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Original article

Self-harm induced somatic admission after discharge from psychiatric hospital – a prospective cohort study

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ABSTRACT

Background: Few studies have examined rate and predictors of self-harm in discharged psychiatric patients.
Aims: To investigate the rate, coding, timing, predictors and characteristics of self-harm induced somatic admission after discharge from psychiatric acute admission.
Method: Cohort study of 2827 unselected patients consecutively admitted to a psychiatric acute ward during three years. Mean observation period was 2.3 years. Combined register linkage and manual data examination. Cox regression was used to investigate covariates for time to somatic admission due to self-harm, with covariates changing during follow-up entered time dependently.
Results: During the observation period, 10.5% of the patients had 792 somatic self-harm admissions. Strongest risk factors were psychiatric admission due to non-suicidal self-harm, suicide attempt and suicide ideation. The risk was increased throughout the first year of follow-up, during readmission, with increasing outpatient consultations and in patients diagnosed with recurrent depression, personality disorders, substance use disorders and anxiety/stress-related disorders. Only 49% of the somatic self-harm admissions were given hospital self-harm diagnosis.
Conclusions: Self-harm induced somatic admissions were highly prevalent during the first year after discharge from acute psychiatric admission. Underdiagnosing of self-harm in relation to somatic self-harm admissions may cause incorrect follow-up treatments and unreliable register data.

1. Introduction

Self-harm represents a large public health problem, not only in terms of the burden such behaviour impinges on patients, their families [22] and health care providers [17], but self-harm is also an important risk factor for completed suicide [1]. Patients with psychiatric disorders [21,24], in particular patients recently discharged from psychiatric inpatient treatment [5,15], have a substantially increased risk of committing suicide. Patients with suicide risk related psychiatric admissions are also more likely to become rapidly re-hospitalised because of such risk [7].

Management of patients' imminent and/or overt self-harm behaviour is an important and common task in emergency psychiatric inpatient units and effective intervention for self-harm is assumed to represent the best opportunity to prevent future suicidal behaviour [6]. However, up to now, the vast majority of studies on suicidal behaviour after psychiatric hospitalisation have focused on completed suicide.

An interview-based study of patients discharged from psychiatric hospital found that 18% and 5% of the patients were involved in respectively suicide attempt or non-suicidal self-harm within one year post discharge [18]. A national register based study [2] of patients discharged from psychiatric hospitals found that 6.5% had at least one self-harm admission to somatic or psychiatric hospital during the year following discharge. We have not been able to find other studies showing rates of hospital treated self-harm after discharge from psychiatric hospital in unselected

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patient cohorts. However, a study based on English national registers [3] showed some decline in hospital treated self-harm during a given time period after national policy initiatives aimed at reducing suicide risk in the post-discharge period were introduced.

Inconsistencies in the definitions of self-harm [8], a variable use of self-harm codes or failure to use such codes when appropriate [2,13,14] poses limitations to research based on register data. Moreover, register-based studies usually do not provide data on type and severity of self-harm. Hence, there is a need for prospective studies of post discharge self-harm in unselected psychiatric cohorts.

The aim of the present study was to investigate the rate, diagnostic coding, timing, predictors and characteristics of self-harm induced somatic admissions within two years after discharge from psychiatric acute admission in a large, unselected and consecutively admitted cohort. To overcome the above-mentioned problems related to the coding of self-harm, we used predefined definitions and variables on suicidal behaviour (below) and a combination of register linkage and manual data inspection of patient files.

2. Methods

2.1. Setting and patients

The cohort consisted of all patients consecutively admitted to the Psychiatric acute unit (PAU) at Haukeland University Hospital in Bergen, Norway. During the study period, the PAU received 95% of all psychiatric acute admissions in a catchment area with about 400 000 inhabitants covered by the Norwegian universal health care system. The inclusion period lasted from May 1, 2005 to April 30, 2008 and the patients' first admission during the inclusion period was labelled index admission. The observation period started at each patient's discharge from the index admission and lasted to the end of the study, February 28, 2009. The mean length of the observation period was 2.3 years (median 2.4 years, range 0.8–4.2 years). Of the 2842 patients (52% males) admitted to the PAU during the inclusion period, 2827 constituted the study cohort (four patients died during the index admission, and 11 were not discharged from the index admission before the end of the study). Altogether, 234 (8.3%) patients died during the observation period: 43 (1.5%) by suicide and 191 (6.8%) by other causes. Five of those who died by suicide are included in the somatic self-harm admissions as they reached the hospital alive: two died during their first somatic self-harm admission, three died during subsequent somatic self-harm admissions. As self-harm was the subject of this study, the 38 patients who died by suicide outside somatic hospital and the 191 (6.7%) who died by other causes were censored from the analyses at the date of death. Fig. 1 shows an overview of the study design, and socio-demographic data is shown in Table 1.

2.2. Psychiatric treatment during observation period

After the PAU-stay, lasting an average of 4 days (S.D.: 4.6, median: 3.9 days), 61% of the patients were transferred to other hospital wards, whereas 39% were directly discharged and referred for follow-up at psychiatric outpatient clinics, addiction clinics, general practitioners and/or community care. The mean total length of psychiatric hospital stay was 38 days (S.D.: 86, median: 14 days). During the observation period, 1168 (41%) patients had a total of 3284 readmissions (range: 0–34) to the PAU. After discharge from the index stay, 1405 (50%) of the patients received at least one planned psychiatric outpatient consultation. When consultations following index admission and psychiatric readmissions were added, 1792 (63%) patients had had a total of 48 975 planned psychiatric outpatient consultations (mean: 27, median: 16, range: 1–306).

2.3. Definitions

Suicide-related behaviour includes a spectrum of behaviours, from completed suicide to suicide attempt and non-suicidal self-harm [16]. In this paper, self-harm (SH) is defined according to the National Institute for Health and Clinical Excellence's (NICE) guidelines [9] as "intentional self-poisoning or injury, irrespective of the apparent purpose of the act. Self-harm includes poisoning, asphyxiation, cutting, burning and other self-inflicted injuries". Non-suicidal self-harm (NSSH) is defined as self-harm without suicide intent. Suicide attempt (SA) is defined as self-harm in which there is some intent to die, and suicide ideation is defined as thoughts of killing oneself [12]. Suicide risk status is, in this paper, used to describe whether suicide ideation, non-suicidal self-harm or suicide attempt preceded psychiatric admissions.

2.4. Baseline and treatment data

At all admissions to PAU, sociodemographic and treatment-related variables were recorded by research assistants. At intake, trained psychiatric residents assessed whether suicide risk was either the main or a contributing reason for the admission. They coded the suicide risk status according to the following categories: (a) no known suicide risk; (b) suicide ideation without a plan; (c) suicide ideation with a plan; (d) non-suicidal self-harm or (e) suicide attempt. Suicide ideation with and without a plan were collapsed into one category in the present paper. Primary and secondary ICD-10 diagnoses [23] were determined by the psychiatrist or psychologist in charge of the patient's treatment. After discharge from PAU, data on attended and not attended planned psychiatric outpatient consultations were retrieved from the outpatient clinics' administrative databases and the National health care compensations register by using the unique person identifier given to all Norwegian citizens at birth.

2.5. Outcome data

By using the unique person identifier, dates and duration of somatic admissions in the study cohort during the observation period, together with diagnostic data, were retrieved from the patient registries at the somatic hospitals in the catchments area. All available information in patient files was used to determine whether the admission was due to self-harm (yes/possible/no). Available information included ambulance notes, somatic file notes, notes from psychiatric liaison evaluations and psychiatric file notes for patients who were referred from or to psychiatric inpatient admission. The assessments were performed by the first author. A random sample of 70 patient records was then reassessed by an experienced psychiatrist (R.K.), demonstrating a high level of inter-rater reliability with a weighted Kappa of 0.88. Methods of self-harm were classified as poisoning, cutting, hanging/strangulation, jumping from heights, jumping/lying in front of a moving object, crashing of a motor vehicle, smoke/fire/flames, shooting or others.

Lethality of the self-harm methods was scored on a Likert type scale from 0 to 3: 0: "no or minor risk", 1: "moderate risk", 2: "high risk" and 3: "survival unlikely". The physical injury/organ damage caused by the self-harm was scored as 0: "no organ damage at discharge", 1: "organ damage present at discharge" and 2: "dead". Organ damage was defined, for instance, as pathologic results of laboratory tests indicating organ injury (raised s-creatinine for renal damage, raised s-ALT for hepatic damage) or persistent physical injury. Elevation in, for instance, electrolytes or CRP was