

Health and Community Care

Effectiveness of interventions to prevent suicide and suicidal behaviour: A systematic review

Maria Leitner, Wally Barr and Lindsay Hobby

Introduction

This review was commissioned in 2005 and is now being published by the Scottish Government as part of its strategic activity around 'knowing what works' in suicide prevention. The remit was to provide a comprehensive overview of the known effectiveness of interventions aimed at preventing suicide, suicidal behaviour and suicidal ideation, both in key risk groups and in the general population. The research team was led by Dr Maria Leitner (InfoTech UK Research) and Dr Wally Barr (University of Liverpool) and included academic researchers, clinicians and service user and carer advisors.

Main Findings

- Published research in the field of suicide and suicidal behaviour has expanded rapidly in recent years: 54% of the intervention studies identified were published between 2000-06
- Nearly half of the evaluated interventions were for people with psychiatric problems. This is disproportionate to the distribution of suicidal behaviour in the general population
- The main focus of the effectiveness literature was on suicidal ideation. Attempted suicide, completed suicide and self-harm have received less attention
- Most reported evaluations have been of pharmaceutical interventions. Yet, on the basis of existing evidence, no single such intervention can be recommended *without caveat*
- A number of broad approaches to non-pharmaceutical intervention have shown positive outcomes in the small number of studies available. These include restriction of access to means and ongoing informal contact with individuals at high risk
- Treatment with intensive cognitive/behavioural therapies, such as Dialectical Behaviour Therapy (DBT) and Cognitive Behaviour Therapy (CBT), have also shown promise
- Although available evidence relating to the criminal justice system is sparse, provision of intermediate care within the prison setting is a promising intervention for people who attempt suicide
- People at either end of the age spectrum (those younger than 15 or older than 65) are particularly poorly served by the available literature

Introduction

This systematic literature review is published by the Scottish Government. The work was commissioned in 2005 as part of a programme of research to support *Choose Life*, the National Strategy and Action Plan to Prevent Suicide. (Objective 7 in the strategy relates to 'knowing what works'). This commission followed a scoping exercise which identified the need for a review of the known effectiveness of interventions to prevent suicide and suicidal behaviour.

Aims

The aim of the review was to provide a comprehensive overview of the known effectiveness of interventions aimed at preventing suicide and suicidal behaviour in both key risk groups and in the general population.

Methods

The review team followed the systematic review method set out by the Cochrane Collaboration and the NHS Centre for Reviews & Dissemination. The team set very broad initial search parameters and carried out on-line searching of the databases shown below using specially developed search terms. The resulting citations were downloaded into bibliographic software and de-duplicated and a restriction term string was developed and used to identify material relating specifically to interventions. Syntax was then developed within the bibliographic software to carry out the more detailed and specific searches generally carried out on-line.

The databases searched were Medline, National Research Register, NICE, Controlled Clinical Trials Register, CINAHL, AMED, PsychInfo, ASSIA, Social Sciences Citation Index, APA PsychArticles, Cochrane, C2-Spectr, NCCHTA, NHSEED, ECONLIT, PROQUEST and FADE.

The final search was based on words appearing either in the title of a citation or in specified key words. Inclusion criteria were set to 'fine tune' the very broad remit of the review:

- English language literature
- only 'empirical' studies to be included, broadly defined to include any quantitative or qualitative approach aiming to evaluate the impact of an intervention on self-harm or suicide
- outcomes to include all completed suicide and suicidal behaviour, including self-harm and suicidal ideation

- focus on 'intentional' behaviour only (e.g. exclusion of self-harm as a consequence of learning disability or Lesch Nyhan's disease)

In this review, studies are categorised with respect to the type of suicidal behaviour addressed: completed suicide, attempted suicide, self-harm, suicidal ideation. It is important to bear in mind that some of these classifications involve a judgement or decision on the motivation underpinning the act, and that the reviewers were, of necessity, wholly dependent on the descriptions given by study authors: one author's definition of attempted suicide may well be another author's definition of self-harm. In addition, the behaviours against which interventions are judged are unlikely to be wholly equivalent across studies, even where the labels assigned are the same.

There were a number of stages to the process of analysis:

- a scoping review to provide a broad overview of where research activity has focussed to date
- an overview of systematic reviews and meta-analyses carried out on aspects of the evidence base to date
- a comprehensive overview of the existing primary literature

Results

The final number of individual citations available for searching with the set of search terms developed was 26,085. These were narrowed to the most relevant citations through application of intervention restriction terms, then by two reviewers excluding non-relevant material on the basis of abstracts. Finally, two reviewers read the full-text of every remaining citation and agreed on those that should be included in the review. This resulted in a final total of 37 systematic reviews and 200 primary empirical studies. The main focus explored in the literature was on suicidal ideation (47% of studies). Interventions relating to attempted suicide (37%), completed suicide (33%) and self-harm (22%) have received less attention.

Overview of all studies

The scoping review was carried out to provide a broad overview of findings, irrespective of judgements regarding study quality. This indicated that unequivocal support for the impact of specific interventions on **completed suicide** is lacking, due to the diverse focus of studies reporting successful outcomes. Interventions consistently supported by a number of studies are the restriction of access to

means and the maintenance of ongoing contact with the person at risk of suicide.

No specific intervention in relation to **attempted suicide** is supported by more than a small number of studies; however, promising interventions are treatment with lithium for bipolar disorder (although there are major caveats), restriction of access to means and the setting up of informal social support networks.

The only specific intervention with consistent support from a number of studies in relation to **self-harm** is Dialectical Behaviour Therapy (DBT) in the treatment of borderline personality disorder. Cognitive Behavioural Therapy (CBT) and the maintenance of ongoing contact appear to be promising approaches, on the basis of limited evidence.

No specific intervention in relation to **suicidal ideation** is consistently supported by the literature. Promising approaches are treatment of depression with sertraline or fluvoxamine and non-directive telephone support.

Primary studies: Specific results for high-quality studies

In addition to evaluating outcomes for all available studies, the review team controlled for the impact of study quality by identifying outcomes taken from only the highest quality studies available.

- *Outcomes for suicide:* Taking into consideration the quality of available studies, there are no interventions to prevent suicide which can be regarded as having unequivocal support. Nevertheless, the broader range of studies described in the Scoping Review provides some ideas for promising avenues to pursue, for example studies addressing the restriction of access to means and ongoing contact with suicidal clients following hospital discharge
- *Outcomes for attempted suicide:* Particularly promising broad-based interventions are informal social support and the restriction of access to means. More specific clinical approaches which look promising are DBT (primarily evaluated in the context of borderline personality disorder) and CBT, although the latter receives less consistent support in the literature as a whole
- *Outcomes for self-harm:* There is evidence that DBT may be of value and also some support for the efficacy of ongoing contact. There is currently no support for GP-based contact and training initiatives or for psychosocial assessment carried out in the context of hospital presentation for self-harm, although there is limited

evidence in the latter context that referral for specialist support may be of value

- *Outcomes for suicidal ideation:* For people with depression there is some, very limited, support for the use of moclobemide and rather stronger, though not unequivocal, support for the use of fluvoxamine and sertraline. There is currently no strong evidence from high quality studies or from the broader range of studies to support the use of imipramine or amitriptyline. For suicidal ideation more generally, there is currently no support from the available higher quality studies and only equivocal support from the range of other studies, for the efficacy of CBT or school-based intervention programmes. There is limited evidence from higher quality studies of the efficacy of telephone-based support over very short follow-up periods (the length of the call), with some evidence that non-interventionist styles of communication may be beneficial with first-time callers

Systematic Reviews

An overview of previously published systematic reviews and meta-analyses was conducted. However, due to the diversity of the reviews and the studies contained within them, it was not possible to differentiate between the four types of suicidal behaviour outcomes when reporting findings from this element of the work.

The bulk of previous systematic reviews (49%) have focussed exclusively on pharmaceutical interventions, and approximately one third of the available reviews include only material derived from Randomised Controlled Trials (RCTs). Almost half of the reviews focussed solely on populations with a diagnosed mental health problem. None of the systematic reviews focussed specifically on outcomes from qualitative research.

Equivocal and sometimes adverse outcomes were reported in many of the reviews of pharmaceutical treatments, though for specific diagnostic groups positive outcomes were reported for lithium, alprazolam, fluvoxamine, paroxetine, fluoxetine and clozapine.

Evidence from previous systematic reviews of the efficacy of psychotherapeutic or psychosocial interventions was equivocal, except for CBT, DBT and the provision of a 'green card' to arrange rapid psychiatric readmission, which were all reported to be promising interventions. Outcomes for other interventions were generally equivocal, although improvements to physician education regarding depression and restriction of access to means of suicide both showed promise.

Priority populations, settings and interventions

The review team considered the research evidence for interventions with priority populations of special interest to the review commissioners. Evidence was found to be more robust for people with mental health problems, where there was some evidence in favour of DBT and other cognitive and/or behavioural approaches in reducing suicidal ideation and suicidal behaviour in people with personality disorder. For those with affective disorders, the available research suggests that outcomes for lithium therapy may also be positive, although a small number of studies report adverse outcomes.

For people in contact with the Criminal Justice System, providing intermediate care (akin to psychiatric admission) within the prison setting was reported to significantly reduce attempted suicide.

In ethnic minority groups, some evidence was provided by a small number of studies assessing three approaches: a video-focussed educational intervention aimed at modifying family expectations regarding self-harm; a culturally tailored community-wide intervention (with Native Americans); and a community-wide public health oriented programme.

Aside from these studies, where statistically significant positive results had been reported, evidence for priority populations was weak or equivocal. This evidence included studies focussing on specific age groups (people at either end of the age spectrum – those younger than 15 or older than 65 – are particularly poorly served by the available literature); specific settings (such as hospital A&E); people who abuse substances; and rural populations.

Weakest of all was the availability of evidence specifically addressing interventions to reduce the risk of suicidal behaviour or ideation in asylum seekers, people who are lesbian, gay, bisexual or transgender; the recently bereaved; socio-economically deprived; unemployed; homeless populations; and survivors of sexual abuse. The review team was unable to identify any intervention studies that had focussed specifically on these groups and provided evidence of pertinent outcomes.

The team also reviewed the evidence for specific interventions of particular importance to the review commissioners. Although several studies provided narrative support for some interventions, the more robust evidence (where statistically significant outcomes were identified) was provided by only a small number of studies. These included the introduction of service-based suicide prevention centres;

some community-wide approaches (such as public health oriented programmes); the reduction of access to lethal means of suicide; awareness raising/encouraging help-seeking; some school-based programmes; the training and peer-education of frontline health care professionals; DBT, CBT, interpersonal therapy, telephone and other contact; and some elements of service re-structuring and case management.

Relevance to the Scottish Context

The direct evidence the review team was able to identify for interventions specifically evaluated in the Scottish context was very limited indeed and provided few firm pointers for intervention. Fortunately, it seems likely that promising interventions from the international literature will be equally applicable to the Scottish situation. A pragmatic approach would be to focus Scottish suicide prevention efforts initially on interventions with evidence of effectiveness that are also comparatively simple to implement (such as initiatives to pre-empt suicide in high risk locations).

Conclusions

There has been a rapid expansion in published research in the field of suicide and suicidal behaviour in recent years (over half of the available intervention studies have been published since 2000). However, the evidence base is hampered by a number of issues such as narrowness of focus, lack of specificity of outcomes, methodological problems and the fact that most evaluated interventions have been addressed only by a very small number of studies.

Nearly half of evaluated studies focussed on people with psychiatric problems, particularly depression and borderline personality disorder.

Consequently, the evidence base (as it stands) is disproportionate to the distribution of suicidal behaviour in the population, and thus provides little insight into interventions that may be effective for other high risk groups and for the general population.

There is currently little evidence available addressing interventions for those in institutional settings, such as hospital A&E and prisons.

The greatest bulk of evidence that currently exists is for pharmaceutical intervention. Yet, for the majority of individual drug types evaluated, there is a lack of substantive evidence of effectiveness and, consequently, no single pharmaceutical intervention can be recommended without caveat.

Recommendations for future research and practice

There is an urgent need for a more co-ordinated and focussed approach to research and evaluation if useful insights for policy and practice are to be taken from available evidence. However, the current lack of evidence of effectiveness in many areas should not be taken as evidence of *ineffectiveness*.

The review team suggest a number of methodological improvements that should be made to the design of quantitative and qualitative studies in this area; for example, not one of the evaluated interventions had been pursued fully from the start point of theoretical development through to full scale long-term 'real world' implementation.

In the short term, Scotland can draw on the evidence base from other countries, since the effectiveness of interventions is unlikely to vary a great deal between locations.

It is suggested that, in the absence of any specific interventions with wholly unequivocal proof of efficacy, both research and practice could benefit in the short term by a focus on the most promising avenues for intervention. Of particular interest are national level initiatives to reduce the risk of suicide by restricting access to the means of suicide, providing specialist centres for patient care, and providing

telephone support or other ongoing contact, and possibly the use of 'green cards' for individuals known to have self-harmed.

It would also be useful to focus on interventions which are low cost and simple to implement (such as providing points of contact to pre-empt suicides at key locations).

In respect of other suicidal behaviours and suicidal ideation, promising avenues worthy of further exploration include the development of informal social support networks, the establishment of mechanisms for maintaining ongoing contact with people known to self-harm, and the wider use of behaviour therapies, including more recent methods like DBT where behavioural and cognitive therapies have been combined.

As noted above, almost half of the evaluated interventions related to people with psychiatric problems. Future research and evaluation need to focus on other high risk groups, as well as whole population community-based initiatives, and a range of settings.

As it is unlikely that individual research studies alone will be able to expand the evidence base quickly enough to improve outcomes in the near future, it is of substantial importance that researchers and practitioners begin to work closely together on a more routine basis in order to develop a robust evidence base regarding 'what works'.

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Scottish Government Social Research
4th Floor West Rear
St Andrew's House
Regent Road
EDINBURGH
EH1 3DG
Tel: 0131 244-7560
Fax: 0131 244-5393
Email: socialresearch@scotland.gsi.gov.uk
Website: www.scotland.gov.uk/socialresearch

The report, "Effectiveness of Interventions to Prevent Suicide and Suicidal Behaviour: A Systematic Review", which is summarised in this research findings is a web only document and is available on the publications pages of the Scottish Government website at <http://www.scotland.gov.uk/Publications/Recent>

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