Continuities Between Psychiatric Disorders in Adolescents and Personality Disorders in Young Adults

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Objective: *Personality disorders are a major mental health problem, but little information about their etiology and natural history is available. This study examined continuities between axis I disorders in adolescents and personality disorders in young adults.* *Method:* *The authors interviewed 145 young adults (mean age, 19.6 years) who had been diagnosed with a variety of DSM-III emotional and disruptive disorders during adolescence (mean age, 13.7 years). The Personality Disorder Examination was used to establish whether the subjects currently suffered from personality disorders.* *Results:* *Subjects who had had disruptive disorders during adolescence showed high rates of all types of personality disorders (40% had a personality disorder at follow-up), while subjects who had had emotional disorders had a lower rate of personality disorders (12%). Men were more likely to have cluster A personality disorders, and women were more likely to have cluster C personality disorders. Disruptive diagnoses were associated with cluster B personality disorders, but emotional disorders did not show an association with cluster C personality disorders. Oppositional disorder did not increase the likelihood of passive-aggressive personality disorder. There was an association between attention deficit disorder with hyperactivity and borderline personality disorder.* *Conclusions:* *The rate of personality disorders was lower among young adults who had had emotional disorders during adolescence than among those who had had disruptive disorders, suggesting either that treatment for emotional disorders is more effective or that the personality psychopathology in these adolescents is not as severe as that in adolescents with disruptive disorders.*

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Personality disorders are a major mental health problem because of their prevalence (1), the disability they produce (2, 3), and the cost of treatment (4). Personality disorders are characterized by deeply ingrained, maladaptive, and inflexible personality traits that cause substantial distress or impairment. Since DSM-III they have been distinguished from other disorders by being recorded on a separate axis in the multiaxial diagnostic scheme. Although in principle this axis is available for the recording of personality disorders at all ages, by definition and by traditional practice personality disorder diagnoses are rarely made before the age of 18. As a consequence, personality disorders are usually not assessed in children and adolescents—conversely, child disorders are not assessed in adults (5).

One should look for antecedents of personality disorder in childhood. In fact, presence of conduct disorder before the age of 15 is a requirement for the diagnosis of antisocial personality disorder, and features of personality disorders usually become recognizable during adolescence (DSM-IV). However, knowledge of the natural history of personality disorders is limited, except for antisocial personality disorder (6). The proper investigation of this topic would require a detailed prospective study of a large cohort extending over many years, and it would be extremely expensive. We have tried to help fill this gap by conducting a naturalistic study in which we examined phenomenologic continuities between axis I disorders in a referred group of adolescents and personality disorders in young adults. The hypotheses to be tested were those suggested or implied in DSM-III-R:

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1. Adolescents with disruptive behavior disorders would be more likely to develop cluster B personality disorders (antisocial, borderline, histrionic, and narcissistic) than would adolescents with emotional disorders.
2. Adolescents with emotional disorders would be more likely to develop cluster C personality disorders (avoidant, dependent, obsessive-compulsive, and passive-aggressive) than would those with disruptive disorders.
3. Adolescents with oppositional disorder would be more likely to develop passive-aggressive personality disorder than would those without oppositional disorder.
4. Adolescents with conduct disorder would be more likely than those with other diagnoses to develop antisocial personality disorder.
5. Males would be more likely than females to develop cluster B personality disorders, since disruptive behavior disorders are more common in boys.

In this context, the phrase "more likely to develop" must be interpreted in the sense appropriate to a naturalistic study of this kind, because the study group is highly selected. Nevertheless, results show that continuities between adolescent disorders and adult personality disorders do exist and raise issues that require further study, such as the association between attention deficit disorder with hyperactivity and borderline personality disorder.

METHOD

Subjects

Subjects were selected retrospectively from a series of consecutive referrals to a university-affiliated adolescent unit in Sydney, Australia, between 1983 and 1985 (7). To be included in the study 1) the adolescents had to have received just one of the following DSM-III diagnoses at the time of initial assessment: attention deficit disorder with hyperactivity, oppositional disorder, conduct disorder, concurrent attention deficit disorder with hyperactivity and conduct disorder, adjustment disorder with disturbance of conduct, separation anxiety disorder, other anxiety disorder (overanxious, phobic, or obsessive-compulsive disorder), dysthymic disorder, and adjustment disorder with mixed emotional features, and 2) they had to reside within the Sydney metropolitan area. In this way, a pool of 370 subjects was obtained.

Disorders were chosen to represent a wide range of adolescent conditions of diverse severity. The diagnoses were grouped into disruptive and emotional. Disruptive disorders included attention deficit disorder with hyperactivity, oppositional disorder, conduct disorder, and adjustment disorder with disturbance of conduct. Emotional disorders included separation anxiety disorder, other anxiety disorders, dysthymic disorder, and adjustment disorder with mixed emotional features. These conditions are widely accepted as fitting within the disruptive, or "externalizing," and emotional, or "internalizing," groups of disorders. Distinctions between these two groups are well established (8). Because the focus of the study was on the associations between psychiatric disorders in adolescence and personality disorders in early adulthood, and since comorbidity is often a confounding problem that is difficult to deal with in small cohorts, only cases with one diagnosis were included, with the exception of the combination of attention deficit disorder with hyperactivity and conduct disorder. Major depression was not included because there were few cases.

No contact had been maintained during the interval between adolescent assessment/treatment and follow-up in young adulthood, and we expected that a large proportion of patients would not be located.

TABLE 1. Personality Disorders Among Young Adults Who Received Axis I DSM-III Diagnoses in Adolescence[a]

Adolescent Diagnosis	Cluster A: Paranoid	Cluster A: Schizoid	Cluster A: Schizotypal	Any: N	Any: %
Disruptive (N=80)	4	0	2	5	6
Attention deficit disorder with hyperactivity (ADDH) (N=11)	0	0	0	0	0
Oppositional disorder (N=19)	1	0	0	1	5
Conduct disorder (N=25)	1	0	0	1	4
Conduct disorder plus ADDH (N=14)	2	0	2	3	21
Adjustment disorder with disturbance of conduct (N=11)	0	0	0	0	0
Emotional (N=65)	1	0	0	1	2
Separation anxiety disorder (N=20)	1	0	0	1	5
Other anxiety disorders (N=11)	0	0	0	0	0
Dysthymic disorder (N=18)	0	0	0	0	0
Adjustment disorder with mixed emotional features (N=16)	0	0	0	0	0
Total (N=145)	5	0	2	6	4

[a]Personality disorder diagnoses made with the Personality Disorder Examination. Some subjects received more than one personality disorder diagnosis.

Of the 321 subjects searched for, 205 (64%) were located; of these, 145 (71%) were fully interviewed.

Of the 145 subjects interviewed, 64 (44%) were female. While 55% of those with emotional disorders were female (N=36), only 35% of those with disruptive disorders were female (N=28) (χ^2= 5.07, df=1, p=0.02). The average age at the time of initial assessment was 13.7 years (range=12–16), and at follow-up it was 19.6 years (range=17–23). There were no statistical differences between those interviewed and not interviewed at follow-up with respect to age at the time of initial assessment, age at follow-up, or gender.

The project had been approved by the hospital's ethics review committee, and written informed consent was obtained after the procedures were fully explained. The subjects were compensated for their time with $30 to $100 (Australian), depending on whether the interviews were conducted in the subject's home or at the clinic.

Diagnoses

Independent DSM-III diagnoses for the adolescents were made by two experienced clinicians on the basis of detailed clinical interview information and questionnaire data from parents and adolescents and from teachers' reports. The overall reliability of the independent diagnoses was moderate (kappa=0.59). The reliability of the specific diagnoses ranged from kappa=0.80 for separation anxiety disorder to kappa=0.36 for dysthymic disorder; more details are given elsewhere (7). Once independent diagnoses were made, cases in which there was disagreement were reviewed by both clinicians and a consensus diagnosis was made.

Follow-up interviews took place during 1990 and 1991, during which the Personality Disorder Examination (9) was administered. This is a semistructured clinical interview that assesses the phenomenology and life experiences relevant to the diagnosis of DSM-III-R personality disorders. The Personality Disorder Examination has been shown to have the ability to circumvent state-trait artifacts in diagnosing personality disorders (10) and good interrater and test-retest reliability (10, 11).

Three experienced psychologists (including A.M.-Y. and M.S.) who had not taken part in the initial assessment or treatment carried out all the interviews. Dr. Loranger, author of the Personality Disorder Examination, conducted a training session on the use of the examination, and this was supplemented by joint ratings of videotaped

Cluster B						Cluster C						Any Personality Disorder	
Anti-social	Border-line	Histri-onic	Narcis-sistic	Any N	Any %	Avoid-ant	Depend-ent	Obsessive-Compulsive	Passive-Aggressive	Any N	Any %	N	%
24	9	4	5	26	33	3	3	1	6	11	14	32	40
3	3	1	2	4	36	0	0	1	2	2	18	4	36
4	1	0	0	4	21	1	0	0	1	2	11	6	32
7	2	1	1	8	32	2	2	0	0	3	12	11	44
7	3	2	2	7	50	0	0	0	2	2	14	7	50
3	0	0	0	3	27	0	1	0	1	2	18	4	36
1	2	1	0	3	5	3	1	0	2	6	9	8	12
1	0	0	0	1	5	1	0	0	0	1	5	2	10
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	2	1	0	2	11	2	1	0	1	4	22	5	28
0	0	0	0	0	0	0	0	0	1	1	6	1	6
25	11	5	5	29	20	6	4	1	8	17	12	40	28

interviews and ratings of five patients with a clinician experienced in the use of the Personality Disorder Examination.

Statistical Analysis

The data were analyzed by using logistic regression. This method was preferred because it allowed for statistical control of confounding variables and minimized the risk of false positive findings.

Separate analyses were performed for the following dependent variables: any personality disorder, any cluster A, any cluster B, any cluster C, and each specific personality disorder with five or more cases. Two parallel series of predictor variables were used: 1) age at follow-up, gender, and adolescent diagnosis and 2) age at follow-up, gender, and disruptive versus emotional adolescent diagnosis. The reported odds ratios are those obtained in the models that showed a significant chi-square change when the corresponding predictor variable was added after the inclusion of the other variables.

RESULTS

The overall results are summarized in table 1. Forty individuals met the criteria for a diagnosis of personality disorder: 32% of the men (N=26) and 22% of the women (N=14). One-half of the adolescents with attention deficit disorder with hyperactivity plus conduct disorder and about one-third of those with attention deficit disorder with hyperactivity, conduct disorder, oppositional disorder, adjustment disorder with disturbance of conduct, or dysthymic disorder had a personality disorder diagnosis at follow-up (table 1). The majority of subjects met the criteria for only one personality disorder. However, 38% of those with a personality disorder had more than one concurrent personality disorder (N=15).

Adolescents with disruptive disorders were more likely to have a personality disorder at follow-up than those with emotional disorders (odds ratio=4.65, 95% confidence interval=1.92–11.31). However, there were no differences according to age, gender, or specific adolescent diagnosis, with the exception of youths with conduct disorder, who were more likely than those without conduct disorder to receive a personality disorder diagnosis (odds ratio=4.30, 95% confidence interval=1.16–15.89).

Personality Disorder Clusters

Cluster B personality disorders were the most frequent (20%). All six subjects with cluster A diagnoses were male (χ^2 change=6.31, df=1, p=0.01), as were 76% of those with cluster B diagnoses (N=22) and 35% of those with cluster C diagnoses (N=6). Cluster C personality disorders were more common among the women (17%, N=11) than among the men (7%, N=6) (odds ratio=4.36, 95% confidence interval=1.10–17.29). However, the men were not more likely to have cluster B personality disorders when the effect of adolescent diagnosis was statistically controlled.

Adolescents with disruptive disorders were more likely to have a cluster B personality disorder than those with emotional disorders (table 1) (odds ratio=8.80, 95% confidence interval=2.49–31.04). There were no significant associations between specific adolescent diagnoses and personality disorder clusters.

Specific Personality Disorders

Antisocial was the most common personality disorder (17%), followed by borderline (8%) and passive-aggressive (6%). While only 16% of those with antiso-

cial personality disorder were female (N=4), 45% of those with borderline personality disorder were female (N=5) (of the seven women with cluster B personality disorders, five had borderline personality disorder). Analyses were not performed on diagnoses of schizoid personality disorder (no cases) or schizotypal, dependent, and obsessive-compulsive personality disorder (fewer than five cases each). Only the models with antisocial personality disorder and borderline personality disorder as dependent variables showed significant chi-square values.

Antisocial personality disorder was more common among men (26%, N=21) than among women (6%, N=4) (odds ratio=4.11, 95% confidence interval=1.26–13.43). The other associations between gender and specific personality disorders were not significant. Subjects with disruptive disorders were more likely to have antisocial personality disorder than those with emotional disorders (odds ratio=23.56, 95% confidence interval=3.05–181.89).

The only statistically significant associations between an adolescent disorder and specific personality disorders were between conduct disorder and antisocial personality disorder and between attention deficit disorder with hyperactivity and borderline personality disorder. Adolescents with conduct disorder (either alone or combined with attention deficit disorder with hyperactivity) were more likely to have antisocial personality disorder at follow-up than those without conduct disorder (odds ratio=4.58, 95% confidence interval=1.04–20.21), and adolescents with attention deficit disorder with hyperactivity (either alone or combined with conduct disorder) were more likely to have borderline personality disorder at follow-up than those without attention deficit disorder with hyperactivity (odds ratio=12.11, 95% confidence interval=1.36–107.57).

DISCUSSION

Are These Results Valid?

The shortcomings of this study are that it was based on a selected group of subjects and that the size of the study group limited the power of analyses (as shown by the wide confidence intervals around the odds ratios). The strengths were the careful diagnosis during adolescence and the equally careful delineation of personality disorders at follow-up. Nevertheless, replication is necessary before the results can be generalized to other groups.

Because of the dearth of studies using interviews to diagnose the full range of DSM-III-R personality disorders it is not possible to know whether our estimates are correct. Reliable information about the relationship between adolescent disorders and adult personality disorders is available only for antisocial personality disorder. In the Epidemiologic Catchment Area (ECA) study (12) it was estimated that 31% of the children with conduct disorder developed antisocial personality disorder in adulthood, and Zoccolillo et al. (3) reported that 38% of children diagnosed with conduct disorder met criteria for antisocial personality disorder as adults. These rates are consistent with our finding that 36% of adolescents with conduct disorder were later diagnosed as having antisocial personality disorder. Further, the relationship between the number of conduct disorder symptoms and antisocial personality disorder symptoms and diagnosis in adulthood follows a pattern similar to that reported for the ECA study (12) and a study in Edmonton, Canada (13). Swanson et al. (13) reported that the mean numbers of conduct disorder symptoms before the age of 15 among subjects with and without adult antisocial personality disorder were 6.0 and 1.0, respectively; the corresponding figures in our cohort were similar: 6.1 and 1.3. Estimates of antisocial personality disorder among adults who were hyperactive as children range from 18% to 27% (14). In this study, 27% of those with an adolescent diagnosis of attention deficit disorder with hyperactivity without conduct disorder had antisocial personality disorder as young adults. Hunt and Andrews (15), using the Personality Disorder Examination with a group of 40 adult patients with anxiety disorders who were attending a specialized clinic, reported that 7.5% met the criteria for personality disorder. This result is similar to the finding in this study that 6.5% of those with anxiety disorders in adolescence (separation anxiety disorder or other anxiety disorder) had a personality disorder diagnosis at follow-up.

Therefore, it seems likely that our estimates are not aberrant. Further, these results obtained with a clinical-interview-based instrument, the Personality Disorder Examination, validate the findings obtained with the National Institute of Mental Health Diagnostic Interview Schedule (DIS) (12), an instrument administered by lay interviewers. Although this applies only to antisocial personality disorder, it is encouraging given the cost of administering an instrument such as the Personality Disorder Examination.

Comparison With the Existing Literature

This study shows that individuals suffering from disruptive disorders in adolescence had a particularly negative personality outcome in adulthood. All disruptive disorders, not only conduct disorder, were associated with a wide range of personality psychopathology in adulthood. This finding adds further impetus to the issue of whether disruptive disorders in childhood should be reconceptualized as disorders of personality rather than as axis I diagnoses (16) and emphasizes the importance of these childhood conditions in relation to a variety of mental health problems, besides antisocial behavior, in adulthood (3, 6). The widespread personality psychopathology at follow-up shown by the subjects with disruptive disorders during adolescence suggests that prospective studies of these conditions need to examine the full range of personality disorders, not just antisocial personality disorder, to provide an accu-

rate picture of the personality outcome of children with conduct disorder, attention deficit disorder with hyperactivity, or oppositional disorder. This is a major deficiency in the available outcome and family literature.

Contrary to the belief expressed in DSM-III-R, based on speculation about the nature of oppositional disorder rather than on empirical evidence (17), oppositional disorder did not show an association with passive-aggressive personality disorder. Adolescents with oppositional disorder displayed a wide range of personality disorders at follow-up but with a preponderance of cluster B disorders, similar to adolescents who had attention deficit disorder with hyperactivity or conduct disorder. Passive-aggressive personality disorder had substantial comorbidity with antisocial personality disorder (not shown in the results), and the pattern of associations between adolescent diagnoses and adult passive-aggressive personality disorder was similar to that observed for cluster B personality disorders. Myers et al. (18) also reported an association between conduct disorder and passive-aggressive personality disorder in adolescents. These findings cast doubt on whether the most appropriate place for this personality disorder was in cluster C and provide some support for the decision to drop passive-aggressive personality disorder from DSM-IV.

There was a significant association between attention deficit disorder with hyperactivity and borderline personality disorder, which contrasts with the reported lack of continuity between childhood and adult borderline disorders (19). This finding need not be a surprise for several reasons. First, there are reports showing comorbidity of attention deficit disorder with hyperactivity and borderline personality disorder (DSM-IV, 20, 21). Second, the criteria for diagnosis of borderline personality disorder and for attention deficit disorder with hyperactivity have similarities. Third, attention deficit disorder with hyperactivity is not an episodic disorder but a chronic condition in which symptoms might persist into adulthood in a variety of ways (14, 22). Fourth, an association between antisocial and borderline personality disorders is well demonstrated (23, 24), and antisocial personality disorder is also a well-known adult outcome of attention deficit disorder with hyperactivity (14). Finally, there are higher rates of antisocial personality disorder in the families of both children with borderline disorder and children with attention deficit disorder with hyperactivity (24–26). In this vein, Andrulonis and Vogel (20) reported an association between attention deficit disorder and borderline personality disorder in a retrospective study of 106 borderline patients. Borderline personality disorder is diagnosed more often in females. Although 45% of the subjects with this disorder in our study were female, compared with only 16% of those with antisocial personality disorder, the association with gender was not statistically significant. This might have been due to the small number of cases.

Regrettably, these data do not provide evidence regarding the nature of this association. It is clear that the impulsive, erratic, and intense temperament of children with attention deficit disorder with hyperactivity, their low self-esteem, their interpersonal problems, and their moodiness are all characteristics shared with borderline personality disorder. Whether there is continuity between the two conditions, whether attention deficit disorder with hyperactivity in children elicits a response in their caretakers that in turn results in an increased risk for borderline personality disorder, whether both disorders have some other common etiological factor, or whether this association is an artifact of poor diagnostic operationalization of the constructs needs to be established. In this regard, it has been shown that severely deprived children often show symptoms of inattention and overactivity (27), and emotional deprivation is associated with the development of borderline personality disorder. However, if attention deficit disorder with hyperactivity is confirmed as one of the pathways leading to borderline personality disorder, particularly in females, a reappraisal of the nature of this disorder might be required.

Clinical Implications

The service in which these adolescents were initially assessed is staffed with skilled and motivated clinicians. It would seem that the long-term outcome of these adolescents, treated for varying periods of time, is likely to be similar to those of adolescents seen in other clinics. Either way, disruptive adolescents appear to have a particularly negative personality outcome. There is currently little evidence showing that disruptive adolescents respond to intervention, and yet the negative effects on their education, employment, family life, etc., have been demonstrated (3, 12, 13). Their poor adult functioning is likely to be compounded or caused by personality disorder symptoms. Because of the severe impairment, this group is a major public health problem. Increasing the awareness of this situation among mental health professionals and developing treatment programs to prevent such a sequel should be priorities. In contrast, the risk of strictly diagnosed personality disorder was relatively modest among the young adults who had had emotional disorders as adolescents, suggesting that either treatment is more effective for this group or their personality psychopathology is not as severe. However, it might be that adolescents with emotional disorders have more adult axis I diagnoses than do those with disruptive disorders.

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