Axis I and Personality Comorbidity in Adolescents with Conduct Disorder

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This study was undertaken to investigate psychiatric comorbidity in male and female adolescents with conduct disorder diagnoses. Twenty-five hospitalized adolescents (11 females, 14 males) with conduct disorder were evaluated using structured diagnostic interviews for Axis I and personality disorders. The most common Axis I comorbid diagnoses were: depressive disorders (major depression and/or dysthymia), 64 percent; anxiety disorders (separation anxiety disorder, overanxious disorder, panic disorder, obsessive-compulsive disorder, phobias, and/or posttraumatic stress disorder), 52 percent; substance abuse, 48 percent; and attention-deficit hyperactivity disorder, 28 percent. Common Axis II disorders included passive-aggressive personality disorder, 56 percent, and borderline personality disorder, 32 percent. When compared with the male subjects, the females had significantly more total Axis I disorders and a trend toward more total personality disorders, anxiety disorders, depression, and borderline personality disorders. These findings support conduct disorder as a complex illness with extensive Axis I and II involvement as well as some gender differences in presentation.

Conduct disorder is a frequent diagnosis in pediatric psychiatric populations, comprising one-third to one-half of outpatient child and adolescent clinic referrals.[1] Children with conduct disorder are at an increased risk for other emotional problems, substance abuse, suicide, accidents, and being arrested. Many will be adjudicated delinquent as a result of their lawbreaking behaviors and subsequently enter the juvenile justice system.

In 1990, the number of arrests of persons under 18 years of age was higher than two point two million, or 16% of all arrests.[2] More than a half million (23%) of these arrests involved females. Not unexpectedly, certain delinquent populations have been found to have exceedingly high rates of conduct disorder, ranging from 87 percent to 100 percent.[3, 4]

The connection between conduct disorder and other Axis I and personality disorders in adolescents has been recognized

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but remains indistinct. Conduct disorder has been linked with such Axis I diagnoses as attention-deficit disorder,[5] depression,[6] substance use disorders,[4] bipolar disorder,[7] and even eating disorders.[8] The use of personality disorder diagnoses in children and adolescents is gaining recognition as a legitimate clinical and research endeavor. In a recent study by Eppright *et al.*[3] of delinquents, 90 percent of the subjects with conduct disorder also had at least one personality disorder diagnosis. Two other studies[9, 10] on youth with conduct disorders found comorbid personality diagnoses including borderline, histrionic, and passive-aggressive personality disorders.

This present study was undertaken in order to further explore the range and gender differences in Axis I and particularly personality disorder diagnoses in adolescents with conduct disorder. The authors are aware of only two previous studies using the Structured Interview for Personality DSM-III-R (SIDP-R) in adolescents,[10, 11] only one of which combined it with the Diagnostic Interview for Children and Adolescents (DICA) to explore comorbidity in hospitalized adolescents. In adult populations, the presence of personality disorders in individuals with Axis I disorders can hinder the provision of effective treatments. The treatment of adolescents with conduct disorder is generally recognized to be difficult, requiring long-term interventions that are too often ineffective.[12] A greater understanding of the diverse comorbidity patterns and the differences in male and female presentations may lead to more effective treatment interventions.

Methods

Subjects The sample consisted of 25 consecutive admissions, fulfilling DSM-III-R criteria by structured interview for conduct disorder, to a university hospital adolescent psychiatric inpatient program during a one-year period. The unit primarily served the metropolitan and rural areas of north Florida. The diverse patient mix included referrals from mental-health professionals, community agencies, schools and families, as well as emergency room admissions and transfers from other hospital services. The average length of hospital stay was three to four weeks. Subjects with mental retardation, active psychotic processes, pervasive developmental disorder, or hospital stays of less than seven days were excluded from the study.

The study population included 14 (56%) males and 11 (44%) females and had 21 (84%) whites and four (16%) blacks. Ages ranged from 14 to 17 years (mean ± SD, 15.08 ± 0.8 years). Socioeconomic status distribution determined by the Hollingshead-Redlich two-factor method[13] was 10 (40%) in social class I, II, and III and 15 (60%) in social class IV and V. Many of these adolescents were from disadvantaged backgrounds and were not living with their biological parents, residing instead in foster care, delinquency, or group home settings. Intelligence testing revealed a Wechsler Intelligence Scale for Children-Revised (WISC-R) mean full scale IQ of 93.6 ± 13.4, with a range of 70 to 122. There were no significant differences between the males and females in terms of age,

SES distribution, or race. However, there was a trend (*t* test, $t = -1.842$, $df = 23$, $p = .08$) for the females to have lower IQs, with the mean full-scale IQ for the females being 88.6 ± 8.2, whereas for the males it was 97.6 ± 15.6.

Instruments The DICA, Adolescent Version (DICA-R-A, draft 6-R, revised January 1990) is a fully structured diagnostic interview for adolescents 13 to 17 years old, originally developed by Herjanic *et al.*[14] at Washington University (St. Louis, MO). This instrument makes current and past diagnoses in 20 DSM-III-R Axis I categories and includes both adolescent and parent (guardian) interviews.

The Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiologic Version (K-SADS-E) (1987) is a semistructured diagnostic interview for children 6 to 17 years old developed by Puig-Antich *et al.*[15] This instrument allows determination of both current and past Axis I diagnoses. In this study only the panic disorder and agoraphobia sections were used in order to expand diagnostic comprehensiveness, as these two diagnoses are not covered in the DICA-R-A.

The SIDP-R is a semistructured diagnostic interview that covers all DSM-III-R personality disorders including the proposed sadistic and self-defeating personality categories.[16] The format allows for additional interview input from a parent or guardian on some questions. Although previously used primarily in adults, the SIDP-R has been used successfully in adolescent populations.[10, 11] The SIDP-R was chosen for use in this investigation because of its "content"-oriented format, which frequently requires examples from the interviewee's life to confirm or eliminate a given criterion. Data from the antisocial personality disorder section were not used in this study as this disorder is not applicable to adolescents under age 18. Since a few topic areas clearly were age-related, some questions were modified to better suit the related adolescent developmental stages (i.e., the word "school" was substituted for "work" where appropriate).

Procedure This research received the approval of the University of Florida College of Medicine Institutional Review Board. Informed consent was obtained from both the subjects and their guardians before they participated. DSM-III-R Axis I diagnoses were determined using the DICA-R-A and K-SADS-E (panic disorder and agoraphobia only), whereas personality diagnoses were made using the SIDP-R. In most subjects the appropriate parental interview was also completed; however in some cases information had to be obtained from guardians, caseworkers, therapists, and from unit personnel who were familiar with the subject.

The diagnostic instruments were administered during the later part of the subject's hospitalization, usually during the last week when effective treatment was well underway. This was done in an attempt to minimize the influence on diagnoses of acute hospitalization, active crises, and, particularly in the case of personality diagnoses, severe affective syndromes. There is evidence that personality disorder diagnoses made during an affective illness may not persist with return to the euthymic state.[17, 18] In ad-

ministering the SIDP-R, the interviewers were careful to separate stable personality patterns from those limited solely to periods of stress or affective illness. The adolescents also required frequent reminders to distinguish pervasive, enduring behavioral patterns and characteristics from those that were transient or related solely to a specific circumstance (i.e., abuse, parental divorce). Often it was useful to request several examples to be certain a given criterion was met.

The instruments were given in this sequence: DICA-R-A, K-SADS-E, and SIDP-R. Several testing sessions were needed to complete the assessment in order to avoid fatigue. The DICA-R-A and SIDP-R parent/informant interviews were given as the final element of the protocol. The DICA-R-A and K-SADS-E interviews were administered by W.C.M., a PhD clinical psychologist, a child psychiatry fellow, a psychology research assistant, and a medical student research assistant. W.C.M., who has previous experience with the DICA,[4, 10, 19] trained and periodically assessed the other interviewers. The SIDP-R was administered by R.C.B. and W.C.M., who have previous experience with the instrument[10] and a PhD clinical psychologist who has extensive experience with adolescent populations. Training for the interviews included familiarization with the needed diagnostic criteria and interview formats, passively scoring interviews conducted by senior authors, and finally conducting the interview under supervision until 90 percent interrater agreement on diagnosis was achieved. During the study, average kappa coefficients[20] of 0.69 for the DICA-R-A and 0.72 for the SIDP-R were achieved (moderate interrater reliability) on a random sample on interviews (15% of subjects) that were simultaneously scored by two raters. Agreement was defined as rater concurrence on the presence or absence of any given diagnosis.

The instruments were scored using the guidelines suggested by their authors. R.C.B. and W.C.M. reviewed the subject responses for accuracy comparing the findings with clinical data obtained during the hospitalization and the subjects' clinical histories. Although only rarely necessary, diagnostic interview responses that were clearly inaccurate—such as those resulting from obvious exaggeration or symptom fabrication—were amended after review by the investigators. In the subjects for whom parental interviews were not available, other information sources as enumerated above were used. Discrepancies between adolescent reports and informant data were resolved by consensus agreement of the authors. Generally, internal feelings and subjective attitudes seemed to be most accurately reported by the adolescent, while observable behaviors and historical facts were most reliably reported by other informants. In this study, parental interviews rarely negated any diagnosis endorsed by the adolescent. Most often they tended to strengthen the criteria already present or, in a few instances, add new diagnoses. In the particular case of the anxiety disorders, parents generally reported less symptoms than the adolescents. Therefore, while final diagnoses in this study are based primarily on structured interview results, they should be considered

"best estimate" diagnoses incorporating the multiple information sources available. The use of multiple information sources in diagnostic decision-making and the concept of "best estimate" diagnoses have been discussed elsewhere.[21, 22]

In this study only the current diagnoses were considered. The male and female subjects were compared in terms of demographic variables, numbers of diagnoses, and comorbid Axis I and personality disorders. Differences between the gender groups were analyzed with the Student's *t* test, chi-square test, or Fisher's Exact (two-tail) Test as appropriate to determine levels of significance.

Results

The most common comorbid Axis I DSM-III-R diagnoses were in the depression and anxiety disorder spectrum. Sixteen (64%) of the 25 subjects had a depressive disorder including 13 (52%) with major depression, six (24%) with dysthymia, and three (12%) with both. Thirteen (52%) of the 25 subjects had one or more anxiety disorders including six (24%) with overanxious disorder (OAD), five (20%) with simple phobia, four (16%) with post-traumatic stress disorder (PTSD), three (12%) each with separation anxiety disorder (SAD) and obsessive compulsive disorder (OCD), and two (8%) with panic disorder (PD). Other diagnoses included: 12 (48%) with substance abuse, seven (28%) with attention-deficit hyperactivity disorder (ADHD), and one (4%) each with somatization disorder, encopresis, enuresis, and eating disorder not otherwise specified. Figure 1

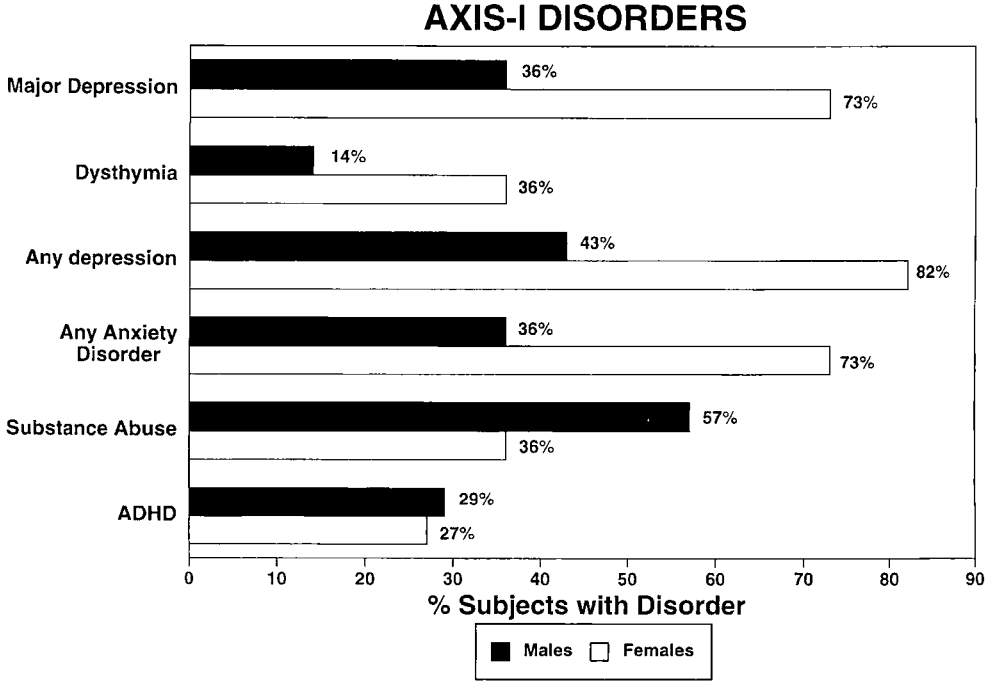

Figure 1. Axis I disorders.

compares the Axis I diagnosis distribution by gender for the most frequent disorders. The female subjects had a trend toward more major depression ($\chi^2 = 3.381$, $df = 1$, $p = .066$), more major depression and/or dysthymia (Fisher's Exact two-tail Test, $p = .099$), and more individuals with any anxiety disorder ($\chi^2 = 3.381$, $df = 1$, $p = .066$). Additionally, the females had a broader anxiety disorder spectrum and more multiple anxiety disorder diagnoses than did the males. The females had five subjects with simple phobia, five with OAD, three with PTSD, three with SAD, one with PD, and one with OCD; the males had two subjects with OCD and one subject each with PTSD, OAD, and PD. The males had somewhat more substance abuse, while ADHD was equally common in both males and females.

The Axis II personality disorder distribution included 14 (56%) of the 25 subjects with passive aggressive personality disorder, eight (32%) with borderline personality disorder, seven (28%) each with paranoid personality disorder, histrionic personality disorder, sadistic personality disorder, and self-defeating personality disorder, six (24%) each with narcissistic personality disorder and dependent personality disorder, five (20%) with obsessive-compulsive personality disorder, three (12%) with avoidant personality dis-

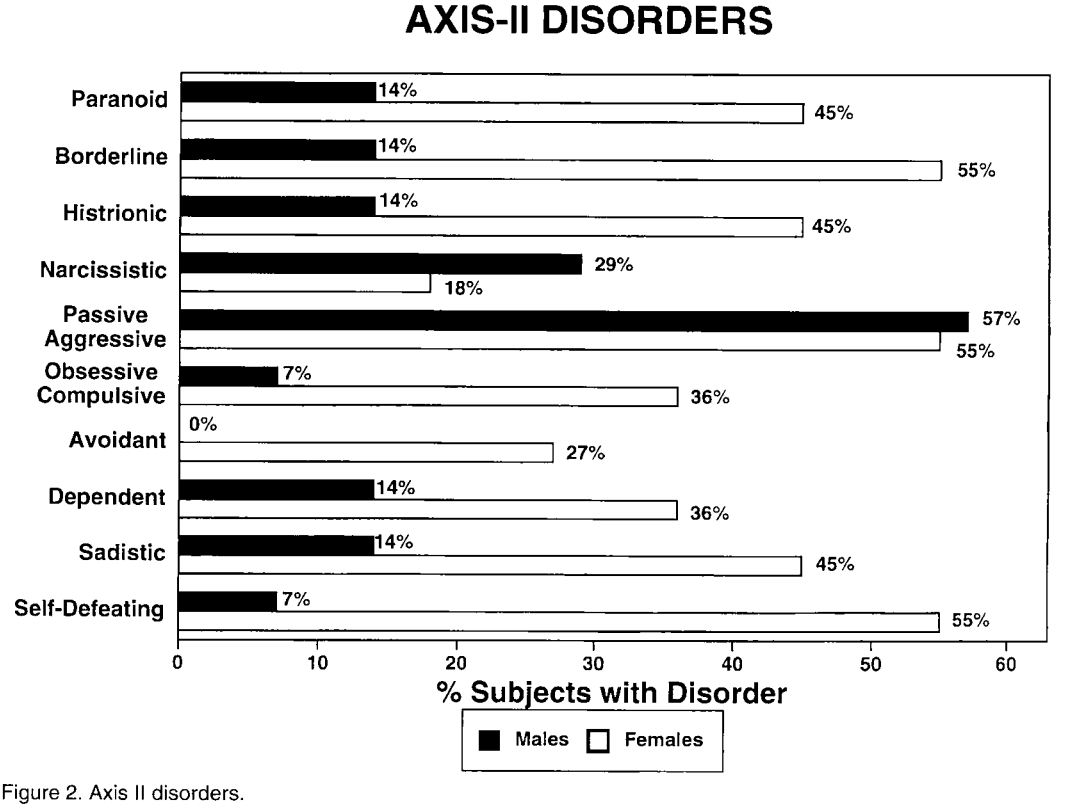

Figure 2. Axis II disorders.

order, and one (4%) with mixed personality disorder. No schizoid or schizotypal personality disorders were present. Figure 2 compares the Axis II personality diagnosis distribution by gender. There was a trend for the females to have more borderline personality disorder (Fisher's Exact two-tail Test, $p = .081$) than the male subjects. Passive-aggressive personality disorder was equally frequent in both males and females, while narcissistic personality disorder was slightly more common in the males. The other personality disorders were more common in the females; however, because of the low numbers of male subjects involved, meaningful statistical analysis could not be completed.

The mean number of comorbid diagnoses per subject was 2.6 on Axis I and 2.8 on Axis II. Figure 3 depicts the numbers of Axis I and Axis II diagnoses per subject in males and females. When compared with the male subjects, the females had significantly more total Axis I disorders (t test, $t = 2.111$, $df = 23$, $p = 0.046$) and a trend toward more Axis II disorders (t test, $t = 2.04$, $df = 13$, $p = .062$).

Discussion

As expected, in this sample of psychiatrically hospitalized adolescents with

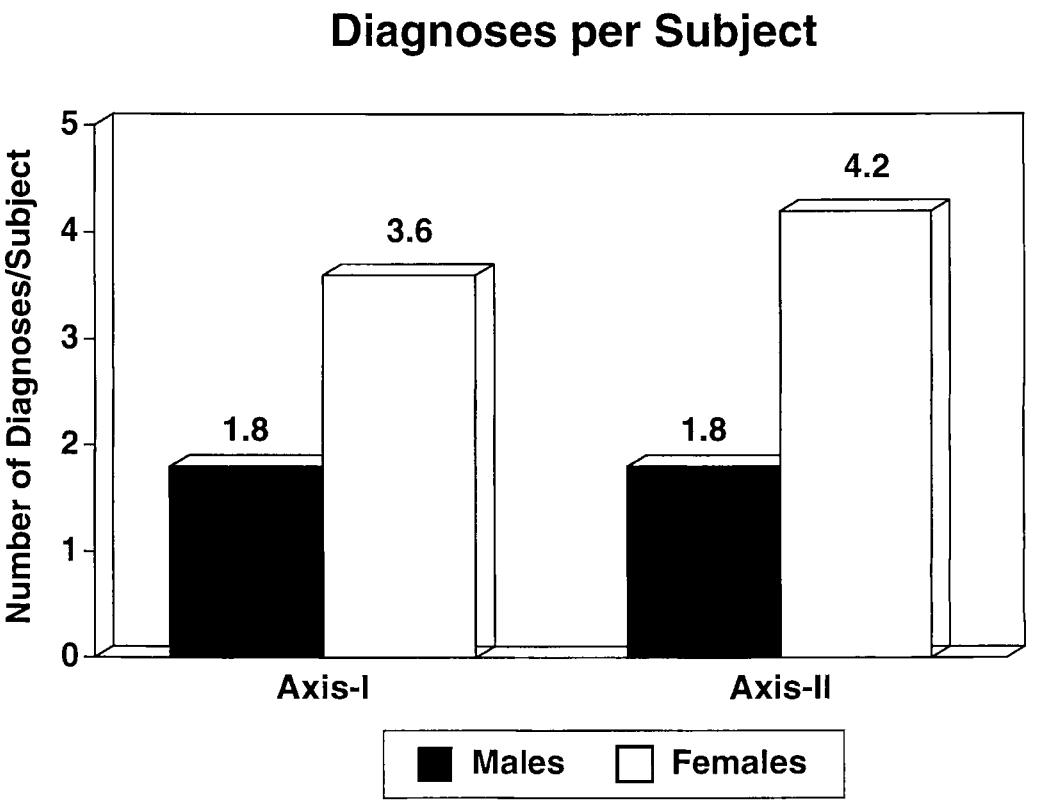

Figure 3. Diagnoses per subject.

conduct disorder, frequent and diverse comorbid Axis I and personality disorders were present. These findings are congruent with previous studies, which also found numerous comorbid diagnoses in subjects with conduct disorder.[4, 11, 19, 23] The classification of conduct disorder appears to point in a multitude of diagnostic directions. This includes the Axis I disorders of substance abuse, ADHD, and major depression, as well as personality disorders including passive-aggressive, histrionic, borderline, and, to a lesser extent, paranoid and dependent personality disorders. In this study anxiety disorders were also prominent, although often concealed clinically by extensive behavioral pathology. As stated by Hinshaw,[24] such extensive comorbidity associated with conduct disorder seriously challenges it as a discrete and independent disease entity.

The exploration of differences by gender in the presentation of conduct disorder was a major part of this study. A general inspection of Figures 1, 2, and 3 demonstrates that the female subjects tended to have more frequent and more diverse comorbid diagnoses than the males. This was particularly true for depressive disorders, anxiety disorders, and borderline personality disorder, all of which approached statistical significance when compared with their frequencies in the males. Moreover, the females had significantly more total Axis I disorders and a strong trend toward more personality disorders.

Of the common Axis I disorders, only substance abuse was somewhat more frequent in the male subjects. The females had higher or essentially equal frequencies of most of the personality disorders including paranoid, obsessive compulsive, and sadistic. The finding of more borderline and histrionic personality disorders in the females is consistent with what would be predicted from the adult literature; however, the more frequent occurrence of paranoid, obsessive-compulsive, and sadistic personality disorders in our female subjects is contrary to what most research with adult populations[25–27] and gender-weighting studies[28] would predict. These apparent discrepancies may represent a characteristic pattern in some females with conduct disorder. However, the literature on adolescent personality disturbances in conduct disorder is insufficient to allow comparisons with our trends regarding these sex distributions.

Some limitations of this study require further consideration. First, the study population was a group of adolescents with emotional and behavioral problems requiring in-patient treatment. The authors felt their severe level of psychopathology would facilitate the uncovering of comorbidity patterns, particularly in the case of personality disorders that are likely to occur in the context of significant Axis I disorders. Although these results may not be applicable to all populations and settings, these are the adolescents that clinicians frequently encounter and find difficult to manage in treatment. Secondly, the SIDP-R generated a substantial number of personality disorder diagnoses in these adolescents with conduct disorder (mean = 2.8 per patient). The presence of personality disorders in these adolescents must be interpreted with cau-

tion, particularly in light of the fact that each of these subjects had at least one comorbid Axis I diagnosis. The interactive effects of Axis-I and personality disturbances remains poorly understood in adults,[29] and these effects are inherently more obscure in adolescents going through the process of personality growth and maturation. It is difficult to determine whether this extensive comorbidity is a reflection of the psychopathology actually present; the instrument being overly sensitive; the early, nonspecific manifestations of developing personality disorders; or the possible "spillage" of Axis I symptoms into the personality domain. This latter concern was minimized through inpatient observation, clinical corroboration by the investigators as necessary, and administering the SIDP-R near the end of the hospitalization when a degree of psychological stability had been achieved. For example, low frustration tolerance and difficulty following through on tasks in the youth with ADHD might be confused with the sulky, irritable, noncooperative and procrastinating qualities that can be present in those with passive-aggressive personality disorder. Finally, although efforts were made to diagnose only pervasive and persistent personality characteristics, longitudinal studies would be helpful to determine whether these comorbidity patterns persist over time, evolve into different Axis I or personality disorders, or disappear with maturation of the individual.

In conclusion, the frequent finding of personality disorders in individuals with conduct disorder along with differences in presentation between males and females suggests the need for a thorough diagnostic assessment of both Axis I and II disorders in these adolescents. The determination of pathological personality traits in those patients with symptoms of conduct disorder can have significant implications for both short- and long-term treatment interventions. Merely treating the Axis I disorders may lead to therapeutic failure secondary to persisting maladaptive personality patterns.

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