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General hospital-treated self-poisoning in England and Australia: Comparison of presentation rates, clinical characteristics and aftercare based on sentinel unit data

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ABSTRACT

Objective: Hospital-treated deliberate self-poisoning (DSP) is common and the existing national monitoring systems are often deficient. Clinical Practice Guidelines (UK and Australia) recommend universal psychosocial assessment within the general hospital as standard care. We compared presentation rates, patient characteristics, psychosocial assessment and aftercare in UK and Australia.
Methods: We used a cross sectional design, for a ten year study of all DSP presentations identified through sentinel units in Oxford, UK (n = 3042) and Newcastle, Australia (n = 3492).
Results: Oxford had higher presentation rates for females (standardised rate ratio 2.4: CI 99% 1.9, 3.2) and males (SRR 2.5: CI 99% 1.7, 3.5). Female to male ratio was 1.6:1, 70% presented after-hours, 95% were admitted to a general hospital and co-ingestion of alcohol occurred in a substantial minority (Oxford 24%, Newcastle 32%). Paracetamol, minor tranquilisers and antidepressants were the commonest drug groups ingested, although the overall pattern differed. Psychosocial assessment rates were high (Oxford 80%, Newcastle 93%). Discharge referral for psychiatric inpatient admission (Oxford 8%, Newcastle 28%), discharge to home (Oxford 80%, Newcastle 70%) and absconding (Oxford 11%, Newcastle 2%) differed between the two units.
Conclusions: Oxford has higher age-standardised rates of DSP than Newcastle, although many other characteristics of patients are similar. Services can provide a high level of assessment as recommended in clinical guidelines. There is some variation in after-care. Sentinel service monitoring routine care of DSP patients can provide valuable comparisons between countries.

Introduction

Non-fatal self-harm (variously defined) is common, although the reported rates vary widely. Community 12 month estimates for suicide attempt are: 300 per 100,000 in developed and 400 per 100,000 in developing countries [1]. 12 month estimates of hospital-treated or community parasuicide (deliberate, nonfatal self-injury or self-poisoning) are 2.6 to 1100, and lifetime rates 720 to 5930 per 100,000 [2]. General hospital-treated self-harm (SH) is common and costly, and deliberate self-poisoning (DSP) is the most common variant [3,4]. Hospital-treated SH is associated with increased repetition of SH [5], suicide [6], and natural cause mortality [7,8].

However, there are serious limitations to our understanding of rates, clinical characteristics and service provision for SH. Systematic reviews [5] and multicentre studies [9] indicate marked heterogeneity in patient populations, service use and service delivery. Comparison of service use and patient characteristics between countries usually reports on combined SH populations (DSP, self-cutting and other SH) despite the known differences for these forms of SH [10]. The large cross-country comparisons of clinical [9] and community samples [1] identify only broad demographic and limited clinical correlates of SH, are restricted to limited time periods and lack the specific service information to provide context for the reported rates. National data sources for hospital-treated SH are usually inadequate [4], are considered to produce serious underestimates of rates [11] and cannot provide detailed clinical and service provision data.

Clinical Practice Guidelines in the UK [12] and Australasia [13], have recommended the organisation of clinical services for these patients, in order to provide adequate triage, medical and mental health management and after-care; including the availability of integrated physical and mental health care 24 h per day, since most presentations are outside office hours.

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The Oxford Monitoring System for Attempted Suicide in the UK and the Hunter Area Toxicology Service (HATS) in Newcastle, Australia have been examples of continuously active "sentinel" units, providing clinical services for known regional referral populations, whilst maintaining databases populated with prospectively collected standardised toxicological and psychiatric data representing all hospital-treated SH cases; and reporting on service delivery and clinical outcomes [14,15]. No direct comparisons of rates of presentation, clinical characteristics, or service use in the UK and Australian hospital-treated DSP populations have been reported previously. Understanding the similarities and differences of these clinical populations and the services provided would provide the information for planning for service needs, as well as providing a novel comparison of the delivery of psychiatric care in general hospitals for this important patient group.

We aimed to compare rates of hospital-treated DSP, patient characteristics, psychosocial assessment and after care; from two sentinel units representing socio-economically similar but geographically distant English-speaking countries.

Materials and methods

Setting

The study is set in Oxford, UK and Newcastle, Australia. National socio-demographic variables including age, gender ratio and marital status are similar for England and Wales and Australia [16,17]. The cities of Oxford and Newcastle are similar in gender proportion (51% female in both) and are served by major universities (two in Oxford and one in Newcastle), which are important sources of employment in each city. Oxford is geographically smaller (Oxford city 46 km^2 and Oxfordshire 1684 km^2; Newcastle area 4042 km^2 and the remainder of the Hunter region 31,393 km^2). Oxford (20.7% of those aged 16–74 years) has a proportionately larger student population than Newcastle (13% of those aged over 15 years), fewer married couple households (Oxford 35%, Newcastle 51%) and a higher proportion aged 15–24 (Oxford 24%, Newcastle 13%). Oxford also has a greater proportion of people born outside the UK than England and Wales' average in 2001 (19% vs. 9%), a pattern reversed in Newcastle, which is lower than the Australian national average (10% vs. 22%).

Study participants

Participants were all patients (either treated in the emergency department alone or formally admitted to a general hospital ward bed) with hospital-treated DSP at the John Radcliffe Hospital in Oxford, UK and Calvary Mater Newcastle, Australia, between 1997 and 2006. Participants were also required to be a resident in the primary city referral areas of each unit (Oxford City and Newcastle, which included the local government areas of Newcastle, Port Stephens and Lake Macquarie). Both the Oxford unit and the Newcastle unit also treat patients from surrounding areas (the remainder of Oxfordshire and the balance of the Hunter Valley local government areas), although these patients are also potentially serviced by other hospitals. Patients from these surrounding areas were excluded from all analyses in order to provide an epidemiological study of the primary referral areas for each unit. We also excluded other forms of SH (unless concurrent with a DSP event), especially self-injury or self-cutting, because these populations have different characteristics than the much more numerous DSP population; and because the Newcastle unit does not offer a regional service for these patients who may present for care at other hospitals.

Study design

We used a cross sectional study design with data drawn from the Oxford Monitoring System for Attempted Suicide and the HATS Paracelsus databases, which have both been previously described in detail [15,18]. In this paper the index DSP episode was the first contact recorded in the 10-year time period.

The study was approved by the local Ethics Committee at both centres.

Measures and assessment procedures

In Oxford, the majority of patients received a psychosocial assessment by psychiatric clinicians. Patients not receiving an assessment were identified through scrutiny of emergency department and medical records, from which more limited data were extracted by research clerks. In Newcastle, all DSP patients are admitted by the Department of Clinical Toxicology and have a psychosocial assessment by psychiatric clinicians. Demographic, clinical and hospital management data on each episode were collected by clinicians using standardised forms at both units. Data from these assessments were entered into an electronic database by trained data entry staff blinded to any study hypotheses.

Study variables

Initially all episodes of DSP were identified (and used for the calculation of age-standardised rates); however the other analyses were restricted to the first episode of DSP in the period. We extracted key variables, which were defined in a similar way at Oxford and Newcastle.

Participant characteristics were: age, sex, marital status, employment status, previous psychiatric treatment, previous self-harm (hospital-treated or other types), current drug misuse and method of DSP (alone vs. DSP with SH). Service-related characteristics were: admission to a general hospital or clinical decision unit bed, time of presentation, professional completing the psychosocial assessment, discharge destination and after-care services. Toxicological characteristics were: alcohol co-ingestion with DSP and poisoning agent (major drug groups) used in the DSP episode. The exposure to poisoning agents was determined by the regular clinical assessment, which included patient history, empty packaging retrieved by ambulance officers or family and clinical symptoms (toxidromes) exhibited.

Statistical analyses

Analyses were completed using IBM SPSS Statistics 19. For the comparison of age-standardised rates, we set the criterion for statistical significance a priori at $p < 0.01$, which we believed was an appropriately conservative level for these four comparisons. For the subsequent comparisons of demographic, service and toxicological variables, we set the criterion for statistical significance a priori at $p < 0.001$, because of the large sample size and multiple comparisons.

We firstly calculated sex-specific age-standardised rates. We calculated age-specific person rates for a typical year for age ranges of 10–19, 20–34 and over 35 in males and females separately. For each age and sex stratum: the numerator was the total number of unique individuals in a calendar year over the 10 year study period divided by 10 to represent the number of individuals presenting in a typical year; the denominator was the 2002 population of Oxford City and Newcastle. We then calculated the sex-specific, age-standardised rates for each site by weighting the age-specific rates by the European standard population sizes [19]. In addition to these rates for individuals per 100,000 of population in a typical year, we calculated the rate of events per 100,000 in the population in the same way. Standardised rate ratios with 99% Confidence Intervals (SRR: CI 99%) were calculated as a ratio of the age-standardised rates of Oxford over Newcastle.

Participant, toxicological and service-related characteristics were compared between Oxford and Newcastle using *t*-test and Chi-square tests. Where there were substantial unknown data for a given variable we made a combined variable of "no/never/none or unknown" and we also ran sensitivity analyses restricted to the population with recorded data (not reported in detail).