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Short report

Minor depression during adolescence and mental health outcomes during adulthood

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Summary

Data from a community-based prospective longitudinal study were used to investigate the association of minor depressive disorder during adolescence with adverse mental health outcomes during adulthood. Structured diagnostic interviews were administered to a community-based sample of 755 individuals during adolescence and adulthood. Results indicated that minor depressive disorder during adolescence was associated with elevated risk for subsequent psychiatric disorders during adulthood, including major depressive disorder, ⩾1 disruptive disorders and clinically relevant impairment after corresponding and co-occurring disorders were controlled statistically.

Declaration of interest

None.

A growing body of research suggests that minor depressive disorder, characterised by depressed mood and/or anhedonia, and two to four symptoms of major depressive disorder, may be associated with clinically relevant distress, impairment and elevated risk for subsequent depressive episodes.[1–4] Most of the research in this area has utilised relatively brief follow-up intervals or has examined a limited range of outcomes.[5,6] Limited information is currently available regarding the long-term mental health outcomes of adolescent minor depression. We report findings of the Children in the Community Study (CICS), a prospective longitudinal investigation, regarding the associations of minor depressive disorder during adolescence with a wide range of mental health outcomes during adulthood.

Method

Participants and procedure

Our findings are based on data from 755 individuals, and their mothers, who completed a series of structured psychiatric interviews during adolescence, and who were re-interviewed during adulthood. Diagnostic interviews were conducted in 1983 ($n=778$, mean age 13.7 years, s.d. = 2.8), 1985–1986 ($n=776$, mean age 16.3, s.d. = 2.8), 1991–1993 ($n=749$, mean age 22.1, s.d. = 2.7) and 2001–2004 ($n=661$, mean age 33.1, s.d. = 2.8). All respondents were interviewed by mean age 16 and at mean ages 22 and/or 33. The participating families, randomly sampled in 1975, on the basis of residence in two counties in the State of New York, were demographically representative of families in the sampled region.[7] The CICS was designed as an epidemiological investigation of demographic and psychosocial characteristics associated with the health and well-being of one randomly selected child from each family. Maternal interviews assessing these characteristics were conducted in 1975 and psychiatric disorders and health service utilisation were assessed in all subsequent interviews. The respondents who completed the psychiatric assessments at mean ages 22 and 33 did not differ from the remainder of the 1983 sample with regard to age, ethnicity, socioeconomic status or the presence of ⩾1 psychiatric disorder. The study procedures were approved by Columbia University and New York State Psychiatric Institute Institutional Review Boards. A National Institute of Health Certificate of Confidentiality was obtained for these data. Written informed consent or assent was obtained from participants after the interview procedures were explained. Additional information regarding the study methodology is available from previous reports[7] and at http://nyspi.org/childcom.

Diagnostic assessments

The parent and youth versions of the Diagnostic Interview Schedule for Children (DISC–I)[8] were administered to assess current (i.e. past year) anxiety, disruptive, eating, mood and substance use disorders at mean ages 14 and 16. A modified, age-appropriate version of the DISC–I was administered to the offspring at mean age 22. Research has supported the reliability and validity of the DISC–I as administered in the study.[7] Anxiety, eating, mood and substance use disorders were assessed at mean age 33 using the Non-Patient Version of the Structured Clinical Interview for DSM–IV (SCID–IV–NP),[9] administered, via telephone, by experienced Master's or Doctorate level mental health professionals. Personality disorders were assessed at mean ages 14, 16 and 22 with items adapted from instruments including the Personality Diagnostic Questionnaire[10] and the Structured Clinical Interview for DSM–III–R Personality Disorders (SCID–II).[11] Personality disorders were assessed at mean age 33 using the DSM–IV version of the SCID–II,[12] administered by mental health professionals. Global Assessment of Functioning (GAF)[13] ratings were also completed by mental health professionals following administration of the SCID–IV–NP and SCID–II.

Data analyses

Analyses of contingency tables were conducted to investigate associations between minor depressive disorder, evident at mean age 14 or 16, and psychiatric disorders at mean age 22 or 33. Logistic regression analyses were conducted to investigate these associations when age, gender and corresponding or co-occurring disorders at mean age 14 or 16 were controlled statistically. Analyses of covariance were conducted to investigate the association of minor depressive disorder, evident at mean age 14 or 16, with GAF scores at mean age 33.

Results

Sixty-two respondents (8.2%, 22 males, 40 females) were identified as having minor depressive disorder at mean age 14 or 16. These individuals were significantly more likely than those without minor depressive disorder to have major depressive disorder at mean age 22 or 33, and to have disruptive disorders at mean age 22 when age, gender and corresponding or co-occurring disorders at mean age 14 or 16 were controlled statistically (Table 1 shows associations significant at $P<0.05$; for a more detailed version see online Table DS1).

Supplemental analyses indicated that individuals with minor depressive disorder at mean age 14 or 16 were at significantly

Table 1 Statistically significant associations of minor depressive disorder at mean age 14 or 16 with risk for other psychiatric disorders at mean age 22 or 33 ($n = 755$)[a]

Psychiatric disorder at mean age 22 or 33	Bivariate OR (95% CI)	Adjusted OR[b] (95% CI)
Any anxiety disorder	**2.39 (1.33–4.32)**	1.67 (0.88–3.16)
Agoraphobia	**3.06 (1.34–6.97)**	**2.66 (1.11–6.38)**
Generalised anxiety disorder	**3.23 (1.52–6.83)**	**2.50 (1.14–5.47)**
Obsessive–compulsive disorder	**2.64 (1.05–6.67)**	2.49 (0.94–6.56)
Any disruptive disorder[c,d]	**4.67 (1.86–11.67)**	**6.61 (2.27–19.26)**[e]
Oppositional defiant disorder[c]	4.48 (0.84–23.58)	**6.59 (1.07–40.49)**
Any eating disorder	**2.52 (1.32–4.79)**	1.76 (0.88–3.54)
Anorexia or bulimia nervosa	**5.99 (1.98–18.13)**	3.20 (0.88–11.64)
Any mood disorder	**3.07 (1.74–5.42)**	**2.15 (1.18–3.90)**[e]
Major depressive disorder	**3.62 (2.04–6.41)**	**3.99 (2.20–7.24)**[e]
Any personality disorder	**2.15 (1.25–3.72)**	**1.86 (1.03–3.37)**
Cluster B personality disorder[f]	**2.58 (1.24–5.40)**	**2.53 (1.13–5.65)**
Any Axis I or Axis II disorder	**2.79 (1.62–4.83)**	**2.19 (1.23–3.91)**[e]

a. Statistically significant associations ($P < 0.05$) are indicated in bold print.
b. Age, gender and the presence of a corresponding disorder by mean age 16 were controlled statistically.
c. Without minor depressive disorder by mean age 16 total $n = 654$ and with minor depressive disorder by mean age 16 total $n = 60$.
d. Disruptive disorder was assessed at mean ages 14, 16 and 22, but not at mean age 33.
e. Association remained significant when co-occurring disorders by mean age 16 were controlled statistically.
f. Cluster B personality disorders include antisocial, borderline, histrionic and narcissistic personality disorders.

elevated risk for ⩾1 anxiety disorder at mean age 22 when anxiety disorders evident at mean age 14 or 16 were controlled statistically (adjusted odds ratio (AOR) = 2.06; 95% CI 1.01–4.19). Individuals with minor depressive disorder at mean age 14, 16 or 22 were at elevated risk for subsequent eating disorders when eating disorders evident by mean age 22 were controlled (AOR = 2.34, CI 1.19–4.63). Both of these associations were significant when disorders that co-occurred with adolescent minor depressive disorder were controlled. Twenty-three (37.1%) of the 62 respondents with minor depressive disorder at mean age 14 or 16 reported having received mental health services by mean age 22. Service utilisation among the affected respondents was not significantly associated with mental health outcomes.

Minor depressive disorder, evident at mean age 14 or 16, was associated with clinically relevant impairment at mean age 33 (mean GAF score 68.57, s.d. = 13.59). This association was statistically significant when co-occurring psychiatric disorders during adolescence ($F(3,657) = 6.85$, $P = 0.009$) and the presence of ⩾1 psychiatric disorder at mean age 33 ($F(3,657) = 6.41$, $P = 0.012$) were controlled statistically.

Discussion

The present findings support the hypothesis that adolescents with minor depressive disorder are at elevated risk for major depressive disorder during adulthood.[2,3,5,6] Minor depression during adolescence may contribute to the development of major depressive disorder, be a prodromal form of major depressive disorder and/or mediate the association of childhood adversities with subsequent major depressive disorder onset. Our findings also support the inference that adolescents with minor depressive disorder may be at elevated risk for other psychiatric disorders during adulthood.[2,6] The study findings suggest that adolescents with minor depressive disorder may be at elevated risk for anxiety disorders and disruptive disorders during early adulthood, and that this elevation in risk may not be attributable to the presence of corresponding or co-occurring disorders during adolescence. In addition, the findings suggest that young adults with minor depressive disorder may be at risk for subsequent eating disorders.

It will be of interest for future research to investigate whether the associations of minor depression with risk for subsequent anxiety, disruptive and eating disorders are causal or correlational in nature. Minor depressive disorder may contribute to the development of subsequent internalising (e.g. anxiety) and externalising (disruptive) disorders, and/or it may mediate the associations of pre-existing vulnerability factors with the onset of these disorders. Alternatively, minor depressive disorder may co-develop in association with prodromal anxiety, disruptive and/or eating disorder symptoms.

The present findings also suggest that minor depressive disorder during adolescence may be associated with subsequent impairment, during adulthood, and that this association may not be attributable to co-occurring disorders during adolescence or adulthood. The present findings support the inference that depressive symptoms during adolescence may be associated with adverse mental health outcomes, even if the depressive symptoms do not meet the diagnostic thresholds for major depressive disorder or dysthymic disorder.[2,6]

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