Adolescents with Depression Grown up

Education, Intimate Relationships, Mental Health, and Personality

ULF JONSSON
Dissertation presented at Uppsala University to be publicly examined in Sal IX, Universitetshuset, Övre Slottsgatan, Uppsala, Saturday, January 15, 2011 at 09:15 for the degree of Doctor of Philosophy (Faculty of Medicine). The examination will be conducted in Swedish.

Abstract

Unipolar depression, estimated to be the leading contributor to burden of disease in middle- and high-income countries, often has an onset in adolescence. The disorder is associated with substantial role impairment and is highly recurrent. This raises questions about both subsequent mental health and social outcome. In order to shed light on this, a community sample of adolescents with depression and non-depressed peers was followed-up after 15 years.

In 1991-93, first-year students in upper secondary school (age 16-17) in the town of Uppsala, Sweden, were screened for depression. Adolescents with positive screening and selected peers with negative screening (n=631 in total) were assessed regarding mental health, social situation, and personality. At around age 31, the participants were followed-up in both national registers (n=609) and personal interviews (n=409). Outcome regarding social factors, mental health, and personality was assessed.

At follow-up, the former depressed adolescents had completed higher education to a lesser extent than the former non-depressed adolescents. The females with adolescent depression were also at increased risk of subsequent abortion, divorce, single parenthood, and partner violence. Characteristics associated with depression in adolescence (such as poor school performance and disruptive disorders) seemed to contribute to the poor outcome in the social domain.

Regarding adult mental health, long-term depression in adolescence was associated with a particularly poor outcome. Compared to adolescents with shorter episodes of depression, those with long-term depression were more likely to report recurrent depression, suicidal ideation, and a range of other mental disorders in adulthood.

Measures of personality traits related to neuroticism (a tendency towards negative emotionality) were elevated during ongoing depression and anxiety disorders, but were normalized with remission. However, repeated depressive episodes seemed to leave the individual more vulnerable to stress.

It is now important to assess if early treatment can alter the poor outcome depicted in this thesis. Since social adversity, educational difficulties, and interpersonal problems accompany the depressive disorder from adolescence onward, it should also be investigated if interventions aimed at such contextual factors can prevent recurrence and improve quality of life.

Keywords: Adolescent depression, Follow-up, Higher education, Childbearing, Intimate relationships, Recurrent depression, Personality development, Neuroticism, Social outcome, Community sample

Ulf Jonsson, Department of Neuroscience, Child and Adolescent Psychiatry, Akademiska sjukhuset, Uppsala University, SE-75185 Uppsala, Sweden.

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ISSN 1651-6206
ISBN 978-91-554-7967-1
urn:nbn:se:uu:diva-134640 (http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-134640)
List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.


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Abbreviations

ADHD Attention-Deficit/Hyperactivity Disorder
ANOVA Analysis of Variance
BDI Beck Depression Inventory
CBT Cognitive Behavioral Therapy
CES-DC Centre for Epidemiological Studies-Depression Scale for Children
CI Confidence Interval
DICA-R-A Diagnostic Interview for Children and Adolescents in the Revised form according to DSM-III for Adolescents
DSM Diagnostic and Statistical Manual of Mental Disorders
ECT Electroconvulsive Therapy
GPA Grade Point Average
KSP Karolinska Scales of Personality
MADRS Montgomery-Åsberg Depression Rating Scale
MD Major Depression
MINI Mini International Neuropsychiatric Interview
OR Odds Ratio
SD Standard Deviation
SES Socioeconomic Status
SSP Swedish Universities Scales of Personality
SSRI Selective Serotonin Reuptake Inhibitor
TCA Tricyclic Antidepressant
Introduction

Unipolar depression is estimated to be the leading cause of burden of disease in middle- and high-income countries (1). The disorder is associated with substantial role impairment (2), and often has an onset in adolescence (3). This raises questions about how depression during this period of rapid cognitive, emotional, and social development is related to subsequent status attainment, adjustment to adult life, personality development, and mental health. Longitudinal designs, following adolescents with depression into adulthood, are well suited to address these questions. To date, only few such studies have been conducted, mostly in the United States and the United Kingdom (Table 1). The project on which the present thesis is based was initiated to increase the knowledge about the general outcome of adolescent depression. An additional incentive was to, for the first time, investigate this in a Swedish sample.

Depressive disorder: definition, measurement, prevalence, etiology, and treatment

The Diagnostic and Statistical Manual of Mental Disorders (DSM) (4-6), a classification system that is widely used both in research and clinical practice within the psychiatric field, defines the mental disorders according to explicit criteria, based on symptoms and signs. Major depression (MD) is characterized by depressed mood, diminished interest or pleasure in normally enjoyable activities, and a number of associated symptoms (see Table 2 for full definition of a major depressive episode). The severity of the episodes span from mild episodes with limited functional impairment to severe and incapacitating episodes that might warrant hospital admission. The duration of an untreated episode typically lasts months or longer (5). However, there is a wide range with episodes lasting from a couple of weeks to years. In the majority of cases there is complete remission of symptoms and functional recovery, while in other cases residual symptoms and functional impairment may persist for month or years. Depressive episodes are highly recurrent, with at least 60% of those recovering from a first episode having one or more additional episodes in their lifetime (5). An episode lasting two years or more is categorized as chronic.
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The DSM also includes the diagnosis dysthymic disorder, which is defined as a chronically depressed mood (with a duration of at least two years in adults or one year in children and adolescents), but with fewer symptoms than in major depression.

To confirm mental disorders, assessments with open-ended questions and structured clinical interviews can be used. The latter is an assessment technique in which each symptom and criteria for the diagnoses is formulated as a question that is read to the interviewee verbatim. The purpose of this procedure is to increase the reliability of the diagnoses. In addition, rating scales of depressive symptoms are often used to determine the severity of the depressive symptoms, measure improvement during treatment, or to screen for depression in a population.

Estimates of the prevalence of depression differ substantially between studies. A Swedish longitudinal population-based study, following a cohort from 1957 to 1972, estimated that 45% of females and 27% of males have experienced a depressive episode by the age of 70 (26). More recently, a nationally representative cross-sectional study in the United States estimated that the lifetime risk of major depressive disorder by the age of 75 is 23% (27). At a given point in time, it is estimated that 4-10% of the adult population has an ongoing depressive episode (28). A robust finding in epidemiological studies is that females are about twice as likely as males to experience a life-time episode of MD (29).

Depression is a multifactorial disorder with a complex etiology. The heritability of major depression has been estimated to be moderate (in the range of 0.35-0.40) (30). Stressful life events and adversities have proved to be important environmental triggers (31), presumably in interaction with genetic vulnerability (32). It has been suggested that psychosocial stressors play a greater role in initial episodes, while the onset of recurrent episodes become increasingly autonomous and less related to environmental adversities over the course of the disorder (33). Comprehensive models of depression have identified a multitude of risk factors during the lifespan, and suggest a number of etiological pathways. In a large twin study in the United States, three major pathways to adult depression were identified: one represented by “internalizing” risk factors, such as early onset anxiety and neuroticism (a personality trait of negative emotionality); one represented by “externalizing” disorders, such as conduct disorder and substance misuse; and finally, one represented by exposure to adversities and interpersonal difficulties from childhood into adulthood (34, 35). These pathways, however, seemed to be interlinked in a number of ways; notably, childhood adversity was a strong predictor of “externalizing” disorders, which in turn predicted later adversity.

Today, effective treatment for depressive disorders is available (28, 36, 37). In mild to moderately severe depressive disorders psychotherapeutic treatment, (e.g. Cognitive Behavioral Therapy, CBT) and antidepressant
pharmacological treatment (i.e. Selective Serotonin Reuptake Inhibitors, SSRIs, and Tricyclic Antidepressants, TCAs) are regarded to be equally effective (38). In severe depressive disorders, antidepressant pharmacological therapy and Electroconvulsive Therapy, ECT, are recommended treatments. Despite a series of depression awareness campaigns, many with depressive disorders do not receive treatment, either because they do not seek treatment or because the depressive disorders are not adequately diagnosed by the health care system (39, 40).

Table 1. The DSM-IV definition of major depressive episode

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<td>A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) or (2).</td>
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<tr>
<td>(1) depressed mood most of the day, nearly every day (can be irritable mood in children and adolescents)</td>
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<tr>
<td>(2) markedly diminished interest or pleasure in all, or almost all, activities most of the day nearly every day</td>
</tr>
<tr>
<td>(3) significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day</td>
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<td>(4) insomnia or hypersomnia nearly every day</td>
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<td>(5) psychomotor agitation or retardation nearly every day</td>
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<td>(6) fatigue or loss of energy nearly every day</td>
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<tr>
<td>(7) feeling of worthlessness or excessive or inappropriate guilt nearly every day</td>
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<tr>
<td>(8) diminished ability to think or concentrate, or indecisiveness, nearly every day</td>
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<tr>
<td>(9) recurrent thought of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide</td>
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<tr>
<td>B. The symptoms do not meet the criteria for a Mixed Episode (both Manic Episode and Major Depressive Episode)</td>
</tr>
<tr>
<td>C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.</td>
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<tr>
<td>D. The symptoms are not due to the direct physiological effect of a substance or general medical condition.</td>
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<td>E. The symptoms are not better accounted for by Bereavement.</td>
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Adolescent depression

It was long believed that mood disorders were rare before adulthood, and that mood disturbance was a normal and self-limiting aspect of child and adolescent development (41). However, research during recent decades has
clearly shown that this is not true. The Swedish population-based study, on which the follow-up in the present thesis is based, estimated the lifetime prevalence of MD in Swedish 16-17-year-olds to 11% (42). In the United States, a large-scale longitudinal study estimated the lifetime prevalence of MD to 24% by the end of adolescence (43), while a nationally representative study of the general population in the US estimated the lifetime prevalence of MD in the age range 15-18 to 14%, and that an additional 11% had a lifetime history of minor (subthreshold) depression (i.e. too few symptoms to fill the criteria for MD) (44). It has been reported that there is a roughly linear increase in cumulative prevalence of depression from early adolescence to early adulthood (41). Adolescent depression has consistently been reported to be more common among females than among males (43, 45).

Population-based studies have revealed that a large proportion of depressed adolescents also have other mental disorders, such as anxiety disorders, disruptive disorders (conduct disorder, oppositional defiant disorder, or ADHD), and substance use disorders (8, 11, 46). In addition, adolescent depression is associated with stressful life events, an adverse family environment, and a poor social network (11, 43, 47, 48). Such correlates are likely to both have etiological relevance and to be decisive for the subsequent outcome (11, 49, 50).

The original investigation, on which the follow-up presented in this thesis was based, highlighted the multiple difficulties associated with adolescent depression. Childhood anxiety disorders were reported in about half and conduct disorder in about one fourth of the adolescents with MD (51). The adolescents with either comorbid conduct disorder or long-term depression had the most pronounced burden of social adversities, such as poor family climate, conflicts with parents, and an unsatisfying social network (48, 51).

Continued mental health problems in adulthood after adolescent depression

The lifetime prevalence of MD in adolescence is similar to what has been reported in adults, suggesting that a large proportion of adult episodes could have precursors in adolescence. This notion is supported by both clinical and population-based longitudinal studies showing that adolescents with depression subsequently are more likely than their non-depressed peers to experience and to be treated for depression, and also to report other mental disorders (8, 11, 18, 24). Findings in a study of a New Zealand birth cohort, followed prospectively to the age of 21 years, illustrates that the association between adolescent depression and subsequent depression and anxiety disorders in early adulthood remains even after adjustment for possible confounding factors, such as comorbid mental disorders and family
adversities (11). In the same cohort it was shown that also adolescents with subthreshold depression are at increased risk of developing MD in adulthood, with a similar prognosis as those with adolescent MD (52). In a large-scale longitudinal study of a community sample in the US, 45% of the adolescents with MD reported at least one recurrent episode in early adulthood (age 19-24 years), while 33% reported another mental disorder (e.g. anxiety disorders), and 62% reported any mental disorder (8). Although this implies substantial continuity, it also illustrates that a large proportion of depressed adolescents apparently do not have significant mental health problems in early adulthood. This impression is reinforced by other follow-up studies of clinical and population-based samples (11, 18, 24).

Studies trying to identify predictors of continued mental health problems after adolescent depression have highlighted a multitude of factors, including family adversities, severity and recurrence of depression, neuroticism and borderline personality disorder symptoms (9, 11). Further, both the number of depressive episodes and the duration of the depressive episodes have been reported to predict recurrence of depression in early adulthood (9). Recent studies have shown that the persistence of depressive symptoms during adolescence is predictive of subsequent mental health. A forty-year follow-up of a British birth cohort showed that adolescents with internalizing disorders (anxiety disorders or depression) at both age 13 and 15 years were more likely than healthy adolescents to subsequently report adult mental disorders. However, this was not the case for adolescents with internalizing disorder at only one of these time-points (14). Similar results are reported from a Swiss study in which depressive symptoms were measured at three time-points in adolescence and young adulthood (17). Episodic adolescent depression (high scores at only one of the time-points in adolescence) was not associated with abnormal psychosocial and mental functioning in early adulthood (at age 20 years), while persistent high scores throughout the three time-points was.

Social outcome in adulthood after adolescent depression

The developmental demands on adolescents entering adulthood (53) raise questions about how adolescents with depression and associated problems adjust to adult life, and how this adjustment is related to the continued course of the depressive disorder. These concerns are reinforced by studies showing that depression in adulthood is related to both low socioeconomic status (SES) (54) and relationship problems (55, 56).

The educational outcome is central, as it sets the stage for future life opportunities. Education has been suggested to be the main factor in upward social mobility (57), and is associated with employment, a sense of control over ones life, social support, health promoting behaviors, and better health (58). Studies have suggested that depression has a negative impact on perfor-
mance both at secondary school level (59) and university level (60). Moreover, both prospective (11, 61) and retrospective (62, 63) studies have shown an association between depression and termination of school prior to important educational milestones. In addition, a recent meta-analysis of socioeconomic inequalities in depression reported that the risk of depression in adults increased with decreased educational attainment and income (54). Thus, the course of depression and the process of educational attainment is likely to be intertwined in a complex pattern throughout the life-span. This is also reflected by the long-standing (and arguably yet unsolved) debate on “social causation” (that low SES play a role in the etiology of the disorder) and “social selection” (that the disorder impairs status attainment) (64-66). It is probable that both these perspectives are true to some extent.

Relationship problems could hold another key to the adolescent depression and its course. Interpersonal difficulties are associated with depression already in adolescence, and seem to persist into adulthood (47, 67, 68). Further, adolescent depression is associated with sexual risk behavior and early pregnancies (11, 69-72), while depression in adulthood is linked to marital problems, divorce, and single parenthood (55, 73-75).

Relationship problems might also be an explanation for the gender differences in the prevalence of MD. This difference first appears in early adolescence and effectively seems to disappear at an age when most women have passed though menopause (76). A theoretical model has proposed that this is the result of heightened affiliative need in females (but not in males) who reach puberty, in interaction with life events with interpersonal consequences (29). The model postulates that females with pre-existing insecure attachment, anxious-inhibited temperament, and low coping skills are placed at risk for depression by the changing social and hormonal milieu in adolescence. This increased risk seems to continue throughout the reproductive age.

The pathways connecting adolescent depression and social outcomes are likely to be complex. First, it is possible that school problems, interpersonal difficulties, or social adversities associated with adolescent depression (77) in themselves carry an increased risk of continued social problems into adulthood. For instance, results from the New Zealand birth cohort suggest that the associations between adolescent depression and social outcomes in young adulthood (e.g. low educational attainment, unemployment, and early parenthood) are explained by familial, social, and individual factors that were present in adolescence (11). Second, comorbid mental disorders in adolescence might be of importance for these outcomes. Adolescents with disruptive disorders in particular seem to have pervasive difficulties with education and social adjustment (20, 21, 65, 78). Third and finally, the continued course of depression in adulthood could be decisive for the social outcome. Analyses from the New Zealand birth cohort illustrated that the number of recurrent depressive episodes between ages 16-21 years was re-
lated to welfare dependence and unemployment between ages 21-25 years (12).

Personality traits, personality development, and depression

The study of personality encompasses a broad range of interpersonal differences in thinking, feeling, and behaving. The classical trait perspective argues that adult personality traits are biologically based, not susceptible to environmental change, and thus do not change over time (79). The contextual perspective, on the other hand, emphasizes the importance of life change and role transition (80). According to the latter perspective, personality is prone to change; especially during developmental periods characterized by rapid physical, cognitive, and social changes. The results of longitudinal empirical studies seem to support an intermediate position between these perspectives. The traits stabilize gradually from childhood onward, with trait consistency increasing from childhood into the middle age, and reaching a plateau in late middle age (81). The largest mean-level changes (e.g. resulting from maturation) seem to occur in early adulthood, suggesting that the causes of normative personality change are most likely to be identified by studying this period (79, 82).

One of the most widely accepted models of the basic structure of personality is the Five Factor Model (83). The five overarching traits in this model are neuroticism (a tendency to experience unpleasant emotions), extraversion (a tendency to experience positive emotions and seek stimulation and the company of others), conscientiousness (a tendency towards self-discipline and planned behavior), agreeableness (a tendency towards being compassionate and cooperative) and openness (a tendency to be curious and open to new ideas).

The association of depression and personality in adults has been extensively studied (84). The personality dimension most consistently linked to depression is neuroticism (85-87). The heritability of neuroticism has been estimated to be moderate, and it has been suggested that the association with depression to a large extent is the result of shared genetic risk (88). The level of neuroticism has been shown to generally decrease with age, mainly in young adulthood (82).

Apart from reflecting traits of vulnerability, levels of neuroticism seem to wax and wane with the onset and remission of depressive symptoms (“state effect”) (89-91). A number of longitudinal studies of adult samples have tried to disentangle the “trait” and “state” effects in the depression/neuroticism association. A high level of neuroticism has been shown to predict the onset of depressive episodes both in males and females (85, 87). The “state effect” of ongoing depression on measures of neuroticism has also
been shown to be substantial (85-87). It has been suggested that personality assessments might tap both “state effect” and “trait” variance, with the “state” variance masking the “trait” variance during ongoing depression (92). The trait vs. state issue is further complicated by the fact that anxiety disorders, often comorbid to depression, also have been shown to alter the level of neuroticism significantly (93). Thus, a stringent test of “state effect” of ongoing psychopathology should arguably also account for anxiety disorders.

Several longitudinal studies of adults have also investigated if depressive episodes leave the individual more neurotic after remission (“scar effect”). Such an effect has been reported in some studies (85, 87), but not in others (86, 94, 95). It should be noted that these studies differed substantially regarding the length of the follow-up periods. The two studies reporting a “scar effect” had a follow-up period of about a year, while studies with longer follow-up periods did not report such an effect. A study assessing depression and personality at two time points separated by an interval of 6 years concluded that self-reported personality traits do not change after a typical depressive episode (94). Further, an 18-year follow-up of a clinical sample suggested that neither recurrent nor chronic depression over long periods of time leave a “scar” of increased neuroticism (95).

However, the studies cited above all have focused on adult samples. The “scar effect” might be more pronounced during adolescence and early adulthood, when the plasticity of the personality seems to be greater. A number of previous studies raise concerns about the impact that depression during these formative years might have. Studies on clinical samples have concluded that early onset depression, as compared to depression with a later onset, is associated with personality disorders (96-98). Similarly, a prospective study of a community sample showed that adolescents with depression had an increased risk of adult personality disorders (99). It has also been reported that depressed patients with a history of early onset depression have higher levels of personality traits related to anxiety-proneness and negative emotionality than patients with later onset (97).

The present thesis

Previous follow-up studies of adolescent depression in community samples have typically either had a relatively short follow-up period (at age 21-25 years) (8, 11, 12), or used self-administrated ratings of depression (14, 17). The first is a limitation when social outcome is studied, since young adults in this age might not yet have completed education, started a family, and entered adult roles. The latter is limiting the validity of the diagnoses (as compared to structured clinical interviews) and usually only render an estimate of the symptoms at a given time-point. Some follow-up studies of clinical
samples have had longer follow-up periods (19, 24). These studies, however, focus on the selected group of depressed adolescents who receive treatment. Such cases can be expected to be more severe, and thus not representative of the broader group of adolescents with depression in the general population.

The long follow-up period in combination with extensive data from both registers and interviews makes the present study unique. It is also the first large-scale follow-up of adolescent depression in Sweden. Throughout this thesis, baseline characteristics have been taken into consideration. The pathways leading from adolescent psychopathology to adult outcomes are not yet well understood. However, it is clear that there is a substantial overlap between depression and other mental disorders in adolescence, and that social adversities and interpersonal difficulties are linked to the depressive disorder throughout the life. Consideration of such variables therefore has the potential to further clarify the associations between adolescent depression and adult outcome.
Aim and scope of this thesis

The general aim of this thesis was to investigate the adult outcome of adolescent depression. Adolescent depression can be expected to have negative consequences in many areas of adult life. The scope was therefore widened to include not only mental health, but also social outcomes and personality development.

Four main research questions, one for each paper, were addressed:

I  Do adolescents with depression subsequently complete higher education to a lesser extent than their non-depressed peers?

II Do adolescents with depression subsequently have more problems related to childbearing and intimate relationships, compared to non-depressed peers?

III To what extent do different subgroups of adolescent depression predict continued mental health problems in adulthood? More specifically, does long-term adolescent depression have a worse outcome than episodic adolescent depression?

IV Does depression in adolescence and young adulthood affect personality?
Methods

Subjects and procedure
The thesis is based on a 15-year follow-up of a population-based investigation of adolescent depression. In the original investigation (45), carried out in 1991-93 in the Swedish university town of Uppsala, all first-year students in upper secondary school (16-17 years old) during one academic year were asked to participate. Adolescents of the same age group who had dropped out of school were also invited. Out of a total of 2,465 adolescents in the age group, 2,300 (93%) participated in a screening for depression with self-rating scales. Adolescents with positive screening were invited to take part in a more extensive assessment of mental health, social situation, and personality. For each student with positive screening, a same-sex classmate with negative screening was assessed in the same manner, in order to create a comparison group. In all, 631 adolescents were interviewed and asked for consent to be contacted for a future follow-up. Out of these, 609 participants consented to a future contact and were thereby eligible for the follow-up study.

The follow-up was conducted in 2006-2008, about 15 years after the original investigation, when the participants were 30-33 years old. Two basic sources of information were used. First, data from national registers held by Statistics Sweden, mainly regarding psychosocial outcomes, were obtained for all the 609 eligible participants. Second, the eligible participants were invited to take part in a personal interview about mental health and social situation, and to answer questions about personality. Out of the 609 eligible participants, 409 (67%) took part in the interview. Figure 1 outlines the procedure.
Figure 1. Chart illustrating the inclusion of participants, both in adolescence and adulthood.
The original investigation

Two self-rating scales of depression, the Beck Depression Inventory (BDI) (100) and the Centre for Epidemiological Studies – Depression Scale for Children (CES-DC) (101), were used as screening instruments. Positive screening was defined as $\text{BDI} \geq 16$, or $\text{CES-DC} \geq 30 + \text{BDI} \geq 11$, or a reported suicide attempt.

In the following assessment, mental health was evaluated with the Diagnostic Interview for Children and Adolescents in the revised form according to DSM-III-R for adolescents (DICA-R-A) (102). The DICA-R-A is a structured diagnostic interview that covers a broad spectrum of child and adolescent mental disorders, such as major depression, dysthymic disorder, anxiety disorders and conduct disorders. It also includes questions about social situation and family-related adversities.

Personality was assessed with the Karolinska Scales of Personality (KSP) (103). This self-assessment inventory was originally constructed to measure personality correlates of psychiatric disorders, in order to define vulnerability factors. The inventory consists of 135 items grouped into 15 scales. Each item is a statement with four response-alternatives, ranging from “does not apply at all” to “applies completely”.

In addition, the participants completed the Children’s Life Events Inventory (104). This self-evaluation mainly covers life events related to social situation and family situation.

The register data

The register data were obtained divided into groups, in a way so that no single participant could be identified. The participants were grouped depending on their adolescent status regarding depression. Previous research has suggested that subthreshold depression in adolescence is similar to major depression with respect to both functional impairment (105) and mental health outcome (52). A broad definition of depression was therefore used. The adolescents who met the criteria for a lifetime major depression ($n=260$, 82% females) or had positive screening (categorized as subthreshold depression, $n=101$, 68% females) composed a broadly defined group of depressed adolescents ($n=361$, 78% females). Screening-negative adolescents who turned out to meet the DICA-R-A criteria for lifetime major depression were included in this group. The adolescents who did not meet any of these criteria were classified as non-depressed and constituted a comparison group ($n=248$, 77% females). To enable assessment of the representativity of the comparison group, register-data on the corresponding age group of the total Swedish population at the time of the original investigation, as well as on the
total corresponding age group living in Uppsala at the time, were also obtained.

Data on participation in higher education during the autumn term every year from 1997-2006 were retrieved from the Integrated Database for Labour Market Research (LISA) (106) held by Statistics Sweden. From these data it was determined if the subjects had entered higher education by the age of 30 years, and if they still were registered as students by the age of 30 years. Data on completed university and university college degrees and year of graduation up to the end of the calendar year of the subjects’ thirtieth birthday were retrieved from the University and University College register held by Statistics Sweden. Final grade point average (GPA) in compulsory school (from the year before the original investigation, at about age 15-16 years) and upper secondary school (approximately two to three years after the original investigation) for all subjects graduating at these levels were retrieved from the Pupil and Upper Secondary School registers held by Statistics Sweden.

From the Register of the Total Population, information on all childbirths, marriages, and divorces up until 2006 were obtained. Data on single parenthood by age 30 years were also retrieved from this register.

Background data (parental and familial characteristics) were also obtained from the registers. SES of the adolescents’ household, identified in the Swedish Population and Housing Consensus of 1990, was defined according to the classification used by the Statistics Sweden (107). This classification is based on occupation and considers the occupation’s required level of qualification, type of production and position of work of the head of the household. It was divided into three categories: low (manual workers and lower white-collar) high (medium white-collar and higher white collar) and others (i.e. self-employed, farmers, housewives, old age/sickness disability pensions, long-term unemployment). Information about parental educational level in 1990 was retrieved from the Swedish Educational Register, and was dichotomized into post secondary school or no post secondary school level.

The follow-up interview

The participants were invited to take part in a face-to-face at follow-up. Mental disorders in adulthood were determined with the Mini International Neuropsychiatric Interview Plus (108), which is a structured clinical interview covering a wide range of mental disorders. Some disorders (e.g. MD, hypomaniamania, substance use disorders) were rated from age 19 years onward, while only current status at follow-up was rated for other disorders (e.g. most anxiety disorders and the somatoform disorders). To further enhance the participants’ memory of depressive episodes during the investigated period, a life-chart with questions about education, occupation, life-
events, depressions, and treatments was used. Further, participants were also asked about suicidal ideation and suicide attempts during the period from age 19 years to follow-up, as well as treatments for mental disorders during the same period. Demographic data, social situation, life events (including pregnancies, induced abortion, and miscarriage), somatic health, and parental mental disorders were also investigated. A structured anamnestic interview for these questions was specifically created for this study. The severity of ongoing depressive symptoms was measured with the self-rating version of the Montgomery-Åsberg Depression Rating Scale (MADRS-S) (109, 110).

At follow-up, the participants also completed the Swedish Universities Scales of Personality (SSP) (111), which is an updated and revised version of KSP. It consists of 91 items and is divided into 13 scales, and 12 of these have a corresponding scale in KSP. A factor analysis by Gustavsson and colleague (111) divided the 13 scales into three main factors: neuroticism-related; aggressiveness-related; and extroversion-related.

Subjects and measures in paper I-IV

Paper I (Higher education)

This study focused on future higher education, both participation and completion, after having had depression in adolescence. GPA in compulsory school, socioeconomic group of the original family, and the mother’s education were the background variables that were taken into consideration. Only outcome measures and background variables obtained from the registers were included.

The broadly defined groups of adolescents with depression (n=361) was used, and compared to the group of non-depressed peers (n=248). Females and males were investigated separately.

Paper II (Intimate relationships and childbearing)

This paper investigated a range of outcomes related to family-life and relationships. The same definition of depressed and non-depressed adolescents as in paper I was used. Also in this paper, females and males were studied separately. Outcome measures and adolescent background variables from both the registers and the follow-up interview were included. Due to attrition, the interview-based data were available for 236 of the former adolescents with depression, and 170 of the former non-depressed adolescents.

Information about childbearing, marriages, divorces, and single parenthood was retrieved from the registers. Information about pregnancy, induced abortion, miscarriage, partner violence and sexually transmitted disease was
taken from the follow-up interview. For the outcomes from the follow-up interviews, the impact of the following adolescent variables (taken from the interview in adolescence) was taken into consideration: disruptive disorder (conduct disorder oppositional defiant disorder, or ADHD); conflicts with parents; parental unemployment/economic hardship; and physical/sexual abuse at home. The role of recurrence of depression in adulthood (defined as ≥2 depressive episodes in adulthood or >6 months duration) was also explored.

Paper III (Mental health)

This paper was concentrated on the adult mental health outcome in different subgroups of adolescent depression. Only data from the interviews was used. The investigated adult outcomes were mental disorders, suicidal ideation, and treatment for mental disorders. The participants were divided into diagnostic subgroups depending on their status in adolescence: 1) no depression (n=155); 2) long-term (during most of the last year) MD (n=91); 3) episodic MD (n=63); 4) dysthymic disorder (n=33); 5) subthreshold symptoms (n=40). Subjects with negative screening, but who filled the criteria for dysthymic disorder in the adolescent interview, were accordingly classified as having dysthymic disorder. Participants who had reported a hypomanic or manic episode in adolescence were excluded from the analyses, since this subgroup can be expected to have a different continued course of psychiatric problems. (This subgroup will be studied separately in upcoming reports.)

The major focus was on the difference in outcome between adolescents with long-term MD and episodic MD. In comparisons between these groups, the following adolescent covariates were considered: number of depressive symptoms, severity of depression, childhood anxiety disorders (separation anxiety, overanxious disorder, or avoidant disorder), disruptive disorder, psychic trait anxiety (according to the KSP), conflicts with parents, and physical/sexual abuse at home.

Paper IV (Personality)

Also in this paper, in which the personality assessments from adolescence (KSP) and adulthood (SSP) were the main focal points, only data from the interviews were used. The 12 scales in KSP that have a corresponding scale in the SSP were included (6 scales related to neuroticism, 3 scales related to aggressiveness, and 3 scales related to extraversion). These assessments were investigated in relationship to ongoing depression and anxiety disorders in adolescence and adulthood, and the number of reported depressive episodes in adulthood.

Participants with no history of depression in adolescence (n=119) were compared to participants with longstanding adolescent depression (either
MD or dysthymia) (n=89). Similar to paper III, subjects who had reported a manic or hypomanic episode in adolescence were excluded. Only participants with complete data on all the measures that were used in this paper were included. Since data on SSP in particular were missing for a large proportion of those who were re-interviewed, the participants in this study were fewer than in paper III.

Statistics

Univariate comparisons were conducted with the $\chi^2$–test for dichotomized variables (Fisher’s exact test when applicable), while the Mann-Whitney $U$-test was used for ordinal data. Independent samples t-test was used for comparison of continuous variables between two groups, and one-way ANOVA (with Tukey HSD for post hoc analyses) was used for comparison of continuous variables between more than two groups.

In paper I, the Kaplan-Meier method was used to generate survival curves of graduation from higher education. Equivalence of the survival curves was tested by means of logrank statistics. Logistic regression models were used in paper I-III, to adjust for comorbidity and social characteristics reported in adolescence. For the regression models in paper III, multiple imputation techniques were used to impute missing values. In paper IV, linear regression was used to account for ongoing and previous disorders and baseline measures of personality. $p$-values below 0.05 in two-tailed tests were considered statistically significant for all statistical analyses. Throughout, SPSS (versions 17.0 and 18.0) was used for the statistical analyses.

Ethics

Participants reporting current mental disorders or recurrent depressions were informed of available treatment options and where to seek treatment. In some cases, a letter of referral was written to the local psychiatric outpatient clinic after consent from the participant.

The register data from Statistics Sweden were obtained in a manner so that no single participant could be identified. The study was approved by the Ethical vetting board in Uppsala, Sweden.
Summary of results

Paper I (Higher education)

The adolescents with depression were less likely than their non-depressed peers to have graduated from higher education by the age of 30 years. This was true both for females (27.7% vs. 36.4%, \( p < 0.05 \)) and males (12.7% vs. 28.6%, \( p < 0.05 \)). The males with and without depression entered higher education to a comparable extent. Given that they had entered, however, the depressed males graduated to a lesser extent than their peers (25.0% vs. 59.3%, \( p < 0.01 \)). The depressed females seemed to enter higher education to a lesser extent than the non-depressed peers (51.5% vs. 60.5% \( p = 0.053 \)), but if they entered they graduated to a similar extent as their peers.

The educational disadvantage of the adolescents with depression was evident already in compulsory school, as measured by final GPA. When compulsory school GPA, adolescent socioeconomic group, and maternal education, were adjusted for in multivariate analyses, the reduced likelihood of graduation by age 30 remained for the males with adolescent depression (OR, 0.27; 95% CI, 0.08-0.93), but not for the females (OR, 0.93; 95% CI, 0.58-1.49).

Paper II (Intimate relationships and childbearing)

The depressed and non-depressed adolescents had become parents to a similar extent at follow-up, and the proportion that had married did not differ significantly between the groups. However, a range of adverse outcomes related to intimate relationships and childbearing were more common among the females with adolescent depression, as compared to the females without depression in adolescence. Given that they had married, the depressed females were more likely than their peers to have divorced at follow-up (25.7% vs. 8.9%, \( p < 0.05 \)). If they had become mothers, the former depressed females were more likely to be a single parent than the mothers without adolescent depression (20.0% vs. 9.3%, \( p < 0.05 \)). Further, a larger proportion of the formerly depressed females reported that they had experienced induced abortion (31.4% vs. 17.9%, \( p < 0.01 \)) or miscarriage (20.7% vs. 10.4%, \( p < 0.05 \)). The depressed females were also more likely to report intimate partner vi-
ulence (13.8% vs. 3.0%, \( p < .001 \)) and having had a sexually transmitted disease (27.7% vs. 17.2%, \( p < .05 \)). No group differences between the former depressed males and their non-depressed peers could be discovered regarding any of these outcomes.

The impact of adolescent covariates was investigated; the adolescents with depression were for instance more likely than the non-depressed adolescents to report a host of family-related adversities. However, comorbid disruptive disorder in adolescence turned out to be the most decisive factor. In the females with adolescent depression, a comorbid disruptive disorder increased the likelihood of adult abortion, sexually transmitted disease, and partner violence (Figure 1). Among the females with adolescent depression without disruptive disorder, only those who continued to have depression in adulthood had increased risk of these adversities (Figure 2.)

![Bar chart showing adverse adult outcomes related to intimate relationships and childbearing in females with adolescent depression, divided into those who had a comorbid disruptive disorder and those who did not.](image)

\[ \text{Figure 2. Adverse adult outcomes related to intimate relationships and childbearing in females with adolescent depression, divided into those who had a comorbid disruptive disorder and those who did not.} \]
Figure 3. Adverse outcomes in females with adolescent depression without comorbid disruptive disorder, divided into those who subsequently had substantial problems with depression in early adulthood (>6 month duration or ≥2 episodes) and those who did not.

Paper III (Mental health)

The adolescents with long-term MD in adolescence were more likely than the former non-depressed adolescents to report adult MD (73.6% vs. 31.0%, \( p < .001 \)) and virtually all the other investigated adult mental disorders. They were also more likely to report suicide thoughts and suicide attempts, and all kinds of treatment. Adolescents with dysthymic disorder were more likely than the non-depressed adolescents to have anxiety disorders in adulthood, and to report treatment. The adolescents with episodic major depression, on the other hand, did not differ significantly from the non-depressed regarding adult anxiety disorders and treatment. The overall outcome of the subthreshold group did not differ substantially from that of the non-depressed group. No major sex-differences regarding mental health outcome in adulthood were detected within any of the subgroups. The former depressed females, however, were treated for mental disorders in adulthood to a larger extent than the former depressed males.

The adolescents with long-term MD stood out from those with episodic MD. They were more likely to report anxiety disorders (62.6% vs. 31.7%, \( p < .001 \)) and adult suicide attempts (16.5% vs. 0.0%, \( p < .001 \)). Further, they reported a higher number of ongoing mental disorders at follow-up. Given that they had continued depression in adulthood, they reported a higher
number of episodes (Figure 4), a longer duration of treatment with antide-
pressants, and were more likely to report suicidal ideation during their adult
depressive episodes (60.6% vs. 24.3%, $p<.001$).

In adolescence, those with long-term MD were more likely than those
with episodic MD to report physical abuse, large conflicts with parents, dis-
ruptive disorder, and childhood anxiety disorder. They also had more severe
depressive symptoms and higher levels of psychic trait anxiety. After ad-
justment for these covariates, adolescents with long-term major depression
were still more likely than the peers with episodic depression to experience
adult depression (OR, 2.23; CI 1.01–4.92), other mental disorders (OR, 2.33;
CI 1.05–5.14), and to receive treatment for mental health problems in adult-
hood (OR, 2.96; CI 1.31–6.69).

![Figure 4. Number of depressive episodes in adulthood (age 19-31) in the former adolescents with long-term or episodic major depression (MD) who continued to have depressive episodes in adulthood.](image)

**Paper IV (Personality)**

The adolescents with depression scored substantially higher (about 1 SD)
than the adolescents without depression on all neuroticism-related scales, but
also on scales related to aggressiveness and extraversion. However, only
small differences remained in adulthood after adjustment for continued de-
pression and anxiety disorders. The scores of the former depressed adoles-
cents with few subsequent depressive episodes overall were normalized in
adulthood, whereas both former depressed and non-depressed adolescents
with numerous depressive episodes in adulthood had elevated adult neuroticism-scores. When adolescent levels of the traits and ongoing depression and anxiety disorders were adjusted for, a possible “scar effect” was only observed after repeated (≥4) depressive episodes in early adulthood. The “scar effect” most notably seemed to consist of increased stress susceptibility and disappointment with life. Overall, the “state effect” of both ongoing depression and anxiety disorders on neuroticism was extensive both in adolescence and adulthood. Abnormal neuroticism-levels (defined as ≥2 standard deviations above the population mean on at least one of the neuroticism-related scales) were closely related to ongoing depression or anxiety disorders (Figure 5.)

Figure 5. Abnormal neuroticism (>2 standard deviations above population mean on at least one neuroticism-related scale) in participants with long-term depression, divided into those who had ongoing depression or anxiety disorder at follow-up and those who did not.
Discussion

The method used in this thesis had some clear advantages compared to previous longitudinal studies of adolescent depression. The relatively long follow-up period enabled investigation of outcome at an age when a large proportion of the general population has completed education, started a family, and entered into adult life. In addition, the use of a combination of interviews and registers as sources of information broadened the scope of the investigation and increased the chances of obtaining a valid picture of the problems that adolescents with depression might face in adulthood. Further, the extensive evaluations of mental health, both in adolescence and adulthood, made it possible to take both characteristics of the depressive episodes and psychiatric comorbidity into account. Similarly, information about social situation and adversities in adolescence made it possible to consider the impact of such variables.

In agreement with previous longitudinal studies of adolescent depression, the results clearly show that there is a continuity of depression and other mental health problems into adulthood. Also in line with previous research, the results suggest that there is a broad spectrum of social problems in the wake of adolescent depression, and that such problems to a large extent were present already in adolescence. Balancing this bleak picture, the results also indicate that far from all adolescents with depression have poor outcome within the investigated domains. The over-arching task, thus, is to identify the factors that are decisive for the subsequent outcome. The discussion starts out with specific focus on the four papers, continues with methodological considerations, and concludes with a general discourse of the implications and suggestions for future research.

Paper I (Higher education)

Although recurrent depressions and cognitive impairments after adolescent depression can be expected to hamper achievement in higher education, previous longitudinal data suggest that pre-existing confounding factors might account for the subsequent educational disadvantage after adolescent depression (11). In the present study, pre-existing conditions seemed to account for the lower rate of graduation from higher education in former depressed fe-
males, but not in former depressed males. The former depressed males instead seemed to enter higher education, but drop out before completion. The difference in graduation between the depressed and non-depressed in general seemed to be larger for males. Thus, it is possible that the continued course of depression has a more central role in the educational outcome of males. Sex-differences in the characteristics of depression might offer an explanation. For instance, it has been proposed that males with depression are more likely than females to display symptoms such as aggressiveness, abuse, and transitional antisocial behavior (112). Such “externalizing” symptoms could be more detrimental to higher education than the “internalizing” symptoms that might be more typical of female depression. In addition, the results of paper III indicated that the males did not receive treatment to the same extent as the females, which is in line with previous research (112). Thus, males might be subject to a more prolonged functional impairment. In general, little is known about the outcome of males with adolescent depression. More research about this is needed.

Paper II (Intimate relationships and childbearing)

The results of this study show that depressed females are at increased risk of a diversity of problems related to intimate relationships and childbearing. Those with a comorbid disruptive disorder had a particularly poor outcome in this domain. It is probable that factors such as sexual risk behavior, alcohol and substance use, and affiliation with peers and intimate partners with antisocial behavior contribute to the poor outcome of this group (113-115).

Interestingly, out of the females with adolescent depression who did not have a disruptive disorder, only those who continued to have substantial problems with depression in adulthood had an increased risk of problems in this domain. Recurrence of depression thus seems to reflect another pathway connecting adolescent depression and poor psychosocial outcome. However, it is not clear from the present study whether recurrent depression increases the risk of these adverse outcomes, whether the adversities kindle recurrent depressive episodes in vulnerable females, or if both recurrent depression and the negative outcomes are caused by other, unmeasured, variables. It is probable that all these alternatives interact in a “vicious circle”(116). First, underlying interpersonal problems and insecure attachment might imply vulnerability for both recurrent depression and these outcomes. Second, depression in itself might interfere with the rapid development of social and sexual behavior in adolescence and young adulthood and hinder formation of more supportive social networks and stable intimate relationships. This could set the stage for future problems. Recurrence of depression throughout the lifespan is also likely to be demanding both for the depressed females and their partners (56). Third, the stress and strain of disrupted intimate rela-
tionships, single motherhood and adversities related to pregnancy might kindle recurrent episodes of depression (73-75). Fourth, it has also been reported that depressed females select unsupportive or depressed partners through assortative mating (117, 118), which would increase the risk of relationship discord further. Regardless of how these pathways are connected, however, interventions aimed at intimate relationships problems and sexual risk behavior might prove to be helpful for young females with depression.

Although both the females and males with adolescent depression reported more social adversities and family problems than their peers in adolescence, the data did not suggest that the former depressed males had more troubled intimate relationships in adulthood. This is in line with the theory that relationship problem might be more central to depressive disorders in females than in males (29). It should be noted though, that males typically start a family later than females. A follow-up of the male sample at a higher age could be more informative.

**Paper III (Mental health)**

The follow-up clearly shows that long-term MD in adolescence is a powerful predictor of continued mental health problems in adulthood. Not only were adolescents with long-term MD more prone than peers with shorter depressive episodes to suffer from multiple comorbid disorders at follow-up, but they also seemed to develop more severe depressive episodes and more suicidal ideation. The results of this paper thus add to the growing literature on the unfavorable course of chronic/long-term depression (17, 119, 120).

Long-term MD in adolescence was clearly associated with a number of adverse conditions in adolescence, such as psychic trait anxiety, family-related adversities, early onset comorbid disorders, and severity of the depression. Although the association between long-term MD and subsequent mental health was somewhat attenuated when these variables were adjusted for, the overall poor outcome was still evident. Thus, non-remitting adolescent depression seems to be a marker of multiple problems in adolescence, and an independent predictor of multiple mental disorders in adulthood. This seems to suggest that long duration of depression per se leaves the individual more vulnerable to future mental health problems.

This vulnerability could arise in a number of ways that are likely to be intertwined. First, long-term depression could have a negative impact on the brain. For instance, a recent meta-analysis of hippocampal volume in subjects with MD concluded that a reduced volume could only be confirmed in subjects with a duration longer than two years or more than one episode (121). This impact might be particularly damaging during the rapid development in adolescence. Second, long periods of depression during adolescence could have a negative effect on social status attainment. This could in
turn lead to a stressful future life-situation and increased vulnerability. Third, it has been suggested that depression is a “kindled” disorder; early episodes (that might be triggered by stressors) increase the vulnerability for recurrence, and later episodes begin to occur spontaneously (33). Early adversities could trigger and sustain depressive episodes in vulnerable adolescents, but once the individual has been exposed to long periods of depression, the disorder might run its own course.

Paper IV (Personality)

Overall, ongoing depression was clearly accompanied by increased ratings of neuroticism, while remission brought with it normalization of the neuroticism-ratings. The same pattern was true for the anxiety disorders; these appeared to have a large additive effect on the neuroticism-ratings above the effect of ongoing depression. Furthermore, abnormal levels of neuroticism seemed to come and go with depression and anxiety disorders. It is thus likely that extreme scores are a marker of ongoing psychopathology rather than a valid measure of a stable personality trait. This confirms the long held notion that the level of neuroticism is significantly altered by clinical mood states (89-91). While a recent study of adolescents concluded that neuroticism could be at the core of internalizing psychopathology (122), the present longitudinal study indicate that it to a large extent could be the other way around: internalizing psychopathology could be at the core of neuroticism. This seems to indicate that recovery could have a profound effect on the individual’s general tendency towards negative emotionality, which would be an additional incentive for treatment. These results could also have bearing on the upcoming revised version of the DSM (DSM-V). The proposed draft revision includes ratings of personality traits, including the trait domain of negative emotionality (123). The present study clearly shows that such ratings should be used with caution in patients with ongoing symptoms of depression or anxiety.

A possible “scar effect” of depression in adulthood was only discernable after repeated depressions, and seemed to be limited to a few neuroticism-related scales (most notably increased levels on a scale measuring stress susceptibility). The Stress susceptibility scale taps a tendency to be easily fatigued, distracted, and stressed. This is reminiscent of results from the growing body of research on cognitive impairment and depression. Studies investigating patients in remission have shown long-lasting impairment in a number of cognitive functions, such as executive functions and sustained attention (124). Further, a 6-month follow-up study of depressed patients and controls illustrated that impairment in effortful information processing remains in depressed patients despite improvement in depression-scores (125). Whether increased stress susceptibility should be regarded as a change in
personality or as a cognitive impairment therefore might be a matter of perspective.

Methodological considerations

Three central methodological issues should be mentioned: confounding, the generalizability of the results, and the validity of the measurements. First, omission of important confounding factors, either not measured or overlooked, is an inherent threat to the validity of the conclusions drawn from studies with a non-experimental design. This is especially true for causal inference. Although numerous factors were included in the analyses in this study, important factors might have been left out. Given the multifactorial nature of depression, the results should be interpreted with this caution in mind.

Second, the generalizability of the results is fundamental. There has been great societal change since the early 90’s, and adolescents partly face other demands today. Although a changing society could have an impact on mental health, the general conclusion from this study should be applicable to today’s conditions. Family adversities, educational problems, and interpersonal difficulties should be as relevant today as 15-20 years ago. Regarding the generalizability, it is also important to note that this was not a nationally representative sample. To investigate the representativeness of the comparison group of non-depressed peers, register data was obtained on the corresponding age group in both Uppsala and the whole of Sweden. These data suggested that the comparison group was similar to the general population regarding childbearing, marriage, and divorce. However, they were more highly educated than the general population in Sweden. This is probably explained by the fact that Uppsala is a university town. It should also be noted that although register data was obtained for almost all the original participants, about one third did not take part in the follow-up interview. This would pose a threat to the generalizability of the results obtained from the follow-up interview, if the attrition was related to the investigated variables. Analyses showed that adolescent characteristics did not seem to be associated with the attrition. There is still a possibility, though, that the attrition was dependent on subsequent relevant factors that were unrelated to the adolescent variables.

Third, some aspects of the measurements should be considered. At follow-up, depressive episodes were investigated retrospectively over a period spanning from age 19 to about age 31. A recent study has reported that mental disorders in general might be gravely underreported in retrospective studies (126). The general impression was that participants with a few restricted episodes of depression gave detailed accounts of the duration and number of episodes, while participants with a long duration and many episodes gave
less exact accounts. To minimize the risk of failure to recall depressive episodes, we used a life-chart procedure as a complement to the structured clinical interview. Another possible measurement problem is that the state of being depressed or having another mental disorder at the time of the interview could have affected the participants’ reports. This clearly seemed to be the case regarding the neuroticism scales. Similarly, it is possible that individuals with ongoing depression were more prone to recall difficulties and problems in the past. The data obtained from the registers, however, were not subject to such bias in reporting.

Implications and future research

Overall, the continued course of depression in adulthood clearly emerges as the central issue in this thesis. Apart from the general distress and impairment associated with depressive episodes, a number of additional good reasons to intervene early in the course of the depressive disorder are highlighted.

Recurrence in adulthood seemed to emanate from long-term depression during adolescence. Long-term adolescent depression, in turn, was strongly related to adversities such as physical/sexual abuse, conflicts with parents, an inadequate family climate in general, an unsatisfactory social network, and peer problems. One might speculate that this adverse context both trigger depressive episodes in adolescents with a vulnerability for the disorder and maintain the depressive episodes over long periods of time. Non-remitting depressive disorders could further increase the risk of ending up in an adverse context later in life, leading to a “vicious circle” of depression and adverse context.

In that case, treatment of the depressive symptoms per se might not be sufficient. The adverse context would still be a breeding ground for recurrent depressive episodes, even after the depressive symptoms have remitted. Interventions aimed at the contextual determinants could be a fruitful way of changing the course of adolescent depression and increasing the future quality of life for afflicted adolescents. Given the observed educational disadvantage and problems related to intimate relationships, interventions addressing these difficulties should be evaluated. Further, psychosocial outcome measures should be included in clinical trials of treatment for adolescent depression.
Conclusions

- Adolescents with depression are subsequently less likely than their non-depressed peers to graduate from higher education. An educational disadvantage seems to be present already in adolescence.
- Females with adolescent depression are at increased risk of a broad range of adverse adult outcomes related to intimate relationships and childbearing. Comorbid disruptive disorders, as well as recurrent adult depression in females without disruptive disorders, were clearly related to these outcomes.
- Long-term depression in adolescence is a powerful predictor of continued poor mental health in adulthood, as evidenced by recurrent depression, multiple other mental disorders, and suicidal ideation.
- Ongoing depression and anxiety disorders in adolescence and adulthood have a substantial impact on measures of neuroticism. With recovery, the levels of neuroticism are likely to change in the direction of normalization. However, repeated episodes might leave the individual more easily fatigued and stressed, as well as disappointed with life. Measures of neuroticism as a stable trait should be used with caution during ongoing states of depression and anxiety.
- The overall results point to the importance of early identification and treatment of depressive disorders.
- Social adversity, educational difficulties, and interpersonal problems accompany the depressive disorder from adolescence onward. Clear focus on such contextual factors in treatment might be a means of preventing recurrence and improving quality of life.
Bakgrund och frågeställning

Depression är ett betydande hälsoföremål världen över och bedöms vara den ledande orsaken till ohälsa i hög- och medelinkomstländer. Tillståndet debuterar ofta i tonåren, en period i livet som präglas av snabb inlärning och utveckling av sociala, känslomässiga och kognitiva förmågor. Depression under denna period kan tänkas ha en negativ effekt på många plan, och det är därför viktigt att undersöka hur ungdomar med depression klarar sig senare i livet. Ännu har endast ett fåtal långtidsuppföljningar av tonårsdepression genomförts, och ingen i Sverige.

Syftet med den här avhandlingen var att undersöka ett brett spektrum av utfall i vuxen ålder efter tonårsdepression. Så väl psykisk ohälsa som sociala faktorer och utveckling av personlighetsdrag granskades. Då tonårsdepression hänger samman med en rad andra faktorer under barndom och tonår – som exempelvis annan psykiatrisk ohälsa, familjesituation och stressande livshändelser – har i möjligaste mån även sådana faktorer vägts in.

Metod

Avhandlingen bygger på en 15-årsuppföljning av en undersökning av tonårsdepression. I den ursprungliga undersökningen, som genomfördes 1991-93, tillfrågades samtliga elever som gick första året i gymnasiet i Uppsala (samt jämnåriga som av olika skäl inte påbörjat gymnasieutbildning) att fylla i formulär med frågor om depression. De ungdomar som bejakade depressionssymptom tillfrågades att delta in en mer detaljerad intervju kring psykisk hälsa, samt att besvara skriftliga frågor om social situation och personlighet. För varje ungdom som bejakade depressionssymptom, inkluderades även en ungdom i samma klass och av samma kön, utan tydliga depressionssymtom. Syftet med detta var att skapa en jämförelsegrupp. Sammanlagt intervjuades 631 ungdomar. Huvuddelen av dessa (ca 80 %) var av kvinnligt kön, vilket återspeglar att tonårsdepression är betydligt vanligare hos flickor.

Efter ca 15 år kontaktades deltagarna på nytt och tillfrågades att delta i en uppföljning, bestående av en intervju kring psykisk hälsa och social situation, samt skriftliga frågor om personlighetsdrag. Uppföljningen genomfördes med cirka två tredjedelar (409 stycken) av de ursprungliga deltagarna.
Uppgifter om sociala omständigheter (exempelvis utbildning, barnafödande, giftermål och skilsmässor) inhämtades dessutom från de nationella registren. Detta gjordes för deltagare där detta var möjligt (609 stycken).

Resultat

Både pojkarna och flickorna med tonårsdepression hade i mindre utsträckning tagit en högskoleexamen vid 30 års ålder. De deprimerade ungdomarna hade lägre betygsgrader än ungdomarna utan depression redan i grundskolan, vilket tyder på att skolproblemen börjat tidigt.

De kvinnor som haft depression i tonåren rapporterade vid uppföljningen en rad problem med relationer och barnafödande, som exempelvis partnervärd och abort. De hade även ökad risk för skilsmissa och ensamt föräldraskap som vuxna. Denna typ av svårigheter tycktes främst gälla de som även hade en utagerande störning i tonåren, eller som fortsatt att ha depressiva episoder i vuxen ålder.

Fortsatt mental ohälsa var i synnerhet vanligt hos de med långvariga depressioner i tonåren. Långvarig depression sammanför med en rad problem i tonåren, som familjerelaterade svårigheter och samsjuklighet med ångestsyndrom och utagerande störningar. Även när dessa faktorer beaktades visade sig långvarig tonårsdepression vara starkt förknippat med fortsatt psykisk ohälsa i vuxenlivet.

Neuroticism, ett personlighetsdrag som karakteriseras av en benägenhet att uppleva ångest och negativa känslor, visade sig som väntat vara starkt förknippat med pågående depression och ångestsyndrom både i tonåren och i vuxen ålder. För de deprimerade ungdomar som inte fortsatte att ha depression i vuxen ålder verkade dock dessa drag normaliseras. Upprepade depressioner tycktes dock lämna spår i form av bestående stresskänslighet och besvikelse med livet.

Slutsats

Depression i tonåren är förknippat med både fortsatt psykisk ohälsa och sociala problem i vuxen ålder. Det är därför viktigt att utvärdera om tidig identifering och behandling av tonårsdepression kan förbättra utfallet. Den långsiktiga effekten av insatser som riktar in sig på sociala omständigheter, skolproblem, och relationsproblem bör också undersökas närmare.
Acknowledgement

The study was carried out at the Department of Neuroscience, Psychiatry and Child and Adolescent Psychiatry, Uppsala University. Financial support was received from the Swedish Council for Working Life and Social Research (FAS), the Märta and Nicke Nasvall Foundation, and the Foundation in Memory of Professor Bror Gadelius.

I would like express my gratitude to all who have contributed to this work, especially:

All the participants, for sharing your experiences. And for generously giving of your precious time, in adolescence as well as in adulthood.

Anne-Liis von Knorring, principal supervisor, for involving me in this work, helping me to get started, and for being an important supporting force throughout.

Lars von Knorring, supervisor, for great collaboration and insightful contribution overall. Also, for drilling me in scientific writing. And for a wicked sense of humor. That’s my interpretation, anyway!

Gunilla Olsson, supervisor, for your impressive work with the first part of this study, in the early 90’s. By now I have a clue how much hard work it must have been. And for showing genuine interest in my work and my manuscripts—Monday nights and Sunday afternoons alike. Finally, for requesting to be deleted from the authors’ list of my first draft (never published). That’s what I call feedback!

Hans Arinell, statistician, for knowledgeable statistical support 24/7 (24 hours a day, that is, although you probably have given knowledgeable statistical support on July the 24th also). And for interesting lunch conversations about statistics and other important things (Swedish politicians, mainly).

Hannes Bohman, fellow PhD-student, for hiding six months worth of coffee cups in my bookshelf. A good laugh! More so now than when I found them, though. And for the curious incident of smashed ginger bread all over the floor (you know what I mean). And, of course, for excellent collaboration throughout.

Aivar Päären, fellow PhD-student, for being a good friend and for contributing to the project with your vast clinical experience. And for the sauna-evenings. I’m grateful that the outcome has been significantly less severe than that of the Sauna World Cup final 2010… so far.
Anders Hjern, co-author, for generously sharing your knowledge about the national registers. And for prompt, detailed, sharp, and straightforward comments on the manuscripts.

Iman Alaie, for proofreading, helping out with the data-files, conducting a large share of the interviews, and showing up for a chat about psychology/psychiatry in general once in a while. And for being the only ex-student of mine who keeps in touch.

Melina Johansson and Ylva Lindborg for your painstaking work with the follow-up interviews. And for trying to not give me credit as supervisor of your maters’ thesis. That really made me feel vivid and alive for a while.

Berit Hård-Wallenqvist for sorting out a few things about Swedish celebrities, dead and alive. And for sorting out a few forms and documents too.

Lena Bohlin, for keeping an eye on the funds.

Birgitta Johansson-Niemelä and Thomas Parling for proofreading. No walk in the park, I’m sure.

Lisa Ekselius, for valuable comments on my work and for taking an interest in my progress.

Frank Lindblad for general support and for being a role model as a researcher. And for teaching me to never ask surprise-questions at seminars.
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Acta Universitatis Upsaliensis

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