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Research report

Anxiety disorders in adolescents and psychosocial outcomes at age 30

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ABSTRACT

Background: Anxiety disorders are associated with adverse psychosocial functioning, and are predictive of a wide range of psychiatric disorders in adulthood.
Objective: The present study examined the associations between anxiety disorders during childhood and adolescence and psychosocial outcomes at age 30, and sought to address the extent to which psychopathology after age 19 mediated these relations.
Method: Eight hundred and sixteen participants from a large community sample were interviewed twice during adolescence, at age 24, and at age 30. They completed self-report measures of psychosocial functioning and semi-structured diagnostic interviews during adolescence and young adulthood.
Results: Adolescent anxiety predicted poor total adjustment, poor adjustment at work, poor family relationships, problems with the family unit, less life satisfaction, poor coping skills, and more chronic stress. Adolescent anxiety predicted, substance (SUD), alcohol abuse/dependence (AUD), and anxiety in adulthood. No adult psychopathology mediated the relationship between childhood anxiety disorders and psychosocial outcomes at age 30. Adult, SUD, AUD and anxiety mediated the association between adolescent anxiety and most domains of psychosocial functioning at age 30.
Limitations: The participants are ethically and geographically homogenous, and changes in the diagnostic criteria and the interview schedules across the assessment periods.
Conclusion: Adolescent anxiety, compared to childhood anxiety, is associated with more adverse psychosocial outcomes at age 30. Adolescent anxiety affects negative outcomes at age 30 directly and through adult anxiety, SUD and AUD.

1. Introduction

Anxiety disorders are among the most common disorders affecting adolescents (Costello et al., 2005). Recent epidemiological studies estimated that the prevalence of anxiety disorders in adolescents ranges between 10% and 31.9% (Merikangas et al., 2010). The high frequency of anxiety disorders in adolescents means that these disorders tend to have an early onset. Some anxiety disorders (e.g., separation anxiety disorder, specific phobias) tend to have an onset in childhood, while others (e.g., social anxiety) tend to have an onset in adolescence (Beesdo et al., 2009). In addition to being prevalent, anxiety disorders co-occur highly among themselves and with numerous other psychiatric disorders (Essau, 2003; Essau et al., 2000; Feehan et al., 1993; Lewinsohn et al., 1997; Wittchen et al., 1998). The most common comorbid pattern was that of anxiety and depressive disorders (Essau et al., 2000; Lewinsohn et al., 1997), with comorbidity rates ranging from 50% to 72%. Among those with both disorders, up to 75% reported the first onset of anxiety before that of depression (Essau et al., 2000). Adolescents with anxiety and comorbid disorders tend to have more severe symptoms of their disorders (Essau, 2005), higher mental health utilization (Essau, 2005; Lewinsohn et al., 1995), and higher rates of suicidal behaviour (Rohde et al., 2001). Most anxiety disorders have an early onset, generally in childhood or early adolescence (Kessler et al., 1994; Mathew et al., 2011). Thus, the question of what happens to children and adolescents with an anxiety disorder after they become adults is of great concern.

According to several follow-up studies, anxiety disorders that begin early in life can become chronic (Feehan et al., 1993; Ferdinand and Verhulst, 1995; Keller et al., 1992; Letcher et al., 2012; Pine et al., 1998) and are associated with a high probability of recurrence (Bruce et al., 2005). The presence of anxiety disorders during adolescence also predicted a two- to- three-fold increased risk for anxiety in adulthood (Pine et al., 1998). Mathew

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et al. (2011) showed anxiety disorders in adolescence significantly predict the onset of MDD in adulthood. Adolescents who had more than three anxiety disorders had a rate of MDD 3.5 times higher and a rate of illicit drug dependence 4 times higher than peers without any anxiety disorders (Woodward and Fergusson, 2001).

Adolescents with anxiety disorders have been reported to show significant impairment in multiple domains of psychosocial functioning (e.g., educational underachievement; Woodward and Fergusson, 2001), as well as general health, physical and cognitive functioning in adulthood (Essau et al., 2000; Feehan et al., 1993; Ferdinand and Verhulst, 1995; Keller et al., 1992; Lewinsohn et al., 1998; Pine et al., 1998; Reinherz et al., 1993). However, the mechanisms through which anxiety disorders impact psychosocial outcomes are unknown. Recent studies have documented similarity in psychosocial impairments experienced by adolescents with anxiety, MDD, and SUD (Angold et al. 1999; Essau, 2003, 2008; Karlsson et al., 2006; Nottelmann and Jensen, 1999). Studies have also identified significant overlap in the risk factors for anxiety and MDD such as being female and stressful life events (Essau et al., 2000; Lewinsohn et al., 1995). Additionally, Mathew et al. (2011) found that poor interpersonal functioning in adolescents conferred risk for both anxiety and depression; these factors included loneliness, emotional reliance, and impaired relations with family and peers.

Due to the high comorbidity between anxiety, MDD and SUD, it remains unknown whether psychosocial impairments are specific to anxiety or to these comorbid disorders. The association between adolescent anxiety and psychosocial impairments in adulthood could be related to the fact that many adolescents with anxiety disorders experience another psychiatric disorder as adults (Keller et al., 1992; Pine et al., 1998). It is possible that having other disorders or recurrent anxiety disorder accounts for psychosocial impairments in adulthood (Keller et al., 1992). Furthermore, psychosocial impairment observed in adulthood could have been present in adolescence. As reported in several studies, adolescents with anxiety disorders are significantly impaired in various life domains, especially in social and academic performances (Essau, 2003). In this case, adult psychosocial impairments observed in anxious adolescents may reflect continuities in psychosocial, some of which may have preceded, and may even have contributed to, adolescent anxiety.

On the basis of this general background, the present study reports the result of a 16-year longitudinal study on the association between an early onset of anxiety (i.e., childhood and adolescent anxiety) and psychosocial functioning in adulthood. Because most anxiety disorders tend to have an onset either in childhood or during adolescence, the present study will categorize the age of onset of anxiety into childhood and adolescence. The more specific aims are to address the following questions: (a) What is the association between childhood and adolescent anxiety and psychosocial outcomes at age 30? The psychosocial outcomes that were explored included highest education level completed, recent unemployment, annual household income, poor physical health, and family and friends support – as these are the most common outcomes being identified in similar longitudinal studies (Mathew et al., 2011; Woodward and Fergusson, 2001). (b) What are the associations between childhood and adolescent anxiety and psychopathology after age 19? The types of psychopathology examined were anxiety, MDD, SUD, AUD. (c) Did other forms of psychopathology in adulthood mediate the relationship between childhood or adolescent anxiety and psychosocial outcome at age 30? (d) What are the associations between psychopathology after age 19 and psychosocial outcomes at age 30?

The hypotheses to be tested in this study were as follows: First, based on previous studies (Mathew et al., 2011), early onset anxiety (i.e., childhood or adolescent anxiety) is hypothesized to be associated with psychosocial impairment in academic, employment, health, and social/family domains. Specifically, individuals with a childhood-onset anxiety, compared to those with an adolescent-onset anxiety are hypothesized to have low education achievement, recent unemployment, low annual household income, poor physical health, and lack of family and friends support. Second, childhood and adolescent anxiety is associated with the presence of MDD, AUD, and SUD after age 19. Third, the presence of adult psychopathology is expected to mediate the relationship between childhood or adolescent anxiety and psychosocial outcomes at age 30. Finally, there will be a strong association between psychopathology after age 19 and psychosocial outcomes at age 30.

To our knowledge, this is the first study that has differentiated between anxiety disorders that begin early in life by their age of onset in childhood and in adolescence. This is surprising given differences among anxious children and adolescents in duration, severity, comorbidity patterns and correlates of anxiety disorders (Essau, 2005; Orgiles et al., 2012). Therefore, what is needed is a study that examines the association between childhood and adolescent anxiety and psychosocial functioning at adulthood. Another novel aspect of this research is to examine the extent to which other psychopathology in adulthood mediate the association between childhood and adolescent onset anxiety.

2. Methods

2.1. Participants

The present study used data from the Oregon Adolescent Depression Project (OADP) (Lewinsohn et al., 1993), a longitudinal study of a large cohort of high school students who were randomly selected from nine high schools in western Oregon as previously described (Rohde et al., 2007) (Fig. 1). A total of 1709 adolescents (ages 14–18; mean age 16.6, SD=1.2) completed the initial (T1) assessments. About a year later, all T1 participants were invited to participate in the second assessment. However, 1507 adolescents, with a mean age of 17.2 years participated at time 2 (T2; 88%). For the third assessment, all adolescents with a history of a depressive disorder by T2 (n=360) or a history of non-mood disorders (n=284), and a random sample of adolescents with no history of psychopathology by T2 (n=457) were invited to participate in a third (T3) evaluation. All non-white T2 participants were retained in the T3 sample to maximize ethnic diversity. A total of 1101 young adults participated at time 3 (T3), with a mean age of 24.2 years. At age 30, all T3 participants were asked to complete another interview assessment (mean age=30.45, SD=0.70). Of the 941 who participated in the T3 assessment, 816 (87%) completed the T4 assessment; due to missing data, the sample size ranged from 752 to 816 for individual outcome variables.

Of these 816 individuals, more than half of the sample were female (58.8%), with a mean age at T4 of 30.45 years (SD=0.70). The majority of the participants were White (85.9%), others were African American (1%), Hispanic (3%), American Indian (3%), Asian (3%), and “other” (2%). About half of them were married (56.2%), and 41% had a bachelor′s degree or higher.

2.2. Measures

2.2.1. Diagnostic measures

At T1 and T2, participants were interviewed with a version of the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Orvaschel et al., 1982). Follow-up assessments at T2 and T3 were jointly administered with the Longitudinal Interval Follow-Up Evaluation (LIFE; Keller et al., 1987).