Emergency Department management and referral of self-harm patients

Riza Gultekin
Sixth Year Medicine (Undergraduate)
University of New South Wales

Riza Gultekin is a final year medical student at the University of New South Wales. This article was inspired by his interest in emergency medicine. He plans to specialise in trauma surgery or critical care.

Aim: To outline the socio-demographic characteristics, the means of arrival, management and referral pathways for mental health presentations to the Emergency Department (ED) where the main reason for presentation is self-harm. **Methods:** A retrospective study conducted in a metropolitan hospital in Sydney. Sampled data were collected from mental health presentations to the ED for the month of May in 2005, 2006 and 2007. The data collected included patient demographics as well as management, referral and follow-up outcomes. **Results:** There were 606 patients in the sampled data (99.3% of all mental health presentations). The gender distribution of the patient cohort was 63:37 (male n=380 and female n=226) and the average age was 36 ± 16.7 years. Two hundred and three (33.5%) patients had self-harmed and 403 (66.5%) had other mental health problems. Self-harm patients' mode of arrival included ambulance (38.4%), self-presentations (36.5%), police (14%), and other. Self-harmers were mainly admitted to Psychiatric Emergency Care Centre (PECC) (28%) or discharged home (51.7%). More than one third (35.5%) of self-harm patients did not receive adequate follow-up. **Conclusion:** Important variations between self-harm patients and other mental health patients were identified in their management and referral outcomes from the ED. Clinicians need to ensure that optimal patient care is provided through appropriate follow-up of every self-harm patient post-discharge from hospital.

Introduction

Mental Health presentations to Emergency Departments (EDs) have been increasing in Australia over the last five years. [1] Mental Health presentations were defined as patients who received a psychiatric review by the emergency mental health team. In New South Wales (NSW), up to 10% of patients have stated a psychiatric complaint on presentation to the ED. [2] Self-harm (SH) is a common psychiatric presentation to the ED, especially in young people. [3]

Decision-making processes involved in the management and referral of SH patients; particularly in those with strong suicidal intent, are complex for the ED medical staff. [4] The psychiatric assessment and the consequent case referral decisions have major influences on the physical, physiological and financial outcomes of the patients, as well as on their families and the community. [5] As a result, it is crucial that decision-making processes used by the medical staff are optimal and that patients are managed appropriately according to their condition and acuity.

The purpose of this study is to outline the socio-demographic characteristics of mental health presentations to the ED and to identify the outcomes in management and referral of these presentations. The study compared the self-harm patients with other mental health presentations to the emergency department (others) and evaluated whether self-harmers were more frequently hospitalised compared with other mental health presentations.

Methods

This was a retrospective study undertaken using data collected from the ED at St Vincent's Hospital in Sydney, Australia. The hospital's large catchment area of the inner city of Sydney includes a large proportion of homeless people, residents with mental health illnesses as well as those affected by psychoactive and illegal drugs. This project was

approved by Human Research Ethics Advisory (HREA) Panels of the University of New South Wales.

The study sample includes all mental health presentations to the ED for the month of May in 2005, 2006 and 2007. In order to exclude the possible confounding factor of time of year and the likely variations in presentation characteristics associated with seasonal variation, it was decided to only sample data for the same month of each year for three years. This allowed for a large sample size. For practical reasons it was not feasible to examine all presentations for the entire three years, although this would have been ideal.

These presentations were systematically documented using the emergency department information system (EDIS™, iSOFT, Banbury, UK) as well as the medical records of the patient. The data were extracted from the medical records, coded and entered into the SPSS (SPSS Inc., Chicago, US) database. The database included patient demographics as well as information relating to management and discharge.

Four patients (n=4) were excluded due to incomplete medical records. Analysis was performed using the SPSS version 16.0 statistical analysis program. [6] Student's T-test and Pearson's Chi-Square test were used for continuous and categorical variables respectively to compare the variations between the self-harm and other mental health presentations (others) group.

Patients present to the emergency department through self-referral, referral by medical practitioners or via involuntary admission by the community mental health team or the police under a Section 22 of the Mental Health Act (2007) of New South Wales. [7] An involuntary admission to the ED requires an assessment of the patient by a doctor. From there the patient may either be released if they are deemed neither a mentally ill nor mentally disordered person, or they may subsequently be seen by another doctor if they are found to have a mental health issue.

Following examination in the ED by the psychiatric resident and discussion with the consultant, a decision is made on whether the referral pathway of the patient should be for discharge or for brief stay (24-48 hours) in the psychiatric emergency care centre (PECC), or for longer admission to an inpatient mental health centre.

The criteria for adequate follow-up consist of a documented referral

to an appropriate service following the initial presentation to ED. This may include the local or other community mental health team, drug and alcohol service, the Green Card Clinic (a specialised referral service for SH patients), the patient's General Practitioner (GP) or further in-hospital assessment with Consultation Liaison Psychiatry (CLP).

The self-harm (SH) group used in this study was defined in accordance with the WHO/EURO multi-centre study on parasuicide, in which self-harm is described as "an act with non-fatal outcome, in which an individual deliberately initiates a non-habitual behaviour that, without intervention from others, will cause self-harm, or deliberately ingests a substance in excess of the prescribed or generally recognised therapeutic dosage, and which is aimed at realising changes which the subject desired via the actual or expressed physical consequences." [8]

Results

All mental health presentations

The study population comprised 610 patients and of these four were excluded due to missing data. From the complete data available for 606 patients, the majority of the presentations were male with 380 men (62.7%) in contrast to 226 women (37.3%). The mean ± standard deviation (SD) age of the patients was 36.8 ± 16.7 years.

Of all the visits to the emergency department, 373 of the patients (61.6%) had a triage category of three. The mean length of stay (LOS) in the department was 531.4 minutes. The most frequent mode of arrival was self-presentation (39.3%) with ambulance service (30.5%) being the second most common.

The use of a Schedule 2 of the Mental Health Act (2007) for involuntary admission to the emergency department for assessment was necessary for 260 patients (42.9%) and the rest (57.1%) agreed to be assessed voluntarily. Of all mental health presentations, 61.7% required an assessment by a mental health practitioner, while the remaining patients (38.3%) only required a medical assessment by the resident.

Overall, 16.2% of all mental health presentations were admitted to the psychiatric emergency care centre (PECC), 7.9% to the in-patient mental health centre (Caritas), 5.9% to the medical ward and 2.1% to other psychiatric units. Some patients (5.6%) did not wait (DNW) for assessment and others (4.1%) discharged against medical advice (DAMA).

In terms of living arrangements, 26% of the patients were homeless which included both refuge accommodation and those living on the street. The most common pathway of referral for the majority of the patients was home (52.8%).

Almost half of (45.9%) the study group did not receive adequate follow-up after their presentation to the emergency department. Of those who received follow-up, 28% received further care from consultation liaison psychiatry, while others (10.1%) were referred to the local community mental health team.

Comparison of all mental health presentations: Self-harm vs. other

Of the total sample group of 606 patients, 203 (33.5%) had self-harmed during our study and the rest (403 patients; 66.5%) visited the emergency department for other mental health issues. There were more male presentations in both the SH group (57.1% males vs. 42.9% females) and the non-SH group (65.5% males vs. 34.5% females, where χ^2 =4.04, df= l, p= 0.05) as shown in Table 1.

For triage categories, there were a greater proportion of patients triaged as category 3 and above in the self-harm patients compared to non-self-harm group (91.7% vs. 71% respectively; χ^2 =36.50, df= 4, p<0.001) as shown in Table 1. Those patients who self-harmed also had more than twice the rate of category 1 presentations; that is, where immediate assessment was required; compared with non-self-harming patients (5.4% self-harm vs. 2.5% non-self-harm).

There was a significant variation in the average length of stay (LOS) in the emergency department between the two groups. Patients who self-harmed remained in the ED for an average of 244.1 minutes longer than those who did not. The mean LOS for the SH group was 693.7 minutes, compared with 449.6 minutes in the non-SH group (SD 675.5; t= -3.42, p<0.005).

Table 1. *Gender and Triage Category comparisons between self-harm (SH) and other mental health presentations to the emergency department.*

		SH (n=203) (%)	Other (n=403) (%)	χ^2	df	p
Gender	Male	116 (57.1)	264 (65.5)	4.04	1	0.05
	Female	87 (42.9)	139 (34.5)			
Triage Category	≥ 3	186 (91.7)	286 (71.0)	36.50	4	< 0.001
	4 & 5	17 (8.3)	117 (29.0)			

There were minor differences in the mode of arrival to the emergency department between the two groups. Arrivals via ambulance were the exception, with a higher rate of ambulance presentation in those who self-harmed than those who did not (38.4% vs. 26.6%; χ^2 =9.70, df= 4, p<0.05).

Self-harm patients were more likely to be assessed by a mental health practitioner than those who did not self-harm. Eighty five per cent of those who self-harmed required a mental health assessment, whereas only 54% of non-self-harmers were seen by a mental health practitioner (χ^2 =42.64, df= 4, p<0.001). Significant differences were also found with regard to the use of Schedule 2 of the Mental Health Act (2007). Specifically, rates of involuntary admission to the ED were higher amongst self-harmers than non-self-harmers (58.1% vs. 35.2%; χ^2 =28.81, df= 1, p<0.001).

Regarding living arrangements, no significant differences were found between the two groups, as shown in Table 2.

There was some variability in the referral pathways of the two groups, with significant differences in the proportions admitted to PECC, the inpatient mental health centre (Caritas), the medical ward and those who left before treatment commenced (see Table 2). By comparison, SH patients were more likely to be admitted to PECC (23.2% vs. 12.7%) and to the medical ward (8.4% vs. 4.7%; p= 0.001) than non-SH patients. However, a larger proportion of non-SH patients were transferred to Caritas (9.7% vs. 4.4%). Similarly, non-SH patients were more likely not to wait for treatment (7.4% vs. 2.0%; p= 0.001; χ^2 =25.82, df= 8). Other referral outcomes were relatively similar between the two groups (see Table 2).

Thirty five and a half per cent of SH patients and 51.1% of non-SH patients did not receive adequate follow-up from ED (p<0.001). Non-SH patients also had twice the rate of referrals to the Drug & Alcohol service (4.2% vs. 2.0%; p<0.001). Other notable differences between the two groups included the fact that self-harmers were more likely to be referred to Consultation Liaison Psychiatry (33.0% vs. 25.8%; p<0.001), receive better follow-up treatment through the Green Card Clinic (3.9% vs. 0.5%; p<0.001) and to have greater rates of referrals to other community mental health teams (6.9% vs. 2.2%; p<0.001; χ^2 =29.67, df= 6).

Discussion

There were significantly more male than female mental health presentations. This figure was also proportionally higher in the non-SH group where there were almost twice as many males as females. Even though Schnyder and Valach [9] have demonstrated contrary results, it is vital to recognise that the uneven male-to-female ratio of self-harm patients may be due to the fact that the hospital's location in the inner city of Sydney includes a high number of homeless males as well as a large percentage of homosexual men.

Mental health patient triage codes reflected a higher urgency distribution pattern in self-harm patients compared with that of other

Table 2. *Comparison of consultation variables, referral pathway and follow-up outcomes between self-harm (SH) and other mental health presentations to the emergency department Figures are numbers (%) of consultations.*

		SH (n=203) (%)	Other (n=403) (%)	χ^2	df	p
Mode of Arrival	Self-presented	74 (36.5)	164 (40.7)	9.70	4	0.046
	Ambulance	78 (38.4)	107 (26.6)			
	Police	30 (14.8)	77 (19.1)			
	Police & Ambulance	9 (4.4)	20 (5.0)			
	Other	12 (5.9)	35 (8.7)			
Use of Mental Health Act (2007)	Yes	118 (58.1)	142 (35.2)	28.88	1	<0.001
	No	85 (41.9)	261 (64.8)			
Seen by Mental Health Practitioner	Yes	162 (79.8)	212 (52.6)	42.26	1	<0.001
	No	41 (20.2)	191 (47.4)			
Living Arrangements	Owner/renter	132 (65.0)	242 (60.0)	5.38	4	0.251
	Homeless - refuge	33 (16.3)	67 (16.6)			
	Homeless - street	20 (9.9)	40 (9.9)			
	Backpack/hostel/hotel	6 (3.0)	8 (2.0)			
	Other/Unknown	12 (5.9)	46 (11.4)			
Referral Pathway	Home	105 (51.7)	215 (53.3)	25.82	8	0.001
	PECC	47 (23.2)	51 (12.7)			
	Caritas in-patient MH centre	9 (4.4)	39 (9.7)			
	Other psychiatry unit	2 (2.0)	9 (2.2)			
	Medical ward	17 (8.4)	19 (4.7)			
	DAMA	6 (3.0)	19 (4.7)			
	DNW	4 (2.0)	30 (7.4)			
	Died in ED	0 (0.0)	1 (0.2)			
	Other	11 (5.4)	20 (5.0)			
Follow-up	None/Unknown	72 (35.5)	206 (51.1)	29.67	6	<0.001
	Green Card Clinic	8 (3.9)	2 (0.5)			
	Local Community MH Team	23 (11.3)	38 (9.4)			
	Other Community MH Team	14 (6.9)	9 (2.2)			
	Drug & Alcohol Service	4 (2.0)	17 (4.2)			
	General Practitioner	15 (7.4)	27 (6.7)			
	Consultation Liaison Psychiatry	67 (33.0)	104 (25.8)			

mental health patients in ED. In our study, those who self-harmed were more likely to be triaged as category 3 or above and also had double the rate of category 1 presentations. This was consistent with the current guidelines on management of SH which state that a triage category of three or higher should be assigned if acute SH is suspected. [10]

The average length of stay (LOS) was significantly longer for self-harm than for non-self-harm patients who presented to the ED. The possible cause for the extended LOS for the self-harm group may be due to the limited number of mental health beds particularly in the PECC unit, considering that the majority of these patients were admitted to the PECC. Since SH involves physical injuries and overdose, this may further delay psychiatric assessments, resulting in a greater LOS in the ED.

In our analysis, we have found that the majority of the self-harm patients presented to the ED via ambulance, whereas the majority of non-self-harm patients self-presented. Similar results have been reported in other studies. [11,12] This high dependence on ambulance services for transport to the ED may place an additional burden on, and consume scarce resources of, the ambulance service.

Our findings show that psychiatric emergencies related to self-harm more frequently require assessment by mental health practitioners than those not related to self-harm. At the same time, self-harm patients have a higher rate of involuntary admission to the ED compared with other mental health patients. Over-representation of self-harmers in the group of patients involuntary admitted to hospital has also been demonstrated in other literature. [13-16] In our study, a 58.1% involuntary admission rate within the self-harm group was found. This figure was comparable to those reported in other research, which varied from 52% to 78%. [13,14]

Somewhat unexpectedly, living arrangements of both the SH and non-SH groups did not differ significantly. It was more surprising to note that in both groups the majority (65.0% in SH and 60% in non-SH) of the patients reported to live in sheltered housing; rates which are notably disproportionate to those who reported being homeless (26.2% in SH and 26.5% in non-SH). Based on past evidence, we had expected to find more self-harm patients; as well as patients with mental health presentations in general; to be homeless. [9]

The preferred referral pathway following ED assessment of patients was their usual place of residence, which was home for 51.7% of SH patients and 53.3% of non-SH patients. The most significant differences in terms of referral pathways between the self-harm group and the non-self-harm group were that a considerably higher proportion of the self-harm patients were admitted to the PECC. The aim of the PECC is

to provide medical and psychiatric care to those who experience an acute mental health crisis. The on-site availability of a 24-hours-a-day PECC at our hospital may have contributed to an increased use of this facility.

However, it may also be argued that self-harmers are typically 'acute short-term' profile patients who often only require a brief (24-48 hours) intervention via PECC to acutely manage their crisis, whereas other mental health patients may have more of a 'chronic-long-term' profile that will need longer admission within an inpatient mental health facility (Caritas). In support of this idea, a larger proportion (9.7% vs. 4.4%) of non-SH patients were transferred to the Caritas inpatient unit.

Following ED assessment a higher proportion of both SH and non-SH patients failed to receive appropriate follow-up. However, this was considerably more prominent in the non-SH group in which 51.1% of patients (compared with 35.5% in SH) had no follow-up after their visit to the ED. Suicidal behaviour including attempts, threats and ideation is a key indicator of potential suicide in the future. The first two years following the initial presentation to ED for suicidal behaviour is usually the time of most increased risk of suicide. [17] With this evidence in mind, it was particularly concerning to find such low rates of follow-up of mental health patients in our study.

Furthermore, self-harm was significantly associated with clinicians' decision to admit the patient. It was found that 33.0% of SH patients were admitted from the ED in contrast to 25.8% of other mental health patients. Higher rates of hospitalisation of mental health patients have been reported in other studies. [1,9,18] It has also been shown that when suicide is the presenting problem in ED, the clinician's notion that the patient was suicidal was strongly linked with the decision to admit, [19] which further supports our findings.

It is valuable to consider that the availability of inpatient services or outpatient alternatives often varies for each hospital and that these may influence the referral pathway decision. For instance, a complicating factor in our study was that PECC was only established in 2006; hence in the first mental health referrals from May in 2005, PECC intervention for self-harm patients was not available.

Clinicians' personal judgments, as well as the dissimilarities between patient cases, may also lead to inconsistent results since there may be differing views from one clinician to another in the assessment of the patient's exact level of suicide risk. These crucial factors may also have an important impact on referral pathways.

In order to develop a closer understanding of the differences in decision making amongst clinicians, future research needs to analyse the reasons behind the use of particular variables more than others in the management and referral of patients from emergency psychiatry. For example, other factors not used in this study such as education, employment, patients' referral pathway preferences, capacity to communicate, family support structure (i.e. presence of next of kin) and having a long-term general practitioner may also be of significance. Another significant outcome that could be measured in further studies is compliance of patients with follow-up.

Similar research methodology for studies should also be used so that clinicians from different hospitals can accurately compare the mental health presentations between the hospitals. Furthermore, dissimilarities between hospitals insofar as location, period of data sampling, population sample, availability of beds and services are concerned, need to be considered in future studies.

Conclusion

We may conclude that our typical self-harm patient in the ED was more likely to be a male, to present via ambulance with acute SH, to be triaged at category 3 or above and to have a longer stay in ED than other mental health patients. The typical patient was also more likely to be seen by a mental health practitioner, to be admitted involuntarily to PECC, to be discharged to their home or usual residence and to receive no further follow-up.

The most important recommendation that can be made from this study is that clinicians must ensure that their level of care does not end with the discharge of the patient, but that appropriate follow-up arrangements are made to ensure continuity of care within the community, as well as for the well-being and safety of self-harm patients in the long-term.

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Conflict of interest

None declared.

Correspondence

R Gultekin: riza.gultekin@student.unsw.edu.au

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