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Prevalence and predictors of restrictive interventions in a youth specific mental health inpatient unit

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Abstract

Introduction

The use of restrictive interventions is one of the most controversial practices in medicine. They are utilized in an inpatient setting to manage agitated or aggressive behaviour or to ensure that an individual receives the necessary treatments. However, restrictive interventions remove autonomy and adverse events can be associated with their practice. Youth specific inpatient units are now being established and it is imperative that the use of restrictive interventions is reduced. In order to inform and facilitate prevention and reduction strategies, this study aimed to determine the prevalence and determinants of restrictive interventions (restraint, seclusion, and medication without consent) in a youth specialist mental health inpatient unit.

Methods

This study was set at a 16-bed youth specialist acute inpatient unit of Orygen Youth Health, a specialist youth mental health service that provides inpatient care for those aged 18-25 years within a catchment area of west and north-western regions of Melbourne, Australia. A retrospective file audit was conducted of all the admissions to the unit from 01.01.15 to 30.06.15.

Results

Over the six-month study period, 159 young people were admitted and this accounting for 188 admissions. Over half (54.3%) of admissions were involuntary and restrictive intervention were used in 17.6% of admissions. Specifically, 15.7% (N=25) of young people experienced restraint, 10.1% (N=16) were secluded, and 8.1% (N=12) experienced medication without consent. Absent insight and involuntary status on admission were associated with restrictive interventions.

Conclusion

As youth mental health services develop, interventions aimed at reducing restrictive interventions are needed.

Keywords coercion; youth mental health; inpatient; seclusion; restraint; restrictive interventions

Introduction

The use of restrictive interventions for people affected by mental health disorders is one of the most controversial practices in medicine. Yet the limited knowledge on the rates, predictors and outcomes from restrictive interventions is not in proportion to the frequency of the practices, as up to half of people admitted to hospital experiencing restrictive interventions (Baeza et al., 2013; Donovan, Plant, Peller, Siegel, & Martin, 2003; Furre, Sandvik, Friis, Knutzen, & Hanssen-Bauer, 2016; Hottinen et al., 2013; Swadi & Bobier, 2012), which encapsulates the use of seclusion, restraint, or medication without consent (Georgieva, Mulder, & Whittington, 2012; Government, 2014; O'Donoghue et al., 2011). Proponents of the use of restrictive interventions argue that their use in inpatient settings can be justified because it can reduce the risk an individual may present to themselves or others and it can also facilitate the delivery of necessary treatment (Busch & Shore, 2000; Government, 2014). However, opponents argue that these practices remove autonomy, have limited empirical evidence and can cause physical and psychological harm (Busch & Shore, 2000; Fisher, 1994; Mohr, 2010; Mohr, Mahon, & Noone, 1998; MSEI, 2014; Newton-Howes, 2010; Sailas & Fenton, 2000). In Australia, the reduction in the use of restrictive interventions has been identified as a priority by the Australian Law Reform Commission and the National Mental Health Commission (Bowers et al., 2014). Therefore, the identification of factors associated with the use of restrictive interventions would inform interventions and service delivery aimed at reducing the frequency of the practices.

Worryingly, the rates of restrictive interventions are higher in the child and adolescent mental health inpatient units in Australia compared to inpatient units serving the adult population (Australian Institute of Health and Welfare, 2016). This has particular relevance, as the finding that 75% of major mental health disorders have their onset in late adolescence and early adulthood has driven the establishment of youth specialist mental health services and inpatient units for young people (Kessler et al., 2005; P. D.

McGorry, Purcell, B., & F., 2007). However to date, there has been limited research on the rates or predictors of restrictive interventions in a youth specific (age range 18 – 25) inpatient unit. Therefore, this study aims to determine the prevalence of restrictive interventions (restraint, seclusion, and medication without consent) in a youth specialist inpatient unit and determine whether patient demographic or clinical factors are associated with the use of restrictive interventions.

Methods

Setting and patient population

The study took place at Orygen Youth Health (OYH), the State Government funded youth mental health service for young people residing in northwestern and western metropolitan Melbourne, Australia.

Orygen Youth Health has a 16-bed youth specialist acute psychiatric inpatient unit (IPU) that provides care for those aged 18-25 years. OYH operates across four streams of care: First episode psychosis (Early Psychosis Prevention and Intervention Centre (EPPIC)) (P.D. McGorry, Edwards, Mihalopoulos, Harrigan, & Jackson, 1996), ultra-high risk for psychosis (Personal Assessment and Crisis Evaluation (PACE)) (Yung et al., 2007), borderline/severe personality disorder (Helping Young People Early (HYPE)) (Chanen, 2014), mood disorders (Youth Mood Clinic (YMC)). There is a strong emphasis on treatment in the community and within the service there is the capacity for intensive, home based services. This study included all admissions to the OYH inpatient unit between 1st January 2015 and 30th June 2015. There were no exclusion criteria, in that all admissions were included. Data was collected on the complete admission, and therefore a patient may have been discharged following 30th June 2015.

Study design

A retrospective file audit was conducted of all consecutive admissions to the IPU during the study period.

Definition of the restrictive interventions

According to the Victorian Mental Health Act (MHA) 2014, seclusion is defined as “the sole confinement of a person to a room or any other enclosed space from which it is not within the control of the person confined to leave” (Government, 2014). Restraint is defined as the use of physical or mechanical forms of restraint “that prevents a person having free movement of his or her limbs” (Government, 2014). Under the mental health act, seclusion and restraint may be used if necessary to prevent imminent and serious

harm to the person or to another person. It is further detailed that restraint can also be used to administer treatment [medication] to the person (Victorian State (Government, 2014). Medication without consent refers to the administration of medication that is (a) not a part of the regular treatments for the patient's psychiatric condition, (b) utilized to contain acute behavioural disturbances, and (c) administered without the patient's consent (i.e. parenteral administration) (Allen et al., 2003; Currier, 2003; Jarrett, Bowers, & Simpson, 2008). The administration of depot medication as a treatment intervention, if administered involuntarily, is also considered to be the use of medication without consent (Husum, Bjorngaard, Finset, & Ruud, 2010). This form of restrictive intervention is not regulated by legislation in Victoria.

Sources of information

Under the mental health act, episodes of restraint and seclusion are recorded on specific forms and these are entered into a statewide database and the forms are kept in the young person's clinical file. The clinical files and the statewide database were reviewed for each young person who was admitted during the study period. To determine if the young person had experienced medication without consent, medication charts per admission episode were searched for any intramuscular (IM) medications administered, and the corresponding nursing and medical notes for the documented time and date were examined. A young person was considered to have had IM medication administered without their consent if it was (a) documented to have been given for agitated, aggressive, or otherwise escalating behaviour, or refusal of treatment, and (b) if the clinical notes documented circumstances of the client requiring restraint for the medication to be administered, the client expressed that they didn't consent to receiving the medication, or if it was not clearly documented that the client accepted the medication being administered. Clients who requested IM medication, or clearly consented to its administration, were not considered to have been subject to medication without consent. Data on the type and dose of medication, the date and time administered, and any documented complications were collected.

Data on patient demographic, clinical, and admission related factors were obtained from the clinical file and electronic registration records, clinical progress notes, medical and nursing admission assessments, discharge summaries, and statutory forms. Discharge diagnoses were made by the treating consultant psychiatrist. Insight was assessed from the documentation of the mental state examination at the time of admission and was categorized as either present, partial or absent.

Categorization

All data collected for this study was per admission, with a total of 25 patients who had repeat admissions in the study period. For patients with repeat admissions, their demographic and clinical characteristics for per patient analyses were taken from the first admission in which they had experienced a restrictive intervention, if applicable. If the patient did not experience any restrictive interventions, their data was taken from their first admission of the study period. Prevalence of restrictive intervention use was expressed in proportions of (a) patients, and (b) admissions.

A client was categorized as have been admitted involuntarily if, per the Victorian MHA 2014, they were subject to a valid Assessment Order (AO), Temporary Treatment Order (TTO), or Treatment Order (TO) at the time of admission (Government, 2014). 'Voluntary for the whole admission' applied to admissions that were not subject to an AO/TTO/TO at any point. Length of admission (LoA) in days was calculated from the official admission and separation dates for each episode. For patients admitted and discharged on the same day, the length of admission was recorded as one day. The number of days from date of admission to the date of the first experience of restrictive intervention use, if applicable, was recorded per admission as 'days to first restrictive intervention'. Time of day of a restrictive intervention being initiated was categorized as '8am-5pm', '5pm-12am', and '12am-8am'. Restrictive interventions were evaluated collectively as 'any restrictive intervention', as well as separately for each type.

Primary discharge diagnoses were grouped into one of the following categories; psychotic disorders, depressive disorders, other affective disorders, borderline personality disorder/traits (BPD), and other diagnoses. Co-morbid diagnoses such as substance use disorder were also recorded. In assessing whether certain diagnoses were associated with restrictive intervention use, diagnostic groups were dichotomized into psychosis and diagnoses other than psychosis, and BPD and diagnoses other than BPD. The variable 'country of birth' was dichotomized into 'born in Australia' and 'first generation migrant'; the latter applied if born outside of Australia and on admission was temporarily or permanently residing in Australia.

Statistical analysis

Data were analyzed using descriptive statistics, group comparisons of categorical variables were performed using χ^2 tests, and Mann-Whitney U test was used to compare groups with non-parametric

data. Any missing data is described for each result it applies to. All mean values are expressed as ‘mean (SD)’ unless otherwise stated; median values are expressed as ‘median, range’ unless otherwise stated. Significance level was set at 0.05. Data analyses were performed using SPSS v24.

Ethical approval

The Human Research Ethics Committee at Melbourne Health granted ethical approval for this study.

Results

Patient and admission characteristics

Over the six-month study period there were 159 young people admitted to the inpatient unit. The mean age was 21.0 (2.2) years, range 16.8 - 26.9 years, and 59.7% (N=95) were male. Twenty five clients were admitted more than once (twenty-one were admitted twice, three admitted three times, and one admitted four times), accounting for a total of 188 admissions. Table 1 provides a summary of the patient characteristics for the total study population, as well as the population separated into categories by whether they experienced any restrictive intervention use over the study period. It was a first admission to any psychiatric hospital for 49% (N=77, missing data for 2) of young people included in this cohort

Admission details

Of the 188 admissions, 54.3% (N=102) were involuntary at the time of admission. A further 13.3% (N=25), having initially been voluntary, were subject to an involuntary order during the course of the admission. The legal status remained voluntary for 32.4% (N=61) of all admissions. The mean length of admission over the study period was 14.0 (17.5) days; median 8, range 1-100 days. The length of admission was significantly longer if it was of involuntary status at any point (involuntary: median 11 days vs. voluntary: median 5 days; $U = 1964, p < 0.001$). Of the total admissions, 19.2% (N=28) involved patients that were assessed as having absent insight on admission.

Prevalence of restrictive interventions

A total of 17.6% (N=28) of young people experienced at least one of form of restrictive intervention use during their admission and restraint was the most commonly used, with a six-month prevalence of 15.7% (N=25). Seclusion was the next most commonly used, with a prevalence of 10.1% (N=16) of patients experiencing seclusion. Data on medication without consent was only available for 136 patients. Of these,

8.0% (N=12) had at least one episode of medication administered without their consent. Mechanical restraint was not used.

In regards to the prevalence of restrictive intervention as a proportion of admissions, 17.6% (N=33) involved the use of any restrictive intervention; 16.0% (N=30) involved restraint, 10.1% (N=19) involved seclusion, and 7.4% (N=13) involved the use of medication without consent. Data for medication without consent was missing for 12 admissions. Of those admissions in which restrictive interventions occurred, 39.4% (N=13) involved one type (i.e. either restraint, seclusion or medication without consent), 36.4% (N=11) involved two types, and 24.2% (N=8) three types of restrictive interventions.

Factors associated with restrictive interventions

Young people with absent insight at the time of admission were more likely to experience seclusion (21.4% vs. 7.6%; $\chi^2 = 4.7$, $p=0.03$) and medication without consent (22.2% vs. 3.5%; $\chi^2 = 11.9$, $p=0.03$) during the admission. There was a non-significant trend for young people with absent insight to experience restraint (25.0% vs. 12.6%; $\chi^2 = 2.74$, $p=0.10$).

There was no difference in the prevalence of restrictive interventions according to whether it was the young person's first admission to a psychiatric hospital ($\chi^2=0.09$, $df=1$, $p=0.76$). Admissions involving the use of restrictive interventions were significantly longer in duration (RI use: median LoA 20.0 days, range 4-100 days vs. no RI use: median LoA 6 days, range 1-100 days; $U=1110$, $p<0.001$).

Patient demographic and clinical characteristics including sex, first generation migrant status, primary discharge diagnosis of a psychotic disorder, primary discharge diagnosis of borderline personality disorder, and a co-morbid substance use disorder were not associated with the use of restrictive interventions. A description of the demographic and clinical characteristics of the cohort and a comparison of these factors according to whether restrictive interventions were experienced are presented in Table 1.

Patterns of restrictive intervention use

A total of 141 episodes of restrictive interventions were recorded during the study period, which comprised of 70 episodes of restraint, 48 episodes of seclusion, and 23 episodes of medication without

consent. Of all restrictive interventions recorded, 47.8% related to only 2.7% (N=5) of admissions and five (3.2%) clients. The time of day of a restrictive intervention being initiated was shared almost equally across the 8am-5pm and 5pm-12am times, at 42.6% and 40.4% of episodes, respectively. For the 33 admissions that involved the use of restrictive interventions, the median number of days to first restrictive intervention use was 4 days, range 0 - 35 days. The majority (75.8%) of first restrictive interventions occurred within the first week of admission.

Discussion

Summary of findings

The main findings of this study are that a small but significant proportion of young people who are admitted to a youth specific inpatient unit experience restrictive interventions. Absent insight at the time of admission was associated with the use of seclusion, however no other demographic or clinical factor was associated with the use of restrictive intervention. Nearly half of the restrictive interventions recorded related to a small number of young people and admissions.

Comparison to previous literature

The setting in which this study took place is relatively unique, as there are not many youth specific mental health inpatient units internationally that cater for the age group of 18 to 25 and this makes it difficult to compare the findings of this study to the previously published literature. In adolescent units, the prevalence of restrictive interventions ranges from 6% to over 50% (Angold & Pickles, 1993; Baeza et al., 2013; Donovan et al., 2003; Furre et al., 2016; Swadi & Bobier, 2012). In Canada, it was found that 32% of young people aged less than 25 years experienced seclusion during their inpatient admission, however less than 1% experienced restraint (Puyat et al., 2017). Furthermore, individuals admitted to hospital can often experience restrictive interventions during the process of being admitted, such as in Emergency Departments or by the police. Orygen Youth Health has a focus and preference for home based treatment and there is a dedicated acute team that can support individual treating teams in providing acute treatment in a young person's home. This service design likely explains the proportion of admission that were involuntary and also that admissions tended to be relatively short. While there are clear differences in the prevalence reported, these are potentially explained by a number of factors, including differences in the patient populations, the ability of services to provide treatment in the community and differences in legislations in different countries. Therefore, it may be more applicable to examine the

clinical characteristics associated with restrictive interventions. Studies by Sourander et al (Sourander, Ellila, Valimaki, & Piha, 2002) and Swadi & Bobier (Swadi & Bobier, 2012) found that a diagnosis of a psychotic disorder was independently associated with restrictive interventions. Similar to this study findings, Georgieva et al found that a patient's insight on admission as a predictor of restrictive intervention (Georgieva, Vesselinov, & Mulder, 2012).

Clinical implications

The findings of this study have a number of potential clinical implications. First, randomized controlled trials are difficult to conduct in the area of restrictive interventions and while pre and post studies have a large number of methodological disadvantages, at least this study provides a baseline prevalence of restrictive interventions that can be used to compare against should interventions aimed at reducing restrictive interventions be trialed. The Safewards intervention has been introduced onto the inpatient unit, subsequent to the study period, and this intervention has been demonstrated to be effective in reducing the prevalence in restrictive interventions (Bowers et al., 2014). Second, a study conducted in Canada found that the use of restraint was higher in the Emergency Department compared to the ward (16% vs <1%) (Puyat et al., 2017) and unless this information is routinely collected, the actual rate of restrictive interventions will be grossly under-estimated. However, this is complicated, as it would involve the routine collection of data from multiple different agencies or services. Third, apart from the level of insight on admission, no other demographic or clinical characteristic was associated with the use of restrictive interventions, which means it would prove difficult to attempt to identify individuals early in the course of admission who may be at higher risk of experiencing restrictive interventions. However, one of the striking findings of this study is that nearly half of the restrictive interventions relate to a very small proportion of young people and admissions. While the ultimate aim is to prevent the use of restrictive interventions from occurring, a step to significantly lowering the rates of restrictive interventions would be to develop strategies or interventions to prevent further episodes of restrictive interventions in those who experience an initial episode. In interpreting the rates of restrictive interventions, the philosophy of the inpatient unit also needs to be understood, as some services may elect for patients to have shorter episodes of seclusion. While this policy aims to introduce trials out of seclusion earlier for individuals, there will be a proportion who may need to return to seclusion. While such a policy could be considered more humane and respectful, it could result in multiple episodes of restrictive interventions being recorded, thereby inflating the rate of restrictive interventions.

Strengths and limitations

This study had a number of important strengths, such that information relating to restrictive interventions was obtained from multiple sources. Furthermore, we evaluated a broad range of restrictive interventions, and mandatory reporting means that we are likely to have identified all episodes of restraint and seclusion that occurred over the study period. However, there are also a number of limitations to this study. The retrospective design did not allow for testing of the reliability of clinical data including assessment of insight and primary discharge diagnosis. Also, individuals may have experienced restrictive interventions during the pathway to admission but this would not have been recorded with the study design that we employed.

Conclusion

As Youth Mental Health services develop internationally, consideration needs to be given as to how inpatient care can be delivered to young people in an appropriate manner, with restrictive interventions only being used when absolutely necessary. Interventions and strategies aimed at reducing the use of restrictive interventions in this clinical population need to be developed and evaluated.

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Tables

Table 1: Demographic and clinical characteristics of total cohort and according to whether restrictive interventions (RI) were experienced or not

	Total cohort		Experienced RI		Did not experience RI		Statistical test of difference	Odds ratio
	N	%	N	%	N	%		
Sex							χ ² , df	
Male	95	59.7	16	18.8	79	81.3	0.1, 1	-
Female	64	40.3	12	16.8	52	83.2		
	Mean	SD	Mean	SD	Mean	SD	t-test, df	
Years of age (Mean ±SD)			20.8	2.3	21.1	2.2	-0.56, 157	
	N	%	N	%	N	%		
Marital status*							χ ² , df	
Never married	144	90.6	27	18.8	117	81.3	1.38, 3	-
Married/ De-facto	10	6.3	1	10.0	9	90.0		
Separated/ divorced	2	1.3	0	0	2	100		
Not stated	2	1.3	0	0	2	100		
Living arrangements								
Alone	8	5.0	2	25.0	6	75.0	8.3, 6	-
Parents	95	59.7	12	12.6	83	87.4		
Siblings	8	5.0	1	12.5	7	87.5		
Friends	13	8.2	5	38.5	8	61.5		
Partner	10	6.3	1	10.0	9	90.0		
Other relatives	8	5.0	2	25.0	6	75.0		
Other	17	10.7	5	29.4	12	70.6		
Employment status								
Employed	24	15.1	4	16.7	20	83.3	6.89, 4	-
Unemployed	83	52.2	17	20.5	66	79.5		
Home duties	1	0.6	1	100	0	0		
Student	47	29.6	5	10.6	42	89.4		
Not stated	4	2.5	1	25.0	3	75.0		
Country of birth*								
Born in Australia	115	72.8	20	17.4	95	82.6	0.03,1	
First generation migrant	43	27.2	8	18.6	35	81.4		
Diagnosis								
Schizophrenia spectrum disorder	33	20.8	9	27.3	24	72.7	7.47	-

Other psychotic disorders	49	30.8	7	14.3	42	85.7		
Bipolar affective disorders	19	11.9	6	31.6	13	68.4		
Depressive disorders	43	27.0	5	11.6	38	88.4		
Personality disorders	12	7.5	1	8.3	11	91.7		
Anxiety disorders	3	1.9	0	0	3	100		
Co-morbid substance use disorder								
Present	66	41.5	13	19.7	53	80.3	0.34, 1	-
Not present	93	58.5	15	16.1	78	83.9		
Insight								
Partial or present	119	81.0	17	14.3	102	85.7	3.28, 1	-
Absent	28	19.0	8	28.6	20	71.4		
Experienced RI in previous admissions**								
History of RI	24	16.6	11	45.8	13	54.2	17.9, 1	7.03***
No history of RI	121	83.4	13	10.7	108	89.3		
* Data available for 158 cases ** Data available for 145 cases *** P<0.001								

