

Sociodemographic and clinical characteristics of patients with recurrent psychiatric readmissions in Qatar

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Abstract

Objective: To examine the sociodemographic and clinical characteristics of psychiatric patients with recurrent psychiatric readmissions (RPR).

Methods: A retrospective study was conducted at Hamad General Hospital in Qatar on psychiatric patients with recurrent readmissions from August 2018 to January 2019.

Results: Of 380 psychiatric patients admitted during the study period, 40 (10.5%) were readmitted within 30 days of discharge. Most of the patients who were readmitted were single, male and unemployed. Psychotic spectrum disorder was the most frequent psychiatric condition and was diagnosed in 18 (45%) patients. A total of 30% of the patients were receiving treatment with anti-psychotics, and a similar number received more than one medication. Most patients showed poor or no compliance. Only 12.5% of patients stayed in the hospital for more than 5 weeks in their last admission during the study period.

Conclusions: Poor compliance, male sex and single status were the most common demographic and clinical features of patients with RPR. Post-discharge psychiatric care should be tailored to meet the requirements of patients prone to RPR.

Keywords

Post-discharge care, mental health, revolving door, readmission, psychiatric services, psychotic spectrum disorder, compliance, retrospective study

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Introduction

Recurrent psychiatric readmissions place additional strain on the health care system and make treatment more expensive.¹⁻⁵ A higher readmission rate is generally considered an indicator of poor inpatient psychiatric services; post-discharge care, external stressors and other non-clinical factors are also recognized contributors.⁶⁻⁸ Psychiatric readmission has been studied extensively, and attempts have been made to identify its predictors.⁹⁻¹¹ Age, educational level, socioeconomic status, psychiatric diagnosis, psychiatric treatment, previous history of psychiatric hospitalization, length of hospital stay, adherence to treatment post-discharge and substance abuse are frequently reported to be associated with a higher incidence of psychiatric readmission; however, there is no consensus on the predictors of readmission.^{3,5,11,12}

Readmission after psychiatric discharge can stem from the natural progression of the patient's underlying disease, a new illness or problem unrelated to the index admission, or the consequence of poor communication regarding the dose and schedule of medication or follow-up plans.^{11,13,14} With appropriate in-hospital and post-discharge care, however, a substantial number of readmissions can be prevented. A systematic review of 34 studies found the pooled median of avoidable readmissions to be 27.1%.¹⁵ A subsequent observational study from 12 academic medical centres in the USA reported that approximately 27% of readmissions were potentially preventable.¹⁶ Although these studies did not focus exclusively on psychiatric readmissions, careful monitoring of predictors of readmission and taking remedial action could reduce the readmission rate in the psychiatric care setting.¹²

Factors affecting psychiatric readmissions are not restricted to the clinical domain but are multifaceted, encompassing

individual, environmental and clinical dimensions.^{1,5,9,13,17-36} However, there is no consensus on the predictors of psychiatric readmission; for example, a large-scale cross-sectional analysis in the USA showed that length of stay is associated with risk of readmission within 30 days post-discharge.³¹ However, a national case register study did not find that the length of hospital stay was an independent risk factor for readmission within 30 days, though age up to 45 years, short duration between index admission, and readmission and prior hospitalization were identified as risk factors.³⁷ Such discrepancies among reported potential risk factors were also documented in a recent systematic review.¹¹ The review found that sociodemographic variables and length of hospital stay were frequently reported predictors of psychiatric readmission; however, in most of the studies, several relevant factors (such as social support and prior hospitalization) were not discussed or accounted for.

Despite non-uniformity in terms of readmission time and study cohort, most studies underscore the need to identify factors that can minimize unplanned readmissions.^{12,37} Furthermore, considering the disparities among different countries in terms of in-hospital care protocols and post-discharge social support, it is vital to examine readmission patterns in countries with distinct demographic and socioeconomic structures. The Middle East has distinct sociodemographics; however, there have been only a few reports on psychiatric readmission from this region.^{38,39} Al-Shehhi et al.³⁸ investigated psychiatric readmissions during 1 year and reported that gender, employment status, adherence to medication and history of a previous admission were independent predictors of readmission. In another notable study that involved two hospitals from two countries in the Middle East (Egypt and Saudi Arabia), perceived social support, medication adherence and duration

of last hospital admission were factors identified as playing a role in readmission within 6 months.³⁹ Qatar is in the Middle East and has a high human development index and high per capita income; however, there are no reports on the demographic and clinical aspects of psychiatric readmission in Qatar.

The 'revolving door' phenomenon is a term coined to define recurrent psychiatric readmissions.⁴⁰ Such patients are often chronically ill and need specific attention in terms of in-hospital psychiatric care, transitional care and post-discharge care.⁴¹ However, little information is available on the demographic and clinical characteristics of such patients. This descriptive study aimed to analyse the sociodemographic and clinical characteristics of patients with recurrent psychiatric readmissions in Qatar.

To mitigate the burden of mental disorders, research is needed on a range of risk factors associated with readmission. However, in this study, we focused only on sociodemographic factors related to readmission.

Method

Study design and sample

This retrospective chart review was conducted over 6 months from August 2018 to January 2019 at Hamad General Hospital in Qatar. Participants were patients admitted to the hospital's emergency department within 30 days of discharge after receiving psychiatric treatment. Only patients who showed the revolving door phenomenon (recurrent readmission) during the study period were considered⁴⁰ and their second or subsequent readmission was included. All these patients were in the current period of treatment and were selected consecutively. Data on the last admission and readmissions within 30 days of the previous admission were extracted from the computerized medical records.

Setting

The Mental Health Service at Hamad Medical Corporation is the primary provider of specialized mental health care and treatment in Qatar. The Mental Health Service provides a range of acute and community-based services, including outpatient clinics, inpatient care, consultation/liaison, child and adolescent mental health services, geriatric psychiatry and emergency services, which are provided in different locations across the country. The Mental Health Service also provides residency training in psychiatry and various fellowship programs, in addition to teaching medical students from Qatar University and Weil Cornell medical college. The Accreditation Council for Graduate Medical Education International accredited the residency training in 2013.

Procedure

The readmission rate was defined based on the proportion of patients who had repeat hospitalization for non-elective reasons within 30 days of discharge.⁸ Good compliance was defined as patients who followed the prescribed schedule and medication dosages; poor compliance was defined as patients who took only a portion of their prescribed medications, and non-compliance was defined as patients who did not take the prescribed medicine. Socioeconomic status was defined based on the monthly household income as per the national standard. Violence was defined according to the World Health Organization as the 'intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation'.⁴² This definition encompasses all forms of

violence, which are further divided into self-inflicted, interpersonal and collective violence. If the patient was living with family in the same house, he/she was considered to have social support, and lack of social support was defined as living in a separate part of the house or living alone. The data were collected using a structured questionnaire that included items on date of most recent admission, nationality, age group, marital status, availability of social support, education level, employment status, financial status, forensic history, history of violence, substance abuse, psychiatric diagnosis, previous admissions, duration of illness, compliance, length of stay for the last admission, involuntary admission, treatment received in the last entry and discharge to community care.

Ethical statement and consent

Ethical approval was obtained from the mental health research committee (approval number QRS/PSY/T002/2018). As this was a retrospective study and the participants were anonymous, the review board of the Hamad Medical Corporation Mental Health Service waived the requirement for informed consent.

Statistical analysis

Continuous variables are presented as the mean and standard deviation and categorical variables as the number (percentage). SPSS Statistics for Windows, Version 22 (IBM Corp., Armonk, NY, USA), was used for data entry and statistical analysis.

Results

During the study period, 40 (10.5%) of 380 patients who received psychiatric treatment were readmitted within 30 days of the index admission. A total of 30% (n = 12) of the readmitted patients were women. No patient was older than 64 years, and 9

(22.5%) were aged 20 years or younger. Of the readmitted patients, 19 (47.5%) were from Qatar, 13 (32.5%) were from Asia, 7 (17.5%) were from Africa and 1 (2.5%) was from the USA; 29 (72.5%) of the patients were single, 10 (25%) were married and 1 (2.5%) was divorced (Table 1).

Twenty-four (60%) of the patients had social support and 13 (32.5%) were

Table 1. Patient demographic and socioeconomic characteristics (n = 40).

Variable	n (%)
Age, years	
0–20	9 (22.5)
21–30	13 (32.5)
31–40	11 (27.5)
41–50	4 (10.0)
51–64	3 (7.5)
Sex	
Male	28 (70.0)
Female	12 (30.0)
Nationality	
Qatar	19 (47.5)
Asian	13 (32.5)
African	7 (17.5)
American	1 (2.5)
Marital status	
Married	10 (25.0)
Single	29 (72.5)
Divorced	1 (2.5)
Availability of social support	
Yes	24 (60.0)
No	16 (40.0)
Education level	
Primary school	10 (25.0)
High school	22 (55.0)
University	6 (15.0)
Postgraduate	1 (2.5)
Illiterate	1 (2.5)
Employment	
Yes	13 (32.5)
No	27 (67.5)
Socioeconomic status	
Low	22 (55.0)
Average	16 (40.0)
High	2 (5.0)

employed. Socioeconomic status was classified as low in 22 (55%) patients, average in 16 (40%) and high in 2 (5%). Of all readmitted patients, 32 (80%) had primary school or high school education, 1 patient (2.5%) was illiterate and 6 (15%) had tertiary education (Table 1).

Most patients ($n=28$, 70%) had no forensic history, 9 (22.5%) were current or former prisoners and 3 (7.5%) had a prosecution order. A total of 10 patients (25%) had no history of violence; 13 (32.5%), 11 (27.5%) and 1 (2.5%) had a history of harming others, deliberate self-harm and harm to property, respectively. There were 5 patients (12.5%) with a history of perpetrating more than one type of violence. Substance abuse was noted as a problem during admission in 7 patients (17.5%); most of the patients (65%, $n=26$) were not admitted for suicidal tendencies (Table 2).

Psychotic spectrum disorder was the most frequent diagnosis, $n=18$ (45%), and 12 (30%) patients had a diagnosis of mood disorder. The duration of illness was less than a year in 14 (35%) patients, 1 to 2 years in 6 (15%) patients, 3 to 4 years in 2 (5%) patients and ≥ 5 years in 18 (45%) patients. Twelve patients (30%) were receiving anti-psychotics, 7 (17.5%) were taking anti-depressants and 12 (30%) were on more than one medication. There were 5 patients (12.5%) who received no treatment and 3 (7.5%) who received a depot injection (Table 2; Figure 1).

The length of hospital stay during the last admission was less than a week for 13 patients (32.5%), 1 to 2 weeks for 14 (35%) and 3 to 4 weeks for 8 (20%). Five patients (12.5%) stayed in the hospital for ≥ 5 weeks. The admission was voluntary in 31 patients (77.5%). Of patients, 22 (55%) had a history of one to two psychiatric admissions and 9 (22.5%) were admitted five or more times. Compliance was poor in 17 patients (42.5%) and good in 13 (32.5%).

Ten patients (25%) were deemed non-compliant, and 9 patients (22.5%) were referred to a community psychiatry centre (Table 2).

Subgroup analysis of sex was also performed. In the group aged up to 20 years, the proportion of men and women was 21.4% and 25%, respectively. Approximately 54% of men and 75% of women were aged 20 to 40 years. None of the women and 25% of the men were older than 40 years. Involuntary admission was documented in approximately 17% of women and 25% of men. Approximately 54% of men and 83% of women had no suicidal tendencies. Substance abuse was documented in 25% of men but not in any women. Compliance was deemed good in approximately 39% of men and 16.7% of women.

Discussion

Although this study focused mainly on the sociodemographic features of readmitted patients, we firmly believe that rather than just attempting to reduce readmissions, psychiatric hospitals could examine the types of individuals who are repeatedly admitted and create interventions aimed at improving the functionality and the long-term outcome of these patients in the community.

In this study, the rate of readmission within 30 days of the last admission was 10.5%. Readmission rate within 30 days was reported to be 13% in a national case register study from Israel and 16% in a large study from the USA.^{37,43} However, data on 30-day readmission rates in the Middle East are not available; the 1-year readmission rate was reported to be 39% in a study from Oman.³⁸ Although our readmission rate compares favourably with the rates reported in these international studies, an exact comparison is difficult because of the potential differences in inclusion criteria, clinical practices and

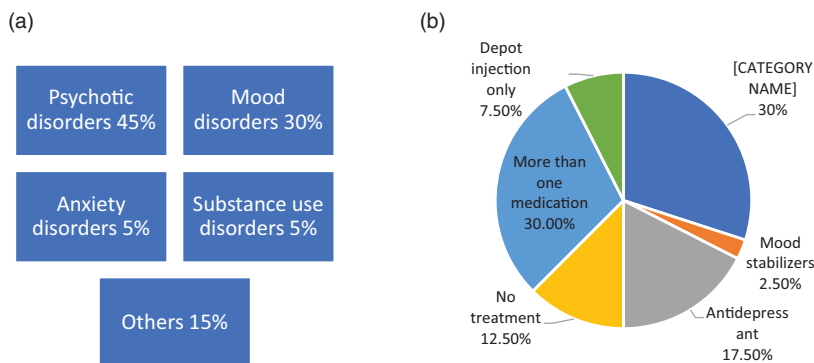
Table 2. Behavioural and clinical characteristics of patients (n = 40).

Variable	n (%)
Forensic history	
History of incarceration	3 (7.5)
Current incarceration	6 (15.0)
No. of incarcerations	28 (70.0)
Prosecution order	3 (7.5)
History of violence	
Deliberate self-harm	11 (27.5)
Harm to others	13 (32.5)
Harm to property	1 (2.5)
No history of violence	10 (25.0)
More than one type	5 (12.5)
Substance abuse noted as a problem during admission	
Yes	7 (17.5)
No	33 (82.5)
Diagnosis	
Psychotic spectrum disorder	18 (45.0)
Mood disorder	12 (30.0)
Anxiety spectrum disorder	2 (5.0)
Substance use disorder	2 (5.0)
Other	6 (15.0)
Psychiatric admissions	
1–2	22 (55.0)
3–4	9 (22.5)
≥5	9 (22.5)
Years since diagnosis	
<1	14 (35.0)
1–2	6 (15.0)
3–4	2 (5.0)
≥5	18 (45.0)
Admitted after attempted suicide, suicidal ideation or threatened self-harm	
Deliberate self-harm	5 (12.5)
Suicidal ideation	9 (22.5)
None	26 (65.0)
Compliance	
Poor	17 (42.5)
Good	13 (32.5)
Non-compliant	10 (25.0)
Length of stay during last admission (weeks)	
<1	13 (32.5)
1–2	14 (35.0)
3–4	8 (20.0)
≥5	5 (12.5)
Involuntary admission	
Yes	9 (22.5)
No	31 (77.5)

(continued)

Table 2. Continued

Variable	n (%)
Treatment	
Anti-psychotic	12 (30.0)
Mood stabilizer	1 (2.5)
Anti-depressant	7 (17.5)
No treatment	5 (12.5)
More than one medication	12 (30.0)
Depot injection only	3 (7.5)
Referral to community psychiatrist	
Yes	9 (22.5)
No	31 (77.5)

**Figure 1.** Spectrum of psychiatric disorders (a) and treatment modalities (b) among patients ($n = 40$).

post-discharge care services across the different studies. Another difference is that only recurrent admissions were considered in the present study.^{10,17,25–28,44–46}

Most of the patients readmitted in our study were men. Male sex is reported to be a predictor of psychiatric readmission. Lin et al.⁴⁷ found that being male was associated with an increased risk of readmission irrespective of the duration of follow-up. Male sex has also been explicitly addressed in the context of the revolving door phenomenon and found to be a risk factor.⁴⁸ Woo et al. and other researchers have reported similar findings.^{46,49} In our subgroup analysis of patient sex, substance abuse and suicide-related factors were

predominantly observed in men, although the difference did not reach statistical significance. Single relationship status has also been identified as a significant predictor of readmission.⁴⁹ In a study conducted in two Arab hospitals, male patients who were unemployed, unmarried and had no education beyond primary school had an increased risk of early readmission.³⁹ That most of our patients had not been educated to high school level and most were single and unemployed supports the previously reported effects of education level and employment status.^{39,49}

Poor or no compliance was observed in most patients in this study. Poor adherence to medications is an independent predictor

of readmission in several studies.^{38,50–53} In our study, 32% of the patients tended to harm others, and most had no suicidal ideation. Approximately 75% of our patients displayed some type of violence, although most did not have any forensic history. These results are in line with those reported in other studies.^{11,34,38} In our study, the absence of any specific trend in the relative incidence of readmission with an increase in the length of stay indicates that length of stay at index admission may not necessarily affect the readmission rate.⁵¹ Furthermore, most of our patients were of low to average socioeconomic status, supporting the view that socioeconomic status may affect readmission rate.^{7,13,54}

In the present study, psychotic spectrum disorder was the most common diagnosis, followed by mood disorder. Morris et al.³⁴ identified psychotic disorders in 26%, mood disorders in 36% and substance use disorders in 51% of patients readmitted to the emergency department within 30-day post-discharge. Interestingly, another 30-day post-discharge readmission study identified psychotic disorders in more than 50% of patients.³¹ We identified substance abuse in only 17.5% of patients, none of who were women. The suggestion that substance abuse shows cultural or regional variability can be partly attributed to such variations.^{14,17,21,28,29} Anti-psychotic agents were prescribed for 30% of our patients and a similar percentage was receiving more than one medication. Approximately 18% of patients were prescribed an anti-depressant; for 7.5% of these patients, treatment was administered as a depot injection. Treatment via depot injection is reportedly a risk factor for readmission, whereas the use of an orally administered anti-psychotic agent is a protective factor.¹¹ However, because most of our patients were readmitted despite being on medication, further exploration of the effect of psychiatric medication on

readmission, and specific focus on post-discharge compliance, is required.

The main limitation of this descriptive study was its retrospective design, which meant that only variables for which data were available in the medical records could be examined. The absence of any comparison with a group of patients who did not show recurrent readmission is another limitation that precluded a detailed statistical analysis. We have discussed the observed differences in the relative incidences in light of previously reported studies on risk factors for readmission; however, as a standalone study, this work cannot confirm such associations. We were also unable to evaluate the severity of symptoms or obtain current data clarifying how long a patient continued medication upon discharge into the community. Data on the access to community mental health services were not collected; such data are necessary to fully understand post-discharge factors. Despite these limitations, this study addresses a research gap and provides valuable information on different aspects of recurrent psychiatric readmission rates in Qatar. Our findings corroborate those of several international studies and add useful information to the global pool of data for this population. The results suggest that single and unemployed men are the most represented among readmitted patients; therefore, special attention should be paid to this group in discharge planning and follow-up. Another important clinical implication of this study is that compliance adherence should be given a high priority in patient education and follow-up, as most of the readmitted patients had poor or no compliance.

Further research is needed to understand the different aspects of this complex issue in more depth and to explore interventions that could reduce readmission rates. Other areas of investigation should include the effectiveness of pre-discharge factors, such

as patient education, discharge planning, reconciliation of medication and scheduling a follow-up appointment, as well as post-discharge interventions such as access to community mental health services, follow-up telephone calls, communication with community mental health providers and home visits. Research is also needed on bridging interventions, such as transition coaches, patient-centred discharge instructions and continuity of clinical care between inpatient and outpatient settings. Greater referral of patients with limited social support and poor compliance with medication to community psychiatry centres may also be helpful.

In summary, this study identified several distinct demographic and clinical features of patients who had recurrent readmissions after psychiatric treatment. The readmission rate in our study was in line with internationally reported values. Patients in this study were relatively young, unemployed chronic patients with a substantial history of violence, recurrent readmissions and psychotic spectrum disorder (or more than one diagnosis). Psychotic spectrum disorder and mood disorder were the most common diagnoses, whereas substance use disorder showed low frequency. However, no specific patterns were observed in the length of hospital stay in the last admission or the duration of illness. More men than women were in the recurrently readmitted patients. Further studies are needed to analyse predictors for recurrent admissions. Psychiatric services and patient care practices should be tailored to focus on populations that are more prone to the risk of recurrent readmission.

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Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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References

1. Phillips MS, Steelesmith DL, Campo JV, et al. Factors associated with multiple psychiatric readmissions for youth with mood disorders. *J Am Acad Child Adolesc Psychiatry* 2020; 59: 619–631.
2. Miller DAA, Ronis ST, Slaunwhite AK, et al. Longitudinal examination of youth readmission to mental health inpatient units. *Child Adolesc Ment Health* 2020; 25: 238–248.
3. Edgcomb JB, Sorter M, Lorberg B, et al. Psychiatric readmission of children and adolescents: a systematic review and meta-analysis. *Psychiatr Serv* 2020; 71: 269–279.
4. Wakim ADS, Martella BDM, Castaldelli-Maia JM, et al. Cross-sectional study of readmissions to the psychiatric ward of Hospital Estadual Mário Covas in Santo André, state of São Paulo, between 2008 and 2015. *Trends Psychiatry Psychother* 2019; 41: 121–127.
5. Sfetcu R, Musat S, Haaramo P, et al. Overview of post-discharge predictors for psychiatric re-hospitalisations: a systematic review of the literature. *BMC Psychiatry* 2017; 17: 227.
6. Byrne SL, Hooke GR and Page AC. Readmission: a useful indicator of the quality of inpatient psychiatric care. *J Affect Disord* 2010; 126: 206–213.
7. Stahler GJ, Mennis J, Cotlar R, et al. The influence of neighborhood environment on treatment continuity and rehospitalization in dually diagnosed patients discharged

- from acute inpatient care. *Am J Psychiatry* 2009; 166: 1258–1268.
8. Rumball-Smith J and Hider P. The validity of readmission rate as a marker of the quality of hospital care, and a recommendation for its definition. *N Z Med J* 2009; 122: 63–70. Available from: <http://europepmc.org/abstract/MED/19305451>.
 9. Tulloch AD, David AS and Thornicroft G. Exploring the predictors of early readmission to psychiatric hospital. *Epidemiol Psychiatr Sci* 2016; 25: 181–193.
 10. Rylander M, Colon-Sanchez D, Keniston A, et al. Risk factors for readmission on an adult inpatient psychiatric unit. *Qual Manag Health Care* 2016; 25: 22–31.
 11. Donisi V, Tedeschi F, Wahlbeck K, et al. Pre-discharge factors predicting readmissions of psychiatric patients: a systematic review of the literature. *BMC Psychiatry* 2016; 16: 449.
 12. Kim B, Weatherly C, Wolk CB, et al. Measurement of unnecessary psychiatric readmissions: a scoping review protocol. *BMJ Open* 2019; 9: e030696.
 13. Adebisi MO, Mosaku SK, Irinoye OO, et al. Socio-demographic and clinical factors associated with relapse in mental illness. *Int J Afr Nurs Sci* 2018; 8: 149–153.
 14. Loch AA. Stigma and higher rates of psychiatric re-hospitalization: São Paulo public mental health system. *Revista Brasileira de Psiquiatria* 2012; 34: 185–192.
 15. Van Walraven C, Bennett C, Jennings A, et al. Proportion of hospital readmissions deemed avoidable: a systematic review. *CMAJ* 2011; 183: E391–E402.
 16. Auerbach AD, Kripalani S, Vasilevskis EE, et al. Preventability and causes of readmissions in a national cohort of general medicine patients. *JAMA Intern Med* 2016; 176: 484–493.
 17. Gandré C, Gervais J, Thillard J, et al. Thirty-day readmission rates and associated factors: a multilevel analysis of practice variations in French Public Psychiatry. *J Ment Health Policy Econ* 2018; 21: 17–28.
 18. Hamilton JE, Rhoades H, Galvez J, et al. Factors differentially associated with early readmission at a university teaching psychiatric hospital. *J Eval Clin Pract* 2015; 21: 572–578.
 19. Chang LR, Lin YH, Wu Chang HC, et al. Psychopathology, rehospitalization and quality of life among patients with schizophrenia under home care case management in Taiwan. *J Formos Med Assoc* 2013; 112: 208–215.
 20. Vigod SN, Kurdyak PA, Seitz D, et al. READMIT: a clinical risk index to predict 30-day readmission after discharge from acute psychiatric units. *J Psychiatr Res* 2015; 61: 205–213.
 21. Burns T, Yeeles K, Koshiaris C, et al. Effect of increased compulsion on readmission to hospital or disengagement from community services for patients with psychosis: follow-up of a cohort from the OCTET trial. *Lancet Psychiatry* 2015; 2: 881–890.
 22. Ahmedani BK, Solberg LI, Copeland LA, et al. Psychiatric comorbidity and 30-day readmissions after hospitalization for heart failure, AMI, and pneumonia. *Psychiatr Serv* 2015; 66: 134–140.
 23. Edmondson D, Green P, Ye S, et al. Psychological stress and 30-day all-cause hospital readmission in acute coronary syndrome patients: an observational cohort study. *PLoS One* 2014; 9: e91477.
 24. Evans LJ, Harris V, Newman L, et al. Rapid and frequent psychiatric readmissions: associated factors. *Int J Psychiatry Clin Pract* 2017; 21: 271–276.
 25. Werbeloff N, Chang CK, Broadbent M, et al. Admission to acute mental health services after contact with crisis resolution and home treatment teams: an investigation in two large mental health-care providers. *Lancet Psychiatry* 2017; 4: 49–56.
 26. Graham KL, Dike O, Doctoroff L, et al. Preventability of early vs. late readmissions in an academic medical center. *PLoS One* 2017; 12: e0178718.
 27. Niehaus DJH, Koen L, Galal U, et al. Crisis discharges and readmission risk in acute psychiatric male inpatients. *BMC Psychiatry* 2008; 8: 44.
 28. Behr GM, Christie C, Soderlund N, et al. Patterns and determinants of acute psychiatric readmissions. *S Afr Med J* 2002; 92: 369–374.

29. Shinjo D, Tachimori H, Maruyama-Sakurai K, et al. Risk factors for early unplanned readmission in patients with bipolar disorder: a retrospective observational study. *Gen Hosp Psychiatry* 2019; 58: 51–58.
30. Shimada T, Ohori M, Inagaki Y, et al. Effect of adding individualized occupational therapy to standard care on rehospitalization of patients with schizophrenia: a 2-year prospective cohort study. *Psychiatry Clin Neurosci* 2019; 73: 476–485.
31. Ortiz G. Predictors of 30-day postdischarge readmission to a multistate national sample of state psychiatric hospitals. *J Health Qual* 2019; 41: 228–236.
32. Moore CO, Moonie S and Anderson J. Factors associated with rapid readmission among Nevada state psychiatric hospital patients. *Community Ment Health J* 2019; 55: 804–810.
33. Penney SR, Marshall L and Simpson AIF. A prospective study of pathways to hospital readmission in Canadian forensic psychiatric patients. *J Forens Psychiatry Psychol* 2018; 29: 368–386.
34. Morris DW, Ghose S, Williams E, et al. Evaluating psychiatric readmissions in the emergency department of a large public hospital. *Neuropsychiatr Dis Treat* 2018; 14: 671–679.
35. Doupnik SK, Lawlor J, Zima BT, et al. Mental health conditions and unplanned hospital readmissions in children. *J Hosp Med* 2018; 13: 445–452.
36. Šprah L, Dernovšek MZ, Wahlbeck K, et al. Psychiatric readmissions and their association with physical comorbidity: a systematic literature review. *BMC Psychiatry* 2017; 17: 2.
37. Zilber N, Hornik-Lurie T and Lerner Y. Predictors of early psychiatric rehospitalization: a national case register study. *Isr J Psychiatry Relat Sci* 2011; 48: 49–53.
38. Al-Shehhi AI, Al-Sinawi HN, Jose S, et al. Rate and predictors of 1-year readmission in tertiary psychiatric hospitals. *Saudi J Med Sci* 2017; 5: 224–231.
39. Saleh ES and El-Hadidy MA. Predictors of psychiatric early readmission in two Arab hospitals. *The Arab Journal of Psychiatry* 2012; 23: 12–21.
40. Di Lorenzo R, Sagona M, Landi G, et al. The “revolving door phenomenon” in an acute psychiatric ward: a 5-year retrospective analysis. *Eur Psychiatry* 2015; 30: 1366.
41. Ko Y and Park S. Life after hospital discharge for people with long-term mental disorders in South Korea: focusing on the “revolving door phenomenon”. *Perspect Psychiatr Care* 2020.
42. Mercy JA, Hillis SD, Butchart A, et al. Interpersonal violence: global impact and paths to prevention. In: Mock CN, Nugent R, Kobusingye O, et al. (eds) *Injury Prevention and Environmental Health*. Washington D.C.: The International Bank for Reconstruction and Development/The World Bank, 2017.
43. Vijayaraghavan M, Messer K, Xu Z, et al. Psychiatric readmissions in a community-based sample of patients with mental disorders. *Psychiatr Serv* 2015; 66: 551–554.
44. Hamilton JE, Passos IC, De Azevedo Cardoso T, et al. Predictors of psychiatric readmission among patients with bipolar disorder at an academic safety-net hospital. *Aust N Z J Psychiatry* 2016; 50: 584–593.
45. Jiang W, Alexander J, Christopher E, et al. Relationship of depression to increased risk of mortality and rehospitalization in patients with congestive heart failure. *Arch Intern Med* 2001; 161: 1849–1856.
46. Li X, Srasuebkul P, Reppermund S, et al. Emergency department presentation and readmission after index psychiatric admission: a data linkage study. *BMJ Open* 2018; 8: e018613.
47. Lin CH, Chen WL, Lin CM, et al. Predictors of psychiatric readmissions in the short- and long-term: a population-based study in Taiwan. *Clinics (Sao Paulo)* 2010; 65: 481–489.
48. Mahendran R, Subramanian M, Chong SA, et al. Brief communication: factors affecting rehospitalisation in psychiatric patients in Singapore. *Int J Soc Psychiatry* 2005; 51: 101–105.
49. Woo BK, Golshan S, Allen EC, et al. Factors associated with frequent admissions to an acute geriatric psychiatric inpatient unit. *J Geriatr Psychiatry Neurol* 2006; 19: 226–230.

50. Nelson E, Maruish M and Axler J. Effects of discharge planning and compliance with outpatient appointments on readmission rates. *Psychiatr Serv* 2000; 51: 885–889.
51. Ng C, Loh HS, Yee A, et al. The prevalence and associated factors of psychiatric early readmission in a teaching hospital, Malaysia. *Malays J Psychiatry* 2012; 21: 1–3.
52. Green JH. Frequent rehospitalization and noncompliance with treatment. *Hosp Community Psychiatry* 1988; 39: 963–966.
53. Vaughan K, McConaghy N, Wolf C, et al. Community treatment orders: relationship to clinical care, medication compliance, behavioural disturbance and readmission. *Aust N Z J Psychiatry* 2000; 34: 801–808.
54. Benjenk I and Chen J. Variation of follow-up rate after psychiatric hospitalization of medicare beneficiaries by hospital characteristics and social determinants of health. *Am J Geriatr Psychiatry* 2019; 27: 138–148.