior in boys, in part because ADHD is an etiological factor in antisociality and related to depression via increased risk for social role failure. In addition, researchers have found that boys are more likely than girls to have ADHD with aggression or conduct problems, as opposed to ADHD without aggression and conduct problems (Herrero, Hechtman, & Weiss, 1994), inferable from the higher prevalence of both disorders among boys. However, the possibility that girls, with ADHD, as compared to boys with ADHD respond to social-

role failure more often with depression rather than antisocial behavior to some extent balancing comorbid prevalence rates, is a question that needs to be considered as well. Similar relationships may also be found for the factors of school failure and depressogenic concerns. Research has found clear gender differences in depression with regards to its relationship to school failure. Depression is more often a result of school failure in girls than boys (Cole, Martin, Peeke, Seroczynski, & Fier, 1999; Ge, Lorenz, Conger, & Elder, 1994). Additionally, the research discussed above suggests that depressogenic concerns, particularly self-critical concerns are influential in predicting both depression and antisocial involvement; however, self-critical preoccupations are more common in boys than girls; and therefore, gender might moderate the proposed relationship. Therefore, gender may moderate the relationships between school failure as well as depressogenic concerns and comorbid depression and antisocial involvement.

In contrast, the literature is still relatively unclear as to the relationship between gender and reactance. Research on gender differences for psychological reactance is mixed. Brehm and Brehm (1981) suggest that there is no reason to assume that reactance is gender-specific or that one gender exhibits higher levels of reactance than the other. Hong and Page (1989) and Hong (1993) supported this view. Both found no significant gender differences in psychological reactance for university student populations. In contrast, other researchers with American university graduates and undergraduates and early adolescents have found that that boys were significantly more reactant than girls (Courchaine, Loucka, & Dowd, 1995; Dowd, Wallbrown, Sanders & Yesenosky, 1994; Frank et al., 2000b; Joubert, 1990). Joubert (1990) reported that men scored higher than women on Hong's reactance scale in a smaller sample of American university students.

Conceivably, if boys are more reactant, and reactance contributes to both depression and delinquency, it is not surprising that there is a higher prevalence of overlap between depression and delinquency in boys.

Summary and Hypotheses

To summarize, this study will examine factors contributing to antisocial involvement in a sample of adolescents with severe levels of emotional disturbance. In general, the research suggests that gender will discriminate between comorbid and noncomorbid groups, with boys being more characteristically comorbid. Moreover, ADHD, academic difficulties, self-critical preoccupations, and high levels of reactance are expected to be more characteristic of the comorbidly antisocial group than the depressed only group. An additional possibility is that gender will moderate whether or not ADHD, academic difficulties, self-critical preoccupations, and high reactance will discriminate between comorbidly antisocial and depressed-only adolescents.

The current study will contribute to the understanding of comorbid depression and antisocial activity in adolescents by overcoming several past limitations. The assessment of child and adolescent functioning has been limited by the use of unidimensional measures, which focus on symptomatology of one problem alone and disregarding the influence of comorbid symptomatology. This study will overcome this limitation by using a measurement devised to assess the multiple dimensions of child functioning. In addition, the majority of research described above has focused on adult populations, and most studies have been comprised of general population samples; thereby leaving both the adolescent years and the clinic-referred populations fairly unexplored. This is especially true for research on depressogenic concerns and reactance. Therefore, the

current study will overcome this limitation and extend the current research base by using an adolescent, inpatient sample. Additionally, much of the findings above stem from research with small sample sizes. The present study will use a large sample of inpatient adolescents.

METHOD

Participants

The sample includes 287 depressed adolescent inpatients (176 girls and 111 boys), ages 11 to 17 years (\underline{M} = 14.89), admitted over a 36 month period to a private child and adolescent acute psychiatric hospital in the Midwest. Participants were mostly white (89.2%), with 67% living in a two-parent (natural, adopted, or step) home, 1% living in a therapeutic residence, and the remaining adolescents living in single-parent homes (natural, adopted, step, or relative). Information on household structure was missing for 4% of the cases.

Mean annual income (available for 255 cases) was 3.67 (SD=1.80) as measured on an 8-point scale with 1=<\$8,000; 2=\$8,000-\$11,999; 3=\$12,000-\$19,999; 4=\$20,000 to \$29,999; 5=\$30,000-\$44,999; 6=\$45,000-\$69,666; 7=\$70,000-\$100,000; and 8>\$100,000. Approximately 6% of the households were earning less than \$8,000 and 3% were earning \$70,000 or more per year.

<u>Inclusion Criteria</u>. All adolescents included in the study were moderately to severely depressed as indicated by two of the inclusion criteria. To be eligible for the study, adolescent patients had to report severe impairment associated with emotional difficulties, as indicated on the Functional Impairment Scale for Children and Adolescents – Youth Self Report version. In addition, they <u>either</u> were required to (a) have a score of 77 or greater (indicating clinically significant depression) on the Reynolds Adolescent Depression Scale <u>or</u> (b) a discharge diagnosis, recorded in the discharge summary, of either Major Depressive Disorder, Dysthymic Disorder, or Depressive Disorder-Not Otherwise Specified. The inclusion criteria and decision making process are illustrated in Figure 1.

<u>Measures</u>

The Functional Impairment Scale for Children and Adolescents - Youth Self Report (FISCA-SR; Frank & Paul, 1995). The FISCA-SR will be used to assess functional impairment associated with emotional disturbance, school achievement, and antisociality (delinquent and aggressive behaviors). The FISCA-SR is a 172-item selfadministered questionnaire with eight scales measuring separate dimensions of child and adolescent impairment. In addition to the scales used here assessing undercontrolled aggression, delinquency, problems related to feelings and moods, and school difficulties, other scales include alcohol and drug problems, problems at home, thinking problems, and self-harm. The content of the FISCA-SR is essentially the same as on a parent-report version of the same instrument (the FISCA), which was developed before the self-report version. FISCA-SR items use a true-false, Likert or multiple-choice format. Impairment criteria for scoring the FISCA-SR are based on a modified and abbreviated version of the Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 1994; Hodges & Gust, 1995). An objective scoring procedure links item responses to specific criteria identifying mild (scored as 10), moderate (scored as 20) or severe (scored as 30) levels of impairment with each of the 8 domains measured by the FISCA-SR. A domain score of "0" (no impairment) indicates that an adolescent does not meet any criteria at any of the three levels within that domain of functioning. The number of criteria associated with each of the FISCA-SR domains ranges from 3 to 14. The final score for each impairment





dimension reflects the highest level of impairment at which the child meets one or more criteria. *Total impairment*, ranging from 0 to 240, is computed by summing scores across domains.

Table 1 shows criteria for severe impairment on the Feelings & Moods, Control of Aggression, and Delinquency scales. Table 2 illustrates scoring procedures for 2 (of 7) criteria indicating a severe level of impairment in school, along with related items on the FISCA-SR "keyed" to these criteria. Criteria are deemed "present", scored as 1, or "not present", scored as 0, depending on whether they meet the rules shown in column 4 of the table. To compute internal reliability, domain criteria are treated as items (scored as 0 or 1). Frank et al. (2000a) reported adequate internal reliability for all but the Home scale (α = .26). Alpha coefficients for the seven other scales (with 3 to 14 criteria, each) ranged from .61 to .88 with a mean of .79. Alpha levels for the scales used in this study are: Feelings and Moods (a measure of emotional dysfunction) (α =.72, 14 items), Undercontrolled Aggression, (α =.77, 13 items), Delinquency (α =.66, 8 items), and School (α =.69, 14 items). The parent-report FISCA was found to discriminate inpatients from outpatients (Paul, 1996), predict hospital recidivism (Frank, et al., 2000a), and correlate meaningfully with daily staff ratings of child and adolescent behaviors on an inpatient unit (Van Egeren, Frank, & Paul, 1999). A recent study using agreement between parent and self-report forms of the FISCA, showed that a hypothesized threefactor model of child functional impairment (based on extant literature) that distinguishes "overt" from "covert" forms of externalizing behaviors and both of these from



Table 1

Criteria For Establishing Severe Levels of Impairment

Feelings & Moods

- 1. Mood problems are accompanied by suicidal intent
- 2. Extreme emotional dysregulation; unusual or very intense expression of emotions that others see as odd or strange

- 3. Depression or anxiety are associated with academic incapacitation (school absences, poor grades, performance deficits, etc.)
- 4. Depression or anxiety are associated with social isolation or withdrawal

Control of Aggression

- 1. Child has no age-appropriate friends because behavior is chronically hostile,
 - belligerent, or exploitative
- 2. Frequently very cruel to animals
- 3. Frequent and/or serious physical aggression; threatened or used a weapon against others, attacked and/or seriously hurt others; or behavior is so dangerous or out of control that child has been removed from home or school
- 4. Sexually abused, molested, or assaulted someone of the same or opposite sex



Criteria For Establishing Severe Levels of Impairment cont.

Delinquency:

- 1. Intentionally and severely damaged property outside the home
- 2. Set fires with malicious intent
- 3. Severely delinquent or criminal behavior involving confrontation or harm to a victim or severe law violation (e.g. auto theft, robbery, mugging, purse snatching, dealing or carrying drugs, threatening with a weapon, break-ins, physical assault, murder, sexual assault)
- Delinquent or criminal behavior resulted in incarceration or confinement in a jail or Detention center

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Illustration of the FISCA scoring procedure for two "severe" criteria from the School scale.

Level	Criterion	Relevant Items	Scoring Key
Severe	Child practically unmanageable in the classroom	B17 . During the past 3 months, the teacher said you were almost unmanageable in the classroom. a) No b)Yes	Yes to B17
	Chronic truancy resulted in punitive actions or	${f B3}$. How many times during the past 3 months have you skipped school?	B3=d or e AND
	poor academic performance	a) never b) between 1 to 4 times c) 5 to 10 times d) 11 to 20 times e) more than 20 times	B4 = any of: a or b or c or d
		B4. Have any of the following resulted BECAUSE you skipped school or refused to go to school?	
		 a) I had to serve detention 3 or more times. b) I lost course credit or was getting poor grades. c) School officials called or wrote my parents or guardians to complain about my absences d) I was suspended or school officials warned my parents that I might be taken out of school. e) None of these 	

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behaviors "fit" the data for the FISCA-SR as well as the parent FISCA (Frank et al., 2000a). The fit provides evidence for the construct validity of both the parent FISCA and the FISCA-SR. Correlations between parents' and adolescents' functional impairment scores, ranging from .25 to .59, as well as paired comparisons of means, generally identified stronger agreement in "private" than "public" domains. Additionally, Frank, Van Egeren, Fortier, & Chase (in press) also found that parent-adolescent agreement coefficients for more than half of the FISCA domains exceeded the magnitude of association typically reported in the literature (Achenbach, McConaughy, & Howell, 1987).

Depressive Experiences Questionnaire, Adolescent Version (DEQ-A; Blatt et al., 1992). The DEQ – A is a measure of self-critical and interpersonal "depressogenic" concerns. The questionnaire has 66 items, all of which are rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Examples of items on this measure include: "If I fail to live up to expectations, I feel unworthy" (self-critical concern) and "I often think about the danger of losing someone close to me" (interpersonal concern).

Factor analysis on a large, high school sample identified 3 primary factors that are similar to the adult version of the DEQ. The two main factors describe interpersonal and self-critical concerns and a third smaller factor, which has proven less reliable, reflects feelings of self-efficacy. Scale scores for the DEQ-A are computed as standardized factor scores, using means, standard deviations, and factor weights from the original high school sample. Only the self-critical and interpersonal scales will be used in this study; these scales are internally consistent and have good test-retest reliability (Blatt et al., 1992).



Although there is some question as to whether self-critical and interpersonal preoccupations define independent constructs in adult, clinical samples, this issue does not appear to apply to the adolescent measure. In particular, Frank, et al. (2000a) were able to confirm that self-critical and interpersonal preoccupations constitute independent constructs using data for a large sample of adolescent inpatients.

Therapeutic Reactance Scale – Adolescent Version (Frank, Van Egeren, & Poorman, 1993). The TRS-A is a measure of reactance, modified for adolescents from the Dowd, Milne, and Wise's (1991) Therapeutic Reactance Scale (TRS) used with adults. The adult TRS version was developed to measure psychological reactance as defined by Brehm (1996); "a tendency to perceive and react to situations as if one's freedom were being threatened." The TRS has 28 items rated by respondents on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree); possible scores on the TRS range from 28-112. Examples of items on this measure include: "I often find I have to question adults' decisions" and "I am very stubborn and set in my ways."

Reliability studies for the TRS found that test-retest reliability for the original sample ranged from .57 to .60 over 3 weeks, while internal consistency reliability ranged from .75 to .84 (Dowd & Wallbrown, 1993). Using a different subject pool, Lukin, Dowd, Plake, and Kraft (1985) found a 1-week test-retest correlation of .76 on the total scale. There was evidence for both convergent and divergent validity and overall, construct validity studies produced generally positive results (Dowd & Wallbrown, 1993). For example, research shows that psychotherapy clients with high TRS scores have lower expectations for change, are slower to improve, and have greater no-show rates than psychotherapy clients with low TRS scores. The TRS-A is conceptually equivalent to the TRS. Similar to the TRS, the TRS-A has 28 items rated by respondents on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree); possible scores on the TRS-A also range from 28-112. The TRS-A and the TRS items are similar in content, although approximately half of the items on the TRS have been reworded to be more appropriate for adolescents.

Moreover, the correlates of reactance as measured by the two instruments appear to be similar. Personality researchers have found that trait-reactant individuals typically describe themselves as aggressive and antisocial, nonaffiliative and insensitive to others, and narcissistic and self-aggrandizing (Beutler, 1991; Dowd & Wallbrown, 1993). Similarly, a recent study conducted with adolescent inpatients found that reactance, as measured by the TRS-A was correlated with several MMPI-A variables, such as anger, conduct problems, immaturity, authority problems, ego inflation, cynicism, social alienation, and proneness to, as well as actual use of, alcohol and drugs (Frank et al., 1998). Additionally, a second study described by Frank et al. (1998) found that this measure of reactance related meaningfully to short, post-hospitalization outcomes.

Reynolds Adolescent Depression Scale (RADS; Reynolds, 1986). The RADS assesses symptoms of depression, such as depressed mood, anhedonia, somatic complains, and hopelessness. The questionnaire has 30 items, all of which are rated on a 4-point Likert scale, ranging from 1 (almost never) to 4 (most of the time). Example of items on this measure include: "I feel like crying" and "I feel sad." Reynolds & Mazza (1999) examined the reliability and validity of the RADS in a sample of 89 young adolescents (aged 11 to 15 years) from an inner-city school. This study showed that the RADS provides a reliable and valid measure of depressive symptomatology in young adolescents. The RADS showed good internal consistency reliability (.91 on initial assessment and .93 on retest assessment) and good test-retest reliability (.87). The correlation between the RADS and the Hamilton interview on the retesting was .76, suggesting a strong level of criterion-related validity. The RADS also has good concurrent validity (Atlas & DiScipio, 1992), assesses domains of depression typically identified in the depression literature (Campbell, Byrne, & Baron, 1994), and is sensitive to gender and age differences in the expression of depressive symptoms (Campbell, Byrne, & Baron, 1992). A cutoff score of 77 on the RADS appears to adequately identify youngsters with clinical levels of depressive symptomatology. A study comparing the RADS cutoff score with depression status determined by the Hamilton interview resulted in a phi coefficient of .62, with a sensitivity rate of 89%, specificity of 90%, and an overall correct classification of 90%.

Discharge Diagnosis – Information of the presence or absence of ADHD or a depressive spectrum disorder (i.e., Major Depressive Disorder, Dysthymic Disorder, Depressive Disorder Not Otherwise Specified) will be obtained from the hospital discharge diagnosis, assigned by one of five hospital psychiatrists and found in the adolescents' medical record. ADHD diagnosis will be compared to parents' report at intake of a prior diagnosis of ADHD, when available, to provide some evidence for the validity of the discharge diagnosis.

Demographic Information - Demographic information was obtained from a Social History Questionnaire completed by the adolescents' parent or guardian at time of intake. Parents provided information on the adolescents' age, family income, living situation

(e.g., two-parent home, single family home, foster home, etc.), grade, race/ethnicity, and insurance.

Study Procedures

Data for the study were collected as part of the hospital's routine assessment procedure. A parent or guardian routinely completed the Social History Questionnaire at intake. During the first 24 to 48 hours of hospitalization, adolescents completed the FISCA-SR, the RADS, the TRS-A, and the DEQ-A. The FISCA-SR was completed in small groups supervised by one or two undergraduate externs. Externs individually administered the DEQ-A, the RADS, and the TRS-A within 24 to 36 hours of admission. In addition to research purposes, information obtained from the questionnaires was used by the hospital for diagnosis, treatment planning, and development of family intervention strategies.



RESULTS

Preliminary Analyses

Selection of Participants for the Study

There were 708 adolescents admitted to the hospital facility over the three years of data collection. Of these, 562 (88.9%) had completed the FISCA-SR, meeting the first criteria for eligibility for the study. There were no significant differences on income or ethnicity between those who were initially eligible for the study and those who were not eligible because of the lack of a FISCA-SR. However, those who were initially eligible were more often girls (N=314) than boys (N=248; χ^2 (df=1)=32.33, p<.001).

The second criterion for eligibility was that the adolescent report severe impairment on the FISCA-SR. As can be seen in Table 3, 341 or approximately 61% met this criterion as well.

Table 3

Emotional Impairment	Frequency	Percent
None	168	29.9
Mild	35	6.2
Moderate	18	3.2
Severe	341	60.7
Total	562	100

Emot	ional	Impairmen	t as Indicated	on the FISC	CA-SR fo	or 562 Adolescent	Admissions
-							

Some evidence for the validity of the adolescents' reports of emotional impairment is provided by a comparison with parent report of emotional impairment on



the parent version of the FISCA. A parent FISCA was available for 232 (41.3%) of the patients with FISCA-SR's. As indicated in Table 4, parents reported significantly greater severity in emotional impairment (M=2.65, SD=.77) than adolescents reported for themselves (M=1.95, SD=1.37) χ^2 (N=232, df=9)=33.40, p<.001. However, the largest discrepancies with parents were found in patients reporting mild or moderate levels of impairment, with parents generally seeing their child as more depressed than the child sees him/herself. In contrast, examination of the diagonal shown in bold font indicates that when adolescents reported severe levels of impairment, 85% of the parents also rated the adolescents as severely impaired.

Finally, the third criterion for eligibility was that the 341 adolescents reporting severe emotional impairment on the FISCA also had to report clinically significant levels of depression on the Reynolds Adolescent Depression Scale (RADS) <u>or</u> receive a discharge diagnosis of a depressive disorder (Major Depression, Dysthymia, or Depression NOS). In the total sample of initially eligible patients (N= 562), emotional impairment, assessed by the FISCA-SR Feelings and Moods scale, correlated significantly with depression ratings on the RADS (r=.261, p<.01; for this analysis, the FISCA-SR scores were analyzed as an ordinate variable ranging from 0 to 3). In addition, mean scores on the RADS for patients with a diagnosis of depression (<u>M</u>=69.18, <u>SD</u>=16.09) <u>t</u>(1, 560)=-3.93, p<.001. However, patients with and without a diagnosis of depression reported essentially the same level of impairment (Grand <u>M</u>=1.94, <u>SD</u>=1.37) on the FISCA Feelings and Moods scale. Interrelations among these three indicators of mood problems were consistent with data suggesting that diagnoses

Table 4

			Adole	scent Report		
		None	Mild	Moderate	Severe	<u>Total</u>
Parent Demost	None	2	1	0	1	4
Report		11.8%	6.7%	0%	.5%	1.7%
	Mild	5	2	0	22	29
		29.4%	13.3%	0%	11.7%	12.5%
	Moderate	3	1	0	5	9
		17.6%	6.7%	0%	2.7%	3.9%
	Severe	7	11	12	160	190
		41.2%	73.3%	100%	85.1%	81.9%
	Total	17	15	12	188	232
		100%	100%	100%	100%	100%

Relationship Between Parent and Adolescent Reports of Emotional Impairment

<u>Note</u>. % refers to column total. Note: parents reported significantly greater severity in depression than adolescents reported for themselves $\chi^2(\underline{N}=232, df=9)=33.40, \underline{p}<.001$.

are more heavily weighed on symptomatology as compared to functional impairment (Frank et al., 2000a).

In terms of eligibility, 74.5% ($\underline{N}=254$) of the 341 patients reporting severe impairment on the FISCA-SR had a diagnosis of depressive disorder (in comparison, 73.3% ($\underline{N}=412$) of the 562 initially eligible patients were diagnosed with a depressive disorder). The mean score on the RADS for the 341 patients with severe emotional impairment on the FISCA-SR was 77.7 ($\underline{SD}=15.56$) compared to 73.72 ($\underline{SD}=16.73$) for the initially eligible patients. The cut-off for clinical depression on the RADS is 77, with 52.5% ($\underline{N}=179$) of the 341 patients with severe impairment scores on the FISCA-SR at or above this cut-off (compared to 43.3% [$\underline{N}=244$] of the patients who were initially eligible).

Characteristics of the Study Participants

In all, a total of 287 of the 341 patients with severe impairment scores on the FISCA-SR met one or both of the two other inclusion criteria for mood problems. This group of 287 patients was designated as the final sample for the present study: 142 (49.5%) received a discharge diagnosis of depression <u>and</u> a score of 77 or greater on the RADS; 109 (38%) met the discharge diagnosis criteria but not the RADS criterion; and 36 (12.5%) met the RADS, but not the diagnosis criterion.

The average age for the 287 participants in the study was 14.89 (\underline{SD} =1.36) and 89.2% of the participants (\underline{N} =256) were white. The average income on an 8-point scale was 3.67 (\underline{SD} =1.79), with 3=\$20,000 to \$20,999, 4=\$30,000-\$44,000, and 5=\$45,000-\$69,000. Approximately 2/3 (67.25%; \underline{N} =193) of the participants were from a two-parent

household, 27.5% (\underline{N} =79) were from a single-parent household, 3 (1%) were from an alternative type of residence (e.g., therapeutic residence), and 12 (4.2%) had no information on family structure.

To be considered comorbidly antisocial, an adolescent meeting the depression criteria also had to report severe impairment on the delinquency <u>or</u> undercontrolled aggression scales on the FISCA-SR. Of the 287 participants, 215 (74.9%) were antisocial. In particular, 44 (15.3%) were severely aggressive but not severely delinquent; 34 (11.8%) were severely delinquent but not severely aggressive; 137 (47.7%) were both severely delinquent and severely aggressive; and 72 (25.1%) were neither severely aggressive nor severely delinquent.

<u>Demographic Differences between Comorbid and Non-comorbid Groups</u>. Comparisons between comorbid and noncomorbid patients showed that the two groups did not differ significantly on age, ethnicity, income, nor type of household. See Appendix, Table 1 for group statistics.

In terms of ADHD, 99 (34.5%) of the 287 study participants were diagnosed with ADHD. This diagnosis usually agreed with parent report. In particular, only one of 115 patients with a parent FISCA not diagnosed by the hospital as ADHD indicated a prior ADHD diagnosis. Alternatively, 46 of 71 (64.8%) of those patients diagnosed with ADHD had a prior history of ADHD according to their parents. ADHD diagnoses for patients whose parents did not report a prior history of ADHD typically were based on standardized testing procedures during the hospitalization.

Assessment of Sampling Biases. To provide an indication of possible sampling biases, comparisons were made between the 287 initially eligible patients who met the inclusion

criteria and were selected for the study (the Initially Eligible, Selected) and the 275 patients who also had FISCA-SR's but did not meet the inclusion criteria (the Initially Eligible, Excluded sample). All 562 of these patients had complete data for the FISCA-SR as well as discharge diagnoses for depression and ADHD. However, one participant was missing data for school dysfunction (this participant was also in the study sample), 59 (10.5%) were missing data for reactance (18 were in the final sample), 55 were missing data for depressogenic concerns (18 were in the final sample), and 58 (10.3%) for depression symptoms on the RADS (19 were in the final sample). All missing data were estimated for all 562 patients using a maximum likelihood estimation procedure with a regression substitution method (Tabachnick & Fidell, 1983). This procedure relies on the covariance matrix to estimate the missing data for the variables to be used in the study.

Results showed that the Included and Excluded samples did not differ significantly on age, ethnicity, income, nor type of household (i.e., two-parent, singleparent). However, there were more girls who met criteria for being in the study than boys. Specifically, of the patients in the study, 176 (61.3%) were girls and 111 (39.7%) were boys; alternatively 138 girls (50.2%) and 137 boys (49.8%) were not eligible, $\chi^2(1,562)=7.07$, p<.01. In addition, Included and Excluded patients differed significantly on reactance; depressogenic concerns; functional impairment scores for school, delinquency, and aggression on the FISCA-SR; and 2 of 11 discharge diagnostic categories. (The eleven diagnostic categories can be seen in Appendix, Table 2.)

The significant differences between Selected and Excluded participants are summarized in Table 5. Descriptive statistics for variables not distinguishing the two samples are available in Appendix, Table 3. As can be seen in Table 5, adolescents



selected for the study were more reactant than adolescents initially eligible, but not included, in the study. In addition, the Selected patients had higher self-critical concerns and higher interpersonal concerns (consistent with greater depression in general). Moreover, selected patients generally reported higher levels of functional impairment on the aggression, delinquency, and school domains of the FISCA, with differences especially evident in the "no impairment" and "severe impairment" categories. Finally, in comparison to those included in the study, significantly more excluded individuals were diagnosed with bipolar disorders (bipolar I disorder or cyclothymia; <u>N</u>=59) or with a psychotic disorder (<u>N</u>=14). With the exception of differences in diagnoses, these comparisons suggested that the Included participants had more pathology than the Excluded participants.



Table 5

Significant Differences Between Initially Eligible, Excluded (IEE) and Initially Eligible,

Selected (IES) (N=562)

FACTOR GROUP SCORES SIGNIFICANCE

Reactance and Depressogenic Concerns

		IEE	IES	Sig	gnificance
		Mean(SD)	Mean(SD))	
Reactance		73.30 (10.51)) 76.24 (9.9	γ) $\chi^2(df=$	=97)=120.5, <u>p</u> <.05
Depressogen	<u>ic Concerns</u>				
Self-Cri	tical	10 (.97)) .32 (1.03	3) <u>t(</u> 1,5)	60)=-4.97, <u>p</u> <.001
Interper	sonal	37 (1.07)	.02 (1.01	<u>t</u> (1,5	60)=-4.41, <u>p</u> <.001
Functional	Impairment So	cores			
	Impairment	IEE	IES	Total	Significance
School	None	151(26.9%)	21(3.7%)	172(30.6%)	$\chi^2(df=3)=$
					152.16, <u>p</u> <.001
	Mild	21(3.7%)	29(5.2%)	50(8.9%)	
	Moderate	28(5%)	64(11.4%)	92(16.4%)	
	Severe	75(13.3%)	173(30.8%)	248(44.1%)	
Aggression	None	155(27.6%)	12(2.1%)	167(29.7%)	$\chi^2(df=3)=184,$
					<u>p</u> <.001
	Mild	23(4.1%)	45(8%)	68(12.1%)	
	Moderate	17(3%)	49(8.7%)	66(11.7%)	
	Severe	80(14.2%)	181(32.2%)	261(46.4%)	
Table 5 continued

Functional Impairment Scores cont.

	Impairment	IEE	IES	Total	Significance
Delinquency	None	177(31.5%)	76(13.5%)	253(45%)	χ ² (df=3)=
					83.65, <u>p</u> <.001
	Mild	4(.7%)	14(2.5%)	18(3.2%)	
	Moderate	18(3.2%)	26(4.6%)	44(7.8%)	
	Severe	76(13.5%)	171(30.4%)	247(44%)	
Discharge D	liagnoses				
Disorder	<u>11</u>	EE	IES		
	Yes	No	Yes	No	Significance
					(N=541)
<u>Bipolar</u>	59 (10.9%)	201(37.2%)	247(45.7%)	34(6.3%)	$\chi^2(df=1)=11.88$
					<u>p</u> <.001
Psychotic	14 (2.59%)	246(45.47%)	5 (.9%)	276 (51%)	$\chi^2(df=1)=8.27$
					<u>p</u> <.01



Tests of the Hypotheses

Table 6 shows univariate correlations among the six variables used to discriminate comorbid from non-comorbid depressed adolescents. Separate correlations for boys and girls can be seen in Appendix, Table 4.

Table 6

Variable	1	2	3	4	5	6
1. Interpersonal Concerns		03	06	06	14 ^a	2 ^c
2. Self-Critical Concerns	03		.31 °	.04	.05	.01
3. Reactance	02	.31 ^c		.17 ^b	.28 ^c	.05
4. ADHD	06	.04	.17 ^b		.20 °	.16 ^b
5. School Impairment	14 ^a	.05	.28 ^c	.20 ^c		19 ^c
6. Gender	19 ^c	.01	.05	.16 ^b	.19 ^c	

Univariate Correlations Among Discriminating Variables

^a = \underline{p} <.05; ^b = \underline{p} <.01; ^c \underline{p} <.001

Hypothesis 1 and 2: Gender and Comorbidity; ADHD and Comorbidity

A comorbidity X gender X ADHD three-way Fisher's Exact Chi Square Test was used to test the predictions that comorbid patients would more often be boys than girls and that comorbid patients would more often have an ADHD diagnosis than noncomorbid patients. An additional possibility also considered and assessed by the interaction term was that gender would not only relate to higher rates of comorbidity but also would moderate the relationship between ADHD and comorbidity.

No significant interactions emerged. Rather, the two main effects for gender and ADHD were both statistically significant (p's<.001). Consistent with the prediction, boys

were more likely to be comorbid than girls (85.6% versus 68.2%, See Table 7). In addition, adolescents diagnosed as ADHD were more likely to be comorbid than those not diagnosed as ADHD (81.8% versus 71.3%). It is notable that although no significant interactions emerged, the raw data suggest that the greater incidence of comorbidity among adolescents with ADHD was somewhat more pronounced among girls than among boys. See Table 8.

Hypothesis 3: School Functioning and Comorbidity

A 2 X 2 ANOVA with gender and comorbidity as independent factors and scores on the FISCA-SR School scale as the dependent variable was used to test the prediction that comorbid patients would report more functional impairment in school than non-comorbid patients. The 2-way interaction was not significant (F=.18, p=.67). As hypothesized, Table 7

	Girls	Boys	Total
Not Comorbid	56	16	72
	31.8%	14.4%	25.1%
Comorbid	120	95	215
	68.2%	85.6%	74.9%
<u>Total</u>	176	111	287
	100%	100%	100%

Patient Frequency Broken Down By Comorbidity By Gender

Note. % refers to column percent



Table 8

		All Patients		Girls		Boys	
		Comorbidity		Como	Comorbidity		orbidity
		<u>No</u>	Yes	<u>No</u>	Yes	<u>No</u>	Yes
<u>ADHD</u>	<u>No</u>	54	134	44	82	10	52
		75%	62.3%	78.6%	68.3%	62.5%	54.7%
	Yes	18	81	12	38	43	49
		25%	37.7%	21.4%	31.7%	45.3%	44.1%
	Total	72	215	56	120	16	95
		100%	100%	100%	100%	100%	100%

Patient Frequency Broken Down by Comorbidity, Gender, and ADHD

comorbidity was significantly associated with school dysfunction (<u>F</u>=21.54, <u>p</u><.001), with comorbidly depressed and antisocial adolescents more likely to have school problems (<u>M</u>=2.56, <u>SD</u>=.79) than depressed adolescents who were not antisocial (<u>M</u>=1.75, <u>SD</u>=1.07). See Table 9. Gender also emerged as a significant factor (<u>F</u>=2.81, <u>p</u><.05). Adolescent boys were more likely to report severe school dysfunction (70.3%) than adolescent girls (54%). See Table 10.

Note. % refers to column percent



Table 9

		Como	rbidity	
		No	Yes	Total
School Dysfunction	None	12	9	21
		16.7%	4.2%	7.3%
	Mild	16	13	29
		22.2%	6.0%	10.1%
	Moderate	22	42	64
		30.6%	19.5%	22.3%
	<u>Severe</u>	22	151	173
		30.6%	70.2%	60.3%
	Total	72	215	287
		100%	100%	100%

Percent of Comorbid and Non-Comorbid Patients at Each Level of School Impairment

<u>Note.</u> % refers to column percent; $\underline{F}=21.54$, $\underline{p}<.001$



Table 10

	<u>.</u>	Girls	Boys	Total
School Impairment	None	17	4	21
		9.7%	3.6%	7.3%
	Mild	23	6	29
		13.1%	5.4%	10.1%
	Moderate	41	23	64
		23.3%	20.7%	22.3%
	Severe	95	78	173
		54.0%	70.3%	60.3%
	<u>Total</u>	176	111	287
		100%	100%	100%

Percent of Girls and Boys at Each Level of School Impairment

<u>Note.</u> % refers to column percent; $\underline{F}=2.81$, $\underline{p}<.05$

Hypothesis 4: Depressogenic Concerns and Comorbidity

A 2 X 2 ANOVA with gender and comorbidity as independent factors was used to assess the prediction that comorbid adolescents were more likely to experience selfcritical concerns. There were no significant interactions, nor main effects for comordiity for either type of depressogenic concern. (See Table 1 in Appendix for Means). The one significant finding was a main effect for gender for interpersonal concerns (<u>F</u>=7.36, p<.01), with these concerns endorsed more often by girls (<u>M</u>=.17, <u>SD</u>=1.01) than boys (<u>M</u>=-.22, <u>SD</u>=.97).



Hypothesis 5: Reactance and Comorbidity

A 2 X 2 ANOVA with gender and comorbidity as independent factors was used to assess the prediction that comorbid adolescents would be more reactant than noncomorbid adolescents. The main effect for comorbidity was statistically significant, and, as expected (\underline{F} =52.23, \underline{p} <.001), comorbid patients (\underline{M} =78.38, \underline{SD} =9.52) were more reactant than noncomorbid patients (\underline{M} =69.83, \underline{SD} =8.10). A trend for gender (\underline{F} =3.6, \underline{p} =.059), was because boys (\underline{M} =76.88, \underline{SD} =10.81) were somewhat more reactant than girls (\underline{M} =75.84, \underline{SD} =9.28). The gender X comorbidity interaction also was significant (F=6.45, \underline{p} <.01). Independent t-tests showed that differences in reactance were significant for both girls (\underline{t} (df=174)=-4.75, \underline{p} <.001) as well as boys (\underline{t} (df=109)=-5.37, \underline{p} <.001) and in the same direction; however, these differences are somewhat larger for boys. Viewed as terms of comorbidity, gender differences in reactance are greater (and favor girls) in the non-comorbid group but are essentially non-apparent in the comorbid group. See Table 11.

Table 11

Comorbid	Gender	M	<u>SD</u>	<u>t</u>	p
Not Comorbid	Girls	71.55	7.64	<u>t</u> (df=174)=-4.75	<u>p</u> <.001
	Boys	64.80	8.12	<u>t(df=109)=-5.37</u>	<u>p</u> <.001
Comorbid	<u>Girls</u>	78.19	9.18		
	Boys	78.97	10.06		

Patient Frequency Broken Down By Reactance and Gender and Comorbidity



Discriminant Function Analysis.

Follow-up analyses included two different discriminant function analyses. However, because the results were essentially the same for boys and girls (see Appendix, Table 5), only the results for both genders combined are reported here.

A Wilks' Lambda statistic test identified significant differences between group centroids and an overall significant discriminant function (N=287; λ =.80;

 χ^2 (df=6)=37.33; p<.001; eigenvalue = .243; canonical R = .44; group centroids were -

.718 for the depressed only group and .335 for the comorbid group. Standardized

canonical discriminant function coefficients and correlations with the discriminant

function are displayed in Table 12. The two variables that best define the discrimant

function are: school impairment (Discriminant Function Coefficient=.665, $\underline{r} = .796$) and

reactance (Discriminant Function Coefficient=.661, \underline{r} =. 730).

Table 12

	Standardized Canonical Discriminant Function Coefficients	Correlation Within Function	
School Impairment	.587*	.729*	
Reactance	.651*	.728*	
ADHD	021	.359	
Interpersonal Concerns	.011	113	
Self-Critical Concerns	034	.170	

Discriminant Function Coefficients and Correlations for all Participants Combined



Additional Analyses.

The discriminant function analysis showed that once differences in school impairment and reactance were taken into account, ADHD no longer significantly discriminated between comorbid and non-comorbid depression. Two additional hierarchical discriminant functions were used to determine whether school impairment, reactance or both were necessary to render the effects of ADHD non significant. In the first analysis, after controlling for the effects of school impairment, ADHD no longer contributed to the discriminant function (\underline{F} =.729). In the second analysis, after controlling for reactance, the effects of ADHD again were not significant (\underline{F} =.729). Therefore, either school impairment or reactance alone was sufficient to eliminate ADHD as a discriminating variable.



DISCUSSION

In sum, data analyses supported some, but not all, of the research predictions. As expected, comorbid patients more often were boys than girls and comorbid patients more often were diagnosed with ADHD than non-comorbid patients. In addition, comorbidity was associated with more school impairment and higher levels of reactance. However, self-critical concerns did not differ significantly between adolescents with and without comorbidity. A multivariate discrimant function analysis indicated that, regardless of gender, school impairment and reactance were the best discriminators of comorbid and non-comorbid patients.

Research Predictions

The finding that comorbid patients were more often boys than girls was predicted and is consistent with earlier studies of general, as well as clinical, populations (Loeber & Keenan, 1994; Loeber, et al., 1998). Presumably, gender differences in antisocial behavior reflect trends for the general population rather than for depressed adolescent inpatients in particular (McCord, 1990). Whether gender differences in antisocial problems are any more (or less) extreme among depressed as compared to normal adolescents is a question that cannot be addressed without a normal comparison group, but should be addressed in future studies.

Proportions of antisocial boys as compared to girls in samples not selected for depression have been fairly similar to those found in the present study (Esser, Schmidt, & Woerner. 1990; Long & Boik, 1993; Loeber et al., 1999). In the present study, using data for severely depressed patients, 85.6% of boys as compared to 68.2% of girls endorsed involvement in antisocial activity. Comparable results have also been reported



in epidemiological studies in a variety of cultures (Esser, et al., 1990; McGee, Silva, & Williams, 1984). Together, these studies suggest that with or without depression, boys are more likely to be involved in antisocial activities than girls, and in approximately the same proportions. Alternatively, because adolescent depression is greater for girls than boys it is likely that within a sample of antisocial adolescents, as opposed to depressed adolescents, comorbidity will be more prevalent among girls than boys. This prediction can be tested formally in future studies assessing a uniformly antisocial rather than a uniformly depressed sample of adolescents.

The finding that comorbid patients were more often diagnosed with than noncomorbid patients also is consistent with data from other studies linking ADHD to antisocial involvement (Bierderman et al., 1991; Foley et al., 1996) and (less clearly) to depression (Angold & Costello, 1993; Foley et al., 1996). However, several related but unanticipated findings emerged from the present study. First, differences between comorbid and non-comorbid adolescents in the prevalence of ADHD tended to be greater for girls than boys. Although this pattern was not statistically significant, it was sufficiently evident to be worth exploring further. It is conceivable that severely depressed boys are at-risk for comorbid antisocial behaviors regardless of the presence of ADHD whereas depressed girls are at greater risk as a function of ADHD. In Western society, girls are socialized to cope with their problems (including depression) by using internalizing rather than externalizing means, whereas it is more acceptable for boys to do the opposite. Therefore, girls may have a higher threshold for manifesting syndromes of antisocial behavior and may require some additional impetus before coping with problems in an externalizing manner. In particular, ADHD may pose additional risk to



depressed girls leading them to deviate from gender-linked socially prescribed ways of dealing with difficulties, resulting in a shift from internalizing to externalizing patterns of coping.

A second interesting finding is that, despite the recent emphasis on the role of ADHD in antisocial involvement (Bierderman et al., 1991; Foley et al., 1996), ADHD no longer significantly discriminated between comorbid and non-comorbid depression once differences in school impairment and reactance were taken into account. However, both reactance and school impairment independently discriminated between the comorbid and non-comorbid groups. This finding suggests that the three variables are confounded and that the consequences of ADHD, in particular those associated with reactance and school impairment, are more critical than the presence of ADHD alone. In this regard, it is already known that ADHD without comorbid oppositional or conduct problems is not likely to be associated with poor outcomes. For example, Hart and colleagues assessed 106 clinic-referred boys with ADHD (ages 7-22 years) annually for 4 years and found that those without conduct problems during the first year of the study showed less severe symptomatology and were less likely to have comorbid oppositional and conduct problems at follow-up. In addition, those who still met criteria for ADHD in years 3 and 4 were significantly more likely to exhibit conduct disorder in year 1 than boys who no longer met criteria for ADHD in Years 3 and 4 (Hart, Lahey, Loeber, Applegate, & Frick, 1995).

A third finding in the present research, that comorbidity was more often found in adolescents experiencing school impairment, is also consistent with prior investigations (Messier & Ward, 1998; Patterson 1986; Patterson et al., 1989; Quay & Peterson, 1987).

In particular, recent studies emphasize the role of school impairment, both in comorbidity, specifically, and pyschopathology, in general (Hinshaw, Lahey, & Hart, 1993; Moffitt, 1994; Frank et al., 2000a). For example, Frank et al. (2000a) found that serious impairment in school, in combination with poorly controlled aggression, predicted a threefold increase in recidivism risk in an adolescent inpatient sample. Others also have found that aggression and school impairment are major factors in persistent, longstanding maladaptation in multiple contexts (Hinsaw et al., 1993; Moffit, 1994).

Unfortunately, the direction of causality between school difficulties and comorbid psychopathology, as well as between other variables identified here, could not be explored in this cross-sectional study. Moreover, the present study can not determine whether school failure in the context of depression has better or worse implications for outcomes than when depression is not apparent. Conceivably, school dysfunction together with depression has an additive effect, where the sum is essentially equal to its parts. Alternatively, assuming an interactive effect, the combination of the two may be worse than what would be expected given the distinct components. To examine these alternatives, future studies will require longitudinal designs, large samples, and examination of school dysfunction comorbid with depression <u>as well as</u> other problems.

A fourth result, that reactance significantly discriminated between comorbid adolescents and non-comorbid adolescents, has received less attention from other investigators. This relationship was anticipated in part because of evidence of a relatively strong relationship between reactance and antisociality (Beutler, 1991; Dowd & Wallbrown, 1993; Graff & Luborsky, 1977; Weisz, et al., 1995). It is not clear whether high reactance in comorbid adolescents is due to antisocial characteristics alone, or



whether comorbidity with other pathology, including depression, further increases the level of reactance. Alternatively, a "third variable argument" is seen in recent study by Frank et al. (2000b). Their findings suggest that reactance, as well as depression, are <u>outcomes</u> of adolescents' difficulties with separation-individuation from parents, with reactance, in turn directly related to antisocial activity.

Evidence that depressed boys are more likely to be reactant than depressed girls was not anticipated and tangential to the major aims of this study. Moreover, given the inconsistencies in the research of the relationship between gender and reactance, it is still impossible to rule whether findings in either direction are more accurate and/or which variables moderate the relationship between gender and reactance. Interestingly, comorbidity and gender did not interact in predicting reactance. Therefore, the greater incidence of reactance in this sample of depressed boys (as compared to depressed girls) cannot be attributed solely to those boys who were also antisocial. Rather, it is plausible that social role stereotypes can help account for gender differences, implying that boys are socialized to be more autonomous (and hence resistant to authority) than girls and therefore, are more likely to be reactant.

Overall, the findings of the present study are an important addition to the literature. Reactance has not been considered as a factor in comorbidity and may have important implications for both practice and theory. For example, a number of studies report that the severity of problems increases in the presence of multiple disorders and hence makes treatment considerably more difficult. Understanding the contribution of reactance to this phenomenon may alter and improve the current modes of treatment of adolescents with comorbid problems.



One prediction was not supported by these data. Adolescents with self-critical depressogenic concerns were not more likely to be comorbid than those without these types of concerns. This finding is interesting given the nature of individuals with self-critical concerns. Self-critical concerns are fueled by fears of failure and guilt and the need for achievement and autonomy. Research has shown that self-critical individuals are more likely to be irritable, hostile or unlikable, and they often have discordant peer and family relationships (Blatt, 1991; Mongrain, 1993). Seemingly, they try to avoid dependency at all costs and seek to dominate others (Blatt, 1991). Accordingly, it was expected, that such personality characteristics would likely result in counteractive attempts to challenge authority by becoming involved in many forms of antisocial behavior (Loeber, 1990). Despite the fact that the findings were in the expected direction, they were not significant. It is possible that the experience of severe depression is "energy consuming", making it less likely that self-criticals will resort to otherwise customary ways of acting out.

Additional Considerations, Constraints, and Limitations

Possible sampling biases must be taken into account when interpreting the results. First, given that the present study focuses on adolescent inpatients, these findings may not replicate in outpatient adolescent samples or in samples of adolescents not receiving treatment. Comorbidity may manifest itself differently in samples of adolescents sufficiently impaired to meet severe depression criteria as compared to adolescents in "normal," outpatient, or predominantly antisocial populations.

Second, initial sample differences also deserve further comment. Comparisons between the Initially Eligible, Selected participants and Initially Eligible, Excluded



participants indicated that the selected participants were significantly more reactant, had more depressogenic concerns, and higher functional impairment scores for school, delinquency, and aggression. Selected patients were included in the study <u>because</u> they were severely depressed, but the results also suggest that they had greater pathology overall (including more functional impairment).

In general, severity of pathology correlates positively with overall level of functional impairment (Costello, Angold, & Keeler, 1999; Frank et al., 2000a). However, admission criteria may also have contributed to this association in the present sample. In this era of managed care, an adolescent who is depressed, but does not simultaneously manifest other problems, usually will be treated on an outpatient basis. However, when depression is comorbid with other diagnoses, or serious functional deficits, admission to an inpatient facility is likely. Interestingly, Excluded adolescents (those not meeting criteria for severe depression) more often had a bipolar or psychotic disorder diagnosis than Included adolescents. These problems usually are regarded as sufficiently severe, in and of themselves, to warrant inpatient care.

Although this study did not include a diagnostic interview, a reliance on converging indicators attempted to overcome this limitation. In order to be included in this study, adolescents <u>must</u> have indicated severe emotional impairment on the FISCA-SR Feelings and Moods scale <u>and either</u> received a diagnosis of a depressive disorder <u>or</u> scored above the formal cut off for clinical depression on the RADS. Emotional impairment on the FISCA-SR correlated significantly with depression ratings on the RADS (<u>r</u>=.27, p<.001) (but was unrelated to diagnosis of a depressive disorder). In addition, depression as indicated by the RADS, was significantly correlated with a



discharge diagnosis of depression (\underline{r} =.14, \underline{p} <.001). These associations are fairly modest, suggesting that the three measures are relatively independent indicators of depression. The use of "two of three" different indicators assessing relatively unique components of depression offers a fairly conservative estimate of depression.

Future research should consider assessment of adolescent inpatients, outpatients, and general populations who are not depressed and compare the findings to those from the present study. In addition, this study is based on self-report measures using a relatively new instrument. Comparing parent and youth reports of pathology, Frank et al. (in press) showed agreement was lowest for the Thinking and the Feelings & Moods domains, but considerably higher for other areas of difficulty, including Delinquency, Aggression, and Alcohol & Drug Use. Parents were more likely than adolescents to endorse severity in reporting the adolescents' emotional difficulties. It would be interesting to determine if the findings of the present study would be replicated if Feelings and Moods were based on parent report rather than youth self-report. Nonetheless, stringent depression criteria were used which could have potentially negated the effects of the adolescent-parent disparity in reported problems.

Implications for Treatment and Prevention.

The "prevalence" model, the "common etiology" model, and/or the "linked risk" model of comorbidity were used heuristically to provide a conceptual foundation for the study's predictions. However, because of the design of the study it was not possible to rule in favor of one of these models over another. When these models are applied, they have the capability to elucidate why psychological problems or disorders co-occur, informing treatment and prevention of comorbid problems.



For example, the "prevalence" model suggests that if one disorder has a high prevalence rate in general, than it will likely overlap with other disorders, especially if a second disorder also has a high prevalence rate. Interventions with one disorder theoretically would have no effect on the second disorder because they co-occur by mere chance. Therefore, treatment for this type of comorbidity must be targeted at both disorders since they independently manifest themselves. Similarly, interventions with "linked risk" comorbid conditions should target each disorder. However, in contrast to the "chance overlap" situation, interventions aimed at one disorder will inevitably effect the other disorder because of their mutual influence. At the same time, assuming mutual influence, leaving one risk factor untreated is likely to lead to reemergence of the other. Additionally, optimal timing and sequence of interventions for "linked risk" disorders can result in prevention of future associated disorders. For example, research suggests that reactance is linked to delinquency (producing further reactance; Frank et al., 2000b). However, if reactance emerges earlier (in the form of oppositionalism), a treatment strategy that targets reactance early-on minimizes the possibility of later delinquency.

Alternatively, interventions targeted at comorbid conditions with a "common etiology" are most effective if they focus on the third, causal disorder, rather than targeting each condition independently. For example, as explained above, Frank et al. (2000b) found that children and early-adolescents (grades 4 to 8), reporting conflictual dependency (a form of family conflict) also reported greater reactance <u>and</u> greater emotional impairment. This research suggests that conflictual dependency is a common cause for both reactance and emotional impairment. Therefore, interventions targeted at



decreasing conflictual dependency will minimize both reactance and emotional impairment, thereby "killing three birds with one stone."

Summary

The present study identified several factors that discriminate between depressed adolescents with and without comorbid antisocial involvement. Understanding the implications of comorbidity is important during adolescence because of its prevalence and problematic outcomes. Nonetheless, too frequently comorbid conditions are overlooked and many researchers and practitioners disregard the impact of symptoms of other disorders. Adolescent psychopathology cannot be conceptualized adequately without considering the additive and interactive affects of comorbidity . Future research should consider using the models not only as heuristic guides, but tools for understanding psychopathology, in general and causality, in particular. Only through vigorous attempts on the part of researchers and practitioners who address these issues, can there be considerable improvements in the conceptual approaches of understanding adolescent psychopathology.


APPENDIX



Demographics and Depressogenic Concerns For Comorbid and Non-Comorbid Groups

Comorbid	NonComorbid	
Mean (SD)	Mean (SD)	
14.91 (1.37)	14.82 (1.33)	
3.52 (1.84)	3.75 (.84)	
88.8% (215)	90.3% (72)	
68% (203)	79% (69)	
014 (1.05)	.13 (.88)	
.37 (1.00)	.15 (1.07)	
	Comorbid Mean (SD) 14.91 (1.37) 3.52 (1.84) 88.8% (215) 68% (203) 014 (1.05) .37 (1.00)	Comorbid NonComorbid Mean (SD) Mean (SD) 14.91 (1.37) 14.82 (1.33) 3.52 (1.84) 3.75 (.84) 88.8% (215) 90.3% (72) 68% (203) 79% (69) 014 (1.05) .13 (.88) .37 (1.00) .15 (1.07)



Disorders Included In Category Significance Diagnostic Category ADHD NS Behavioral Disorders, Conduct Disorder & Impulse Control Disorder NS not including ADHD NS Substance Abuse Disorders i.e., Cannabis Abuse, Alcohol Dependence NS Schizophrenic Disorders Schizoaffective disorder, Schizophreniform, Schizophrenia NS Anxiety Disorders Post-traumatic stress disorder, Panic Disorders, **Obsessive Compulsive Disorders** NS Learning Problems Learning Disorder, Language Disorder, Developmental Reading Disorder NS **Developmental Disorders** Adjustment Disorder, Enuresis, Pervasive **Developmental Disorders** NS Eating Disorders Anorexia Nervosa, Bulimia Tourette's Disorder NS S* p<.001 Depressive Disorders, Cyclothymia, Bipolar Not including MDD, Dysthymic, and Depressive Disorder - NOS S* p<.01 Psychotic Disorders, not including schizophrenia or depressive disorders with psychotic features.

Descriptions of 11 Diagnostic Categories

Nonsignificant Differences Between Initially Eligible, Excluded and Initially Eligible, Selected

Groups on	Demographi	cs and Dischar	ge Diagnoses
			•••••

	Initially Eligible	nitially Eligible, Excluded Initially Eligible, Selecte			
A. Demographics	Mean(SD)		Mean(SD)		· · · · · · · · · · · · · · · · · · ·
Age	14.86 (1.44)		1		
Income		3.57 (1.63)			
Type of Household		3.14 (3.77)	-	3.67 (4.43)	
	<u>N / </u>	<u>%</u>	<u>N / %</u>		
% White(N)	2	238 / 86.5%	2:	56 / 89.2%	
B. Discharge Diagnoses	Initially Eligi	ible, Excluded	Initially Elig	ible, Selected	
	Yes	No	Yes	No	<u>N</u>
	(N/% total)	(N/% total)	(N/% total)	(N/% total)	
Attention Deficit	89 (15.8%)	186 (33.1%)	99 (17.6%)	89 (15.8%)	562
Hyperactivity Disorder					
Behavioral Disorders,	78 (14.4%)	182 (33.6%)	75 (13.9%)	206 (38.1%)	541
not including ADHD					
Substance Abuse Disorders	s 116 (20.6%)	159 (28.3%)	103 (18.3%)	184 (32.7%)	562
Schizophrenic Disorders	7 (1.2%)	268 (47.7%)	3 (.5%)	284 (50.5%)	562
Anxiety Disorders	31 (5.5%)	244 (43.4%)	30 (5.3%)	257 (45.7%)	562
Learning Problems	4 (.7%)	271 (48.2%)	8 (1.4%)	279 (49.6%)	562
Developmental Disorders	9 (1.6%)	266 (47.3%)	4 (.7%)	283 (50.4%)	562
Eating Disorders	6(1.1%)	254(47%)	7(1.3%)	274(50.6%)	541
Tourette's Disorder	2 (.4%)	258 (47.7%)	0	281 (51.9%)	541



Univariate Correlations Among the Discriminating Variables By Gender

Variable	1	2	3	4	5
1. Interpersonal Concerns		01	.06	.11	10
2. Self-Critical Concerns	.09		.40 ^c	03	.02
3. Reactance	11	.20ª		.14	.28 ^c
4. ADHD	24 ^a	.15	.20 ^a		.14
5. School Impairment	13	.14	.29°	.24ª	

 $\underline{\text{Note.}}$ Correlations for girls are above, and correlations for boys are below, the shaded

boxes in the diagonal.

^a = p<.05; ^b = p<.01; ^c p<.001

Table 5

Results of the Discriminant Function Analysis for Each Boys and Girls Separately

	Standardized Canonical Discriminant Function		Absolute Size of Correlation			
			Within Function			
Coefficients						
	Total	Girls	Boys	Total	Girls	Boys
School Impairment	.587*	.665*	.477*	.729*	.796*	.562*
Reactance	.651*	.611*	.850*	.728*	.730*	.876*
ADHD	021	.086	140	.359	.216	.094
Interpersonal Concerns	.011	096	.172	113	.203	.031
Self-Critical Concerns	034	014	033	.170	096	.143



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