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Characteristics and process outcomes of patients presenting to an Australian emergency department for mental health and non-mental health diagnoses

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ABSTRACT

Objectives: To describe and compare characteristics and process outcomes of patient presentations made to a public hospital emergency department (ED) for mental health (MH) and non-mental health (NMH) diagnoses.
Methods: This was a descriptive, retrospective cross-sectional study of patients who presented to an Australian hospital ED between September 2011 and September 2012. Demographic, clinical and outcomes data were extracted from the ED information system. MH presentations were compared to NMH presentations.
Results: Nearly 5% of the 66,678 ED presentations were classified as MH. Compared to the NMH group, a lower proportion in the MH group were seen by a physician within the recommended time frame (39.1% vs. 42.1%, $p < 0.001$); had a higher admission rate (36.6% vs. 20.1%, $p < 0.001$); shorter ED Length of Stay (LoS) if admitted (369 vs. 490 min, $p < 0.001$) and longer ED LoS if not admitted (241 vs. 187 min, $p < 0.001$).
Conclusion: Time constraints in the busy ED environment are a potential barrier to the delivery of care for all patients who have the right to timely access to health care. Targeted improvements at the front end of the ED system and output processes between ED, community and inpatient admission are recommended for this site.

Introduction

Population growth, an ageing population and a rising number of people who experience chronic diseases (Caughey et al., 2008) have impacted the demand for emergency department (ED) services. Similar to USA (Slade et al., 2010), mental health (MH) related ED presentations to Australian public hospitals have increased from an estimated 224,135 in 2005 to 236,654 in 2010; i.e. an average of 3.6% per annum (Australian Institute of Health and Welfare, Mental health [AIHW-MH], 2012). Fry and Brunero (2004) suggested that a continual rise in MH presentations was likely due to decreases in fee subsidised general practitioner health services and a reduction of inpatient MH beds. Because the ED is often the first point of contact for patients with MH illness, appropriate, timely care is essential (Marynowski Traczyk and Broadbent, 2011), however the delivery of such care can be challenging in a busy, and often overcrowded environment (Nicholls et al., 2011).

During overcrowding there is an increased workload for ED health professionals and a heightened noise level that can negatively affect communication of information between health care personnel, explanation and empathy toward ED patients (Pham et al., 2011). Previous research indicates that patients who present to the ED with MH illness are susceptible to receiving inequitable care associated with overcrowding (Hwang et al., 2011). Additionally, there may be undiagnosed co-morbid medical conditions for this group and an unconscious bias that leads to a longer wait for assessment and subsequent ED length of stay (LoS) when compared to non-mental health (NMH) presentations (Atzema et al., 2011; Mai et al., 2011). Fry and Brunero (2004) found that patients presenting with MH illness (comprising 2.3% of all ED presentations) had on average, higher triage scores than the NMH population and over half (58%) required hospital admission.

In order to enhance understanding of ED service delivery, this study aimed to ascertain any differences and similarities in characteristics and process outcomes between MH and

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NMH presentations in a busy public hospital ED in Queensland, Australia.

Methods

Setting and participants

This was a descriptive, retrospective, cross-sectional study. Patient presentations to one Australian ED between 5th September 2011 and 4th September 2012 were included. The study site was a 419 bed public teaching hospital, servicing a culturally diverse population of around 300,000. There were 46 inpatient beds in three MH wards, allocated for adults and adolescents with acute MH illness. The ED is one of the busiest in Queensland, attending to 65,584 paediatric and adult patients in the 2011/12 fiscal year.

Data collection

Data were provided by the hospital's Decision Support Services Team and extracted from the Emergency Department Information System (EDIS). Variables used were based on previous research and related literature (Asplin et al., 2003; Fry and Brunero, 2004; Sibbritt et al., 2006; Bernstein et al., 2009) and included information regarding patient demographics (age, gender), characteristics of ED presentation (day of week, time of day, ATS, mode of transport, diagnosis code) and process outcomes. The ATS is an indicator of urgency and acuity where a number corresponds to the recommended timeframe in which a patient should be assessed by a doctor (Australian Government [Aus Gov], 2013). Patients who presented to the ED with a MH illness were given a score that aligned with the ATS using the Mental Health Triage Tool (MHTT) (see Table 1). The MHTT enables the triage nurse to assess observed behaviours and reported distress to determine a triage score and subsequent recommended time to medical assessment.

Outcomes used were defined as follows:

(i) Time to see treating clinician: waiting time from arrival to time seen by treating clinician (EDIS, 2012).
(ii) ED LoS: total waiting time from arrival to departure from ED (EDIS, 2012).
(iii) Discharge disposition from ED: place of destination following completion of ED episode of care (home, admitted, transferred to other hospital, died) (EDIS, 2012).

The International Statistical Classification of Disease and Related Health Problems – 10th Revision (ICD 10) are internationally recognised diagnostic codes that account for diagnoses, description of symptoms and cause of death (ICD 10, 2010). In Queensland, all patients who present to the ED are assigned an ICD 10 code by the treating physician or nurse. The codes were entered prospectively into the EDIS database and were used in this study to classify patient presentations into one of two groups: MH or NMH. Table 2 shows the 26 EDIS ICD 10 codes that are associated with mental health diagnoses. All other diagnostic codes were classified as NMH.

Approval to conduct the study was obtained from the Hospital and Health Service Human Research Ethics Committee. Data were stored electronically on the government health service password protected computer system.

Data analysis

Data were analysed using SPSS 20.0 (2011). Descriptive statistics (median, interquartile range [IQR], frequencies and percentages) were used to analyse patient demographics, ED characteristics and process outcomes. Median and IQR were reported in this study due to the skewed distribution of the data. Inferential statistics (chi-square and Mann–Whitney U test) were used to compare MH and NMH groups. A p-value of <0.05 was considered statistically significant.

Results

Over the 12 month study period, there were 66,678 ED presentations. Of those, 4.6% (n = 3038) were diagnosed with a MH illness (Fig. 1). All patient presentations were included in the study.

Characteristics of ED patient presentations are shown in Table 3. MH and NMH groups differed significantly for all demographic and clinical characteristics (p < 0.001). Compared to the NMH group, the median age of the MH group was slightly older (MH: Md 31 yrs, IQR: 21–42 vs. NMH: Md 30 yrs, IQR: 16–51) and comprised a higher proportion of females (MH: 54%, vs. NMH: 51%). Higher proportions of those in the MH group compared to the NMH group presented to the ED via ambulance or police and were more often assigned an ATS 3. Weekday and evening (16:00–23:59) presentations were more frequent for those in the MH group.

Outcomes of the ED patient presentations are shown in Table 4. MH and NMH groups differed significantly for all outcome measures (p < 0.001) except for patients transferred to another facility (p = 0.06). Patients with MH diagnoses were less frequently seen within the recommended ATS timeframe (MH: 39% vs. NMH: 42%), and had a higher proportion of hospital admissions (MH: 37% vs. NMH 20%). A lower proportion of those in the MH group had the ED care episode completed within 4 h (MH: 43% vs. NMH: 54%). Total ED LoS was shorter (by about 17 min) for those in the MH group. When this outcome (ED LoS) was separated for those admitted and not admitted; those in the MH group requiring hospital admission had a shorter median ED LoS (by around 21 min) than the NMH patients. For those discharged from ED, median ED LoS was longer for the MH group (by around 54 min).

Discussion

This study adds to the literature regarding care delivery in terms of characteristics and outcomes of patients who present to the ED for assessment of MH illness (Fry and Brunero, 2004; Shafiei et al., 2011; Atzema et al., 2012; Weiss et al., 2012). The mainstreaming of MH services with the Australian medical system has changed the way patients and their carers access services, with many presenting to hospital EDs for MH conditions (Dept of Health and Aging, 2010).

Characteristics between MH and NMH groups

Patients who presented to the ED and were diagnosed with a MH illness differed from those diagnosed with a NMH illness in terms of demographic and clinical features.

Fewer children (0–15 years) presented with MH conditions compared to the NMH group (7% vs. 25%), which is consistent with national statistics (MH: 4% vs. NMH 23%) (AIHW-MH, 2012). More patients in the MH group were between 16 and 39 years (MH: 63% vs. NMH: 38%) and fewer were aged 65 years and older (MH: 5% vs. NMH: 13%). These proportions were similar to the national MH statistics with 64% aged between 15 and 44 years (NMH: 40%) and 8% >65 years (NMH: 16%) (AIHW-MH, 2012).

The MH group in our study were triaged using the MHTT and the NMH group were triaged using the standard ATS (Table 1). Similar to other studies (Fry and Brunero, 2004; Knott et al., 2007; Atzema et al., 2012), the MH group received higher acuity triage