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Research Report

What happens to depressed adolescents? A follow-up study into early adulthood

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ABSTRACT

Background: This study describes the mental illness and psychosocial outcomes of adolescents who experienced a depressive disorder and identifies predictors of full remission and recurrence.
Methods: 140 adolescents with major depressive disorder, dysthymic disorder, or depressive disorder NOS were offered psychosocial and/or antidepressant treatment across two clinical trials. Three to nine years later (mean 5.7 years), 111 adolescents and young adults completed self-, parent- and clinician-reported measures of psychopathology and psychosocial functioning in a naturalistic follow-up study. The Structured Clinical Interview for DSM-IV Axis 1 Disorders was used to determine the presence or absence of depressive disorder as well as other Axis 1 Disorders.
Results: By the follow-up assessment, most adolescents made a full remission from their index depressive disorder (92.6%). Recurrence of depressive disorder (52.4%) during the follow-up period was common, as was the experience of other disorders including anxiety, substance abuse and eating disorders. Time to full remission and recurrence did not vary between baseline types of depressive disorder. Self-reported depressive symptoms and anxiety disorder were associated with failure to achieve full remission while socio-economic status, self-reported self-efficacy and depressive symptoms were associated with recurrence of depressive disorder.
Limitations: Due to different treatment starting times, the length of the follow up period varied by up to 5.2 years.
Conclusions: Adolescents who experience depressive disorder are at high risk of ongoing mental illness and psychosocial impairment. Predictors of the course of depressive disorder may be of use in determining which adolescents may require more intensive intervention.

1. Introduction

Most adolescents who experience depressive disorders remit from the condition within approximately one year whether assessed following intervention within a clinical trial (Birmaher et al., 2000; Curry et al., 2011) or within a community sample (Rao et al., 2010; Dunn and Goodyer, 2006). However, depression frequently recurs in adolescence or early adulthood (Curry et al., 2011; McCauley et al., 1993; Rao et al., 2010; Weissman et al., 1999). The experience of depression in late adolescence and early adulthood coincides with a formative developmental stage characterised by vocational training, entry to the workforce, and living independent of family. Recurrence of adolescent major depression disorder (MDD) following clinical trial treatment ranges from 30% within two years to 47% within five years (Birmaher et al., 2000; Curry et al., 2011) with some evidence that the rate of recurrence rises markedly between two and three years after baseline (Curry et al., 2011). Within community samples, a similar range is found ranging from 54% over three years (McCauley et al., 1993) to 63% over 10 years (Weissman et al., 1999) The onset of bipolar disorder is uncommon, emerging in between 3.4% and 6.1% of the previously depressed samples (Curry et al., 2011; Dunn and Goodyer, 2006; Weissman et al., 1999). Few studies have reported on the outcome of depressive disorders other than MDD but Kovacs et al. (1984) found that dysthymic disorder (DD) had a poorer recovery rate compared with MDD in a community sample of depressed children and young adolescents.

Understanding of the longer-term academic, vocational and service utilisation outcomes of adolescent depression is less clear but might be useful in informing prevention and intervention efforts. At a ten-year follow-up of a community sample, Weissman et al. (1999) reported that 60% of their sample who experienced

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adolescent MDD had finished high school, and 43% had attended college. Depressed subjects had more time out of work due to psychopathology, lower educational achievement and lower social class compared with controls. There were no differences between the previously depressed group and controls in terms of income, employment and marital status (Weissman et al., 1999). Curry et al. (2011) reported that service utilisation rates measured five years after treatment within a randomized controlled trial (RCT) were high with 42.3% receiving psychotherapy and 44.9% receiving antidepressant medication independent of the study treatment, suggesting that the burden of these disorders is ongoing. Receipt of further treatment was associated with a lack of recovery and recurrence.

Discovery of predictors of full remission and recurrence may contribute to a better understanding of mechanisms that operate to maintain depression and thus help identify targets for intervention (Goodyer et al., 1997). Factors found to predict full remission and recurrence vary across studies. Greater severity of depression at baseline (Birmaher et al., 2000; Dunn and Goodyer, 2006; Emslie et al., 1998), suicidal ideation (Rohde et al., 2006), and higher cortisol level (Rao et al., 2010) have been identified as predicting longer time to recovery. Comorbidity has also been identified as a marker of longer time to recovery including parent reported behaviour problems (Rohde et al., 2006) and number of comorbid disorders (Emslie et al., 1998). In terms of demographic factors, earlier age of onset predicted a longer illness (Kovacs et al., 1984) and longer time to remission (e.g., Dunn and Goodyer, 2006; Emslie et al., 1998).

Some predictors of time to recovery have also been found to be predictors of recurrence including severity of depression (Emslie et al., 1998; Lewinsohn et al., 2000), suicidal ideation (Emslie et al., 1997), younger age (Emslie et al., 1997), and comorbid borderline personality disorder symptoms (Lewinsohn et al., 2000). In addition, female sex, (Curry et al., 2011; Dunn and Goodyer, 2006) clinic referral (versus advertisement response; Birmaher et al., 2000) and ethnic minority (Emslie et al., 1997) predict recurrence.

Findings from the follow-up studies of clinical trial samples suggest that treatment type (psychosocial and/or antidepressant) does not have an influence on recovery or recurrence rates at follow-up of two or more years (Birmaher et al., 2000; Curry et al., 2011), however, Rohde et al. (2006) found that CBT resulted in a more rapid recovery compared with a life-skills control at a one year follow-up. While the use of univariate analyses within some studies make it difficult to determine the relative contributions of each predictor, these findings collectively suggest that more severe and earlier onset depression predict a worse outcome.

This paper reports on the 3–9 year outcomes of a sample of depressed teenagers who were offered a standardized treatment. This study adds to the limited body of research addressing the longer-term outcome of adolescents with depressive disorders and addresses the limitations of previous studies by including a range of psychosocial outcome variables as well as non-mood disorder outcomes and a follow-up period of reasonable length. Given findings from the previous research, it was expected that almost all young people would achieve full remission from their index episode of depression but high rates of recurrence and other mental illness would emerge. Few prior studies have considered the outcome of DD or depressive disorder not otherwise specified (DDNOS). It was hypothesised that participants with DD would take longer time to remit given the chronic nature of the disorder (Kovacs et al., 1984). Finally, a range of clinical and demographic factors were examined for their ability to predict time to full remission and time to recurrence. No specific hypotheses were made regarding predictors of full remission and recurrence given the limited and somewhat mixed previous findings; however, it was expected that those with more severe psychopathology and impairment would have worse outcomes.

2. Method

2.1. Participants

One hundred and forty clinically referred young people were eligible to participate in this naturalistic follow-up study having been previously diagnosed at baseline (Time 1; T1) with a depressive disorder (MDD, DD, DDNOS) within one of two RCTs evaluating treatments for adolescent depression, Berriga House (BH, $N=67$; Heyne et al., 2001) and Time for a Future (TFF, $N=73$; Melvin et al., 2006). BH and TFF utilised an overlapping clinical outcome measures and outcome assessment schedule (baseline, post-treatment and six months follow-up).

The trials were conducted in metropolitan Melbourne (3 sites) and the rural city of Geelong (one site) in Victoria, Australia. Participants were referred by medical practitioners, psychologists and school welfare staff. Of the participants eligible for treatment from the combined TFF and BH group ($N=140$), almost all accepted treatment ($n=135$) and were also assessed after 12 weeks of treatment ($n=110$, Time 2; T2) and a further six months later ($n=101$, Time 3; T3). The BH RCT recruited participants between February 1997 and July 2002. The participants in BH were randomly allocated to one of three treatments; adolescent-focussed CBT [CBT-A], or adolescent- and parent-focussed CBT (CBT-A&P), or supportive psychotherapy (SP). The CBT-A treatment condition comprised 14 treatment CBT sessions with the adolescent and 7 treatment sessions with the parent(s). The CBT-A&P treatment condition comprised 14 CBT sessions with the adolescent and 14 sessions with the parent(s). The SP treatment condition comprised 14 treatment sessions with the adolescent and 7 treatment sessions with the parent(s). The TFF RCT recruited participants between July 2000 and December 2002 and has been previously described elsewhere (Melvin et al., 2006). Briefly, TFF the treatments were CBT-A&P, antidepressant medication therapy (sertraline dose range 25–100 mg), and combined antidepressant and CBT-A&P (Melvin et al., 2006). All CBT treatments were administered individually and treatment material drawn from the Adolescent Coping with Depression program (Clarke et al., 1990).

In this follow-up study 111 of these young people (79.3% response rate) aged 17 years 10 months–24 years 11 months and their parent/carer(s) were located and agreed to participate at Time 4 (T4). Almost all of the sample were white (98%) with the remainder being Asian (2%). These participants were assessed between 3.8 years and 9.0 years from the time of their baseline (T1) in either the BH or TFF study (mean = 5.7 years, $sd=1.1$ years).

2.2. Materials

A multi-informant assessment was employed to assess the long-term outcome at T4. The assessment included a semi-structured diagnostic interview, self- and clinician-rated scales chosen for their strong psychometric properties and applicability to older adolescent and young adult populations.

Time 4: (a) Diagnostic status. To determine present and historical psychiatric disorder since last study assessment, the young person was interviewed using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First et al., 1997). (b) The Outcome of Adolescent Depression Structured Interview (OADSI; Dudley et al., 2005) was developed for this study to assess late adolescent/early adulthood physical and psychosocial health, interpersonal relationships, health service utilisation, education and employment outcomes. The OADSI has both parent- and young person-report versions (available from the corresponding author). The interview produces a timeline which tracks periods of health, illness and psychosocial outcomes during the relatively