Introduction

Comorbid Axis II disorders are often diagnosed in borderline personality disorder (BPD) patients. Several studies have reported a higher prevalence of BPDs in adolescents than in adults [1] but, to the best of our knowledge, only three studies have explored comorbidity between Axis II disorders and BPD in adolescence [2–4]. Using the Structured Clinical Interview for DSM-IV Axis II Disorders in a sample of 177 psychiatric outpatients [4], Chanen [pers. commun.] reported on the Axis II comorbidity of 46 adolescents (12 males (26%) and 34 females (74%); mean age 16.3 years) who met the DSM-IV criteria for BPD. The authors found co-occurrences with BPD for passive-aggressive (34.8%), depressive (30.4%), antisocial (30.4%), avoidant (8.7%), paranoid (8.7%), narcissistic (2.2%) and histrionic (2.2%) personality disorders. Chabrol et al. [3] studied a small sample of BPD patients and reported a differential pattern of comorbidity in males and females. This differential pattern must be taken into account when developing treatment strategies for adolescents with BPD.
of BPD patients (n = 16; 4 males (25%) and 12 females (75%); mean age 17.7 years) using the Structured Interview for DSM-IV Disorders of Personality (SIDP-IV). The authors found elevated co-occurrences for BPD with depressive (31.2%), paranoid (25%), dependent (18.8%), antisocial (12.5%), avoidant (12.5%), histrionic (12.5%) and passive-aggressive (12.5%) personality disorders. Lastly, Becker et al. [2] applied the Personality Disorder Examination to investigate the comorbidity of BPD with other personality disorders in a sample of 138 consecutively admitted adolescents (76 males (55%) and 62 females (45%); mean age 15.5 years). In all, 68 adolescents (49%) met the diagnostic criteria for BPD. When comparing the prevalence of DSM-IV personality disorders in BPD and non-BPD adolescents, higher co-occurrences with BPD were observed for schizotypal (12%), narcissistic (9%), avoidant (12%), dependent (9%), obsessive-compulsive (6%) and passive-aggressive (29%) personality disorders. However, when Bonferroni correction was applied, BPD in adolescents was only significantly associated with schizotypal and passive-aggressive personality disorders. It is noteworthy that the diagnosis of antisocial personality disorder was not included in Becker et al.’s [2] study. Since Axis II comorbidity is known to be a negative prognostic factor in the outcome of adult BPD patients [5], better characterization of this comorbidity in BPD adolescents is indicated. Moreover, several studies in adults [6–8] have shown that men and women with BPD show significant gender differences in their pattern of Axis II comorbidity. To the best of our knowledge, gender differences have not been investigated in BPD adolescents.

Hence, the objective of the present study was to explore the comorbidity between BPD and other personality disorders (including antisocial personality disorder) in a mixed gender sample of adolescents with BPD.

Methods

Participants

The study sample was drawn from a European research project investigating the phenomenology of BPD in adolescence (the European Research Network on Borderline Personality Disorder, EURNET BPD; see [9] for a full description of the study methodology). In brief, the research network was composed of five specialist psychiatric centers for adolescents and young adults in France, Belgium and Switzerland. Between January and December 2007, we included all in- and outpatient adolescents (aged 15–19 years) meeting the DSM-IV criteria for BPD [10] following administration of the SIDP-IV [11]. Individuals with schizophrenia and any potentially life-threatening, chronic and/or serious medical illness were excluded. The final study population comprised 85 BPD adolescents (11 males (13%) and 74 females (87%); mean age (SD) 16.3 years (1.4)). In all, 67% (n = 57) were inpatients and 75% had at least one Axis I disorder. The most frequent diagnoses were major depressive disorder (37%), eating disorders (34.2%) and substance-related disorders (21%).

This study was approved by our local investigational review board, and all data were anonymized. The subjects were provided with comprehensive information on the study’s objectives and procedures. Written informed consent was obtained from the adolescents and at least one of their parents in each case.

Procedure and Assessments

All subjects completed a research protocol (consisting of a diagnostic evaluation of Axis I and Axis II disorders) and a self-questionnaire for collecting sociodemographic and psychopathological data. Axis II disorders were investigated using the French version of the SIDP-IV, which is known to have especially good psychometric properties in adolescents and young adults [3]. Axis I disorders were assessed with the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) [12]. Diagnostic interviews were conducted by a team of 5 clinical psychologists and psychiatrists with experience of performing research and assessing and/or treating DSM-IV Axis I/II disorders in adolescents. To obtain high levels of reliability, the research team participated in several training sessions, including the commented scoring of videotaped interviews. The inter-rater reliability for SIDP-IV was calculated from independent ratings of ten videotaped interviews. The $\kappa$ coefficient for agreement on the presence or absence of a BPD was very high (0.84), and the values for the presence/absence of the other personality disorders ranged from 0.54 to 1.

Statistical Analysis

The percentage of each personality disorder was calculated with the corresponding 95% confidence interval (95% CI), $\chi^2$ or Fisher’s exact tests were used to compare Axis II comorbidities in males and females. Statistical analyses were performed using SAS software (SAS Institute, Cary, N.C., USA).

Results

Prevalence rates and 95% CIs for Axis II disorders in the entire sample and by gender are reported in Table 1. Taking into account the 95% CIs’ conditions of validity, only percentages above 6% were retained. Five personality disorders had co-occurrences with BPD that exceeded 6%: obsessive-compulsive (35.3%), antisocial (22.4%), avoidant (21.2%), dependent (11.8%) and paranoid (9.4%) disorders. Although none of the gender differences was statistically significant, we observed a trend towards higher rates of antisocial personality disorders in men (45.5%) than in women (19%; $p = 0.062$, Fisher’s exact test).
Table 1. Co-occurrence of DSM-IV personality disorders with BPD in adolescents

<table>
<thead>
<tr>
<th>Axis II disorders</th>
<th>%</th>
<th>95% CI</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paranoid</td>
<td>9.4</td>
<td>NA</td>
<td>18.2</td>
<td>8.1</td>
</tr>
<tr>
<td>Schizoid</td>
<td>0</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizotypal</td>
<td>1.2</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antisocial</td>
<td>22.4</td>
<td>18.7–25.9</td>
<td>45.5*</td>
<td>19</td>
</tr>
<tr>
<td>Histrionic</td>
<td>4.7</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narcissistic</td>
<td>3.5</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidant</td>
<td>21.2</td>
<td>18.2–24.2</td>
<td>18.2</td>
<td>21.6</td>
</tr>
<tr>
<td>Dependent</td>
<td>11.8</td>
<td>6–17.6</td>
<td>9.1</td>
<td>12.2</td>
</tr>
<tr>
<td>Obsessive-compulsive</td>
<td>35.3</td>
<td>31.7–38.9</td>
<td>18.2</td>
<td>37.8</td>
</tr>
</tbody>
</table>

NA = Not applicable. CIs (a–b) were not calculated if a < 0.05 or b × 85 < 5 (e.g. if a = 0.06 (6%), 0.06 × 85 = 5.1).

*p = 0.062, Fisher’s exact test.

Discussion

To the best of our knowledge, this is the first study to have explored the specific Axis II comorbidity patterns in a large, well-characterized sample of adolescent BPD patients of both genders. Our results show that BPD adolescents present high co-occurrences of personality disorders from all three clusters of DSM-IV Axis II disorder, with a trend towards higher rates of antisocial personality disorders in males than in females.

In terms of cluster B personality disorders, high rates of antisocial personality disorders in BPD patients have already been reported in the literature. Becker et al. [2] found an antisocial personality disorder co-occurrence rate of 26% in adults with BPD. Only two studies have reported on the corresponding rates in BPD adolescents. Chabrol et al. [3] found an antisocial personality disorder co-occurrence rate of 12.5% in a sample of 16 adolescents meeting the DSM-IV criteria for BPD. Chanen et al. [4] observed high rates (30.4%) of antisocial personality disorders in a sample of 46 BPD adolescents. Using the gender distribution communicated by the authors, we found a higher prevalence of antisocial personality disorder in males (42%) than in females (26.5%), but the difference was not significant (p = 0.47, Fisher’s exact test). Our study revealed a gender-dependent distribution of antisocial personality disorders in an adolescent sample. Several studies in adults [6–8] have reported significant higher prevalences of antisocial personality disorder in males. In these three studies, the prevalence of antisocial personality disorder ranged from 22 to 57.1% in males and from 8.2 to 25.5% in females. In the present study, as well as in Chanen et al.’s [4] study, BPD co-occurred with an antisocial personality disorder from 42 to 45.5% in males and from 19 to 26.5% in females.

In terms of cluster C personality disorders, the high prevalence of dependent (11.8%) and obsessive-compulsive (35.3%) personality disorders found in the present study was also found in Becker et al.’s [2] study, but only in the adolescent subgroup. Moreover, Becker et al. [2] found lower co-occurrence rates (9% and 6% for dependent and obsessive-compulsive personality disorders, respectively) than we did in our study. Of the two other studies in adolescents, only Chabrol et al. [3] reported a high prevalence of dependent personality disorders (18.8%). The relatively high co-occurrence of dependent personality disorder in Chabrol et al.’s [3] study and the lack of co-occurrence in Chanen et al.’s [4] study could not be explained by the differing gender ratios as the rate of females in the two studies were high, being 75 and 74%, respectively. Moreover, among the three studies in adults [6–8] that have explored the effect of gender in the Axis II co-occurrences on BPD, only one study [8] has reported a significant effect of gender in the prevalence of dependent personality disorder in BPD patients, with women presenting higher co-occurrences than males. The high occurrence of compulsive personality disorder might be explained by the high rate of eating disorders (34.2%) found in our study population.

Lastly, for cluster A personality disorders, co-occurrence with paranoid personality disorder was low in the studies by Chanen et al. [4] (8.7%) and Becker et al. [2] (7%) and high in the study by Chabrol et al. [3] (25%).

The present study has several limitations. Firstly, the lack of a control group including another type of personality disorder prevented us from evaluating the specificity of Axis II comorbidity in BPD adolescents. Secondly, comorbidity in this study was assessed on a cross-sectional basis. A longitudinal approach would have strengthened the results by adding information on the stability of this comorbidity pattern over time. Thirdly, the diagnosis of antisocial personality disorder in individuals under 18 years must be considered with a degree of caution. Fourthly and lastly, the small sample size may have limited the statistical analyses’ ability to reliably detect significant differences between males and females. However, our study population is one of the largest reported in the literature on BPD in adolescence and was composed of a group of well-characterized subjects.
In summary, the present study confirmed that BPD adolescents present a broad pattern of comorbidities in all three clusters of DSM-IV Axis II personality disorders. Moreover, our study is the first to suggest a specific impact of gender on patterns of personality disorder co-occurrence in BPD adolescents. Longitudinal studies are needed to confirm the stability of these patterns over time and their impact on clinical outcomes in adolescents with BPD.

Acknowledgments

This research was funded by grants from the Wyeth Foundation for Child and Adolescent Health and the Lilly Foundation. The work was performed as part of the European Research Network on Borderline Personality Disorders (EURNET BPD).

References