BJPsych Advances (2016), vol. 22, 287–291 doi: 10.1192/apt.22.5.287

ROUND THE CORNER

Do interventions reduce the risk of repeat self-harm or suicide in young people?

COMMENTARY ON… COCHRANE CORNER[†]

Susan Howson & Sarah Huline-Dickens

SUMMARY

As in adults, self-harm in children and young people is common. It results in much distress to families and carers, and considerable morbidity among children and young people. Although much more common than completed suicide, it is strongly linked to repeated self-harm and suicide. The conclusions in this review are limited by the small number of studies included, no studies of pharmacological interventions at all and most of the included interventions being evaluated in a single study. One moderately sized study of mentalisation in adolescents with comorbid depression showed a significant effect on scores on a self-harm measure, indicating fewer self-reported episodes of self-harm. No other intervention showed a significant reduction in reported self-harm, although trials may have been too small to show statistical significance.

DECLARATION OF INTEREST

None

Clinical setting

Self-harm, referring to an intentional act of self-harm or poisoning irrespective of the purpose, is a common and highly distressing presentation in children and adolescents (Hawton 2012). The prevalence is difficult to estimate, owing to low rates of reporting of less medically risky self-harm, difficulties in recognising those presenting with injuries resulting from episodes of self-harm, and differences in classification of self-harm between studies (Vrouva 2010). Rates seem to peak in adolescence, when self-harm often appears for the first time, but this sometimes presages a lifetime of recurrence of the behaviour (Vrouva 2010). A recent report identified previous self-harm as an antecedent in 57% of a case series of 63 completed suicides by children and young people in England between January 2014 and April 2015 (National Confidential Enquiry into Suicide and Homicide by People with Mental Illness 2016). It was the most common clinical antecedent identified overall, with academic pressures, presence of a significant physical health problem and contact with child and adolescent mental health services jointly the next most common, all substantially lower, at 38%. It is highly distressing for families of affected children. It is associated with significant healthcare costs (NICE 2011a).

The review in this month's Cochrane Corner (Hawton 2015a) is one of three updating a single review of all interventions aimed at reducing the repetition of self-harm (Hawton 1999. The other two consider pharmacological (Hawton 2015b)[‡] and psychosocial (Hawton 2016) interventions in adults. This review considers interventions in any modality for children and adolescents up to 18 years of age.

Current treatments

The mainstay of interventions for children and adolescents who have presented to services after an episode of self-harm is an assessment, which includes both risk assessment and an assessment of whether the young person is also presenting with a mental illness (NICE 2004). Children and young people should be admitted to hospital until this assessment can be completed with the full involvement of all services, including primary care, social care and education, as appropriate.

Further intervention will be informed by the outcome of this assessment, but is generally: treatment of any identified mental illness in its own right following clinical guidelines for that disorder, together with a period of further generic support and engagement to manage risk and support families and carers with their distress and anxiety, at a level of intensity commensurate with the evaluated level of risk.

Some young people are referred for individual or group-based psychological support. Given the lack of clear evidence for the most effective approach,

Susan Howson is an honorary clinical senior lecturer at Plymouth University Peninsula Schools of Medicine and Dentistry. **Sarah Huline-Dickens** is lead consultant in child and adolescent psychiatry with Livewell Southwest and an honorary clinical senior lecturer. **Correspondence** Dr Susan Howson, The Terraces, Mount Gould Hospital, Mount Gould Road, Plymouth PL4 7QD, UK. Email s.howson@exeter.ac.uk

[†]See p. 286, this issue.

[‡]Hawton *et al*'s review of pharmacological interventions was discussed in Round the Corner earlier this year: see Smith K, Attenburrow MJ (2016) Does drug treatment reduce the risk of further self-harm or suicide? Commentary on… Cochrane Corner. *BJPsych Advances,* **22**: 3–7. Ed.

https://doi.org/10.1192/apt.22.5.287 Published online by Cambridge University Press

it is unsurprising that the choice of this type of support can vary considerably by local area. NICE guidelines for the long-term management of self-harm (NICE 2011b) recommend considering three to twelve sessions of a psychological intervention specifically structured for people who self-harm, but do not specify the modality and explicitly recognise that it could include various approaches, such as problem-solving, psychodynamic and cognitive–behavioural therapy (CBT). Pharmacological agents specifically to reduce self-harm are explicitly not recommended. Support for families and carers and harm-reduction strategies are also mentioned.

Methods

For this review, Hawton *et al* searched for all randomised controlled trials (RCTs) comparing psychosocial or pharmacological interventions with 'treatment as usual', alternative treatments or care, in children and adolescents up to 18 years of age. Trial participants were required to have presented to clinical services with an episode of self-harm within the past 6 months. Trials had to address the specific question of repeated self-harm in children and adolescents, with self-harm as an inclusion criterion for the trial. Follow-up was over a maximum of 2 years.

Although a number of secondary outcomes were also reviewed (treatment adherence, depression, hopelessness, suicidal ideation, problem-solving and suicide), the primary outcome had to be some measure of self-harm recurrence. Self-harm repetition was assessed by both the proportion of participants reporting any further self-harm and the change in average frequency of repeat self-harm episodes.

Trials with a small proportion (less than 15%) of adult participants were also allowed. Both in-patient and out-patient interventions were permitted. Trials in populations with intellectual disability were excluded because self-harm in this population is often repetitive and serves a somewhat different purpose. With that exception, there were no other restrictions on comorbidities. Methods mirrored those used for the two reviews on interventions for self-harm in adults (Hawton 2015b, 2016).

Results

Eleven non-overlapping RCTs of interventions for children and adolescents were identified for inclusion in the review, comprising a total of 1126 child and adolescent participants, who had all engaged in at least one episode of self-harm in the 6 months prior to randomisation. This includes six studies already identified in the 1999 review. It also includes further results obtained over a 2-year follow-up period, longer than in the previous review, for one of the original trials (Ougrin 2013) and unpublished data obtained from the authors of eight of the trials. Of the ten trials for which gender was recorded, 80.6% of participants were female. Nine trials gave information on age, and among these the average age at randomisation was 15.3 years. All children and young people included had been referred to child and adolescent mental health services. Trials varied in the number of episodes of self-harm patients had engaged in, methods used and whether suicidal intent was reported. Ten studies gave some, often limited, information on psychiatric comorbidities, with affective disorders the most common reported.

None of the trials investigated a pharmacological agent as a potential intervention for self-harm. The eleven trials identified represented a range of psychological and psychosocial interventions: individual CBT-based psychotherapy, group-based therapies, dialectical behavioural therapy for adolescents (DBT-A), mentalisation-based treatment for adolescents (MBT-A), 'therapeutic' assessment, enhanced usual care, compliance (adherence) enhancement, home-based family intervention and remote contact interventions.

Only two interventions were assessed in more than one trial and thus permitting meta-analysis: DBT-A (two trials) (Cooney 2010; Mehlum 2014) and group-based psychotherapy (three trials (Wood 2001; Hazell 2009; Green 2011). Moderate statistical heterogeneity was noted in combining the two trials of DBT-A (I^2 = 41%). The content and therapeutic modality used for the group therapy is not explained in detail, but is listed as six weekly sessions employing a variety of techniques from CBT, problem-solving therapy, DBT and psychodynamic psychotherapy. It is stated that all three trials were based on the same methodology, employing a single treatment manual, justifying combining the results. The heterogeneity (Box 1), however, is recorded as I^2 = 65% and I^2 = 77% for 6- and 12-month follow-up respectively, which is high and possibly argues against this. It is suggested that one reason for heterogeneity may be a difference in the criteria for recording further self-harm, with one study requiring at least two further episodes in order to be recorded.

The evidence for all but one intervention was judged as low or very low by GRADE criteria (Box 2), with the single exception of one trial of MBT-A conducted in adolescents presenting repeatedly with self-harm, with comorbid depression and with many reported to have traits

BJPsych Advances (2016), vol. 22, 287–291 doi: 10.1192/apt.22.5.287

BOX 1 Heterogeneity

Heterogeneity refers to a measure of the degree of variability among the different studies a meta-analysis is attempting to combine. Although it sometimes refers to clinical heterogeneity (variability in clinical aspects of the trial, such as study population, intervention) or methodological heterogeneity (variability in study design), in meta-analyses of RCTs the term usually refers to statistical heterogeneity.

Statistical heterogeneity reflects the extent to which the results of different trials differ above and beyond what would be expected from random error. If two trials of the same intervention are run with a group of patients from the same clinical population, then random error predicts that there will be small differences between the results. If the results actually differ significantly more, it indicates that there are more significant differences between the studies, that perhaps the studies are not measuring exactly the same intervention or that there are different types of bias affecting the studies.

Heterogeneity can be statistically measured by comparing actual results with the results that would be predicted if the trials were measuring the same thing, using a χ^2-test. It is described by the I^2 statistic. It should be interpreted in the context of the trials, but roughly speaking, $I^2 > 50\%$ represents notable heterogeneity and $I^2 > 75\%$ considerable heterogeneity. Caution should be exercised in interpreting the results of a meta-analysis if heterogeneity is high.

of emerging personality disorder (Mehlum 2014). This was judged as providing moderate-quality evidence of a statistically significant reduction in self-harming in this population. Statistical significance was not reached with regard to the proportion of participants repeating self-harm for any other intervention, although there was some evidence of a reduction in the frequency of self-harming episodes among those who did self-harm again for DBT-A.

A moderately sized study of MBT-A in a group of adolescents with comorbid depression showed a significant effect on scores on the Risk-Taking and Self-Harm Inventory for Adolescents, indicating fewer self-reported episodes of self-harm (Roussow 2012). No other intervention showed a significant reduction in reported self-harm.

Table 1 summarises the studies included in the review under consideration (Hawton 2015a).

Discussion

The immediate observation is the striking lack of evidence for interventions for children and young people who self-harm, in view of the importance of the problem. The other two reviews in this set, on interventions in adults also noted a lack of good-quality evidence and found that few trials demonstrated statistically significant improvements in outcomes, but they did include seven trials of pharmacological agents (Hawton 2015b) and fifty-five trials of psychosocial interventions (Hawton 2016). Among these was a small and old trial showing a tentative positive effect from the use of an old antipsychotic agent, flupentixol (Montgomery 1979), and statistically significant reductions in recurrent self-harm for psychological interventions based on CBT, group therapy, mentalisation and DBT. One may be tempted to extrapolate results from the trials in adults but, as the on-going debate around the extent to which selective serotonin reuptake inhibitors (SSRIs) may cause an increase in suicidal ideation and self-harm demonstrates (Dubicka 2016; Sharma 2016), this is not without risk. Indeed, the debate concerning SSRIs is evidence of a qualitative difference in the response of children and adolescents compared with that of adults, at least to pharmacological interventions.

The most commonly reported psychiatric comorbidities were affective disorders. Depression is a risk factor for self-harm and suicide, forming the rationale for the use of antidepressants for some adults presenting with self-harm. Although it is not fully understood, there seems to be something different about the response of children and,

BOX 2 GRADE

An acronym for Grading of Recommendations Assessment, Development and Evaluation, GRADE is an approach to systematically evaluating the quality of the evidence base for a clinical question, linking it to the associated clinical recommendations (www.gradeworkinggroup.org). It provides an overall judgement of the evidence base, rather than of the methodology of a single study or review.

It incorporates assessment of:

- the quality of the methodology of the component studies
- how effective the treatments are shown to be
- how consistent results are across multiple studies
- how generalisable the results in the included studies are to a wider population.

A standardised way of scoring these domains is applied to the evidence base for each chosen outcome of interest in a reproducible way. The final score is: 'very low' – one point or less; 'low' – two points; 'moderate' – three points; and 'high' – four or more points. 'Very low' and 'low' scores indicate very uncertain or uncertain conclusions, and further research on the question is very likely to change the clinical opinion.

TABLE 1 Summary statistics for the results included in the Cochrane review (Hawton 2015a)

Intervention and study	Comparison	Study size	OR for primary outcome: repetition of self-harm[a]	95% CI
Brief individual CBT-based psychotherapy (Donaldson 2005)	Treatment as usual	One trial *n* = 39	1.88	0.3–11.73
DBT-A (Cooney 2010; Mehlum 2014)	Treatment as usual or enhanced usual care	Two trials *n* = 105	0.72	0.12–4.40
MBT-A (Rossouw 2012)	Treatment as usual	One trial *n* = 71	0.26	0.09–0.78
Group-based psychotherapy (Wood 2001; Hazell 2009; Green 2011)	Treatment as usual	Three trials *n* = 490	(at 12 months) 0.8	0.22–2.97
Therapeutic assessment (Ougrin 2011)	Treatment as usual	One trial *n* = 69	(at 12 months) 0.75	0.18–3.06
Compliance enhancement (Spirito 2002)	Treatment as usual	One trial *n* = 63	(at 6 months) 0.67	0.15–3.08
Home-based family intervention (Harrington 1998)	Treatment as usual	One trial *n* = 149	(at 6 months) 1.02	0.41–2.51
Remote contact interventions[b] (Cotgrove 1995)	Treatment as usual	One trial *n* = 105	(at 12 months) 0.5	0.12–2.04

CBT, cognitive–behavioural therapy; DBT-A, dialectical behaviour therapy for adolescents; MBT-A, mentalisation-based treatment for adolescents; OR, odds ratio; 95% CI, 95% confidence interval.
a. The outcome in the trial of MBT-A was 'scoring above the cut-off on the Risk-Taking and Self-Harm Inventory', which included that patients had engaged in fewer episodes of self-harm over the previous 3 months. For all other trials, the primary outcome reflects the proportion of trial participants engaging in further self-harm within the specified time scale, if given.
b. The provision of 'emergency cards' facilitating readmission if the patient feels unsafe.

particularly, adolescents. One possibility is the impulsivity and unstable moods sometimes seen in adolescents. The recent large meta-analysis of trials to assess whether lithium has an effect on suicide rates in people with affective disorders (Cipriani 2013) did not exclude children, but identified only two studies (out of the 48 trials included) that did actually include any children and there were no suicides reported in either trial. A *post hoc* analysis of the trial data included in this meta-analysis does suggest some benefit from lithium on self-harm, compared with anticonvulsants. Although lithium was not found to be beneficial in one trial of recurrent self-harm in adults, given the potential difficulties accompanying the use of antidepressants in children and young people who self-harm, an investigation of the potential role of mood stabilisers for children and, particularly, adolescents following self-harm should be prioritised.

The evidence base for all but one intervention was rated as low or very low using GRADE criteria, meaning that further research is very likely to change the confidence in the evidence, conclusions drawn from the evidence and associated clinical recommendations, and Hawton *et al* acknowledge the need for further research on the subject. Several interventions showed some promise. Although statistical significance was not reached, the odds ratio was favourable for DBT-A, group-based psychotherapy, therapeutic assessment, compliance enhancement and provision of an emergency card. It is conceivable that these trials were underpowered (that is, too small to detect an actual difference) and therefore these interventions in particular would benefit from further evaluation, particularly in the light of positive evidence for DBT and group-based psychotherapy in adults.

Five on-going trials with results awaited were identified. These also all consider psychosocial interventions (family therapy, individual therapy plus crisis card, combined individual and group-based DBT-A), which will add to the evidence base, but there remains a scarcity of evidence for the effect (positive or negative) of pharmacological agents on recurrence of self-harm, particularly in the form of trials designed with recurrence of self-harm as the primary outcome. The recommendations from the review of interventions for self-harm in adults (Hawton 2015b) included further investigation of atypical antipsychotics, newer antidepressants, particularly SSRIs, and combined pharmacological and psychosocial treatments. Trials should clearly review adverse outcomes of interventions, as well as beneficial outcomes. It would be helpful if the baseline characteristics were described in greater detail so that the impact of comorbidity may be better evaluated. We would support all of these conclusions also in children and adolescents.

Self-harm is essentially a behaviour, and interventions for behaviour are well established in working with children, but more usually for 'externalising' behaviour, that is to say aggression and behavioural disturbance disruptive to others (Stephen 2013). Such interventions are generally

BJPsych Advances (2016), vol. 22, 287–291 doi: 10.1192/apt.22.5.287

based on behavioural principles, but often implemented through parenting programmes. The one small trial here based on CBT methods did not show beneficial effects on recurrence of self-harm. However, this intervention was delivered directly to children and young people and did not involve carers. It would be particularly interesting to see the effects of an intervention based on CBT and problem-solving, but with families integrated into the programme. Given the distress experienced by families of children and adolescents who are self-harming, it is likely that this would also have the beneficial effect of providing support to families in coping with this.

Implications

This Cochrane review presents little good-quality evidence to inform clinical practice. There is some limited positive evidence for mentalisation for adolescents and, even more limited, for DBT-A. These require further evaluation before they can be recommended as the basis for any major investment in, or significant redesign of, services for children and young people who have self-harmed, but it seems reasonable that they be considered as models by teams working with this group and looking for models to inform their working practice. Secondary outcomes, which we have not discussed in detail, support the benefit of a comprehensive and therapeutically informed assessment in improving engagement with future treatment.

References

Cipriani A, Hawton K, Stockton S, et al (2013) Lithium in the prevention of suicide in mood disorders: Updated systematic review and meta-analysis. *BMJ,* **346**: f3646.

Cooney E, Davis K, Thompson P, et al (2010) *Feasibility of Evaluating DBT for Self-Harming Adolescents: A Small Randomised Controlled Trial*. Te Pou o Te Whakaaro Nui/ The National Centre of Mental Health Research, Information and Workforce Development.

Cotgrove A, Zirnisky L, Black D, et al (1995) Secondary prevention of attempted suicide in adolescence. *Journal of Adolescence,* **18**: 569–77.

Donaldson D, Spirito A, Esposito-Smythers C (2005) Treatment for adolescents following a suicide attempt: Results of a pilot trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* **44**: 113–20.

Dubicka B, Cole-King A, Reynolds S, et al (2016) Suicidality and aggression during antidepressant treatment: paper on suicidality and aggression during antidepressant treatment was flawed and the press release was misleading. *BMJ,* **352**: i911.

Green JM, Wood AJ, Kerfoot MJ, et al (2011) Group therapy for adolescents with repeated self harm: randomised controlled trial with economic evaluation. *BMJ,* **342**: d682.

Harrington R, Kerfoot M, Dyer E, et al (1998) Randomized trial of a home-based family intervention for children who have deliberately poisoned themselves. *Journal of the American Academy of Child and Adolescent Psychiatry,* **37**: 512–8.

Hawton K, Townsend E, Arensman E, et al (1999) Psychosocial and pharmacological treatments for deliberate self harm. *Cochrane Database of Systematic Reviews,* **4**: doi: 10.1002/14651858.CD004577.pub2.

Hawton K, Saunders KEA, O'Connor R (2012) Self-harm and suicide in adolescents. *Lancet,* **379**: 2373–82.

Hawton K, Witt KG, Taylor Salisbury TL, et al (2015a) Interventions for self-harm in children and adolescents. *Cochrane Database of Systematic Reviews,* **12**: CD012013.

Hawton K, Witt KG, Taylor Salisbury TL, et al (2015b) Pharmacological interventions for self-harm in adults. *Cochrane Database of Systematic Reviews,* **7**: CD011777.

Hawton K, Witt KG, Taylor Salisbury TL, et al (2016) Psychosocial interventions for self-harm in adults. *Cochrane Database of Systematic Reviews,* **5**: CD012189.

Hazell PL, Martin G, McGill K, et al (2009) Group therapy for repeated deliberate self-harming adolescents: failure of replication of a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* **48**: 662–70.

Mehlum L, Tømoen AJ, Ramberg M, et al (2014) Dialectical behavior therapy for adolescents with repeated suicidal and self-harming behavior – a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* **53**: 1082–91.

Montgomery S, Montgomery D, Jayanthi-Rani S, et al (1979) Maintenance therapy in repeat suicidal behaviour: a placebo controlled trial. *Proceedings of the 10th International Congress for Suicide Prevention and Crisis Intervention. Ottawa, Canada, 1979* (pp. 227–9). Association internationale pour la prévention du suicide (Canada).

National Confidential Inquiry into Suicide and Homicide by People with Mental Illness (2016) *Suicide by Children and Young People in England*. University of Manchester.

National Institute for Health and Care Excellence (2004) *Self-harm in Over 8s: Short-Term Management and Prevention of Recurrence* (NICE Guidelines CG16). NICE.

National Institute for Health and Care Excellence (2011a) *Self-harm: Longer-Term Management. Costing Report Implementing NICE Guidance* (NICE Clinical Guideline 133). NICE.

National Institute for Health and Care Excellence (2011b) *Self-harm in Over 8s: Long-Term Management* (NICE Guidelines CG133). NICE

Ougrin D, Zundel T, Ng A, et al (2011a) Trial of therapeutic assessment in London: randomised controlled trial of therapeutic assessment versus standard psychosocial assessment in adolescents presenting with selfharm. *Archives of Disease in Childhood,* **96**: 148–53.

Ougrin D, Boege I, Stahl D, et al (2013) Randomised controlled trial of therapeutic assessment versus usual assessment in adolescents with self-harm: 2-year follow-up. *Archives of Diseases in Childhood,* **98**: 772–6.

Rossouw TI, Fonagy P (2012) Mentalization-based treatment for self-harm in adolescents: a randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* **51**: 1304–13.

Sharma T, Schow Guski L, Freund N, et al (2016) Suicidality and aggression during antidepressant treatment: systematic review and meta-analyses based on clinical study reports. *BMJ,* **352**: i65.

Sinclair JMA, Gray A, Rivero-Arias O, et al (2011) Healthcare and social services resource use and costs of self-harm patients. *Social Psychiatry and Psychiatric Epidemiology,* **46**: 263–71.

Spirito A, Boergers J, Donaldson D, et al (2002) An intervention trial to improve adherence to community treatment by adolescents after a suicide attempt. *Journal of Child and Adolescent Psychiatry,* **41**: 435–42.

Stephen S, Bailey C (2013) Managing disruptive behaviour disorders in children. *The Practitioner,* **257**: 19–21.

Vrouva I, Fonagy P, Fearon PR, et al (2010) The Risk-Taking and Self-Harm Inventory for Adolescents: development and psychometric evaluation. *Psychological Assessment,* **22**: 852–65.

Wood A, Trainor G, Rothwell J, et al (2001) Randomized trial of group therapy for repeated deliberate self-harm in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry,* **40**: 1246–53.