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Characteristics and clinical outcomes for mental health patients admitted to a behavioural assessment unit: implications for model of care and practice

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AUTHOR STATEMENT

All the authors listed meet the authorship criteria according to the latest guideline of the International Committee of Medical Journal Editors. Marie Gerdtz (MG), George Braitberg (GB) and Peter Kelly (PK) conceived the study. MG, Celene Yap (CY) and Catherine (CD) designed the study and contributed to the ethics committee application. MG obtained the research funding. CD, MG and CY prepared the study packs. MG, JK, AI and CD supervised the study overall. CD and Violet Mukaro (VM) undertook the data analysis. All authors contributed to interpretation of the results, drafting and revision of the manuscript and take responsibility for the paper.

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The study received financial support from The Nurses Board of Victoria Legacy Limited Mona Menzies Fellowship (2017).

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DISCLOSURE STATEMENT

No relevant disclosures

CONFLICT OF INTEREST DISCLOSURE

Point-of-care saliva tests used in this study were Securetec Drug Wipe® Twin these were purchased from Pathtech Pty Ltd. The vendor provided education to staff on how to use the product but was not involved in the study design, data collection, management of the project, data analysis, interpretation of data, or decision to submit an article for publication

ETHICS

The Human Research Ethics Committee (HREC) at the study site reviewed and approved the research protocol in line with the ethical standards outlined by the Australian National Statement on Ethical Conduct in Human Research. All eligible participants who were conscious were provided with a verbal explanation of the study. Saliva samples were collected only with their verbal consent. A waiver of informed consent was approved. This was granted by the HREC on the basis that screening for illicit substances was already part of routine assessment by emergency mental health clinicians approved by the organisation.

Word count

Abstract- 221

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Abstract

Behavioural assessment units (BAU) have been established in emergency departments (EDs) to provide short-term observation, treatment and care to people experiencing acute behavioural disturbance.

A prospective observational study was conducted in a cohort of adult patients admitted to one BAU located within an ED (July to December 2017) to compare clinical characteristics, treatment outcomes, and use of restrictive interventions for those who received a specialist mental health (MH) assessment with those who did not.

Of the 457 patients, 61.5% received a specialist MH assessment. This group had a lower acuity (Australasian Triage Score 10.4 %; CI 0.2- 2.0% versus 13.6%; CI 9.3- 19.5 %); more arrived with police (28.8 %; CI 23.8- 34.3 versus 5.1 %; CI 2.7- 9.4%) and were subjected to restrictive interventions while in the BAU. Security responses for unarmed threat (code grey) were higher, (10.9 %; CI 7.8- 15.0% versus 4.4%; CI 2.3- 8.5%) as was the use of chemical restraint (4.2 %; CI 2.4- 7.2 versus 0.0 % CI 0.0 – 2.1%). Those requiring specialist MH assessment had a longer length of stay (12.7 versus 5.2 hours).

Further development of the BAU model of care must include targeted, evidence-based strategies to minimise the use of restrictive interventions and ensure timely access to acute mental health services.

Keywords: behavioural emergency, mental health, patient flow, short-stay, length of stay, outcomes

Introduction

In Australia, as in many other parts of the world, emergency departments (EDs) represent a frontline point of access to mental health service for people who are experiencing acute behavioural problems as a result of psycho-social crisis, mental illness and/or drug and alcohol use (Productivity Commission Draft Report, 2019). In 2017-2018, there were 286,985 mental health presentations to Australian EDs accounting for 3.6% of all ED presentations nationally (Australian Institute of Health and Welfare, 2019). A meta-analysis that included studies from six countries (United Kingdom, Australia, Ireland, Norway, Spain, Canada and Portugal) found that mental or behavioural health disorders accounted for 4% of ED attendances (Barratt et al., 2016). Presentations rates in the United States have previously been shown to be as high as 12.5% (Owens et al., 2010).

Increasingly police are utilising EDs to obtain a mental health assessment for people displaying behavioural problems such as aggression and violence. Section 351 (s351) of Mental Health Act of

Victoria, Australia (2014) gives police the power to apprehend a person if they believe that a person may have a mental illness and is at risk of serious and imminent harm to themselves or others. As soon as practicable the person must be transferred to a medical or mental health practitioner for assessment. In Victoria, Australia, the number of people being escorted by police to the ED under section 351 of the Mental Health Act (2014) has also increased exponentially. In 2010-2011 there were 5200 mental health transfers under S351; in 2017-2018 this number had risen to approximately 14,000 which is an increase of 169% (Victoria Police, 2019). In all states of Australia patients with mental health concerns, this patient population disproportionately experiences access block (lack of inpatient beds) compared with patients presenting with other emergency conditions (Australasian College for Emergency Medicine, 2018).

The assessment and management of people with acute behavioural symptoms in the ED environment is often challenging. This is due to a range of factors including difficulties in conducting and completing assessments due to aggression and violence, patients' perceptions of stigma, and negative attitudes of health professionals toward those with behavioural problems (Yap et al., 2017; Zun, 2012). These challenges are often compounded by limited access to specialist mental health services (Victorian Auditor-General Office, 2019). Acute intoxication may produce distressing symptoms including, hallucinations, delusions, agitation, suicidal ideation and the ED environment can contribute to distress due high levels of activity, noise and light (McKetin et al., 2019).

One of the most concerning outcomes of care for people experiencing acute behavioural problems is the high prevalence of restrictive interventions use in the ED (Knott et al., 2019). Restrictive interventions are used to managed clinical aggression and risk to self and others. The application of mechanical and chemical restraint in the ED has previously been found to increase ED length of stay due to delayed access to mental health assessment and sedation (Knott et al., 2019). The use of restrictive interventions within an in-patient mental health unit in Victoria, Australia found that the greatest predictors of restrictive interventions were drug use (methamphetamine) and prior application of restrictive interventions in the ED (McKenna et al., 2017). Current research to evaluate models such as Safewards to reduce conflict and containment have been proposed as alternative (Department of Health & Human Services, 2019). Safewards is a model that that establishes collaboration and communication between staff and patients to reduce conflict that leads to containment such as mechanical and physical restraint.

Behavioural disturbance places both staff and patients at risk of both physical and psychological harm. For those with a mental illness, negative experiences in ED including the use of restraints are thought to significantly impact future help-seeking behaviours (Currier et al., 2011). Additionally, many Australian EDs do not have dedicated 24-hour specialist mental health service/practitioners available to conduct assessments and commence treatment (Dombagolla et al., 2019; Zun, 2012). This may cause further frustrations to both patients and carers and significantly delay access to definitive care.

There are several barriers to providing optimal care to patients with mental health problems in EDs including structural issues such as lack of appropriate physical space, adequate access to in-patient beds, concern for patient and staff safety, and limited resources for training (Dombagolla et al., 2019). Previous studies have shown that ED staff lack formal mental health training, psychiatric knowledge and experience to deal with these patients (Dombagolla et al., 2019; Gerdtz et al ., 2012; Innes et al., 2014; Jelinek et al., 2013; Sivakumar et al., 2011).

Complexity of care for those presenting to the ED with acute behavioural disturbance may also be compounded by dual diagnoses and concomitant intoxication (Dombagolla et al., 2019). Individuals with drug and alcohol related ED presentations are known to have high rates of re-attendance due to associations between substance misuse and a wide range of medical conditions impacting gastroenterological and/or neurological function (Rehm, 2011). Substance misuse and addiction can both exacerbate or mask underlying mental health conditions. A consequence of the latter is the potential delay to diagnosis as treatment is focused on the violence and/or aggression related to the presentation rather than the underlying cause (Althaus et al., 2011; Havard et al., 2008; Havard et al., 2012).

To improve the management and respond to the increasing number of patients presenting to the ED with acute behavioural problems, several models of care have been implemented and evaluated. Psychiatric Emergency Care Centres (PECCS) are specifically designed for people presenting to the ED with acute mental health illness who may have a length of stay up to 72 hours. They are closed wards

devoid of ligature points and have lockable single bedrooms (Braitberg et al., 2018). The PECCs provide an extension to the mental health triage and assessment within the ED. These units functions to provide timely mental health assessment and to provide least restrictive observation or immediate care to patients for up to 48-72hours. The PECCs are staffed 24 hours a day by registered mental health nurses supported by psychiatric and emergency teams (Koia, 2009).). A limitation of the PECC model of care is that access is contingent on a provisional diagnosis of mental illness. Individuals who are acutely intoxicated are not eligible for admission to these units.

More recently the BAU model of care has been developed and described in the published literature (Braitberg et al., 2018;Gerdtz et al., 2020. The model of care aims to create a safe, therapeutic environment for people who have demonstrated behavioural disturbance and are influenced by drugs and alcohol, drug intoxication, have a suspected or known mental illness and/or are experiencing psycho-social crisis. Unlike a PECC, a diagnosis of mental illness is not a prerequisite for admission. The BAU unit is an unlocked, 6 bed area, staffed by ED nurses and emergency mental health clinicians are available 24 hours a day to conduct assessments, dedicated drug and alcohol clinician and social workers. **See Table 1**. An evaluation of the BAU model of care found that implementation of this model was associated with reduced ED length of stay and the use of some restrictive interventions for patients admitted with mental illness/and or intoxication (Braitberg et al., 2018). The BAU model of care has since been adopted in six other EDs within the jurisdiction (State Government of Victoria, Andrews, & Foley, 2018). To date there has been no comparison of these different models with respect to patient outcomes.

Aim

The aim of this study was to describe and compare characteristics and outcomes for patients in one ED BAU who required mental health assessment to those not referred. Specifically, we sought to compare the use of restrictive interventions including mechanical, physical and chemical restraint between groups and consider implications for patient care.

Methods

Design

A prospective observational study was undertaken in one ED BAU as a part of the larger study that examined the prevalence of illicit substance use amount patients presenting to the BAU (Gerdtz et al.,

2020). This paper reports on the clinical outcomes of the same cohort by comparing those referred for a mental health assessment to those who were not referred.

Setting

The setting for this study was a metropolitan, tertiary referral hospital located in the state of Victoria, Australia. More than 70,000 adults present to the ED annually for care and of these patients 40% of are admitted to hospital.

Participants

All patients aged 18 years or more, presenting to the ED and cared for in the BAU were recruited into the study as previously described during the period July 1st2017 to December 1st, 2017(Gerdtz et al., 2020). Briefly, this model of care aims to expedite management of patients with behavioural disturbances in a safe and secure therapeutic setting with close observation and timely access to specialist services. Although mental health staff are co-located, not all patients who are admitted to the BAU are referred to the mental health team for assessment.

Mental health assessment details

Patients were referred by ED consultants for an acute mental health assessment to determine the need for treatment, establish risks, and discharge planning. This assessment was conducted by the emergency mental health clinicians or psychiatric registrars.

Data collection

All patients meeting inclusion criteria were assessed by a Registered Nurse (RN) on admission to the BAU for their suitability to participate. A data collection sheet was used for following: status under Mental Health Act, self-report of illicit substance use, signs of acute intoxication, point of care saliva drugs test, alcohol screen, referral acceptance and outcome of follow-up. Patient demographics (e.g. age, gender) and presentation characteristics (e.g. triage category, mode of arrival, previous ED visits, code greys and restrictive interventions) were extracted from medical records by investigators retrospectively.

Study data were collected and managed using REDCap electronic data capture tools hosted at Melbourne Health. [1,2] REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for

validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources."

Outcome measures

The main outcome measures were the use of restrictive interventions in the population of patients requiring emergency mental health assessment. Presenting characteristics such as triage category, previous ED attendance, ED length of stay, rates of admission, prevalence of cannabis, opiates, cocaine, meth/amphetamines estimates based on point of care (POC) saliva testing, alcohol intoxication and self-reported drug use, disposition, referral to drug and alcohol services and acceptance rate of referral to the D&A services were also reported.

Ethical considerations

Human Research Ethics Committees (HREC) at the Melbourne Health approved the study.

Statistical Analysis

Patient demographics and baseline characteristics were analysed descriptively and reported as frequencies and percentages. Categorical variables were compared using the chi-square test or Fisher exact test, as appropriate. Analyses were performed using Graph Pad Prism 8. The level of significance was 0.05. The 6-month data collection period was based on the BAU admission rate and need to obtain a sample of 449 to detect prevalence within 5% of presentations related to meth/amphetamines (Gerdtz et al., 2020)

RESULTS

Demographics and presentation characteristics

Over the 6-month study period a total 501 patients were admitted to the BAU. Of those 44 excluded and 457 included for analysis (**Figure 1**). Of the 457 included for analysis, 61.5% (n=281) received mental health assessment (MH group) and 38.5 % (n=176) did not receive a mental health assessment (NMH group). Compared to the NMH group, the mean age of the MH group was younger (MH 34 range 18-76: NMH 36 range 18-75) and had a significantly lower proportion of males (MH 53.0 %: NMH 69.3 %, p <0.001) (**Table 2**).

A lower proportion of MH patients were brought by ambulance 59.1% (CI 53.2- 64.7%) compared to NMH 79.5 % (CI 73.0- 84.8 %; p <0.001. A higher proportion of the MH group self-presented to the ED 32.4% (CI 27.2- 38.0 %) compared to the NMH group 16.5 % (CI 11.7-22.7 %; p < 0.001); this group also required significantly more police involvement in their presentation 22.1% (CI 17.6-27.3 %); 13.1 % (CI 8.9-18.8 %; p < 0.02). Additionally, a higher proportion of patients in the MH group were brought into the ED by police (under section 351 Mental Health Act, Victoria Australia) for assessment [28.8 % (CI 23.8-34.3%); 5.1 % (CI 2.7-9.4 %) p < 0.0001], a varied treatment order [0.4 % (CI 0.02 -2.0 %); 0 % (CI 0.00 -2.1%)] and apprehension order [2.5 % (CI 1.2-5.1 %); 0 % (CI (0.00 -2.1 %)]. A lower proportion of patients in the MH group required immediate medical treatment on arrival in ED (ATS 1) 0.4 % (CI 0.02 - 2.0%) than those in the NMH group 13.6 % (CI 9.3-19.5 %; p < 0.0001) and over half 67.3 % (189/281; 95% CI 61.6- 72.5 %) of the MH group were ATS 3. There were no significant differences in the times of arrival (**Table 2**).

Restrictive interventions

Restrictive interventions were used in the BAU with 8.5 % of patients admitted requiring code grey to be activated for patients for whom a hospital-wide coordinated clinical and security response to actual or potential aggression or violence (Victorian State Government, 2016. The MH group had a higher proportion of patients requiring a code grey response 11.0 % (CI 7.9 -15.2 %); 4.5% (CI 2.3 – 8.7 %) p <0.02). The frequency of chemical restraint was used significantly more in the MH group (4.3% (12/281); CI 2.5- 7.3%); 0.0% (CI 0.02-2.1) p < 0.001 in the NMH group. (**Table 2)**.

Previous ED use

Almost half 48.8% (CI 43.0-54.6 %) of patients in the MH group compared to 37.5 % (CI 30.7- 44.8 %) (p < 0.05) of the NMH had visited the ED previously in the past 12 months. Despite the higher number of ED presentations in the MH group there was no difference in the proportions of patients with a frequenter care plan in place and only 4.2% of all patients admitted to the BAU had a documented plan. More than three quarters (77.9 %) of all patients admitted to the BAU had a documented psychiatric diagnosis on record; a significantly higher proportion in the MH group compared to those in NMH group [88.6 % (CI 84.4-91.8 %); 60.8 % (CI 53.4- 67.7 %)]. Interestingly, over half (60.4%) of the NMH group had at least 2 documented psychiatric/mental health diagnoses on their records yet they were not referred for a mental health assessment (**Table 3**).

Prevalence of substance use

A lower proportion of patients in the MH group self-reported use of meth/amphetamine within the past 24 hours (21.7 % (CI 17.3- 26.9 %); NMH (46.6 % (CI 39.4 -54.0 %). The POC saliva testing showed that the MH group had a lower proportion of meth/amphetamine positive tests (7.5 % (CI 4.9 - 11.2 %)]; NMH 18.2 % (CI 13.2 – 24.5%); this group also had a lower proportion with no positive test for cannabis [(0.00 % (CI 0.00- 1.3; [2.8 % (CI 1.2 -6.5 %)]. Of all the patients admitted into the BAU during the study period nearly half 46.4% had a self-reported use of alcohol within the last 24 hours or had confirmed alcohol intoxication via breathalyser, with less in the MH group [(36.3 % (CI 30.9 – 42.1 %) compared to the NMH group 62.5 % (CI 55.2- 69.3 %) (**Table 4**).

Diagnostic and dispositional outcomes

Final diagnosis in the MH group was more likely to be psychiatric 68.7 % (CI 63.0 - 73.8%); 17.0 % (CI 12.2- 23.3%) in the NMH group, while the latter group had a higher proportion of intoxication (drug or alcohol) 64.2 % (CI 56.7- 70.9 %); 12.1 % (CI 8.8- 16.4 %) in the MH group. Most patients admitted to the BAU were discharged to home 81.8 %, with the NMH group having a higher proportion 91.7 % (CI 86.8-94.9%) compared 70.0 % (CI 63.8 – 75.6 %) in the MH group. Almost 1 in 4 of the MH patients 24.8 % (CI 19.6 – 30.7 %) were admitted into psychiatric inpatient unit. A significant proportion of patients in the MH group had a final diagnosis of psychosocial crisis [15.7 % (CI 11.9 20.4 %); 4.0 % (CI 1.9- 8.0 %)]. Only 10.5 % of patients admitted into the BAU were reviewed by an emergency social worker; there was no difference in the proportions in the MH and the NMH groups. In terms of length stay, MH group patients had a significantly longer length of stay on the BAU with a median stay of 12.7 hours (IQR 5.6-19.7) compared to 5.2 hours (IQR 2.7-13.0) in the NMH group. There were no significant differences in the length of stay in the ED despite the NMH group having a higher proportion of ATS 1 patients (**Table 5**).

Referral rate and outcome

Despite a third of patients admitted to the BAU reporting meth/amphetamine use and nearly half reporting alcohol intoxication only 26.2 % of all patients admitted to the BAU were referred to the AOD services. Of these, there were fewer patient from the MH Group (22.1% (62/285; CI 17.6- 27.3%) referred, compared to 36.9% (65/181; CI 30.2-44.3%) of NMH patients.

Of all BAU patients referred to AOD services, 66.9% (83/127) declined referral or could not be contacted following discharge; 50 % (34/62) in the MH group compared to 75% (49/65) in the NMH group. A third

(32 %, 2/62) of the MH group referred to AOD were accepting of referral or already engaged in treatment compared to 16.9 % (11/65) in the NMH group. A small proportion in each group were provided with a brief intervention during their ED visit, 3.2 % (2/62) in the MH group compared to 4.6 % (3/65) in the NMH group (**Table 6**).

Discussion

In this study, we explored the health outcomes of those patients who received a mental health assessment within the BAU model of care. Our results provide a description of this cohort of patients' and their management within the BAU and provide useful data to refine the model of care with a view to ensuring optimal staffing and skill-mix.

We found that the MH group of patients though younger had increased complexity due to more psychiatric diagnoses, medical diagnoses, and concurrent substance misuse. Interestingly, there was also a higher proportion of self-presenting MH patients indicating that these patients may be using the ED as the default point to access care and treatment highlighting the need to improve access and responsiveness of out-patient/community treatment facilities to reduce burden on the ED.

Previously it was shown that the BAU model of care reduced the rate of the use mechanical restraint or therapeutic sedation (Braitberg et al., 2018). Although the use of restrictive interventions reported may be considered low, our study shows MH patients still experienced more restrictive interventions (use of MHA, S351 with police, chemical, physical and mechanical restraint and code grey responses) than the non-MH group. There is an opportunity for EDs and short stay models to incorporate or consider ways in which to systematically address the problem of conflict and containment within the model of care. These could include incorporating a MH nurse educator and a structured organisational framework and commitment to reduce the use of restrictive interventions. One example is a Victorian government initiative to introduce Safewards into EDs (Department of Health & Human Services, 2019).

The re-attendance rates were high in both groups with nearly half of the MH patients having used the ED more than once in the previous 12 months prior to their BAU admission. This may be an under estimation as they may have presented at other hospital EDs in that same period. Despite 50 % attending more than once in the past 12 months, only a small proportion reached the threshold for a frequent attender plan. Studies have shown that in this group of patients, proper history taking is harder

due to factors such as violence, aggression or intoxication (Althaus et al., 2011; Dombagolla et al., 2019; Havard et al., 2008). The availability of individualised management care plans at the point of entry for drug and alcohol frequent presenters have been shown to reduce the number of ED presentations significantly and ultimately improve the variation of care (Althaus et al., 2011; Gerdtz et al., 2019; Havard et al., 2008; Pope, Fernandes, Bouthillette, & Etherington, 2000). The previously named Victorian Department of Human Services developed a screening tool to predict whether patients required services following discharge from acute care (Department of Human Services, 2009). A patient with a history of multiple recent admissions (two or more prior admissions over the past 12 months) was assessed as being at risk at likely to continue this trend (Phillips et al., 2006). Our results show that only 5% of patients who had more than one visit in the previous 12 months had a documented frequent attender ED care plan. Although the use of restrictive interventions can deter future help-seeking, the high re-attendance rates may partly be explained as 30 % of the MH group were brought in by police under the Mental Health Act.

The NMH group had a higher acuity (ATS-1 and ATS-2) 34. % vs 12.9 % and tended to present more during the weekends and had higher levels of meth/amphetamine, cannabis use or self-report and alcohol intoxication. More than half of patients from both groups were assessed at an ATS-3, ATS-4 or ATS-5, suggesting they may have been better serviced in the community than in the ED; using models such the Police Ambulance Crisis Emergency Response (PACER) model designed to help individuals in crisis in the community and shown to reduce pressure on the ED with 50 % of patients discharged to home (Evangelista et al., 2016; Huppert & Griffiths, 2015). Although these models of care exist, they are not always staffed due to lack of skilled mental health clinicians, have limited hours of operation, and subsequently the use of S351 has increased in Victoria. In 2010/11 there were 14 people per day detained under the MHA by police, by 2017 this had increased to 38 per day (Victoria Police, 2019).

While the NMH group had a higher proportion of patients with high acuity, the ED LOS was not significantly different. There is potential to reduce the ED length of stay by including a mental health nurse at triage. The MH group had significantly longer stay in the BAU (12.7 hours vs 5.5 hours) in line with previous studies where mental health patients require longer assessment with access to services constrained; in contrast NMH patients who are largely intoxicated tend to be discharged sooner, though a substantial proportion had a psychiatric diagnosis (61%, 107/176). These results highlight that the nature of acute drug and alcohol (D&A) intoxication where underlying psychiatric disorders or other

medical conditions may not be addressed during an ED presentation. The longer total length of stay for the MH group and subsequent 20 % psychiatric admission highlights that the BAU is being utilised as alternative to a psychiatric admission.

In this BAU model, the D&A clinician was present 3 days week, however we observed that almost a third patients admitted into the BAU self-reported use of meth/amphetamines in the past 24 hours, and nearly half had used alcohol. In the MH group, half of those patients that were referred to Addiction and Other Drug (AOD) services were not able to be contacted for follow-up. Only a small percentage of patients received a brief intervention during the ED presentation. Furthermore, the final diagnosis for a third of the patients was drug and alcohol intoxication. These results highlight the need for access to clinicians who are proficient in mental health, substance use disorders and screening interventions. Ideally, brief intervention should be provided by all staff with training provided to maximise interventions to all identified patients.

There is increasing demand for EDs to provide assessment and care to patients affected by illicit substances arriving by ambulance. Ambulance data shows there has been an increase in people affected by amphetamines by 227% and in rural areas this has increased of 419% in the past 5 years (Jones et al., 2019). The implications are significant for rural EDs who have limited resources and access to emergency services and drug and alcohol clinicians on weekends when most arrive. Collaborative service development and integration with out-patient/community centres could result in patients whose ED presentations primarily involve AOD accessing community services to avoid using the EDs in crisis.

People in crisis due to mental illness receive a primary police and ED response yet neither have formal mental health qualifications so the most unwell people are cared for by staff without specialist mental health/qualifications. ED nurses have a graduate certificate yet based on this data require post graduate education with mental health skills and knowledge in the assessment and treatment of patients in mental health crisis and affected by amphetamines. Government initiatives have proposed crisis hubs for EDs to provide assessment and treatment for people presenting with mental health and/or substance use concerns (Daniel Andrews, 2018), however there may also be benefits to increasing the capacity of mental health inpatient units. A Psychiatric Assessment and Planning Unit (PAPU) implemented 4 beds collocated with a mental health inpatient unit and resources were increased in the mental health setting rather than the ED. This initiative found improved outcomes for patients included

reduced use of restrictive intervention and positive organisational benefits including reduced use of nursing resources to provide observation (Browne et al., 2011).

Limitations

The study was undertaken at a single site during a specific period in one Australian state (Victoria), thus the results and outcomes of this study may not be representative of Victorian hospitals, other Australian states and territories and or other countries. It is possible that some patients presented at other emergency departments as the data presented here is not linked, the rate of re-attendance may have underestimated the actual rates. It is possible that some of the patients in the NMH group should have been referred to mental health assessment as referral patterns can't be controlled for.

Conclusions

Although half of the MH population had visited the ED more than once in the past 12 months, very few had an established care plan. The high proportion of MH patients not able to be contacted indicates that brief interventions need to occur at the time of assessment by clinical staff with mental health assessment and brief interventions skills including harm minimisation/health promotion. Given the high rate of admissions to mental health in-patient beds, the BAU is used as an alternative to mental health admission or to provide to care while waiting on a mental health bed due to bed shortages. There is a need to explore why MH patients had a lower acuity, yet longer LOS and increased use of restrictive interventions.

Relevance for clinical practice

Models of mental health care evolve and are based on meeting emergency department demand rather than a holistic view of mental health service delivery. If EDs are to be the default acute mental health service educational programs should be developed for nursing skills in the assessment and management of people with both mental health and substance use disorders who access ED. Initiatives used in mental health settings such as Safewards (Department of Health and Human Services, 2019) could be introduced to reduce restrictive practices for the person's care from point of crisis in the community with emergency services to discharge from the ED. Short stay models of care may be suitable to manage intoxication however longer term evaluation needs to focus on patients who require mental health

assessment, include consumers and carers and focus on reducing the range and frequency of restrictive interventions. There has not been a comprehensive comparison of different models of care to respond to people experiencing a mental health crisis. The development of modes of care in ED should not replace assessment and care in the community.

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Table 1. Summary of Behavioral Assessment Unit Model of Care

Element	Description
Environment	6 beds located in ED
Staffing	Emergency care qualified and certified RNs, mental health clinicians, Emergency medicine physician, Alcohol and other drugs clinician
Inclusion	Aged 18 -65 years Behavioural disturbance and are influenced by drugs and alcohol, drug intoxication, have a suspected or known mental illness and/or are experiencing psycho-social crisis Likely to be discharged in <24hrs
Exclusion	At risk of airway compromise
Admission	Directly from triage (nurse) or from within the emergency (medical)
Handover Rounds	Handover occurs 3 times daily, are < 20 minutes duration and use ISBAR Rounds occur 2 times daily and include medical nursing and emergency mental health staff. Rounds aim to identify people ready for discharge and those requiring complex or difficult to obtain investigations, people requiring allied health review.

Notes: RNs= Registered Nurses, ISBAR= Identify, Situation, Background, Assessment, Recommendation; IP=Inpatient (Gerdtz et al., 2020)

Table 2 Arrival characteristics of mental health and non-mental health presentations (N=457)

Patient variable	No MH (n=176)	MH (n=281)	p value
Age, years, mean, CI	36 (34-38)	34 (32-35)	0.06
Male, n (%)	122 (69.3)	149 (53.0)	<0.001
Mode of arrival, n (%)			< 0.001
Ambulance	140 (79.5)	166 (59.1)	
Police	5 (2.8)	18 (6.4)	
Family and friends	2 (1.1)	6 (2.1)	
Self-present	29 (16.5)	91 (32.4)	
Police arrival required, n (%)	23 (13.1)	62 (22.1)	<0.02
Arrival day (Fri, Sat, Sun, Mon), n (%)	110 (62.5)	143 (50.9)	<0.02
Urgency[†], n (%)			< 0.0001
1 (to be seen immediately)	24 (13.6)	1 (0.4)	
2 (to be seen within 10 minutes)	38 (20.5)	35 (12.5)	
3 (to be seen within 30 minutes)	79 (44.9)	189 (67.3)	
4 (to be seen within 60 minutes)	35 (19.9)	52 (18.5)	
5 (to be seen within 120 minutes)	2 (1.1)	4 (1.4)	
Mental health status on arrival n (%)			**< 0.0001**
No status	167 (94.9)	192 (68.3)	
Section 351- brought in by police for assessment	9 (5.1)	81 (28.8)	

Patient variable	No MH (n=176)	MH (n=281)	p value
Apprehension order	0	7 (2.5)	
Treatment order	0	1 (0.4)	
Code grey n (%)	8 (4.5)	31 (11.0)	<0.02
Restrictive interventions n (%)			
Physical	2 (1.1)	8 (2.8)	0.22
Chemical restraint	0 (0.0)	12 (4.3)	<0.001

†Australasian Triage Scale (Australasian College for Emergency Medicine, 2000 (last revised July 2016)).

Table 3 History of ED use (N = 457)

Patient variable	No MH (n=176)	MH (n=281)	p value
Previous ED visit in the past 12 months n, (%)			< 0.05
No previous visit	110 (62.5)	144 (51.2)	
Previous visit	66 (37.5)	137 (48.8)	
Frequent presenter care plan n (%)	**7 (4.0)**	**12 (4.3)**	> 0.99
Psychiatric diagnosis in record n (%)	**107 (60.8)**	**249 (88.6)**	<0.0001
Number of psychiatric diagnoses in record, n (%)			< 0.0001
No psychiatric diagnoses documented	70 (39.8)	32 (11.3)	
Less than 2 diagnoses	95 (54.0)	164 (58.8)	
Greater than 2 diagnoses	11 (6.3)	85 (29.9)	

Table 4 Illicit drug use and alcohol of mental health and non-mental health presentations (n= 457)

Patient variable	No MH (n=176)	MH (n=281)	p value

Patient variable	No MH (n=176)	MH (n=281)	p value
Self-reported of any drug use in 24 hours, n (%)	82 (46.6)	61 (21.7)	< 0.0001
Methamphetamine positive OR self-report of ice or methamphetamine	54 (30.7)	43 (15.3)	< 0.0001
Saliva drug results, n (%)			
Methamphetamine positive	32 (18.2)	21 (7.5)	< 0.001
Cannabis positive	5 (2.8)	0	< 0.01
More than one drug positive	1 (0.57)	0	0.32
Alcohol use breathalyser and self-report n (%)	110 (62.5)	102 (36.3)	< 0.0001

Table 5 Diagnostic and dispositional outcomes (n = 457)

Patient variable	No MH (n=176)	MH (n=281)	p value
Final diagnosis, n (%)			<0.0001
Psychiatric	30 (17.0)	193 (68.7)	
Intoxication (drugs and/or alcohol)	113 (64.2)	34 (12.1)	
Medical	26 (14.8)	10 (3.6)	
Psychosocial crisis	7 (4.0)	44 (15.7)	
Disposition, n (%)			<0.0001
Home	161 (91.7)	212 (70.0)	
Psychiatric admissions	0 (0.0)	57 (24.8)	
Medical admission	3 (1.7)	8 (3.5)	

Patient variable	No MH (n=176)	MH (n=281)	p value
Other	12 (6.6)	4 (1.7)	
BAU length of stay, hours, median (IQR)	5.2 (2.7-13.0)	12.7 (5.6-19.7)	< 0.0001
ED length of stay, hours, median (IQR)	2.5 (1.2-3.7)	2.7 (1.5-4.2)	0.13
Total length of stay, hours, median (IQR)	9.0 (5.4-15.2)	16.3 (9.8-23.3)	< 0.0001

Table 6 Addiction services referral and outcomes for people who screened positive for (n=127)

Patient variable	No MH (n=65)	MH (n=62)	p value
Referral to AOD service, n (%)	65 (36.9)	62 (22.1)	< 0.001
Declined referral to treatment	9	6	
Unable to contact following discharge	40	28	
Already engaged in treatment	7	12	
Accepted referral to treatment	4	8	
Brief intervention provided	3	2	
Unable to be assessed	1	6	
No result	1	0	

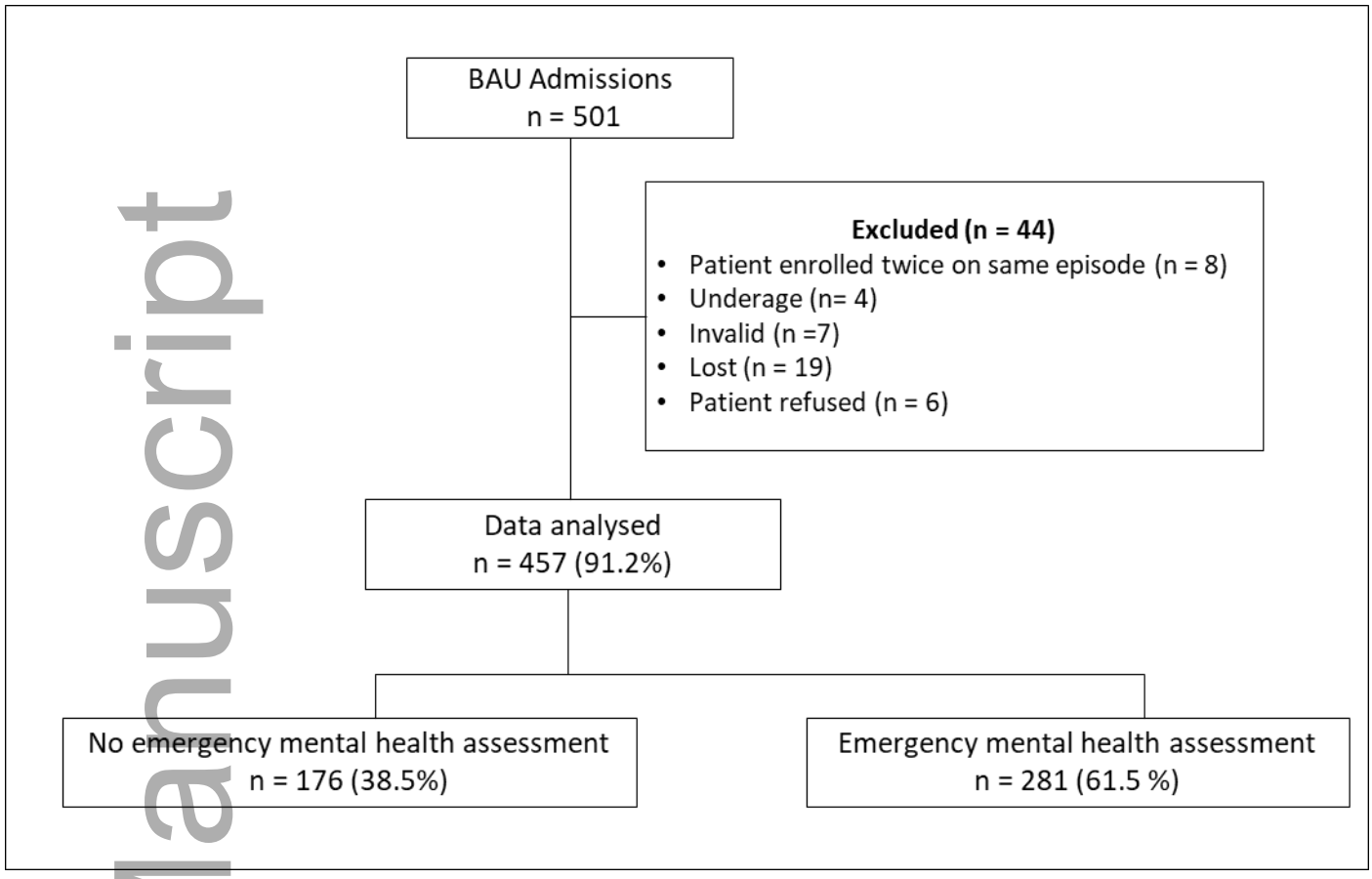

Figure 1 Recruitment chart