Original article

Social, Demographic, and Health Outcomes in the 10 Years Following Adolescent Depression

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A B S T R A C T

Purpose: Little attention has been paid to the sociodemographic profiles of depressed youth during the vulnerable transition from adolescence to early adulthood. This study aimed to determine and describe the social, demographic, and health outcomes of adolescent depression during a 10-year period of transition into early adulthood, using a population-based cohort of Canadian teenagers.
Methods: Depression status on 1,027 adolescents aged 16–17 years was ascertained from the National Population Health Survey. Social and health outcomes (i.e., employment status, marital status, personal income, education, social support, self-perceived stress, heavy drinking, smoking, migraine headaches, adult depression, antidepressant use, self-rated health, and physical activity) were measured every 2 years until the ages of 26–27 years. Logistic regression was combined with a generalized linear mixed-model approach to determine the odds of health and social outcomes in depressed versus nondepressed adolescents.
Results: Proximal effects of adolescent depression were observed (at ages 18–19) on all outcomes with the exception of physical activity. Significant effects that persisted after 10 years included depression recurrence, higher severity of symptoms, migraine headaches, poor self-rated health, and low levels of social support. Adolescent depression did not appear to significantly affect employment status, personal income, marital status, or educational attainment.
Conclusions: The transition from adolescence to adulthood is a particularly vulnerable period due to educational, employment, and social changes that may be occurring. The results of this study indicate that the onset of depression during adolescence may be indicative of problems of adaptation that persist at least a decade into early adulthood.

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IMPLICATIONS AND CONTRIBUTION

Adolescent depression may predict specific long-term difficulties during an individual's transition into adulthood. Using repeated measures over 10 years and a large, population-based cohort, this study is among the first to document early adulthood consequences (i.e., heavy drinking, migraine headaches, smoking, high stress, and low social support) of adolescent depression.

Depression is a highly prevalent disorder estimated to affect 8%–20% of adolescents globally before the age of 18 [1–3]. Affective problems during the adolescent years have long been implicated in adverse behavioral and health outcomes, including academic difficulties, suicidal behavior, social impairment, and substance abuse [4–6]. While the social and economic impact of

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adult depression is well-documented (costing over $14 billion annually in Canada alone [7]), little research has attempted to adequately document the consequences of the earlier onset forms of this disorder and their accrual throughout the life course.

A small, but growing number of longitudinal studies have endeavored to determine the effects of child and adolescent depression on future mental health by following a range of clinical [8,9] and population-based [10,11] cohorts through to adulthood. These studies highlight a strong continuity between adolescent depression and the onset of adult disorders such as major depression, anxiety disorder, and alcohol abuse or dependence. Combined with the increasing rates of adolescent depression in developed countries [12], these findings indicate a sizeable and growing contribution of adolescent depression towards psychiatric morbidity in the general adult population [13]. However, as the future psychiatric profiles of these youth are growing ever clearer, a paucity of research still exists that examines the broader long-term social, demographic, and health consequences of adolescent depression.

During the transitional period of emerging adulthood, a host of individual life changes are occurring in financial, residential, romantic, and family formation domains [14]. Young adults are often subjected to a series of upheavals, which may be particularly difficult to manage for affectively disordered youth. Although traditionally conceptualized as exposures rather than outcomes, many of the identified social and health risk factors implicated in the development of depression (e.g., work stress, educational attainment, alcohol abuse) may in turn be mediated by the presence of the disease itself. Evidence exists for the negative impact of adolescent depression on future social functioning [15,16], employment [17], and educational attainment [18]. Research on the long-term physical health consequences of early depression has, however, yielded mixed results. One 6-year follow-up study of adolescent girls found depression to be predictive of more chronic illness in adulthood, but not of self-rated health [15]. In contrast, a similar-length prospective study of over 700 adolescents reported adolescent depression to be associated with poorer self-rated and interviewer-rated health [19]. Other correlates of depression have received growing attention for their bidirectional relationships in adult populations (i.e., cigarette smoking [20], migraine headaches [21] and alcohol abuse [22]), but remain understudied in this capacity in younger age groups.

This study aimed to determine and describe the sociodemographic and health outcomes of adolescent depression every 2 years throughout a 10-year period of transition to early adulthood, using a population-based cohort of Canadian youth.

Methods

Study sample

The National Population Health Survey (NPHS) is a prospective cohort study administered by Statistics Canada, consisting of a group of 17,276 Canadians aged 12 years or older who joined the study in 1994. Participants were randomly selected using a stratified two-stage design and comprise a representative sample of the general Canadian population. Detailed information on health, behavior, and a variety of other factors has been collected in the NPHS every 2 years, with the most recent available data collected in 2008/2009 (Cycle 8). The first cycle of interview in 1994/1995 (Cycle 1) had a response rate of 83.6%, while the response rate in 2008/2009 (Cycle 8) was 84.9% of the original cohort [23]. The sample for this study included 1,027 individuals aged 12–17 years in 1994/1995 (Cycle 1). Of these, 997 were followed up at age 18/19, 916 were followed up at age 20/21, 832 were followed up at age 22/23, 730 were followed up at age 24/25, and 681 remained at 26/27. Depression status was ascertained when these participants turned 16–17 years (in Cycle 1 for 16–17 years, in Cycle 2 for those aged 14–15 years at baseline, and in Cycle 3 for those aged 12–13 years at baseline). The social and health outcomes described below were measured every 2 years until participants reached 26–27 years old (Cycle 6 to 8, depending on age at baseline).

Adolescent depression

Major depressive episodes are assessed in the NPHS using the Composite International Diagnostic Interview Short Form for Major Depression (CIDI-SFMD) [24]. The CIDI-SFMD inquires about symptoms of depression, as defined by the Diagnostic and Statistical Manual of Mental Disorders IV [25] during the preceding 12 months. Individuals who have five or more symptoms during a single 2-week period are considered to have a 90% probability of being depressed [26], corresponding to DSM-IV criteria for a major depressive episode [25]. All participants achieving a symptom score of 5 or higher on the CIDI-SFMD were classified as depressed for this study, with assessments occurring every 2 years from 16–17 to 26–27 years of age.

Demographic, health, and social outcomes

Individuals in the NPHS provide a detailed record of many demographic, physical health, and mental health factors. We investigated the following demographic outcomes: current employment status (job vs. no job), personal income (above vs. below $20,000/year) and highest level of education achieved (completion of any postsecondary training/certification/degree vs. none completed).

Health and social outcomes included migraine headaches within the previous 12 months, as well as self-rated health status (poor/fair vs. good/very good/excellent) and physical activity level (inactive vs. moderate/active). In addition, we examined heavy drinking (defined as consumption of >16 drinks/wk for males and >11 drinks/wk for females), and/or consuming 5+ drinks in one sitting at a frequency greater than once a month [27]; self-reported smoking (at least once per day); antidepressant use (within the previous month); and psychological distress (measured by the Kessler K6 Psychological Distress Score) [28]. Marital status (married vs. unmarried) and perceived social support (a scale out of 4, which measures social support in four key functional domains, and is determined using the Medical Outcomes Study social support scale) [29] were also assessed, as was self-perceived stress (a scale out of 5, based on five "true/false" items in which a higher score indicates greater stress level).

Outcomes were measured every 2 years from ages 18–19 to ages 26–27, with the following exceptions: data on social support and personal stress were only available from 2000/2001 (Cycle 4) onwards. In addition, employment status; marital status; personal income; and highest level of education achieved were measured only at 26–27 years (measurements made prior to this were deemed to be premature given the age range).