# Adolescent mental health evidence brief 2: The relationship between emotional and behavioural problems in adolescence and adult outcomes

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## What this briefing tells us

- Adolescents who experience persistent emotional problems such as anxiety and depression are at greater risk of a range of negative outcomes, for example:
  - There is strong evidence that persistent depression during adolescence is associated with a significant increased risk of depression during adulthood. This finding is not limited to those with clinical diagnoses, as those with subclinical symptoms are also at risk.
  - Studies consistently show that young people with persistent emotional problems are at an increased risk of poorer employment and educational outcomes including school drop-out and NEET (not in education, employment or training) status.
  - There is some evidence from individual studies to suggest an association between adolescent mental health disorders and poorer general health in adulthood, social withdrawal, increased risk of intimate partner victimisation and unplanned pregnancy.
- Adolescents who exhibit behavioural problems such as conduct problems are also at increased risk of poor adult outcomes, including:
  - Poor mental health, such as depression and anxiety, education outcomes — school drop-out, NEET, and at work without basic education level — and a range of physical and social outcomes, including poor physical health, substance abuse, early parenthood, and drug-related and violent crime, including violence against women and children.

## About this evidence brief

This is our second evidence brief focusing on adolescent mental health and behaviour. Our first looked at what we know about the increasing prevalence of mental health problems in teenagers. Our second brief sets out the evidence for the association between emotional and behavioural problems experienced during adolescence and later life outcomes.

Alongside our evidence briefs, we are conducting a systematic review on the effectiveness of secondary school-based interventions aimed at supporting young people's mental health and behaviour, for publication in spring 2021. As part of this review, we will seek to determine what works, for whom and under what circumstances.

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## What this briefing tells us (continued)

  - Importantly, behaviour problems do not seem to occur in isolation and often coexist with mental health problems including depression and anxiety and neurodevelopmental problems, including autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD).

- Being a perpetrator and/or victim of bullying is strongly associated with a range of mental health problems in young adulthood, including increased risk of anxiety disorders and depression and suicidal behaviour.
- These findings illustrate that issues during adolescence cast a long shadow over individuals' life chances. The findings highlight the need to invest not just in the treatment of disorders but also in prevention and early intervention support, and the promotion of positive mental health and prosocial behaviour, in order to reduce vulnerabilities and enhance protective factors. Priorities include:
  - Targeted support for young people with persistent emotional and behavioural problems.
  - Addressing the needs of young people with subclinical symptoms.
  - Further investigation of the coexistence of mental health, behavioural and neurodevelopmental problems (such as autism spectrum disorder or attention deficit hyperactivity disorder) during adolescence and their combined impact on adult outcomes.
  - Addressing the significant gap in the evidence concerning the long-term impact of emotional and behavioural problems for ethnic minorities and vulnerable adolescent groups, such as young people with special educational needs and disabilities and lesbian, gay, bisexual, transgender (LGBT) young people.
- Evidence-based mental health and behavioural interventions which are tailored to the needs of young people could have important consequences at both an individual and societal level. Research examining the efficacy of these interventions in improving long-term outcomes is required.

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## Introduction

Experiencing emotional or behavioural problems in adolescence is a serious and growing issue. As well as having a negative impact during a key period in young people's development, individuals who experience problems during adolescence are also at greater risk of negative outcomes throughout their life.

In this evidence brief we present data on the long-term associations between emotional and behavioural problems during adolescence and adult outcomes. Neurodevelopmental problems during adolescence, such as autism spectrum disorder or attention deficit hyperactivity disorder and other mental disorders such as eating disorders were out of scope of this review.

Our first evidence brief* showed that emotional disorders — such as anxiety and depressive disorders — are the most common mental disorder among adolescents in England aged 11–16 years (experienced by 9% of young people in this age group), followed by behavioural disorders (6.2%). Examining long-term associations is important because it provides crucial information about the burden of emotional and behavioural problems at both an individual level — in terms of impairments to family life, professional life, quality of life — and at a societal level, in terms of the economic costs in the areas of health, education and welfare.

## Methods

We examined published research using longitudinal data sets which span adolescence (12–18 years) and adult life (19+ years). Eligible studies included quantitative research which:

- examined emotional or behavioural problems during adolescence using standardised measures
- measured their association with later-life outcomes across education, mental health, physical health and broader social outcomes.

From our search of academic papers, 166 studies in total were considered potentially relevant. Of these, we reviewed 72 in full, and extracted relevant data. These papers were based on a number of key national and international longitudinal data sets including:

- **Australia:** Mater-University Study of Pregnancy; Victoria Adolescent Health Cohort; Australian Temperament Project
- **Canada:** National Population Health Survey (NPHS); Ontario Child Health Study
- **Germany:** BELLA Study

* Clarke, A., Pote, I., Sorgenfrei, M. (2020). Adolescent mental health evidence brief 1: Prevalence of disorders. https://www.eif.org.uk/report/adolescent-mental-health-evidence-brief-1-prevalence-of-disorders

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- **Netherlands:** Tracking Adolescents' Individual Lives Survey (TRAILS study)
- **New Zealand:** Dunedin Multidisciplinary Health and Development Study; Christchurch Health and Development Study
- **Norway:** The Nord-Trondelag Health Study (HUNT); Youth and Mental Health Survey in Norway; Norway Youth Mental Health Study
- **Switzerland:** Zurich Epidemiological Study of Child and Adolescence Psychopathology
- **UK:** Medical Research Council National Survey of Health and Development, Avon Longitudinal Study of Parents and Children (ALSPAC) Cohort Study
- **US:** New England Study; Great Smoky Mountains study; National Longitudinal Study of Adolescent Health (AdHealth).

It is important to acknowledge that this evidence brief provides an overview of the literature, as opposed to a comprehensive analysis of the evidence base. Furthermore, the majority of the studies we have reviewed were based on samples of young people which were not ethnically diverse. As a result, we were unable to make any conclusions about the associations between emotional and behavioural problems during adolescence and adult outcomes among ethnic minorities. This is an important gap in the current evidence base that must be filled.

## 1. The impact of emotional problems during adolescence on adult outcomes

### Mental health outcomes

Studies across Australia, Canada and New Zealand have found significant associations between experiencing depression or anxiety during adolescence and the recurrence of adverse mental health in adulthood.

Naicker and colleagues (2013) reported that **depression in adolescence was associated with a strong (between four- and seven-fold) increase in the odds of adult depression** at each of their five follow-up points between 18–27 years of age. The highest risk for experiencing depression in adulthood was at the age of 20–21 years (odds ratio (OR) = 7.62, meaning the risk of experiencing depression at this age is 7.62 times greater). This data suggests that the transition from adolescence to adulthood is likely to be a particularly vulnerable period for depressed adolescents and that these young people are particularly at risk of recurrences of depression at this timepoint.

A common finding across several studies relates to the persistence of emotional problems during adolescence. These studies have shown **that multiple recurring episodes of depression, rather than one-off episodes,**

**are associated with abnormal psychosocial and mental functioning in adulthood.** This association remained even after controlling for confounding factors, such as antisocial behaviour, high-risk alcohol use and co-occurring psychiatric disorders, whose presence could have affected the results (Steinhausen et al., 2006; Patton et al., 2014).

There is further consistent evidence that mental health problems in adulthood are not limited to young people who meet diagnostic criteria for emotional disorders. Young people with subclinical symptoms (who do not the meet full criteria for a diagnosed emotional disorder such as depression or anxiety) are also at risk of poor adult mental health (Otto et al., 2020; Copeland et al., 2015). Several studies have shown that subclinical depressive symptoms in adolescence are associated with depressive disorders, comorbidity and psychological impairment in adulthood (Aalto-Setala et al., 2002; McLeod et al., 2016). One study which examined both mental disorders and subclinical symptoms in children and young people in the US (9–16 years), reported that young people with a mental disorder (such as anxiety, depression, conduct disorder) had **six times higher odds of at least one adverse adult outcome** (mental and physical health problems, educational failure, criminality, addiction, suicidality, teenage parenthood) and **nine times higher odds of two or more negative outcomes** compared to those with no history of a mental disorder during adolescence. Their results were **also significant for participants with subclinical symptoms**, with this group of young people having three times higher odds of at least one adverse adult outcome, and five times higher odds of two or more such outcomes (Copeland et al., 2015). **These findings underscore the importance of intervening early with adolescents with subclinical symptoms to prevent the further escalation of problems during adolescence.**

Several studies have examined the trajectories of depressive symptoms during adolescence and assessed how these differing trajectories relate to adult outcomes. One study of a school-based sample of adolescents in the US identified the existence of three groups: a group with high, stable depressive symptoms (32%); a second group with moderate but decreasing symptoms (44%); and a third group with low and decreasing symptoms (24%) (Yaroslavsky et al., 2013). **Members of the moderate and high symptoms groups showed significantly worse mental health outcomes by the age of 30**, with members of the high symptom group showing the greatest levels of impairment. **Targeted support for young people with moderate-to-high depressive symptoms should be a priority given the associated long-term negative mental health outcomes**.

The same study found that adolescent girls and those with poor interpersonal functioning were overrepresented in the high trajectory group (Yaroslavsky et al., 2013). The finding that high and persistent depressive symptoms are more prevalent in adolescent girls has been replicated in other studies (e.g. Meadows et al., 2006; Patton et al. 2014). Less is known, however, about the interaction between sex and persistent depressive symptoms in predicting adult mental health outcomes. Further research examining this interaction is required.

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We identified a limited number of studies which examined the link between adolescent depression and suicidality in adulthood. These studies provided mixed evidence. Two studies reported less than a two-fold increase in the odds of suicidal behaviour among participants with depression during adolescence (younger than 16 years of age) (Copeland et al., 2015; McLeod et al., 2016). A third study which examined emotional and behavioural problems over the course of adolescence (age 11–19 years) reported a strong association between continuous, moderate to high internalising and externalising problems and suicidality (OR = 10.66) (Oerlemans et al., 2020). These mixed findings are in line with evidence from a systematic review examining the associations between adolescent depression and adult mental health outcomes (Johnson et al., 2017). It is likely that methodological issues could play a role in these mixed findings, including cohort studies being underpowered to detect associations and the risk of reporting bias, given that suicidality can be stigmatising.

## Education and employment outcomes

Research from the UK has shown that mental health problems at age 14–15 is associated with lower examination performance at age 16, and a higher probability of being not in education, employment, or training (NEET). But what about the associations with longer-term education and employment outcomes?

A recent UK study has shown that high levels of emotional problems during adolescence is a significant risk factor in poorer education and employment outcomes in early adulthood. This study reported that participants **with persistently high depressive symptoms throughout late childhood and adolescence had a five-fold increased risk for NEET status at 24** (OR = 5.17) (Lopez-Lopez et al., 2020). Veldman and colleagues (2014) found that increasing internalising symptoms was associated with significantly lower educational attainment for adolescent girls only. Further analysis is required to understand whether the interaction between gender and internalising symptoms predicts educational outcomes.

## Physical health and broader social outcomes

Several studies report a significant association between emotional problems during adolescence and later social and health outcomes, although the evidence is less strong when compared to adult mental health outcomes. Studies have found that **depression during adolescence is associated with a strong (six-fold) increase in odds of poor self-rated general health in adulthood** (Naicker et al., 2013; Keenan-Miller et al., 2007). Findings in relation to alcohol and drug abuse in adulthood are mixed. However, studies suggest an increased risk among adolescents with high levels of depression or anxiety symptoms at more than one time point during adolescence (MacKenzie et al., 2011; Wickrama & Wickrama, 2010).

There is evidence from one study that emotional problems during adolescence are also associated with risky behaviour in young adulthood. Wickrama and colleagues (2010) observed that compared with young people with low depressive symptoms, participants whose depressive symptoms increased rapidly during adolescence demonstrated a higher risk for having been arrested or having committed a crime (OR = 1.82), having engaged in risky sexual behaviour (OR =3.83) and being an excessive drinker (OR = 2.04).

Findings in relation to broader social outcomes are mixed. This may be partially as a result of the limited number of studies we identified with relevant social outcomes. A number of studies reported associations between high levels of depressive symptoms during adolescence and social withdrawal in adulthood (Hatch and Wadsworth, 2008; Steinhausen et al., 2006). Looking at parenting behaviours, Byford and colleagues (2014) found no association between adolescent internalising problems and styles of parenting in a UK sample. There is, however, some evidence in relation to an **increased risk of intimate partner victimisation and unplanned pregnancy among women who experienced depression during adolescence** (McLeod et al., 2016). These findings point to the implications of adolescent depression for women's later sexual and partnership relationships.

## 2. The impact of behavioural problems during adolescence on adult outcomes

### Mental health outcomes

Research from the UK shows a weak but significant (less than two-fold) increase in the odds of depression and anxiety symptoms in adulthood among adolescents with severe externalising behaviour, compared with those with no externalising behaviour (Colman et al., 2009). Similar findings were reported for adolescents with milder forms of externalising behaviour. This is in line with other longitudinal studies which have found that **even when mental health and behavioural symptoms are milder/subclinical there are long-term associations with poor mental health outcomes** (Oerlemans, 2020).

The associations between behaviour problems and later mental health problems may reflect co-occurring behavioural and emotional problems throughout adolescence being carried into adulthood. It is for this reason that several studies have examined how co-occurring internalising and externalising problems affect adult outcomes. Recent data from the Netherlands (Oerlemans 2020) showed the strongest effects for poor early adult outcomes (including mental health, suicidality, low educational level, financial difficulties, delinquency) were among individuals with continuous, moderate-to-high levels of both internalising and externalising symptoms throughout adolescence. **The coexistence of mental health, behavioural and neurodevelopmental problems — such as**

**autism spectrum disorder, attention deficit hyperactivity disorder — during adolescence and their combined impact on adult functionality warrants further research.**

## Education and employment outcomes

There is consistent evidence that adolescents with persistently high levels of externalising behaviour experience multiple education and employment impairments, which persist through to adult life. In the UK, a large cohort study found that **adolescents exhibiting severe externalising behaviour were four times more likely to leave school without any qualifications compared with those without conduct problems** (Colman et al., 2009).

A more recent study of adolescents in the Netherlands reported that **young adults who had exhibited persistently high levels of behaviour problems throughout adolescence were more likely to be NEET or at work without a basic education level (BEL)** compared with those without problems (Veldman et al., 2015). Adolescents with high internalising and externalising symptoms have also been shown to be at high risk of serious financial difficulties (OR = 11.16) (Oerlemans et al.,2020).

## Health and social outcomes

There is convincing evidence from a number of studies that externalising behaviour problems are associated with significant deterioration in health and social outcomes into adulthood. Research from the UK has demonstrated that **externalising behaviour during adolescence is associated with coercive parenting behaviour in adulthood, early parenthood, and being unhappy in family life** (Byford et al., 2014; Colman et al., 2009). Other studies have reported similar findings regarding early parenthood and additional risks in relation to poor physical health, substance abuse and criminal behaviour (Oerlemans et al., 2020).

One of the studies we identified looked specifically at antisocial behaviour in adolescent boys and its association with outcomes at 26 years (Moffitt et al., 2002). This research found that **participants with persistent antisocial behaviour in childhood and adolescence had the most elevated scores across mental health problems, substance dependence, financial problems, work problems, and drug-related and violent crime, including violence against women and children**. Participants with adolescent onset of antisocial behaviour had less extreme problems, but, nonetheless had elevated mental health, behavioural and financial problems. This research supports the finding that the presence or absence of antisocial behaviour does not predict a poor outcome in adulthood. The trajectory of behaviour throughout the vulnerable periods of childhood and adolescence gives a greater indication of those most at risk of poor adult outcomes. **Persistent antisocial behaviour in childhood and adolescence confers a greater risk of poor adult outcomes (mental health, education, employment, social outcomes) compared with childhood-limited or low-level problems** (Bevilacqua et al., 2018).

## 3. The impact of bullying during adolescence on adult outcomes

A number of studies have examined the associations between being bullied or being a bully and outcomes in young adulthood. A UK study reported that peer victimisation at age 13 is associated with a two-fold increased risk of anxiety disorders at 18 (OR = 2.49) (Stapinski et al., 2014). Similar findings were reported in a US study which found that being a victim of bullying was associated with a strong (between three- and four-fold) increase in the odds of an anxiety disorder in young adulthood. Young people who were both a perpetrator and a victim of bullying between the age of 9 and 16 were at an increased risk of young adult depression (OR = 4.8) and suicidal behaviour (OR = 5.5) (Copeland et al., 2013).

Perpetrators of bullying who were also bullied by others have been shown to be at three times greater risk of lower educational attainment compared to young people who have never experienced bullying (Sigurdson et al., 2014). Bullying perpetration has also been associated with an almost two-fold increase in the odds of contact with police or courts at 19–20 years (Renda et al., 2011). **These findings illustrate the long-term individual and societal costs of being a victim and/or perpetrator of bullying during adolescence, and the need to prevent and address bullying issues during childhood and adolescence**.

## Conclusions

Our first evidence brief demonstrated that adolescence can be a period of vulnerability during which mental health disorders tend to peak (Clarke et al., 2020). In 2017, more than one in seven young people in England (15.3%) aged 11–19 years were identified as having at least one mental disorder.

In this brief we have sought to examine the associations between emotional and behavioural problems in adolescence and adult outcomes. It is important to note that the majority of the studies we reviewed were based on samples of young people which were not ethnically diverse. Understanding the long-term impact of emotional and behavioural problems for ethnic minorities and vulnerable adolescents is an important gap in the evidence that needs to addressed.

National and international research provides consistent evidence that persistent emotional and behavioural problems during adolescence are associated with an increased risk of adverse adult outcomes across mental health and education and employment outcomes. Behavioural problems are also associated with a range of negative physical and social outcomes in adulthood.

Young people with persistent, high-level symptoms appear to be most at risk. While only a minority of young people will experience severe difficulties, we know that many do not receive treatment for a variety of

reasons, including costs, stigma, not meeting criteria, structural issues, etc. Furthermore, this evidence brief has shown that young people with subclinical symptoms are also at risk of poor mental health, educational and employment outcomes into adulthood. In addition to the urgent need to prioritise targeted services for those with, or at risk of, persistent emotional or behavioural problems during adolescence, there is a need to invest in the promotion of positive mental health and prosocial behaviour, prevention of emotional and behavioural problems, and early intervention support, to reduce vulnerabilities and enhance protective factors.

Mental health and behavioural interventions that are evidence-based, tailored to the needs of young people and delivered to high quality standards could have important, far-reaching consequences for young people's future life outcomes. This evidence brief did not examine **how** problems during adolescence impact adult outcomes such as education and criminality. Part of designing effective interventions will be a greater understanding of these mechanisms. Finally, the research suggests that mental health, behavioural and neurodevelopmental problems are strongly related, and so interventions focused on addressing these co-occurring problems could prove successful in preventing the persistence of these problems into adulthood.

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