A brief psychological intervention to reduce repetition of self-harm in patients admitted to hospital following a suicide attempt: a randomised controlled trial

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Summary

Background We investigated whether a volitional helpsheet (VHS), a brief psychological intervention, could reduce repeat self-harm in the 6 months following a suicide attempt.

Methods We did a prospective, single-site, randomised controlled trial. Patients admitted to a hospital in Edinburgh, UK, after a suicide attempt were deemed eligible for the study if they were over the age of 16 years, had a self-reported history of self-harm, were fluent in English, were medically fit to interview, and were not participating in other research studies within the hospital. Eligible patients were randomly assigned (1:1), via web-based randomisation, to receive either VHS plus usual treatment (intervention group) or only treatment as usual (control group). Randomisation was stratified by sex and self-reported past self-harm history. The Information Services Division of the National Health Service (NHS-ISD) staff and those extracting data from medical notes were masked to the study group the participant was allocated to. Clinical staff working within the hospital were also masked to participants’ randomisation status. There were three primary outcomes: the proportion of participants who represented to hospital with self-harm during the 6-month follow-up period; the number of times a participant represented to hospital with self-harm during the 6-month follow-up period; and cost-effectiveness of the VHS as measured by estimated incremental cost per self-harm event averted. Primary outcomes were analysed in all randomised patients. Follow-up data collection was extracted from the Information Services Division of the NHS and from patient medical records. The trial is registered with International Standard Randomised Controlled Trial Number Registry, number ISRCTN99488269.

Findings Between May 9, 2012, and Feb 24, 2014, we assessed 1308 people for eligibility. Of these, 259 patients were randomly assigned to the intervention group and 259 to the control group. We obtained complete follow-up data on 512 (99%) of 518 patients (five participants were lost to follow-up in the intervention group and one in the control group). 11 patients assigned to the intervention group did not complete the VHS in hospital. Overall, the intervention did not affect the number of people who re-presented with self-harm (67 [26%] of 254 patients in the intervention group vs 71 [28%] of 258 patients in the control group, odds ratio [OR] 0·90, 95% CI 0·58–1·39, p=0·63). The intervention had no effect on the number of re-presentations per patient (mean 0·67 [SD 2·55] re-presentations for the intervention group vs 0·85 [2·79] for the control group). Randomisation was stratified by sex and self-reported past self-harm history. The Information Services Division of the National Health Service (NHS-ISD) staff and those extracting data from medical notes were masked to the study group the participant was allocated to. Clinical staff working within the hospital were also masked to participants’ randomisation status. There were three primary outcomes: the proportion of participants who represented to hospital with self-harm during the 6-month follow-up period; the number of times a participant represented to hospital with self-harm during the 6-month follow-up period; and cost-effectiveness of the VHS as measured by estimated incremental cost per self-harm event averted. Primary outcomes were analysed in all randomised patients. Follow-up data collection was extracted from the Information Services Division of the NHS and from patient medical records. The trial is registered with International Standard Randomised Controlled Trial Number Registry, number ISRCTN99488269.

Interpretation For the primary outcomes, there were no significant differences between groups. Although the VHS had no overall effect, post-hoc analyses suggest VHS might be effective in reducing the number of self-harm repetitions following a suicide attempt in people who complete the helpsheet and who have been previously admitted to hospital with self-harm. This is the first study to investigate the usefulness of the VHS to reduce self-harm among those who have attempted suicide. These subgroup findings require replication. The potential use of the VHS in those who self-harm for different motives requires further exploration.

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Introduction Self-harm is an important predictor of death by suicide.1 Psychosocial interventions targeted at those who self-harm offer promise in terms of reducing self-harm repetition and suicide risk.3,4 Although there is growing evidence for the effectiveness of long-term psychological therapies to reduce self-harm (usually in outpatient psychiatric care),5 few interventions have been developed specifically for acute settings. Apart from assertive case management,6 no brief psychological interventions based in emergency
Research in context

Evidence before this study
We searched PubMed from Jan 1, 2015, to Dec 31, 2016 with the terms ‘suicid*’ or ‘self-harm’ and ‘psychological’ or ‘psychosocial’ and ‘intervention’ or ‘therapy’ for randomised controlled trials of psychological interventions to reduce repeat self-harm in patients who present to hospital following a suicide attempt.

Although there is growing evidence for the effectiveness of longer term, more intensive psychological therapies (eg, cognitive behaviour therapy and dialectical behaviour therapy) to reduce self-harm (usually in outpatient psychiatric care), few interventions have been developed specifically for administration in acute settings. There is evidence from one study that psychoeducation and case management might reduce repeat suicidal behaviour but there is no evidence for the effectiveness of brief psychological interventions administered in acute settings for patients admitted to hospital following a suicide attempt.

Added value of this study
Our study is the first randomised controlled trial of an implementation intentions-based brief, self-directed psychological intervention (a volitional helpsheet; VHS) developed to reduce repeat self-harm in patients who have been admitted to hospital via the emergency department following a suicide attempt. Although the intention-to-treat analyses were not significant, our post-hoc analyses suggest that a VHS might be effective in reducing the number of self-harm repetitions following a suicide attempt in people who complete it and who have been previously admitted to hospital with self-harm. However, for those with no history of self-harm hospital admission, the VHS might increase self-harm (ie, do harm), albeit the effect was not statistically significant.

Implications of all the available evidence
Given that the intervention is brief, it is not surprising that the effect sizes were small. However, since it is difficult to modify self-harm behaviours, the post-hoc findings for those with a past history of self-harm are important and offer promise. Since the subgroup analyses for history of past self-harm hospital admissions in those who completed the VHS following randomisation were unplanned and retrospective they require replication.

departments have been shown to be effective for those who present to emergency departments or acute services after a suicide attempt.\textsuperscript{13–15} The aim of the present study, therefore, is to test the efficacy of an innovative brief low-intensity psychological intervention, the volitional help sheet (VHS), given in hospital within 24 h of a suicide attempt, to reduce future self-harm.

The VHS intervention is unique because it draws on theories of health behaviour change and clinical models of self-harm and suicide. The intervention uses: implementation intentions\textsuperscript{19} (so-called if-then plans) to promote the reduction of self-harm; the integrated motivational–volitional (IMV) model of suicidal behaviour,\textsuperscript{11,12} research into the motives underpinning self-harm\textsuperscript{13–15} to identify crucial situations in which self-harm is more likely to occur;\textsuperscript{3,5–9} and processes of change derived from Prochaska and DiClemente’s\textsuperscript{10} transtheoretical model to identify more adaptive alternative solutions to self-harm.

Implementation intentions are if-then plans that can be used to promote behaviour change by encouraging people to solve problems by explicitly linking in their memory a critical situation (ifs) with an appropriate response (thens). Laboratory research shows that when ifs are made salient, thens come automatically to mind.\textsuperscript{19} In the present context, an if situation could be “if I want to get relief from a terrible state of mind” and the then response would be an alternative to self-harm (eg, “…then I will think about the effect of my self-harming on the people around me”) that should make the participant more likely to choose a solution other than self-harm. According to the IMV model, implementation intentions are volitional moderators that can reduce (or increase) the likelihood of people acting on their self-injurious thoughts.\textsuperscript{19,20}

In this study, participants were encouraged to form implementation intentions by means of a VHS\textsuperscript{21,22} that consisted of a table with two columns. One column lists theoretically derived critical situations and the other listed alternative responses to self-harm (appendix).

The VHS has already been used with some success to change other health behaviours, such as smoking and physical activity.\textsuperscript{3,24} Additionally, in an exploratory study in Malaysia,\textsuperscript{23} we found that the VHS might be useful in reducing self-reported suicidal ideation and behaviour in patients. Although promising, those findings were limited by high levels of attrition and self-reported outcomes.

In this study, we aimed to investigate whether the administration of a VHS was associated with a reduction in re-presentation to hospital with self-harm (in terms of number of patients and number of re-presentations per patient) in the 6 months following an index suicide attempt. Given that repeat self-harm is most likely to occur within months of an index episode,\textsuperscript{6} a 6 month follow-up is optimal to capture the majority of incidences of repetition. We were also interested to identify whether the VHS affected the time to re-presentation and the extent to which it was cost effective. Since past self-harm is such a strong predictor of future self-harm and the efficacy of brief psychosocial interventions might vary as a function of self-harm history,\textsuperscript{13} we also explored the extent to which past admission to hospital for self-harm moderated the effect of the VHS intervention on future self-harm.
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