Depression, suicide and deliberate self-harm in adolescence

Richard Harrington
University Department of Child and Adolescent Psychiatry, Royal Manchester Children’s Hospital, Manchester, UK

The past decade has seen important advances in research into the epidemiology, aetiology and treatment of depression and suicidal behaviour in the young. We are beginning to understand how risk factors combine to precipitate and maintain these problems. There is rarely a linear relationship between causes and outcomes. Rather, the cause is usually a combination of predisposing constitutional factors arising from genetic endowment or earlier experience and precipitating stressful events. These aetiological factors act through biochemical, psychosocial and social processes to produce the outcome. Progress has also been in the development of a range of effective treatments, such as ‘here and now’ psychological treatments and antidepressants. All depressed or suicidal young people require careful assessment. Some will require a brief intervention only. Others, however, will require more intensive and lengthy forms of treatment.

Depressive disorder

Assessment of depression

Defining the boundaries between extremes of normal behaviour and psychopathology is a dilemma that pervades all of psychiatry. It is especially problematic to establish the limits of depressive disorder in young people because of the cognitive and physical changes that take place during this time. Adolescents tend to feel things particularly deeply and marked mood swings are common during the teens. It can be difficult to distinguish these intense emotional reactions from depressive disorders. By contrast, young adolescents do not find it easy to describe how they are feeling and often confuse emotions such as anger and sadness. They have particular difficulty describing certain of the key cognitive symptoms of depression, such as hopelessness and self-denigration.

Assessment of young people who present with symptoms of depression must, therefore, begin with the basic question of diagnosis. This will mean interviewing the adolescent alone. It is not enough to rely on...
accounts obtained from the parents since they may not notice depression in their offspring, and may not even be aware of suicidal attempts. Indeed, it is now common practice to obtain information from several sources. Adolescents usually give a better account of symptoms related to internal experience whereas parents are likely to be better informants on overt behavioural difficulties. Accounts from young people and parents are usually supplemented by information from other sources, particularly teachers and direct observations.

Although the interviewing of multiple informants may yield much useful information, the diagnosis of depressive disorder in young people can still be very difficult. Standardised diagnostic systems such as the DSM-IV\(^1\) and structured psychiatric interviews can help in deciding whether the patient has serious depressive symptomatology that requires treatment. Unfortunately, such diagnostic systems tend to be overinclusive in this age group, and many dysphoric adolescents who meet criteria for major depression remit within a few weeks\(^2\). It is important, then, that careful inquiry is made about the impact the young person's symptoms have had on everyday functioning and about the presence of symptoms of unequivocal psychopathological significance, such as suicidal planning or marked weight loss. Probably the best single indicator of whether or not a young person has a serious depressive disorder is the duration of the problem. Polysymptomatic depressive states that persist for more than 6 weeks usually require intervention.

### Assessment and differential diagnosis of other difficulties

Although the accurate diagnosis of depressive disorder is an important part of clinical management, assessment only starts with the diagnosis, it does not stop with it. Depressed adolescents usually have multiple problems, such as educational failure, impaired psychosocial functioning, and co-morbid psychiatric disorders. Indeed, it seems that most adolescents who meet research criteria for depressive disorder are given some other primary diagnosis by the clinicians involved in their care\(^3\). This overlap of depression and other psychiatric diagnoses has been one of the most consistent findings from research in referred clinical populations, where an association has been found with conditions as diverse as conduct disorder, anxiety states, learning problems, hyperactivity, anorexia nervosa and school refusal\(^4,5\). Moreover, depressed adolescents tend to come from families with high rates of psychopathology and may have experienced adverse life events\(^6\). All these problems need to be identified and the causes of each assessed.

The final part of the assessment involves the evaluation of the young person’s personal and social resources. There is evidence that being
successful at school or in other areas of life can protect young people from the effects of adverse life experiences. The best guide to the child’s ability to solve future problems is his or her record in dealing with difficulties in the past. The ability of the family to support the patient should also be evaluated.

**Epidemiology**

Rates of depressive disorder vary greatly between studies, depending on how it is defined. The one year prevalence is probably around 2% or less. Almost all recent epidemiological research has found that depressive disorder is much less common among pre-adolescent children than among adolescents. Pre-adolescent depression shows an equal gender ratio, but by mid-adolescence the female preponderance found in adult depression is established. The prevalence of depressive disorders may be increasing among young people, though most of the evidence of a secular trend comes from retrospective reports of age at onset of depression in family and community studies of depressed adults.

**Aetiology**

The aetiology of child and adolescent depressive disorders is likely to be multifactorial, including both genetic and environmental factors. Genetic factors account for a substantial amount of the variance in liability to bipolar illness in adults, but probably play a less substantial, though still significant, part in unipolar depressive conditions. Interest in the genetics of depressive disorders arising in young people has been simulated by data from several sources. First, it seems that among adult samples, earlier age of onset is associated with an increased familial loading for depression. Second, the children of depressed parents have greater than expected rates of depression. Third, there are high rates of affective disorders among the first degree relatives of depressed child probands. Moreover, there is some specificity in this linkage to the extent that the risk applies mainly to affective disturbances as opposed to non-affective disorders.

It will be appreciated that just because a disorder runs in families, it does not necessarily follow that the linkages are mediated genetically. It is likely that family environmental factors are also important. For instance, discordant intrafamilial relationships seem to be strong predictors of the course of depressive disorders among the young. Children with depression who have been admitted to hospital who return to families who show high levels of criticism and discord have a
much worse outcome than children returning to more harmonious environments\textsuperscript{17}. Stresses and acute life events outside of the family, such as friendship difficulties and bullying, are also likely to be relevant in this age group\textsuperscript{18}.

Current models of depression in young people also emphasize the importance of bi-directional influences. Depression and its associated symptoms such as irritability can be a cause of family and peer difficulties, as well as a consequence. It is possible that negative cycles of interaction are started, in which depression causes family environmental problems, which in turn lead to worsening of the depression\textsuperscript{19}.

The psychological and biological mechanisms that link these risk factors to depression remain poorly understood. The most influential of the psychological models (which have had important implications for treatment – see later) have been the so-called cognitive theories, which were first developed with adult cases of depression. The main idea behind these theories is that depressed people develop a distorted perception of the world (such as the expectation that things will always go wrong), which is caused by earlier adversity. When the child experiences current adversity, these negative cognitions become manifest and this then leads to depression. The occurrence of distorted negative cognitions has been documented in numerous studies of depressed young people though their causal role is still uncertain\textsuperscript{20}.

Biological theories have consisted, for the most part, of straightforward downward extensions of models first developed with adult cases. The best known theory is the amine hypothesis, which proposes that depression is caused by underactivity in cerebral amine systems. This hypothesis arose from studies of adults in which it was found that drugs that alter cerebral amine concentrations, such as imipramine, are also associated with changes in mood. Several studies of young people with depressive disorders have reported abnormalities of the biological markers that are thought to reflect the activity of these systems\textsuperscript{21}. However, it is still not clear if these abnormalities cause depression.

**Course and outcome**

By comparison with non-depressed subjects, young people diagnosed as depressed are more likely to have subsequent episodes of depression\textsuperscript{22}. This increased risk of recurrence extends into adulthood. Harrington and colleagues\textsuperscript{3} followed up 63 depressed children and adolescents on average 18 years after their initial contact. The depressed group was 4 times more likely to have an episode of depression after the age of 17 years than a control group who had been matched on a large number of variables, including non-depressive symptoms. A preliminary report
from a large follow-up study in the US has found increased rates of completed suicide in depressed adolescent patients. Although the risk of recurrence of juvenile depression is high, it is important to know that the prognosis for the index episode is quite good. The available data suggest that the majority of children with major depression will recover within 2 years. For example, Kovacs and colleagues reported that the cumulative probability of recovery from major depression by 1 year after onset was 74% and by 2 years was 92%.

It seems, then, that most young people with major depression will recover to a significant extent, but that a substantial proportion of those who recover will relapse.

**Management**

**Initial management**

The initial management of depressed young people depends greatly on the nature of the problems identified during the assessment. The assessment may indicate that the reaction of the child is appropriate for the situation. In such a case, and if the depression is mild, an early approach can consist of a few sympathetic discussions with the child and the parents, simple measures to reduce stress, and encouraging support. Around one-third of mild or moderately depressed adolescents will remit following this kind of brief non-specific intervention.

Cases that persist will require more specific and lengthy forms of treatment. First, however, the clinician should consider a number of issues. The first is whether the depression is severe enough to warrant admission to hospital. Indications for admission of depressed young people include severe suicidality, psychotic symptoms or refusal to eat or drink. A related question is whether the child should remain at school. When the disorder is mild, school can be a valuable distraction from depressive thinking. When the disorder is more severe, symptoms such as poor concentration and motor retardation may add to feelings of hopelessness. It is quite common to find in such cases that ensuring that the child obtains tuition in the home, or perhaps in a sheltered school, improves mood considerably.

The second issue is whether the depression is complicated by other disorders such as behavioural problems. If it is, then measures to deal with these other problems must be included in the treatment programme. In some cases, it is best to try to deal with co-morbid problems before embarking on therapy for depression. For instance, it is difficult to conduct psychological therapies for depression when a patient is very underweight because of co-morbid anorexia nervosa. In other cases, it may be possible to treat the co-morbid problem at the same time as the depression.
Managing the social context of depression

The third issue concerns the management of the stresses that are associated with many cases of major depression. It is sometimes possible to alleviate these stresses. For example, bullying at school may be reduced by a discrete phone-call to the head teacher. However, in many cases, acute stressors are just one of a number of causes of the adolescent’s depression. Moreover, such stressors commonly arise out of chronic difficulties such as family discord and may, therefore, be very hard to remedy. Symptomatic treatments for depression can, therefore, be helpful even when it is obvious that the depression occurs in the context of chronic adversity that is likely to persist.

Psychosocial interventions

The best studied of the psychological interventions is cognitive-behaviour therapy. Cognitive-behavioural treatment (CBT) programmes were developed to address the cognitive distortions and deficits identified in depressed adolescents (see above). Many varieties of CBT exist for adolescent depression, but they all have the following common characteristics. First, the adolescent is the focus of treatment (although most CBT programmes involve parents). Second, the adolescent and therapist collaborate to solve problems. Third, the therapist teaches the adolescent to monitor and keep a record of thoughts and behaviour. There is, therefore, emphasis on diary keeping and on homework assignments. Fourth, treatment usually combines several different procedures, including behavioural techniques (such as activity scheduling) and cognitive strategies (such as cognitive restructuring). A meta-analysis of six randomised trials with clinically diagnosed cases of depressive disorder found that CBT was significantly superior to comparison conditions such as remaining on a waiting list or having relaxation training (pooled odds ratio of 2.2).

Two other psychological treatments have been evaluated in randomised trials with clinically depressed adolescents. Interpersonal psychotherapy, which like CBT is a brief time limited therapy, aims to help the adolescent to deal with the interpersonal problems that are strongly associated with adolescent depression. A randomised trial has shown significant benefits over non-specific counselling. Family interventions are based on the reliable observation that adolescent depression often occurs in the context of family dysfunction (see above). There have been at least four randomised controlled trials of family therapy in adolescent depressive disorder. Two involved a family intervention only and two examined the value of parental sessions given in parallel with individual CBT. None has found a significant benefit of the family treatment. Therefore, until there is a firmer empirical basis for family therapy, other interventions will be the treatment of choice.
Biological treatments

Most of the research on pharmacotherapy has been with the tricyclic antidepressants (TCAs), especially imipramine and nortriptyline. The results from early open trials were encouraging but, with the exception of one study, the dozen or so randomized trials have found no significant differences between oral tricyclics and placebo. A meta-analysis of the tricyclic trials found that the pooled response rate was around one-third, less than that generally found when tricyclics are given to depressed adults.

A randomised trial found that the serotonin specific re-uptake inhibitor (SSRI) fluoxetine may be of benefit in children and adolescents with major depression. It is too early to say whether this finding is robust – a small trial with fluoxetine produced a negative result. Nevertheless, it clearly raises the possibility that young people may be more responsive to antidepressants than previously thought, perhaps especially to drugs that act preferentially on serotonergic rather than noradrenergic systems.

Electroconvulsive therapy is very seldom used with adolescents, and then only for the most severe life-threatening depressions that have failed to respond to other treatments. For a review, see Walter et al.

Suicide

Official figures suggest that suicide is very uncommon in childhood and early adolescence. For example, there were no recorded suicides in children under 10 years between 1960 and 1990. However, the rate increases markedly during middle adolescence: in 1990, the suicide rate for males aged 15–19 years was 57 per million, 4 times higher than that for females, at 14 per million. In the UK and US, the rate of suicide increased among male teenagers during the 1970s and 1980s. This increase is also reflected in the rates of ‘accidental’ and ‘undetermined’ deaths and is associated with an increase in more lethal methods such as hanging.

Pathways to suicide

Adolescent suicide sometimes occurs without any prior warning, but more commonly it is the endpoint of chronic problems. Figure 1 shows a pathway model of adolescent suicide, which postulates three kinds of contributing factor: individual disposition, proximate (trigger) factors, and the social milieu.

Psychological autopsy studies suggest that the most significant predisposing factors are depressive disorder, previous attempts, antisocial behaviour, substance misuse and dependence, and personality traits such as impulsivity or obsessivity. There may be gender differences in the
ways that these risk factors lead to suicide. Conduct disorder and alcohol misuse are more common among males, but depression is more common among females.

Three factors, often in combination, can trigger a serious suicidal attempt among young people. The first is an acute event such as a disciplinary crisis. An example would be an adolescent who has been caught stealing and who is told by the police that the family will be informed. Other acute stressors include humiliating events or breaking up with a girl or boy friend. The second trigger is any factor that alters the adolescent’s state of mind. These include marked hopelessness, rage, or intoxication with drugs or alcohol. The third proximate factor is the opportunity for suicide. The method that young people use to kill themselves varies according to where they live, suggesting that it is in part determined by availability.

The wider social context, such as societal taboos or role models, can also influence the liability to suicidal behaviour. For example, portrayal of deliberate self-harm on television is associated with an increased risk presentation at hospital after deliberate self-poisoning.

Deliberate self-harm

Epidemiology

Little is known about the epidemiology of deliberate self-harm (DSH) among young people in the community. Rates of referral to hospital
increased markedly during the 1960s and 1970s. The incidence seemed to level out during the 1980s, but may once again be on the increase. The WHO/EURO multicentre hospital study of parasuicide found that the rates of DSH among 15–24-year-olds in the UK were amongst the highest in Europe.

Around 90% of DSH cases referred to hospitals involve self-poisoning. Whilst most of these overdoses pose little threat to life, an increasing proportion involve paracetamol, a worrying trend given the irreversible liver damage that it can cause. Self-poisoning is much more common in girls than boys, but laceration shows a less marked female preponderance.

Pathways to deliberate self-harm

DSH in young people is usually precipitated by stressful life problems. The most common are arguments with parents, other family problems, rejection by a boy or girl friend, or school problems such as bullying. These events often occur against a background of long-standing difficulties concerning family, school and behaviour. Adolescents who take overdoses have high rates of behavioural problems and illicit substance use. They have high rates of depressive symptoms, but few have sustained depressive disorders. They tend to come from families that cannot communicate effectively. Some of them, particularly those who repeatedly harm themselves, have been abused. They have often known someone who has harmed themselves.

Comparison between suicide attempters and completers

Although there is much overlap of risk factors for the two problems, there are also some dissimilarities. Suicide completers are more likely to be male, plan their attempts, use more dangerous methods and suffer from persistent mental disorders such as depression.

Assessment of young people after self-harm

The assessment is directed to four main questions. First, what are the immediate and subsequent risks of suicide? Second, what are the immediate and subsequent risks of self-harm? Third, what are the child and family's current problems and how have they led to self-harm? Fourth, what resources do the child and family have?

The assessment should include at least one interview with the young person alone. Adolescents aged 12 years and older can usually be interviewed in
much the same way as adults. In younger children it is necessary to rely more on information from other sources. Whatever the age of the child, a background history should always be obtained from a relative. Information may also be required from other sources, such as the school or social services.

**What are the immediate and subsequent risks of suicide?**

Risk factors for completed suicide after an attempt include high suicidal intent, mood disorder and substance misuse. The interview should start with detailed enquiry into the days and hours leading up to the attempt. Circumstances suggesting high suicidal intent include planning in advance, precautions to avoid discovery, dangerous methods and a ‘final act’ such as a suicide note. The young person should always be asked whether they still intend to die. Careful enquiry should also be made into the patient’s recent difficulties, and whether they have resolved. The more serious the problems that remain, the greater the risk of another attempt. Mental state exam should establish whether the young person has a depressive disorder and his or her degree of hopelessness.

The practitioner should now have the information required to establish if there is a continuing risk of suicide. It should be borne in mind, however, that a problem in identifying those young people who are most at risk of suicide is that even among high risk groups, such as attempters, suicide is rare (probably around 1% in the following year). Since even combinations of risk factors seldom predict with more than 80% accuracy, it is a mathematical certainty that many high risk cases must be treated to prevent one suicide. Moreover, suicide risk is not static, but changes over time. It is important, then, that suicide risk is re-assessed regularly.

**What are the immediate and subsequent risks of deliberate self-harm?**

Repetition of deliberate self-harm is common, being around 10–15% within 6 months, and about 20% over the next year or two. Some cases repeat several times but only during a period of continuing problems. In others, repetition becomes a habitual response to stress. Factors that distinguish those who repeat from those who do not include depression, behavioural problems and continuing problems such as family discord.

**What are the child and family’s current problems and resources?**

The next step is to bring all the information together into a formulation of the child and family’s problems and how these have led to self-harm. Finally, it necessary to consider the strengths that the child and family have to deal with their problems. These include the child’s intelligence,
achievements and capacity to form relationships. The strengths of the family should also be assessed, as should other resources such as friends, other relatives or professionals.

Management of adolescents who deliberately harm themselves

The wide range of problems faced by young people who harm themselves demands a variety of different treatment strategies. The assessment will usually divide patients into four groups. The first group are those at very high risk of suicide, or with severe psychiatric disorders, or both. This group, which accounts for about 10% of cases, requires specialized psychiatric out-patient care or even admission. The second group comprise patients with long and often complex care histories, who are known to social services and who often present with repeated deliberate self-harm. This group, which also accounts for about 10% of cases, usually requires specialized multidisciplinary management from a team that includes an experienced social worker. The third group comprise patients in whom the overdose appears to have been a transient response to temporary difficulties and who have few other problems. This group usually requires little more than one follow-up appointment. The last group, which account for about 60% of cases, requires some help as described below.

Initial management

The first aim of management is to minimize the risk of further self-harm. The practitioner should identify an adult guardian or companion who can ensure the safety of the home environment by removing medications, sharp knives, and so on. It is common practice to arrange a means for the adolescent or family to receive help quickly if the urge to self-harm returns. The second aim it to engage the adolescent and their family in an intervention. Published reports suggest that close to a half of all adolescents who harm themselves fail to receive any formal intervention.

Psychological and social treatments

The main aims of treatment are first to help the patient and family to resolve the difficulties that led to self-harm, and secondly to help them to deal with future problems without recourse to self-harm. Treatment is psychological and social. Probably the most commonly used psychological technique with older adolescents is brief problem-orientated counselling. The patient is encouraged to produce a list of problems and to consider the steps needed to solve each. Many cases are associated with family problems and family counselling aimed at improving communication within the family may be of value.
The results of psychological or social treatment

There is little research evidence about which intervention practitioners should offer\(^{45}\). In adult patients, brief psychological therapies such as problem-solving therapy have some benefits on mood and social outcomes, though not on the risk of repetition\(^ {46}\). Problem solving has a theoretical basis in adolescent self-harm because these patients are often poor problem solvers and because there is evidence that related techniques such as cognitive-behaviour therapy are effective in improving adolescent depression\(^ {25}\). Family counselling may be of value in non-depressed adolescents who have harmed themselves, but does not reduce the risk of repetition\(^ {2}\). Crisis cards do not seem to be effective\(^ {47}\).

Antidepressant medication

Although many adolescents who harm themselves have depressive symptoms, few have depressive disorders. However, if depression persists and does not respond to other measures, there may be a case for prescribing antidepressants. Tricyclics do not seem to be effective for child and adolescent depressions (see above) and are toxic in overdose. Serotonin specific re-uptake inhibitors are probably the first line medical treatment.

Primary prevention

Medical practitioners such as general practitioners and paediatricians may have a part to play in prevention. Indeed, their potential role is underlined by the finding in one study that a half of young people aged 25 years or less who committed suicide had had contact with a GP in the 3 months before death\(^ {48}\). There are a number of potential preventive strategies that can be used in primary care. First, there should be systematic, on-going assessment of suicidal risk in high risk cases such as those who have just self-harmed or who have major depression. Second, it is important to recognize mental disorders, especially depression. Third, there should be prompt treatment of mental disorders, especially depression. Fourth, practitioners should limit access to dangerous methods, such as tricyclic anti-depressants.

References

Depression, suicide and deliberate self-harm in adolescence


Depression

28 Brent D, Holder D, Kolko D et al. A clinical psychotherapy trial for adolescent depression comparing cognitive, family, and supportive treatments. Arch Gen Psychiatry 1997; 54: 877–85