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Research report

Switching methods of self-harm at repeat episodes: Findings from a multicentre cohort study

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ABSTRACT

Background: Self-poisoning and self-injury have widely differing incidences in hospitals and in the community, which has led to confusion about the concept of self-harm. Categorising self-harm simply by a method may be clinically misleading because many hospital-attending patients switch from one method of harm to another on subsequent episodes. The study set out to determine the frequency, pattern, determinants and characteristics of method-switching in self-harm episodes presenting to the general hospital.

Methods: The pattern of repeated self-harm was established from over 33,000 consecutive self-harm episodes in a multicentre English cohort, categorising self-harm methods as poisoning, cutting, other injury, and combined methods.

Results: Over an average of 30 months of follow-up, 23% of people repeated self-harm and one-third of them switched method, often rapidly, and especially where the person was male, younger, or had self-harmed previously. Self-poisoning was far less likely than other methods to lead on to switching.

Limitations: Self-harm episodes that do not lead to hospital attendance are not included in these findings but people who self-harmed and went to hospital but were not admitted from the emergency department to the general hospital, or did not receive designated psychosocial assessment are included. People in the study were a mix of prevalent as well as incident cases.

Conclusions: Method of self-harm is fluctuating and unpredictable. Clinicians should avoid false assumptions about people's risks or needs based simply on the method of harm.

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1. Introduction

When someone uses the term 'self-harm' the person reading or hearing the words can not usually be sure what it means. In newspapers, and on television, radio, and the internet, self-harm usually refers to self-injury, most often cutting. Among those who work in emergency services and hospital settings, on the other hand, the self-harm that they encounter is far more likely to be self-poisoning ('overdose') which, in the UK, is around four times as common among people who come to hospital as is cutting or other injury (Bergen et al., 2010). The age pattern of self-harm complicates the picture and partly explains the misconceptions: among those coming to hospital because of self-harm, younger patients present with self-injury (mainly cutting) in higher proportions than

do older people (Horrocks et al., 2003). In the community, the pattern of self-harm among adults, and especially older adults, is unknown but it is clear that teenagers undertake considerably more self-injury than self-poisoning – although they do also report a great many self-poisoning episodes (Hawton et al., 2002). In general, clinical and epidemiological research reports are based on hospital practice rather than primary care or community surveys. Consequently, the research literature on self-harm tends to reflect the hospital rather than community pattern – and clinicians, researchers and the public are often at odds with each other in terms of their intended meaning.

This muddled perception matters because it has helped to shape the services provided for those who have attended hospital because of self-harm, most of whom have self-poisoned. Rather poorer care – much lower likelihood of psychosocial assessment and referral for aftercare – is the usual experience of people attending hospital as a consequence of self-cutting, even though they have significantly worse rates of non-fatal and fatal repetition

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than do those who have attended due to self-poisoning (Cooper et al., 2005; Lilley et al., 2008; Bergen et al., 2012; Hawton et al., 2012). This discrepancy between care and outcome, with hospital services seeming to categorise patients' risks according to the method of self-harm, is complicated further by the high incidence of a method switching by the same person on successive occasions (Lilley et al., 2008); categorising care according to the method of self-harm seems to make little sense when so much switching of the method occurs in successive episodes. We have used a very large consecutive cohort of hospital self-harm episodes from the Multicentre Study of Self-harm in England to investigate the poorly delineated but common phenomenon of switching of a self-harm method in order to determine its frequency, determinants and characteristics.

2. Method

2.1. Setting and sample

The study was undertaken in six hospitals in three cities currently involved in the Multicentre Study of Self-harm in England. The data used in the present analysis were collected on all patients who presented with non-fatal self-harm to general hospital Emergency Departments in Oxford (one hospital), Manchester (three), and Derby (two) for the 5-year period 1st January 2003 to 31st December 2007. Self-harm was defined as intentional self-poisoning or self-injury, irrespective of motivation (NICE, 2012). Further description of the multicentre project is set out elsewhere (Bergen et al., 2010; Hawton et al., 2007).

2.2. Data collection

Following their attendance at hospital because of self-harm, a majority of patients received a psychosocial assessment (of mental state, risks and needs) by mental health specialists (and/or by Emergency Department staff in Manchester) (Kapur et al., 2008), in line with clinical guidance (NICE, 2004, 2012; Royal College of Psychiatrists, 2004). Demographic, clinical, and hospital management data on each episode were collected in Oxford and Manchester by clinicians using standardised local forms, while data in Derby were entered directly on to an electronic patient record system by clinicians. Patients not receiving an assessment were identified through the scrutiny of Emergency Department records and medical records (electronic records in Derby), from which more limited data were extracted by research clerks. In all centres, patients not assessed might have taken early discharge, or did not receive an assessment – for clinical reasons, or due to unavailability of staff, or because they refused it. Data for this study included sex, age, date of self-harm, method of self-harm (including drugs used in self-poisoning and type of self-injury), alcohol involvement, previous mental health care and self-harm, admission to the general hospital, and psychosocial assessment; data on admission to the general hospital were not available for Derby at the time of the database's construction.

2.3. Ethical approval

The monitoring systems in Oxford and Derby have approval from local health or psychiatric Research Ethics Committees to collect data on self-harm for local and multicentre projects. Self-harm monitoring in Manchester is part of a clinical audit system, and has been ratified by the Local Research Ethics Committee. All three monitoring systems are fully compliant with the Data Protection Act of 1998. All centres have approval under Section 251 of the NHS Act 2006 (formerly Section 60, Health and Social

Care Act 2001) to collect patient identifiable information without patients' consent.

2.4. Switching of the self-harm method

For the purpose of exploring switching of method, we designated the method used at each episode as one of five categories: ingestion of poisons (mainly medicines but including non-ingestible substances such as bleach, and hereafter called 'poisoning'); cutting; other injury (severe); other injury (less severe); and a combination of injury and poisoning. The non-cutting (other) injuries are a very mixed group and we established a category consisting of episodes that we deemed more severe: jumping from a height, hanging or asphyxiation, carbon-monoxide poisoning, drowning, and gunshot wounds; carbon monoxide poisoning was included here because it is not poisoning by ingestion. We were aware that the remaining, 'less severe' category is highly heterogeneous and contains a mixture of more and less life-threatening actions (traffic-related and 'other' injuries).

In the enquiry into method switching we took two approaches to the analysis. Initially we examined the first switch of the method, if there was one. This analysis thereby deals with the *people* in the study who switched method, while in the second analysis we examined the total number of *episodes* – taking into account each episode in relation to the one immediately preceding it. The analysis was a repeated measures logistic regression within a generalised linear model that accounted for the lack of independence in the repeated episodes, constructed by using the cluster option in STATA to obtain robust standard errors. This method allowed us to determine whether a person switched method at any time during the study, and permitted examination of the pattern of switching – for example whether it was from poisoning to cutting, cutting to a combination of injury and poisoning, and so on. In this part of the analysis, for practical reasons, we examined only up to the first 20 episodes for each person (index episode plus 19 repeats), especially as the frequency distribution showed that repetitions in excess of 20 happened rarely; index episode here is taken to mean first episode in the study period – not necessarily the first ever episode.

The study data were extracted from a combination of routinely recorded clinical records and research monitoring forms completed by clinicians. As with all studies of this kind – with many patients and clinical staff involved and a rapid throughput of cases – there were missing items of data. In presenting the results the denominator figures are included so that it is clear where there were missing items.

Study data were analysed using three computer-based statistical applications: SPSS version 20, Stata version 12, and R version 2.14. SPSS was used for the compilation and transfer of the data, and for univariate analysis; Stata was used for logistic regression and zero-inflated Poisson models; and R was used to construct conditional inference trees. These statistical tree models help to identify the contributing factors associated with the method switching. We have presented the tree analysis in two ways – first, with switching as an event that happens or not, and, second, using a survival analysis to examine the rapidity of any switching. Censoring in the survival analysis was undertaken when a further episode of non-fatal self-harm was recorded in the monitoring data. In our models, Alpha was set at 0.01 because of the multiple testing that occurs in the modelling; in the case of the inference trees, this strict level of significance also helped to reduce the complexity of the final models. In the method used here for the construction of the conditional inference trees, when a branch variable was missing surrogate variables were not employed – although they can be used in other conditional inference modelling techniques.

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