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Factors Associated with Psychiatric Readmissions: A Systematic Review¹

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Abstract: Frequent Psychiatric Readmission (FPR) (revolving door phenomenon) is characterized by repeated and frequent hospitalizations that occur shortly after discharge. The aim was to analyze the criteria of FPR and associated factors: sociodemographic, clinic and care network data. We performed a systematic review in PubMed, VHL, and PsycINFO, using “readmission” and “mental disorder”. We selected empirical studies of adult populations, published in 2010-2014 in English, Portuguese and Spanish. Twenty-six articles were analyzed through the PRISMA protocol. High prevalence rates of FPR were found, between 9% (one month) and 84% (two years). Nevertheless, the different criteria used may have influenced contradictory results. The most consistent results indicate that young, single people, with less social support and involuntary admissions have higher chances of FPR, while community interventions seem to reduce FPR. We highlight the importance of establishing a consensus on the FPR criterion to develop future studies and interventions.

Keywords: psychiatric hospitalization, mental disorders, systematic review, mental health

Fatores Associados às Reinternações Psiquiátricas: Uma Revisão Sistemática

Resumo: Reinternações psiquiátricas frequentes (RPF) (fenômeno da porta giratória) caracterizam-se por repetidas e frequentes internações em pouco tempo após alta. Objetivou-se analisar os critérios que definem RPF e fatores associados: dados sociodemográficos, clínicos e rede de atenção. Procedeu-se uma revisão sistemática nas bases de dados PubMed, BVS, PsycINFO, utilizando “readmission” e “mental disorder”. Selecionou-se estudos empíricos com população adulta, publicados entre 2010-2014, em inglês, português e espanhol. Analisou-se 26 artigos através do protocolo PRISMA. Encontrou-se altas prevalências de RPF variando entre 9% (um mês) e 84% (dois anos). Porém, diferentes critérios utilizados podem ter influenciado resultados contraditórios. Os resultados mais consistentes apontam que pessoas jovens, solteiras, com menor apoio social e com internações involuntárias têm maior chance de apresentar RPF. Em contrapartida, as intervenções comunitárias parecem reduzir as RPF. Destaca-se a importância de estabelecer um consenso sobre o critério de RPF para o desenvolvimento de futuros estudos e intervenções.

Palavras-chave: hospitalização psiquiátrica, distúrbios mentais, revisão sistemática, saúde mental

Factores Asociados con los Reinternamientos Psiquiátricos: Una Revisión Sistemática

Resumen: Los Reinternamientos Psiquiátricos Frecuentes (RPF) (fenómeno de la puerta giratoria) son repetidos y frecuentes internamientos que ocurren poco tiempo después de acontecida el alta. Este estudio tuvo como objetivo analizar los criterios que definen los RPF y los factores asociados, tales como los datos sociodemográficos, clínicos y de la red de atención. Se efectuó una revisión sistemática en las bases de datos PubMed, BVS, PsycINFO, utilizando “readmisión” y “desorden mental”. Fueron seleccionados estudios empíricos realizados con población adulta, publicados entre 2010 y 2014, en inglés, portugués y español. Se analizaron 26 artículos a través del protocolo PRISMA. Además, fueron apreciadas altas prevalencias de RPF, variando entre el 9% (un mes) y el 84% (dos años). En cambio, los diferentes criterios utilizados pueden haber influido en resultados contradictorios. Los resultados más consistentes indican que las personas jóvenes, solteras, con menor apoyo social y con internamientos involuntarios, son más propensas a presentar RPF. Es importante establecer un consenso sobre el criterio de RPF para el desarrollo de futuros estudios e intervenciones.

Palabras clave: hospitalización psiquiátrica, trastornos mentales, revisión sistemática, salud mental

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Care delivery to people with mental disorders, respecting the principles of psychiatric reform advocated by the World Health Organization (WHO), has been implemented worldwide. One of the guidelines is the deinstitutionalization process, which promotes the closure of former psychiatric hospitals and the creation of substitute community services (Amadeo, Becker, Fioritti, Burti, & Tansella, 2007). These

services, installed near people's homes, should be backed by beds in general hospitals, which operate in the acute phase of the disease, to residential facilities for long-term care, constituting an integrated network of intersectoral and community services. Psychosocial care is based on the provision of care beyond the symptom, considering the needs and uniqueness of the subjects, respecting their priorities, in line with human rights conventions (Amaddeo et al., 2007; Thornicroft & Tansella, 2004).

In the closure process of the psychiatric hospitals, it was extremely important for the decrease in beds to accompany the implementation of community-based services. According to Pitta (2011), the creation of beds in general hospitals was fundamental, considering the moments when the user requires care in a protected environment due to the risks that may derive from the crisis. The author points out that the creation of beds in Brazil did not follow planning in terms of population coverage, which led to large gaps in care in some regions.

Internationally, the revolving door phenomenon is characterized by repeated and frequent psychiatric readmissions shortly after discharge. Studies associate their occurrence with difficulties in the compliance with and continuity of extra-hospital treatment, both outpatient and inpatient, or to insufficient substitutive services in the community (Dimenstein et al., 2012; Oyffe, Kurs, Gelkopf, Melamed & Bleich, 2009; Ramos, Guimarães & Enders, 2011).

Frequent readmissions are characterized according to different frequency criteria (number of readmissions and interval between readmissions), and there is no consensus on the criterion among the authors (Gastal et al., 2000; Oyffe et al., 2009; Ramos et al., 2011 Roick et al., 2004). Among the associated factors, the literature points to the following predictors: male users (Parente et al., 2007; Roick et al., 2004); single and living alone (Oyffe et al., 2009, Parente et al., 2007); first long-term hospitalization (Gastal et al., 2000); large number of previous admissions and request for discharge against medical evaluation (Oyffe et al., 2009) and less contact with the family (Bezerra & Dimenstein, 2011; Roick et al., 2004).

In a recent systematic review about the predictors of readmissions, less than half of the studies found significant associations between the variables analyzed and readmissions. Among these, most of the results were contradictory. Being married and having social support stood out as protective factors and being unemployed and previous hospitalizations as risk factors. In addition, the number and frequency of readmissions (Donisi, Tedeschi, Wahlbeck, Haaramo & Amaddeo, 2016) were not analyzed.

Although there is evidence on the occurrence of the phenomenon in different locations (Bezerra&Dimenstein, 2011, Gastal et al., 2000, Oyffe et al., 2009, Parente et al., 2007), Brazilian studies on the theme remain scarce, and none were included in this review (Donisi et al., 2016). Thus, this systematic review is proposed to analyze the criteria

that define frequent psychiatric readmissions and associated factors: sociodemographic, clinical data and care network.

Method

The systematic review is a type of scientific study that aims to compile, describe and critically analyze the results of different studies on a given theme, developing a synthesis of the findings (Cordeiro, Oliveira, Rentería & Guimarães, 2007). The procedures used were based on the protocol Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Liberati et al., 2009).

Consulted Databases

The search was carried out in the PubMed, VHL and PsycINFO electronic databases. The choice of the databases was due to the fact that most research on the subject comes from the medical area and is indexed in PubMed; the Virtual Health Library (VHL) encompasses Brazilian and Latin American studies and PsycINFO is a reference database in the field of Psychology.

Definition of Search Terms

Two descriptors were used in combination with the Boolean operator "AND" in all searches, and the descriptors "readmission" and "mental disorder" were chosen, cataloged in the Health Sciences Descriptors (DeCS). The former was chosen because its results were more comprehensive when compared to the term "patient readmission" in the Medical Subject Headings (MeSH from PubMed). The choice of the descriptor "mental disorder" was due to the attempt to delimit the readmissions related to users with mental disorders.

Inclusion Criteria

The included studies had to: (1) contain the descriptors; (2) follow the actuality criterion, having been published in the five years before the collection (2010-2014); (3) complete article; (4) available in English, Portuguese or Spanish; (5) empirical study; (6) studies with adult population, due to the particularities of the factors involving the different age groups; (7) to have psychiatric readmission as the central theme or as a dependent variable.

Exclusion Criteria

To refine the search, studies were excluded if: (1) the central theme was not psychiatric readmissions (secondary data or results); (2) on children / adolescents; (3) on mental and behavioral disorders related to the use of alcohol and other psychoactive substances (World Health Organization [WHO], 2016); (4) on organic mental disorders, mental retardation and psychological development disorders (WHO, 2016).

Procedure

Data collection. Two independent judges conducted the searches in May 2015. In the total search of the three databases, 3,419 articles were found. In the advanced search tool, the descriptors were added in separate fields and the Boolean operator “AND” was selected. In the VHL, for example, the search option in “title, abstract, subject” was selected. Next, the filters were used for year of publication, selecting the period from January 2010 to December 2014, and for the languages “Spanish”, “English” and “Portuguese”, and, finally, the age limit filter “adult”.

To refine the search, repeated studies were removed and the abstracts of the 355 articles included were read, applying the exclusion criteria. In those cases where doubts remained after reading the abstract, the article was read in full and, in case of disagreement among the judges, the article was revised until a consensus was reached as to the inclusion or exclusion of the study. At the end of the search, 26 studies were identified and analyzed. The flowchart on the selection of the studies is shown in Figure 1.

Data analysis. Based on the reading of the full articles, the following data were extracted: type of study, location, objective, participants, frequent readmission criterion and results. After processing the data, the results regarding the rate of readmissions, the interval between hospitalizations and the criteria used to define frequent psychiatric readmissions were analyzed. In addition, we chose to divide and analyze the remainder of the data in three axes: sociodemographic data, clinical data and data on the care network.

Results

We analyzed prospective ($n = 15$) and retrospective ($n = 11$), cross-sectional ($n = 4$) and cohort / longitudinal ($n = 22$) studies. Samples ranged from 34 (intervention study) to 44,237 participants (study with national database). The main objectives can be divided into: (a) establishing readmission rates and evaluating the associated factors; (b) examining the risk factors or predictors of readmissions; and (c) examining the efficacy or effectiveness of an intervention. Only two Brazilian articles were found. The others came from European countries ($n = 8$), the United States ($n = 5$), Asian countries ($n = 4$), Australia ($n = 3$), Colombia ($n = 2$), and one study from Canada and another from South Africa.

Psychiatric Readmission

With regard to the psychiatric readmission rates, retrospective or prospective follow-up studies ranging from nine months to eight years of follow-up evaluated how many participants were readmitted for the study period. Of the 26 studies analyzed, 21 (81%) evaluated readmission rates in periods ranging from one ($n = 5$) to three ($n = 1$) or six months ($n = 4$) and one ($n = 13$) two ($n = 4$), three ($n = 1$), five ($n = 2$) or seven years ($n = 1$). The main results are shown in Table 1.

Table 1

Psychiatric Readmission Rates

Time	Results – readmission rates (%)
1 month	9.5% (Byrne et al., 2010); 11.2% (Kroken et al., 2012); 13% (Zilber et al., 2011); 23% (Boaz et al., 2013); 31% (Sánchez et al., 2013)
3 months	49.5% (Sánchez et al., 2013)
6 months	15.3% (Byrne et al., 2010); 21% (Moss et al., 2014); 31.2% (Kroken et al., 2012)
1 year	10% (Martínez-Ortega et al., 2012); 20.5% (Kikuchi et al., 2013); 30% (Schmutte et al., 2010); 34% (Castro et al., 2010); 42.6% (Loch, 2012); 44.8% (Kroken et al., 2012); 46% (Zhang et al., 2011); 60% (Jaramillo-Gonzalez et al., 2014); 72% (Boaz et al., 2013)
2 years	79.8% (Bowersox et al., 2012); 84% (Boaz et al., 2013)
3 years	55.6% (Kroken et al., 2012)
7 years	27.6% (Batalla et al., 2013).

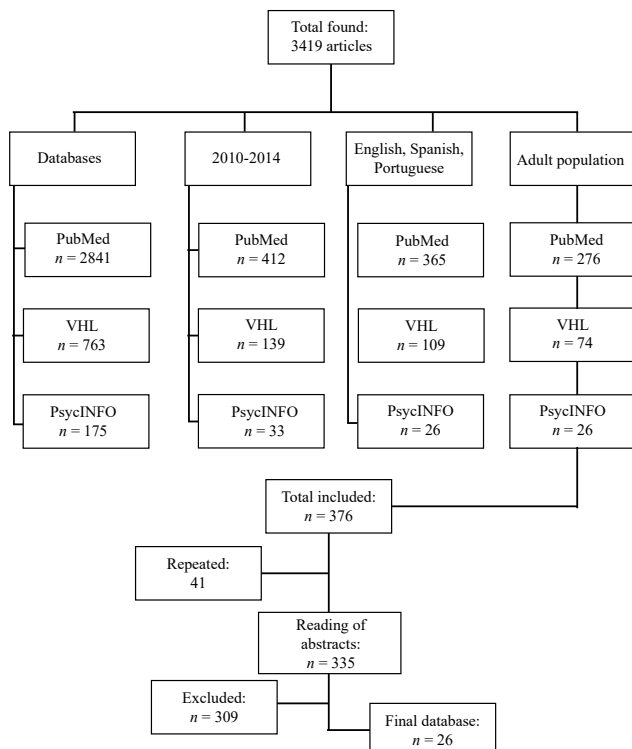


Figure 1. Flow chart of study selection.

In one month, readmission rates ranged from 11% to 31% (Boaz et al., 2013; Byrne, Hooke, & Page, 2010; Kroken, Mellesdal, Wentzel-Larsen, Jørgensen & Johnsen, 2012; Sánchez, Jaramillo & Herazo, 2013; Zilber, Hornik-Lurie & Lerner, 2011). In three months, there were 49% of readmissions (Sánchez et al., 2013), while in six months, rates varied between 21% and 37% (Byrne et al., 2010; Kroken et al., 2012; et al., 2014; Pfiffner et al., 2014). The most studied period for readmission rates was one year ($n = 13$) with rates varying between 10% and 72% (Boaz et al., 2013; Castro, Furegato, & Santos, 2010; Jaramillo-Gonzalez, Sanchez-Pedraza, & Herazo, 2014; Kikuchi, Abo, Kumakura, Kubota, & Nagano, 2013; Kroken et al., 2012; Loch, 2012; Martínez-Ortega et al., 2012; Schmutte, Dunn, & Sledge, 2010; Zhang, Harvey, & Andrew, 2011).

A study comparing readmissions between users with multiple diagnoses and users with first episode of depression found that 9% of users with multiple diagnoses and 11% of those with an episode of depression had at least one hospitalization in one year (Byrne et al., 2010). In Brazilian studies, Castro et al. (2010) found that 34% of hospitalizations corresponded to readmissions, of which 28% were admitted once and 67.6% hospitalized one to four times. Loch (2012), on the other hand, showed that 64.6% of the participants had been hospitalized in the year before the collection and 42.6% were admitted at least once in the year following discharge.

In 12-month follow-up or intervention studies, a survey comparing a group of patients with voluntary hospitalization and a group with involuntary hospitalization found that 37% and 27% of the participants, respectively, were readmitted once during the period (Pfiffner et al., 2014). A study comparing readmission rates before and after community service intervention showed that admissions dropped from 57% to 24% in the follow-up year (Dahlan, Midin, Sidi, & Maniam, 2013).

Another study evaluating the Community Treatment Order (CTO) intervention, which corresponds to compulsory community treatment, found that 29% were readmitted within one year of follow-up. The average number of hospitalizations in the year prior to the CTO was higher compared to the period during and after the CTO, indicating a 65% reduction in readmission rates as a result of the intervention (Awara, Jaffar, & Roberts, 2013). In a study comparing a group that received psychoeducation with a control group, readmission rates of 27% and 42.9% were found in one year, respectively (Rabovsky, Trombini, Allemann, & Stoppe, 2010). In the same sense, a study that carried out a continuous follow-up with the participants, by telephone or home visit every three months, found that 20% were readmitted within one year after discharge, 17.6% in the intervention group and 25.7% in the control group that received the traditional follow-up (Kikuchi et al., 2013).

For two years of follow-up, the rates found ranged from 50% to 84% (Boz et al., 2013; Bowersox, Saunders, & Berger, 2012; Byrne et al., 2010; Pfiffner et al., 2014). A survey showed that 50% of the participants with voluntary hospitalizations

and 62% of those with involuntary hospitalizations presented one readmission during that period (Pfiffner et al., 2014). A study comparing the time to readmission between users with multiple diagnoses and users with a first episode of depression found that 15% and 17.6% of users presented, respectively, at least one hospitalization in two years (Byrne et al., 2010). In a study using the three-year criterion, 55.6% of the participants were readmitted (Kroken et al., 2012).

Considering the five-year period, Byrne et al. (2010) found readmissions for 22% of users with multiple diagnoses and 21% of users diagnosed with depression, two episodes in 10% and 12.7% of the cases, respectively, and three or more episodes in 14.8% and 16.9%, respectively. And, finally, in a follow-up study developed over seven years in Spain, in total, 27.6% of the participants were readmitted (Batalla et al., 2013).

Frequent Readmission Criteria

Of the 26 articles analyzed, eight (30.7%) had criteria for frequent readmission and two (7.6%) for recent readmission. The criterion of recent readmission, according to Sánchez et al. (2013), was 30 days when considering a more rigorous criterion, and 90 days when considering a standard criterion. For Callaly, Trauer, Hyland, Coombs and Berk (2011), the criterion for recent readmission was 28 days after discharge.

When analyzing the studies that contained a criterion for frequent or high readmission rate, we found two studies that indicate at least one hospitalization per year (Martínez-Ortega et al., 2012; Zhang et al., 2011). Dahlan et al. (2013) adopted three or more hospitalizations in the last year, while Graca, Klut, Trancas, Borja-Santos, & Cardoso (2013) adopted at least three hospitalizations in five years. Schmutte et al. (2010) and Sledge et al. (2011) considered people with three or more hospitalizations in the 18 months prior to the current hospitalization.

Other studies used a combination of criteria. Bowersox et al. (2012) used the following references: (a) 3 or more hospitalizations in life, (b) at least 1 hospitalization in the year prior to the study, and (c) receiving care during admission at the start of the study. Botha et al. (2010) considered: (a) 3 or more hospitalizations in 18 months or 5 or more hospitalizations in 36 months; (b) 2 or more hospitalizations in 12 months and treatment with clozapine; or (c) 2 or more hospitalizations in 12 months and hospitalization of 120 days or more.

As for the criterion used for non-frequent or low-rate users, less than three admissions in one year (Dahlan et al., 2013, Graca et al., 2013) or only one hospitalization in the study period (Botha et al., 2010) were found. As a control group, Schmutte et al. (2010) used patients with only one or no hospitalization in the last 18 months.

Time To Readmission

Some surveys measured the time to readmission and the most risky period for this to happen. Regarding the average number of days between hospitalizations, the results varied

between 90 (Schmutte et al., 2010) and 782 days (Frick et al., 2013). Analyzing the mean time to readmission in the 30 days following the discharge, the average found was 26.3 days and, for the later period, the mean was 99 days (Boaz et al., 2013). One study found greater risks during the first month after discharge, between 6-7 months and 11 months (Jaramillo-Gonzalez et al., 2014).

Sociodemographic and Psychosocial Data

Regarding the participants' age, of the 26 studies analyzed, 15 (57.6%) evaluated this data. It was observed that 12 studies (46.1%) had participants with a mean age greater than 37 years (Awara et al., 2013; Boaz et al., 2013; Graca et al., 2013; Jaramillo-Gonzalez et al., 2014; Kikuchi et al., 2013; Lin et al., 2010; Loch, 2012; Moss et al., 2014; Pfiffner et al., 2014; Sánchez et al., 2013; Xiong, Iosif, Brooks, Scott, & Hilty, 2012; Zhang et al., 2011).

In seven articles (29.6%), age was a variable that showed no significant association with frequent readmissions (Awara et al., 2013; Kikuchi et al., 2013; Lin et al., 2010; Loch, 2012; Moss et al., 2014; Rabovsky et al., 2012; Xiong et al., 2012). In three studies, however, participants who were classified as frequent users were younger than non-frequent users (Boaz et al., 2013; Byrne et al., 2010; Graca et al., 2013). In the study by Zilber et al. (2011), then, the variable of age up to 45 years was significant for readmission within 30 days after discharge.

Regarding sex, 19 (73%) of the 26 articles analyzed the relationship with frequent readmissions. It was observed that, in ten studies (38.4%), this association was not significant (Awara et al., 2013; Boaz et al., 2013; Graca et al., 2013; Jaramillo-Gonzalez et al., 2014; Loch, 2012; Martínez-Ortega et al., 2012; Moss et al., 2014; Rabovsky et al., 2012; Xiong et al., 2012; Zilber et al., 2011). In the remainder, sex was a significant variable. In four studies (15.3%), men presented higher rates and a greater trend towards readmission (Batalla et al., 2013; Castro et al., 2010; Lin et al., 2010; Pfiffner et al., 2014). On the other hand, being a woman appeared as a risk factor in five other studies (Byrne et al., 2010; Callaly et al., 2011; Frick et al., 2013; Kroken et al., 2012; Sánchez et al., 2013).

Few studies have used socioeconomic variables and education in their analyses. Three articles (11.5%) showed an association between lower income and higher number of readmissions (Jaramillo-Gonzalez et al., 2014; Lin et al., 2010; Sánchez et al., 2013) and one study found no association (Kikuchi et al., 2013). Where education is concerned, in the sample profiles, most participants had a low education level (Batalla et al., 2013; Castro et al., 2010; Dahlan et al., 2013; Frick et al., 2013; Pfiffner et al., 2014; Zhang et al., 2011). One study found a significant increase in readmissions in people with high education levels (Jaramillo-Gonzalez et al., 2014) and, in three studies, education was not a significant variable (Kikuchi et al., 2013; Lin et al., 2010; Moss et al., 2014).

Regarding marital status, 14 (56.8%) studies analyzed this variable. In six studies, a predominance of single participants was found in the sample (Dahlan et al., 2013;

Jaramillo-Gonzalez et al., 2014; Loch, 2012; Sánchez et al., 2013; Schmutte et al., 2010; Zhang et al., 2011). In seven studies, a significant association was found between readmission and the fact that the patients were single (Batalla et al., 2013; Bowersox et al., 2012; Castro et al., 2010; Frick et al., 2013; Jaramillo-Gonzalez et al., 2014; Pfiffner et al., 2014; Sánchez et al., 2013) and, in four studies, this association was not significant (Awara et al., 2013; Boaz et al., 2013; Dahlan et al., 2013; Moss et al., 2014).

Finally, in relation to occupation, in five articles (19%), users' employment was analyzed. In three of them, the variable was not significant (Awara et al., 2013; Moss et al., 2014; Pfiffner et al., 2014). In the two articles in which this variable was significant, the results were different. Jaramillo-Gonzalez et al. (2014) found that the unemployed had the lowest readmission rates and that retirees and students were at greater risk of readmission. Schmutte et al. (2010) found that the unemployed had a higher risk of readmission than employed users.

Where psychosocial variables are concerned, when data on social support were analyzed, a study indicated that living in assisted facilities had no significant effect on readmissions (Pfiffner et al., 2014). Frick et al. (2013) presented that living with someone (relative or caregivers) or living in an institution had a protective effect for readmissions, which was corroborated in the study by Schmutte et al. (2010). In this sense, Dahlan et al. (2013) present social support as the only factor associated with lower readmission rates. In relation to family support, Castro et al. (2010) report that readmissions are generally associated with low family support.

Clinical Data

Regarding diagnosis, 17 studies (65%) evaluated more than one diagnosis in their research and nine were on a specific diagnosis. Among the former, the most prevalent diagnosis was schizophrenia and associated disorders, found in ten studies. Three other studies showed a predominance of mood disorders (Byrne et al., 2010; Frick et al., 2013; Sánchez et al., 2013).

Most of the studies of several diagnoses point to schizophrenia (and associated disorders) as the disorder with the highest risk of readmission (Botha et al., 2010; Lin et al., 2010; Martínez-Ortega et al., 2012). Graca et al. (2013) showed that the percentage of patients diagnosed with bipolar disorder, schizophrenia and other psychoses was significantly higher among users with multiple readmissions. In the same sense, Botha et al. (2010) found that the diagnosis of schizoaffective disorder was more prevalent in the group with high frequency of hospitalizations. Martínez-Ortega et al. (2012) found that people with schizophrenia, schizoaffective or personality disorders had a higher chance of being frequent hospitalization patients. Lin et al. (2010) revealed that patients who had a primary diagnosis of schizophrenia or affective disorder had a greater chance of readmission in 14 days.

Regarding the duration of hospitalization, of the 26 studies analyzed, 10 (38.4%) presented hospitalization time in days. The mean duration ranged from 10 to 20 days (Boaz

et al., 2013; Zhang et al., 2011). Two other studies reported the total hospitalization time, ranging from 69 to 143 days (Kikuchi et al., 2012; Pfiffner et al., 2014).

Regarding the type of discharge, many articles do not add this information to their findings. In two studies, most of the patients were discharged on medical orders, that is, they were discharged because their symptoms improved (Jaramillo-Gonzalez et al., 2014; Sánchez et al., 2013). The type of hospital stay (voluntary, involuntary or compulsory) was evaluated in seven (27%) of the 26 studies. Three studies show that more than half of the patients were hospitalized involuntarily, with rates ranging from 57% to 70.7% (Botha et al., 2010; Kikuchi et al., 2012; Zhang et al., 2011). Martínez-Ortega et al. (2012) found a greater number of involuntary hospitalizations in frequent patients compared to other patients (13% vs. 2%). In the same sense, Graca et al. (2013) report a higher proportion of users with frequent readmissions submitted to compulsory hospitalization.

In another study, the risk of readmission increased by 53% in involuntary hospitalizations. In case of readmission, for participants with involuntary hospitalization, subsequent hospitalizations took about 3.5 times longer than for patients in voluntary hospitalization (Pfiffner et al., 2014). One study shows the opposite result though, where involuntary hospitalization appears to be associated with late readmission or less frequent readmission (Frick et al., 2013).

Care Network Data

Few studies mention the type of follow-up between or after admissions. Six studies (23%) analyze the use of community-based mental health services in some form. One of them found a significant association between referral to a clinician and longer time in the community, whereas referral to the hospital outpatient clinic showed an opposite association (Frick et al., 2013).

In another study, 90% of the patients had a low hospitalization rate after having received treatment in a hospital-based community service. Comparing a year before and after this treatment, it was observed that there was a significant reduction in hospitalization, with 75.5% of patients having no relapse after the treatment (Dahlan et al., 2013). In a study that evaluated the CTO, the mean number of days of hospitalization per year was significantly higher before the order (263 days) compared to the period during (37 days) or after (24 days) the intervention (Awara et al., 2013).

A piece of research involving the use of psychoeducation (Rabovsky et al., 2012) compared an intervention group and a control group, in which the results suggest that the use of psychoeducation, regardless of the diagnosis, has a favorable effect on readmission results. The comparison between the groups after one year showed that psychoeducation has positive effects on readmission parameters, as well as on the overall clinical impression and quality of life. Another study compared a group in which patients were assigned to a mentor and a control group. It was concluded that patients assigned to a recovery mentor had fewer hospitalizations

and shorter hospital stays in the nine-month period than patients who did not have a mentor. The study showed that the mentoring program seemed to be an effective tool for the compliance and treatment of people with severe psychiatric illnesses and readmissions and could have a protective effect against frequent hospitalization (Sledge et al., 2011).

Discussion

This review found 26 studies with very heterogeneous characteristics, ranging from the methodological questions to the results found. This variety of study designs, samples, and locations may help to understand the disagreements in the findings. The rates of readmissions or frequent readmissions varied widely from less than 10% (Byrne et al., 2010) to more than 80% (Boaz et al., 2013), taking into account periods between one month (Boaz et al., 2013; Byrne et al., 2010; Kroken et al., 2012; Sánchez et al., 2013; Zilber et al., 2011) and seven years (Batalla et al., 2013). The most used period was 12 months and readmission rates ranging from 10% to 72% (Boaz et al., 2013; Castro et al., 2010; Jaramillo-Gonzalez et al., 2014; Kikuchi et al., 2013; Kroken et al., 2012; Loch, 2012; Martínez-Ortega et al., 2012; Schmutte et al., 2010; Zhang et al., 2011).

Although most studies used one year of follow-up as a reference, no single criterion was found for the characterization of the revolving door phenomenon, in terms of the number of hospitalizations and the period established to account for them. This finding allows us to highlight the need to define parameters to characterize frequent readmissions, since this may be one of the factors that interferes with these results.

Considering the high rates found in different contexts, it is important to emphasize the need for hospitalization only when extra-hospital resources are insufficient in care at times of frailty and risk. In this sense, research indicates that frequent crises increase the risks of cognitive deterioration and the chronicity of the disease, and hospitalizations cause repeated breaks in family and community ties (Bezerra & Dimenstein, 2011; Dimenstein et al., 2012; Ramos et al., 2011). Therefore, it is necessary to create interventions and tools that help in continued and network care and in treatment compliance, with the purpose of avoiding or diminishing (re)admissions.

Regarding the main factors associated with frequent readmissions, it was noticed that there is no concordance among the findings, as many studies did not find significant results or showed results in opposite directions, in line with the findings of a recent review on the subject (Donisi et al., 2016). Among the sociodemographic data, the most analyzed variables were gender, age and marital status, while the least used variables were education, occupation, social class, social support and family support, which indicates that these factors could be further explored in future studies. The variables that presented contradictory results were gender, occupation and education. On the other hand, what appeared consistently in the results was that younger and single people are more prone to frequent readmissions, associations

pointed out in previous studies, in which being single was considered a risk factor (Oyffe et al., 2009, Parente et al., 2007), while being married seems to be a protective factor for readmissions (Donisi et al., 2016).

With regard to the effect of living in an assisted facility, the results are contradictory. On the other hand, different studies underline the importance of social and family support for the reduction of psychiatric readmissions. This is in line with the literature review, which points to lack of contact with the family as a risk factor for readmissions (Bezerra & Dimenstein, 2011; Roick et al., 2004) and having social support as a protective factor (Donisi et al., 2016). In the same sense, the study by Silveira, Rocha, Rocha and Zanardo (2016), conducted with users, pointed out the importance of community and family as sources of bonding and support, and the feeling of belonging in that environment. The authors found that users with a larger number of psychiatric hospitalizations considered that they did not have a very close relationship to the community when compared to those with fewer hospitalizations. These results reinforce the premises of the psychiatric reform advocated by WHO, which recommend close-to-life care in community devices and services, favoring and strengthening social inclusion.

Regarding the clinical data, most of the studies found that people with schizophrenia or associated disorders were hospitalized more or had a higher risk of readmission. In addition, patients subject to involuntary hospitalization had a higher risk of readmission, and only two studies assessed the impact of the discharge type on readmission. Along with the results on the care network, the need for further deepening in relation to these themes is appointed, as these were the scarcest data. Only six studies analyzed the type of treatment after discharge, with four evaluating some type of intervention (psychoeducation, mentoring, community-based hospital treatment, use of continuous follow-up and CTO), all pointing to a positive relationship with these interventions, which presented fewer hospitalizations when compared to a control group, or a smaller number of admissions after the intervention.

Based on the reviewed studies and the difficulty in comparing them, one suggestion is to establish different time points for the evaluation of readmissions. Thus, one possibility would be to analyze the psychiatric readmissions within three months after discharge, up to 12 months and up to 24 months, permitting the evaluation of readmission prevalence rates in each period, as well as the associated factors. It is also important to broaden the studies on interventions, as the research found on the subject has demonstrated a positive effect of the interventions on the reduction of the psychiatric readmissions.

The lack of consensus in Brazilian and international studies on the criteria to define frequent psychiatric readmissions makes it difficult to advance knowledge on the revolving door phenomenon. It should be noted that only two Brazilian articles were found, which shows the scarcity of national studies in this area. In addition, these studies showed high rates of readmissions. Thus, for the advancement of the psychiatric reform, it is important to think of strategies to

improve the link between the different services in the network, as well as to qualify care for mental health problems.

It should be emphasized that the conclusions should be understood through the limitations of this study. One of them refers to the option to work only with articles, leading to the exclusion of studies that have not been published in this format. Another limiting factor is the use of indexed descriptors as, due to the use of non-standardized descriptors, some articles may not be found in searches. Although the results of this systematic review provide some clues as to the factors associated with frequent readmissions, it is important to establish a consensus on its criterion, as well as to develop further studies on the subject, in order to broaden understanding of this phenomenon and thus propose interventions to reduce it.

References

- Amaddeo, F., Becker, T., Fioritti, A., Burti, L., & Tansella, M. (2007). Reforms in community care: The balance between hospital and community-based mental health care. In M. Knapp, D. McDaid, E. Mossialos, & G. Thornicroft (Eds.), *Mental health policy and practice across Europe: The future direction of mental health care* (pp. 235-249). Maidenhead, United Kingdom: Open University Press.
- Awara, M. A., Jaffar, K., & Roberts, P. (2013). Effectiveness of the Community Treatment Order in streamlining psychiatric services. *Journal of Mental Health*, 22(2), 191-197. doi:10.3109/09638237.2013.775408
- Batalla, A., Garcia-Rizo, C., Castellví, P., Fernandez-Egea, E., Yücel, M., Parellada, E., ... Bernardo, M. (2013). Screening for substance use disorders in first-episode psychosis: Implications for readmission. *Schizophrenia Research*, 146(1-3), 125-131. doi:10.1016/j.schres.2013.02.031
- Bezerra, C. G., & Dimenstein, M. (2011). O fenômeno da reinternação: Um desafio à Reforma Psiquiátrica [The phenomenon of "revolving door": A challenge to the Psychiatric Reform]. *Mental*, 9(16), 303-326. Retrieved from <http://pepsic.bvsalud.org/pdf/mental/v9n16/a07v9n16.pdf>
- Boaz, T. L., Becker, M. A., Andel, R., Van Dorn, R. A., Choi, J., & Sikirica, M. (2013). Risk factors for early readmission to acute care for persons with schizophrenia taking antipsychotic medications. *Psychiatric Services*, 64(12), 1225-1229. doi:10.1176/appi.ps.003382012
- Botha, U. A., Koen, L., Joska, J. A., Parker, J. S., Horn, N., Hering, L. M., & Oosthuizen, P. P. (2010). The revolving door phenomenon in psychiatry: Comparing low-frequency and high-frequency users of psychiatric inpatient services in a developing country. *Social Psychiatry and Psychiatric Epidemiology*, 4(4), 461-468. doi:10.1007/s00127-009-0085-6

- Bowersox, N. W., Saunders, S. M., & Berger, B. D. (2012). Predictors of rehospitalization in high-utilizing patients in the VA psychiatric medical system. *Psychiatric Quarterly*, 83(1), 53-64. doi:10.1007/s11126-011-9182-2
- Byrne, S. L., Hooke, G. R., & Page, A. C. (2010). Readmission: A useful indicator of the quality of inpatient psychiatric care. *Journal of Affective Disorders*, 126(1-2), 206-213. doi:10.1016/j.jad.2010.02.135
- Callaly, T., Trauer, T., Hyland, M., Coombs, T., & Berk, M. (2011). An examination of risk factors for readmission to acute adult mental health services within 28 days of discharge in the Australian setting. *Australasian Psychiatry*, 19(3), 221-225. doi:10.3109/10398562.2011.561845
- Castro, S. A., Furegato, A. R. F., & Santos, J. L. F. (2010). Sociodemographic and clinical characteristics of psychiatric re-hospitalizations. *Revista Latino-Americana de Enfermagem*, 18(4), 800-808. doi:10.1590/S0104-11692010000400020
- Cordeiro, A. M., Oliveira, G. M., Rentería, J. M., & Guimarães, C. A. (2007). Revisão sistemática: uma revisão narrativa. *Revista do Colégio Brasileiro de Cirurgiões*, 34(6), 428-431. doi: 10.1590/S0100-69912007000600012
- Dahlan, R., Midin, M., Sidi, H., & Maniam, T. (2013). Hospital-based community psychiatric service for patients with schizophrenia in Kuala Lumpur: A 1-year follow-up study of re-hospitalization. *Asia-Pacific Psychiatry*, 5(Suppl. 1), 127-133. doi:10.1111/appy.12058
- Dimenstein, M., Amorim, A. K. A., Leite, J., Siqueira, K., Gruska, V., Vieira, C., ... Bezerril, M. C. (2012). O atendimento da crise nos diversos componentes da rede de atenção psicossocial em Natal/RN [The crisis attention in the various components of psychosocial care network in Natal / RN]. *Polis e Psique*, 2, 95-127. Retrieved from <http://seer.ufrgs.br/index.php/PolisPsique/article/view/40323/25630>
- Donisi, V., Tedeschi, F., Wahlbeck, K., Haaramo, P., & Amaddeo, F. (2016). Pre-discharge factors predicting readmissions of psychiatric patients: A systematic review of the literature. *BMC Psychiatry*, 16, 449. doi:10.1186/s12888-016-1114-0
- Frick, U., Frick, H., Langguth, B., Landgrebe, M., Hübner-Liebermann, B., & Hajak, G. (2013). The revolving door phenomenon revisited: Time to readmission in 17'415 patients with 37'697 hospitalizations at a German psychiatric hospital. *PLoS One*, 8(10), e75612. doi:10.1371/journal.pone.0075612
- Gastal, F. L., Andreoli, S. B., Quintana, M. I. S., Gameiro, M. A., Leite, S. O., & McGrath, J. (2000). Predicting the revolving door phenomenon among patients with schizophrenic, affective disorders and non-organic psychoses. *Revista de Saúde Pública*, 34(3), 280-285. doi:10.1590/S0034-89102000000300011
- Graca, J., Klut, C., Trancas, B., Borja-Santos, N., & Cardoso, G. (2013). Characteristics of frequent users of an acute psychiatric inpatient unit: A five-year study in Portugal. *Psychiatric Services*, 64(2), 192-195. doi:10.1176/appi.ps.000782012
- Jaramillo-Gonzalez, L. E., Sanchez-Pedraza, R., & Herazo, M. I. (2014). The frequency of rehospitalization and associated factors in Colombian psychiatric patients: A cohort study. *BMC Psychiatry*, 14, 161. doi:10.1186/1471-244X-14-161
- Kikuchi, H., Abo, M., Kumakura, E., Kubota, N., & Nagano, M. (2013). Efficacy of continuous follow-up for preventing the involuntary readmission of psychiatric patients in Japan: A retrospective cohort study. *International Journal of Social Psychiatry*, 59(3), 288-295. doi:10.1177/0020764011433631
- Kroken, R. A., Melle, S., Wentzel-Larsen, T., Jørgensen, H. A., & Johnsen, E. (2012). Time-dependent effect analysis of antipsychotic treatment in a naturalistic cohort study of patients with schizophrenia. *European Psychiatry*, 27(7), 489-495. doi:10.1016/j.eurpsy.2011.04.002
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PloS Medicine*, 6(7), e1000100. doi:10.1371/journal.pmed.1000100
- Lin, C. H., Chen, W. L., Lin, C. M., Lee, M. D., Ko, M. C., & Li, C. Y. (2010). Predictors of psychiatric readmissions in the short- and long-term: A population-based study in Taiwan. *Clinics (São Paulo)*, 65(5), 481-489. doi:10.1590/S1807-59322010000500005
- Loch, A. A. (2012). Stigma and higher rates of psychiatric re-hospitalization: São Paulo public mental health system. *Revista Brasileira de Psiquiatria*, 34(2), 185-192. doi:10.1590/S1516-44462012000200011
- Martínez-Ortega, J. M., Gutiérrez-Rojas, L., Jurado, D., Higuera, A., Díaz, F. J., & Gurpegui, M. (2012). Factors associated with frequent psychiatric admissions in a general hospital in Spain. *International Journal of Social Psychiatry*, 58(5), 532-535. doi:10.1177/0020764011413061

- Moss, J., Li, A., Tobin, J., Weinstein, I.S., Harimoto, T., & Lanctôt, K.L. (2014). Predictors of readmission to a psychiatry inpatient unit. *Comprehensive Psychiatry*, 55(3), 426-430. doi:10.1016/j.comppsy.2013.11.019
- Oyffe, I., Kurs, R., Gelkopf, M., Melamed, Y., & Bleich, A. (2009). Revolving-door patients in a public psychiatric hospital in Israel: Cross sectional study. *Croatian Medical Journal*, 50(6), 575-582. doi:10.3325/cmj.2009.50.575
- Parente, C. J. S., Mendes, L. P. F., Souza, C. N. S., Silva, D. K. M., Silva, J. C., Parente, A. C. B. V., & Parente, A. C. M. (2007). O fenômeno de revolving door em hospitais psiquiátricos de uma capital do nordeste brasileiro [The revolving door phenomenon in psychiatric hospitals of a capital of the Brazilian northeast]. *REMERvista Mineira de Enfermagem*, 11(4), 381-386. doi:10.1515-27622007000400006
- Pfiffner, C., Steinert, T., Kilian, R., Becker, T., Frisch, K., Eschweiler, G., ...Jaeger, S. (2014). Rehospitalization risk of former voluntary and involuntary patients with schizophrenia. *Social Psychiatry and Psychiatric Epidemiology*, 49(11), 1719-1727. doi:10.1007/s00127-014-0892-2
- Pitta, A. M. F. (2011). Um balanço da reforma psiquiátrica brasileira: Instituições, atores e políticas [An assessment of Brazilian psychiatric reform: Institutions, actors and policies]. *Ciência & Saúde Coletiva*, 16(12), 4579-4589. doi:10.1590/S1413- 81232011001300002
- Rabovsky, K., Trombini, M., Allemann, D., & Stoppe, G. (2012). Efficacy of bifocal diagnosis-independent group psychoeducation in severe psychiatric disorders: Results from a randomized controlled trial. *European Archives of Psychiatry and Clinical Neuroscience*, 262(5), 431-440. doi:10.1007/s00406-012-0291-1
- Ramos, D. K. R., Guimarães, J., & Enders, B. C. (2011). Análise contextual de reinternações frequentes de portador de transtorno mental [Contextual analysis of frequent hospital readmissions of the individual with mental disorder]. *Interface – Comunicação, Saúde e Educação*, 15(37), 519-527. doi:10.1590/S1414-32832011005000015
- Roick, C., Heider, D., Kilian, R., Matschinger, H., Toumi, M., & Angermeyer, M. C. (2004). Factors contributing to frequent use of psychiatric inpatient services by schizophrenia patients. *Social Psychiatry and Psychiatric Epidemiology*, 39(9), 744-751. doi:10.1007/s00127-004-0807-8
- Sánchez, R., Jaramillo, L.E., & Herazo, M.I. (2013). Factores asociados a rehospitalización temprana en psiquiatría [Factors associated with early psychiatric rehospitalization]. *Biomedica*, 33(2), 276-282. doi:10.7705/biomedica.v33i2.705
- Schmutte, T., Dunn, C. L., & Sledge, W. H. (2010). Predicting time to readmission in patients with recent histories of recurrent psychiatric hospitalization: A matched-control survival analysis. *The Journal of Nervous and Mental Disease*, 198(12), 860-863. doi:10.1097/NMD.0b013e3181fe726b
- Silveira, L. H. C., Rocha, C. M. F., Rocha, K. B., & Zanardo, G. L. P. (2016). O outro lado da porta giratória: Apoiocomunitário e saúde mental [The other side of the revolving door: Community support and mental health]. *Psicologia em Estudo*, 21(2), 325-335. doi:10.4025/psicolestud.v21i2.30660
- Sledge, W. H., Lawless, M., Sells, D., Wieland, M., O'Connell, M. J., & Davidson, L. (2011). Effectiveness of peer support in reducing readmissions of persons with multiple psychiatric hospitalizations. *Psychiatric Services*, 62(5), 541-544. doi:10.1176/appi.ps.62.5.541
- Thornicroft, G., & Tansella, M. (2004). Components of a modern mental health service: A pragmatic balance of community and hospital care: Overview of systematic evidence. *The British Journal of Psychiatry*, 185(4), 283-290. doi:10.1192/bjp.185.4.283
- World Health Organization. (2016). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines* (10th ed.) Geneva, Switzerland: WHO. Retrieved from <http://www.who.int/classifications/icd/en/bluebook.pdf>
- Xiong, G. L., Iosif, A. M., Brooks, M., Scott, C. L., & Hilty, D.M. (2012). Decertification outcomes for bipolar disorder in an inpatient community mental health treatment center: Impact on subsequent service use over two years. *Community Mental Health Journal*, 48(6), 761-764. doi:10.1007/s10597-012-9481-6
- Zhang, J., Harvey, C., & Andrew, C. (2011). Factors associated with length of stay and the risk of readmission in an acute psychiatric inpatient facility: A retrospective study. *Australian and New Zealand Journal of Psychiatry*, 45(7), 578-585. doi:10.3109/00048674.2011.585452
- Zilber, N., Hornik-Lurie, T., & Lerner, Y. (2011). Predictors of early psychiatric rehospitalization: A national case register study. *The Israel Journal of Psychiatry and Related Sciences*, 48(1), 49-53. Retrieved from https://doctorsonly.co.il/wp-content/uploads/2011/12/2011_1.1_9.pdf

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