Article

Factors Associated with Hospital Readmission in a Population with a Diagnosis of Personality Disorder

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Abstract

Background: Hospital readmissions of users with personality disorders are frequent and represent a high personal and economic cost for health systems. This study aimed to identify risk factors associated with readmission in this population, examining sociodemographic and clinical variables.

Methods: A retrospective observational study was conducted, using electronic records. The study was carried out at the Mental Health Hospitalization Unit of the Regional University Hospital of Málaga, covering all admissions between January 1, 2007, and March 31, 2024. Patients with a primary or secondary International Classification of Diseases, 10th Edition (ICD-10) personality disorder diagnosis were included. The dependent variable was hospital readmission, analyzed both at 30 days and at 1 year. Mixed logistic regression models were used to identify risk factors.

Results: A total of 2403 admissions of 1072 individuals for 30-day readmission and 2256 admissions of 1029 individuals for 1-year readmission were analyzed; 17.15% of the admissions resulted in readmission at 30 days, and 42.33% at 1 year. The variables significantly associated with early readmission in the multivariate analysis were younger age (odds ratio (OR) = 0.973, $p < 0.001$), having a history of previous admissions (OR = 1.900, $p < 0.001$), and voluntary admission (OR = 1.348, $p = 0.033$). For readmission at 1 year, the significant variables included younger age (OR = 0.973, $p < 0.001$), history of previous admissions (OR = 1.956, $p < 0.001$), having another type of personality disorder diagnosis other than emotionally unstable personality disorder (OR = 0.654, $p = 0.006$), and comorbidity with affective (OR = 1.726, $p = 0.025$) and anxiety (OR = 1.915, $p = 0.034$) disorders compared to no comorbidity.

Conclusions: This study identified key risk factors for hospital readmission of individuals with personality disorders, including younger age, previous admissions, voluntary admission, specific personality disorder types, and comorbidity with affective and anxiety disorders. These findings underscore the need for future research to better understand the risk factors for readmission in this population.

Keywords

hospital readmission; personality disorders; risk factors; mental health

Introduction

Psychiatric readmissions of hospitalized patients are frequent and impact approximately one in seven admissions at 30 days [1–3] and approximately one in three admissions at 1 year [4] after discharge. Psychiatric readmission implies a high personal and economic cost for health systems [5].

Some psychiatric diagnoses have been associated with a higher risk of readmission, such as having a psychotic spectrum disorder [6–8], substance use and abuse disorders [9], and personality disorders [8,10,11]. Although there are many studies on readmission risk factors in those with psychotic disorder diagnoses and substance-using populations,

there are few studies with populations diagnosed with a personality disorder, and they are often limited to the study of borderline personality disorder [10]. To better understand the mechanisms and prevent readmission, it is important to identify the risk factors related to readmission that affect this population.

Personality disorders encompass a group of psychiatric diagnoses characterized by a pattern of thoughts and behaviors that hinder interpersonal relationships, work adaptation, and personal satisfaction. Personality disorder diagnoses are associated with a poor prognosis and poor health outcomes, including poor physical health, elevated risk of suicidal and parasuicidal behaviors, substance use, and greater use of health services [12,13]. Likewise, dysfunctional personality traits like negative affect [14] and detachment [12] have been associated with the risk of readmission. Among the factors associated with the risk of readmission in this population are sociodemographic factors like gender [10]. Some studies have shown how gender has implications for the clinical presentation of personality disorders. Besch *et al.*'s [10] results indicated that gender was associated with readmission, with the risk being increased in women, although men showed a shorter time than women to readmission. Age has also been associated with the risk of readmission in this population, with younger individuals at higher risk of readmission [10]. A study has shown how personality disorders tend to improve over time [11], despite being related to the risk of readmission across all age ranges. Less is known about the influence of clinical variables in relation to readmission and personality disorders. It seems that different personality disorders have different readmission rates and times to readmission. In Besch *et al.* [10], different rates of early readmission were obtained (8%–10% for antisocial and paranoid, 19%–21% for impulsive and borderline), with borderline personality disorder being associated with a higher risk of readmission in women. Differences were also obtained according to the cluster of personality disorder and the time to readmission. However, not enough literature indicates consistent differences between the different categories of personality disorders in relation to readmission. Also, the presence of self-harm has been associated with the risk of readmission, and depression and hallucinations have been associated with a shorter time to readmission [15] in this population. Overall, due to the lack of knowledge regarding the variables involved in psychiatric readmissions in subjects diagnosed with personality disorders and the important implications for care, the objective of this study was to contribute to elucidating the risk factors involved in the readmission of this population, examining different sociodemographic and clinical variables.

Materials and Methods

Design

A retrospective observational study based on a hospital unit's electronic records was carried out. The data were obtained from administrative records based on data from medical histories. The dependent variable was hospital readmission and was analyzed both for readmission at 30 days and readmission at 1 year. Readmission was calculated with records from admissions specifically to the hospitalization unit, excluding admissions to other units. All admissions were considered, and any readmissions during the follow-up period (30 days or 1 year, depending on the analysis) were tracked for each recorded admission.

Study Setting and Participants

This study was conducted at the Mental Health Hospitalization Unit of the Regional University Hospital of Málaga, which covers a population of approximately 500,000 inhabitants and has 42 beds for users. This unit is part of the Andalusian Health Service, where interventions are carried out within a model of community care in which admission is considered the last support and containment resource when other health measures have not worked. For 30-day readmission, admissions from January 1, 2007, to March 31, 2024, were included (N = 2403). For 1-year readmission, admissions from the same dates were included (N = 2256). The total number of admissions during the study period was 14,290, with 16.82% of these admissions involving a personality disorder diagnosis. The participants were all individuals admitted to the hospitalization unit who met the following criteria.

Inclusion Criteria

- Admitted to the unit during the study period and registered in the electronic database.
- Diagnosed with a primary or secondary personality disorder according to the International Classification of Diseases, 10th Edition (ICD-10) [16] Disorders of Adult Personality and Behavior [codes F60–F69].
- Aged 18 years or older.

Exclusion Criteria

- Lack of diagnostic information.

Variables

Independent variables included age, gender, and marital status (single, married, widowed, divorced), personality disorder diagnosis (paranoid personality disorder [F60.0], schizoid personality disorder [F60.1], emotionally unstable personality disorder [F60.3], histrionic personality disorder [F60.4], mixed personality disorders [F61.02], and other personality disorders [the remaining F.6X codes]). Comorbidity with other types of mental health disorders (mental and behavioral disorders due to psychoactive substance use [F10–F19], schizophrenia, schizotypal, and delusional disorders [F20–F29], mood disorders, affective disorders [F30–F39], neurotic, stress-related, and somatoform disorders [F40–F49], and other psychiatric disorders otherwise not included [the remaining FX codes]) was taken into ac-

Table 1. Characteristics of the individuals and admissions analyzed.

	Total individuals (readmission at 30 days)	Total admissions (readmission at 30 days)	Total individuals (readmission at 1 year)	Total admissions (readmission at 1 year)
	(N = 1072)	(N = 2403)	(N = 1029)	(N = 2256)
Age, mean ± SD	40.18 ± 12.75	39.3 ± 11.7	40.32 ± 12.75	39.45 ± 11.66
Gender, N (%)				
Men	531 (49.53)	1295 (53.91)	517 (50.24)	1226 (54.37)
Women	541 (50.47)	1107 (46.09)	512 (49.76)	1029 (45.63)
Civil status, N (%)				
Married	181 (17.39)	354 (15.10)	177 (17.7)	341 (15.49)
Widower	18 (1.73)	29 (1.24)	18 (1.8)	29 (1.32)
Separate	213 (20.46)	546 (23.28)	203 (20.3)	509 (23.12)
Single	629 (60.42)	1416 (60.38)	602 (60.2)	1323 (60.08)
Main diagnosis of personality disorder				
Yes	580 (54.21)	1399 (58.29)	553 (53.85)	1300 (57.7)
No	490 (45.79)	1001 (41.71)	474 (46.15)	953 (42.3)
Personality disorder diagnosis, N (%)				
Schizoid	26 (2.43)	36 (2.57)	25 (2.43)	63 (2.79)
Histrionic	49 (4.57)	44 (3.14)	45 (4.37)	84 (3.72)
Paranoid	32 (2.99)	37 (2.64)	31 (3.01)	47 (2.08)
Mixed	177 (16.51)	196 (13.98)	170 (16.52)	360 (15.96)
Others	426 (39.74)	322 (22.97)	412 (40.04)	685 (30.36)
Borderline	362 (33.77)	767 (54.71)	346 (33.62)	1017 (45.08)
Comorbidity				
F1. Consumption	170 (15.86)	431 (17.94)	165 (16.03)	403 (17.86)
F2. Psychosis	122 (11.38)	240 (9.99)	116 (11.27)	216 (9.57)
F3. Affective	220 (20.52)	454 (18.89)	214 (20.80)	434 (19.24)
F4. Anxiety	72 (6.72)	167 (6.95)	66 (6.41)	159 (7.05)
Others	383 (35.73)	896 (37.29)	370 (35.96)	844 (37.41)
No comorbidity	105 (9.79)	215 (8.95)	98 (9.52)	200 (8.87)
Character of the admission, N (%)				
Voluntary	253 (23.62)	702 (29.24)	227 (22.08)	618 (27.42)
Involuntary	818 (76.38)	1699 (70.76)	801 (77.92)	1636 (72.58)
Type of admission, N (%)				
Urgent	870 (81.31)	1989 (82.88)	832 (81.01)	1864 (82.73)
Programmed	200 (18.69)	411 (17.12)	195 (18.99)	389 (17.27)
Length of stay (days), median (IQR)	7 (9)	7 (9)	7 (9.5)	7 (9)
Previous admissions				
Yes	486 (45.42)	1736 (72.30)	464 (45.18)	1610 (71.43)
No	584 (54.58)	665 (27.70)	563 (54.82)	644 (28.57)

Note. Discrepancies between the sum of individual variable counts and the total number of individuals (N) are due to missing data. Some participants did not have complete information for all variables, leading to slight variations in the reported totals. SD, Standard deviation; IQR, Interquartile range.
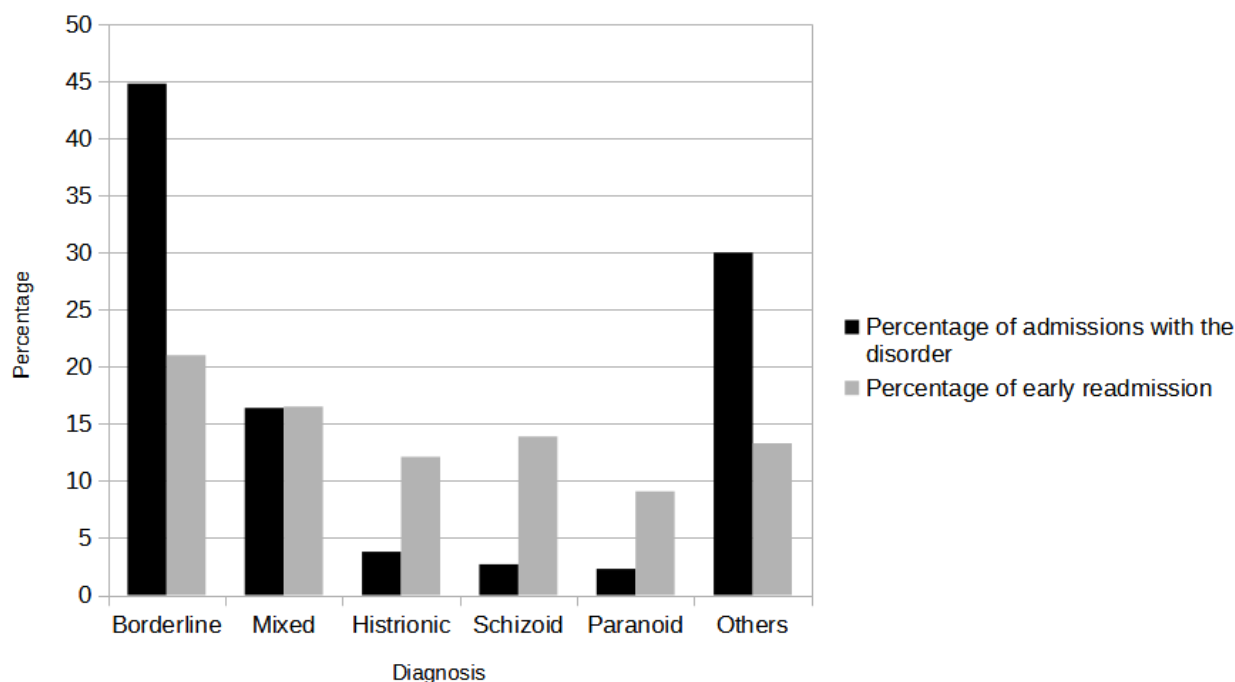
Fig. 1. Percentages of admissions for different personality disorders and rates of early readmission.

count. Other clinical variables considered were the existence of a history of previous admissions, the nature of the admission (voluntary, involuntary), the type of admission (urgent, scheduled), and the length of hospital stay (in days).

Statistical Analysis

Due to the complexity of the data of people with a different number of admissions, mixed logistic regression models with random effects were used. Given the presence of singularities in the models with the lme4 package in R, the GLMMadaptive package and the mixed_model function were used to perform a robust analysis. First, a univariate model was carried out for each independent variable. Finally, two multivariate models (one for readmission at 30 days and one for readmission at 1 year) were constructed with a manual forward stepwise model. We began by including the variable with a smaller *p*-value and incorporating other variables with higher *p*-values. We then retained in the final model only those variables with a *p*-value less than 0.1. The significance level was set at 0.05, and the analysis was carried out with RStudio 2023.03.0+386 (RStudio, PBC, Boston, MA, USA) and R, version 4.3.0 (R Foundation for Statistical Computing, Vienna, Austria).

Results

For 30-day readmission, 2403 admissions (from 1072 individuals) were analyzed. For 1-year readmission, 2256 admissions (from 1029 individuals) were analyzed. More information about the sample of admissions and individuals is shown in Table 1. The percentage of early readmission at 30 days was 17.15% of the admissions analyzed (N = 412). The percentage of readmission at 1 year was 42.33% (N = 955). Fig. 1 shows the percentage of the different personality disorder diagnoses in the sample studied and the percentage of early readmission in each of the diagnostic categories studied.

The variables significantly associated with early readmission in the univariate analysis were age (OR = 0.98, *p* < 0.001), previous admissions to the unit (OR = 1.96, *p* < 0.001), and the voluntary nature of the admission (OR = 1.33, *p* = 0.037). Regarding readmission at 1 year, the variables significantly associated in the univariate analysis were age (OR = 0.98, *p* < 0.001), previous admissions to the unit (OR = 1.96, *p* < 0.001), having a mixed personality disorder (OR = 0.68, *p* = 0.044), or another type of personality disorder diagnosis (OR = 0.55, *p* < 0.001) compared to emotionally unstable personality disorder, and having a comorbid substance use diagnosis (OR = 1.90, *p* = 0.010) compared to no comorbid diagnosis. More information on the univariate models is provided in Table 2.

Table 2. Differences between admission episodes with readmission and not readmission.

Early readmission (30 days) sample (N = 2403)	Early readmission	Not early readmission	B	SE	Wald	95% CI	OR	p	Readmission at 1 year	Not readmission	B	SE	Wald	95% CI	OR	p
Readmission at 1 year sample (N = 2256)	(N = 412)	(N = 1991)							(N = 955)	(N = 1301)						
Age, mean ± SD	36.60 ± 10.13	39.90 ± 11.88	–0.022	0.007	–3.231	0.966/0.991	0.98	<0.001	37.66 ± 10.64	40.76 ± 12.18	–0.024	0.006	16	0.964/0.988	0.98	<0.001
Gender, N (%)																
Men	237 (18.30)	1058 (81.70)	–0.063	0.158	–0.401	0.689/1.279	0.94	0.688	559 (45.60)	667 (54.40)	–0.047	0.148	0.321	0.714/1.274	0.95	0.748
Women (Ref.)*	174 (15.71)	933 (84.28)							395 (38.39)	634 (61.62)						
Civil status, N (%)																
Married	48 (13.55)	306 (86.44)	–0.183	0.226	–0.807	0.535/1.298	0.83	0.419	120 (35.19)	221 (64.81)	–0.183	0.201	–0.911	0.561/1.235	0.83	0.362
Widower	2 (6.90)	27 (93.10)	–0.791	0.832	–0.951	0.089/2.314	0.45	0.341	9 (31.96)	20 (31.03)	–0.066	0.575	–0.115	0.303/2.890	0.93	0.908
Separate	111 (20.32)	435 (79.67)	0.263	0.181	1.452	0.912/1.854	1.30	0.146	235 (53.83)	274 (53.83)	0.257	0.175	1.471	0.918/1.823	1.29	0.141
Single (Ref.)	246 (17.38)	1170 (82.62)							574 (43.39)	749 (56.61)						
Main diagnosis of personality disorder																
Yes	270 (19.30)	1129 (80.70)	0.132	0.140	0.938	0.866/1.502	1.14	0.348	579 (44.54)	721 (55.46)	–0.128	0.128	–1.002	0.684/1.131	0.88	0.316
No (Ref.)	142 (14.19)	859 (85.81)							376 (39.45)	577 (60.54)						
Personality disorder diagnosis, N (%)																
Schizoid	9 (13.85)	56 (86.15)	–0.336	0.433	–0.776	0.306/1.670	0.71	0.438	24 (38.09)	39 (61.90)	–0.276	0.374	–0.738	0.364/1.580	0.76	0.460
Histrionic	11 (12.08)	80 (87.91)	–0.385	0.409	–0.941	0.305/1.518	0.68	0.346	31 (36.90)	53 (63.09)	–0.238	0.355	–0.669	0.393/1.582	0.79	0.503
Paranoid	5 (9.09)	50 (90.90)	–0.535	0.557	–0.960	0.197/1.745	0.58	0.336	14 (29.79)	33 (70.21)	–0.478	0.455	–1.050	0.254/1.513	0.62	0.293
Mixed	65 (16.45)	330 (83.54)	–0.086	0.209	–0.409	0.609/1.384	0.91	0.682	141 (39.17)	219 (60.83)	–0.390	0.194	–2.009	0.463/0.990	0.68	0.044
Others	96 (13.31)	625 (86.68)	–0.288	0.174	–1.649	0.533/1.056	0.75	0.099	217 (31.68)	468 (68.32)	–0.596	0.158	–3.776	0.405/0.751	0.55	<0.001
Borderline (Ref.)	226 (21.00)	850 (79.00)							489 (48.08)	528 (51.92)						
Comorbidity																
F1**. Consumption	90 (20.89)	341 (79.11)	0.351	0.268	1.306	0.839/2.402	1.41	0.191	192 (47.64)	211 (52.36)	0.641	0.252	2.548	1.159/3.109	1.90	0.010
F2. Psychosis	27 (11.25)	213 (88.75)	–0.034	0.328	–0.105	0.508/1.838	0.97	0.916	71 (32.87)	145 (67.13)	0.179	0.289	0.621	0.679/2.109	1.20	0.534
F3. Affective	70 (15.41)	384 (84.58)	0.131	0.277	0.473	0.662/1.964	1.14	0.635	180 (41.47)	254 (58.52)	0.439	0.250	1.753	0.950/2.532	1.55	0.079
F4. Anxiety	33 (19.76)	134 (80.24)	0.411	0.347	1.186	0.765/2.978	1.50	0.235	74 (46.54)	85 (53.46)	0.490	0.323	1.519	0.867/3.072	1.63	0.128
Others	159 (17.74)	737 (82.25)	0.149	0.245	0.608	0.718/1.875	1.16	0.543	365 (43.25)	479 (56.75)	0.253	0.221	1.141	0.834/1.986	1.29	0.253
No comorbidity (Ref.)	33 (15.34)	182 (84.65)							73 (36.50)	127 (63.50)						
Character of the admission, N (%)																
Voluntary	145 (20.65)	557 (79.34)	0.287	0.139	2.076	1.016/1.749	1.33	0.037	308 (49.84)	310 (50.16)	0.240	0.133	1.811	0.980/1.648	1.27	0.070
Involuntary (Ref.)	267 (15.71)	1432 (84.28)							647 (39.55)	989 (60.45)						
Type of admission, N (%)																
Urgent	352 (17.70)	1637 (82.30)	0.107	0.176	0.610	0.789/1.571	1.11	0.542	803 (43.08)	1061 (56.92)	0.033	0.153	0.214	0.765/1.396	1.03	0.830
Programmed (Ref.)	60 (14.60)	351 (85.40)							152 (39.07)	237 (60.92)						
Length of stay (days), median ± IQR	9.56 ± 9.5	9.41 ± 9	0.010	0.007	1.478	0.997/1.024	1.01	0.139	9.37 ± 9	9.49 ± 9	0.009	0.006	1.450	0.997/1.022	1.00	0.147
Previous admissions																
Yes	353 (20.33)	1383 (79.67)	0.672	0.170	3.955	1.404/2.734	1.96	<0.001	803 (49.87)	807 (50.12)	0.669	0.139	4.831	1.488/2.564	1.96	<0.001
No (Ref.)	59 (8.88)	606 (91.12)							152 (23.60)	492 (76.40)						

* Ref. = reference variable for the logistic regression.

** F-codes from the ICD-10.

Note. Discrepancies between the sum of individual variable counts and the total number of individuals (N) are due to missing data. Some participants did not have complete information for all variables, leading to slight variations in the reported totals. ICD-10, International Classification of Diseases, 10th Edition; OR, odds ratio.

In the multivariate analysis, regarding early readmission, three variables maintained their significance (age: OR = 0.973, $p < 0.001$): previous admissions to the unit (OR = 1.900, $p < 0.001$), voluntary admission (OR = 1.348, p = 0.033), and length of stay showed marginal significance (OR = 1.013, p = 0.062). Regarding readmission at 1 year, in the multivariate model, age (OR = 0.973, $p < 0.001$) and previous admissions to the unit (OR = 1.956, $p < 0.001$) remained significant. Having another type of personality disorder diagnosis (OR = 0.654, p = 0.006) versus borderline personality disorder was also significantly associated. Comorbid substance use only reached marginal significance (OR = 1.598, p = 0.053) in the multivariate analysis, while having a comorbidity of affective (OR = 1.726, p = 0.025) or anxiety disorder (OR = 1.915, p = 0.034) compared to no comorbid disorder reached significance. Longer hospital stays (OR = 1.011, p = 0.071) and voluntary admission (OR = 1.246, p = 0.090) also obtained marginal significance. For more information on the multivariate models, see Table 3.

Discussion

High readmission rates were found in the population with personality disorders, both at 30 days and at 1-year follow-up. Regarding risk factors, the variables significantly associated with early readmission (30 days) were younger age, a history of previous admissions, and voluntary admission. Regarding readmission within a year, younger age and a history of previous admissions were associated with the risk of readmission and the presence of comorbidity with affective and anxiety disorders compared to no comorbidity. The diagnosis of borderline personality disorder compared to other personality disorder diagnoses was also associated with the risk of within 1-year readmission.

The rates of early readmissions in this population with personality disorders were similar and even higher compared to other high-risk populations that our group has investigated previously. For example, the rate of early readmission was higher compared to a population with psychotic spectrum disorders (13.8%) [17], and the 1-year readmission rate was higher than in a previously studied population categorized as severe mental disorders (40.40%) [4]. Other studies have shown that the risk of early readmission is higher at the beginning in personality disorders and tends to equalize over time compared to psychotic disorders [18].

Regarding the risk factors, other studies with psychiatric populations have also found that younger age is related to readmission risk, both for early readmission [19]

and for longer-term readmission [20] and with the 'revolving door phenomenon' [21–23]. The results suggest a more significant effect of personality disorders on symptomatic and functional outcomes in young individuals, which fits with the descriptions of a decrease in symptoms of personality disorders in middle age and a slight reappearance in old age [15]. These results suggest the need to pay better attention to the intensive treatment of young people at risk of readmission.

One of the striking results is that no gender differences were found, in contrast to prior studies [10]. Our result confirms the inconsistency of the results associated with gender in personality disorders, which appear to be highly associated with the study area [24]. More studies are needed to better understand how gender affects outcome and prognosis variables in personality disorders [25]. Conversely, our results do not corroborate the findings of other studies where involuntary admissions were related to readmission risk [26,27]. However, our results cohere with other studies that showed how voluntary admissions are at higher risk of readmission [28]. The present study also corroborates how the emotionally unstable personality disorder has higher readmission rates than other personality disorder diagnoses, which is consistent with the literature [10]. Likewise, the presence of comorbidities and complex pathologies was also associated with the risk of readmission and poor prognostic outcomes. Furnes *et al.*'s [15] results align with ours; the authors found that comorbid depressive symptoms were related to the risk of readmission.

Granted, the present study's limitations should be accounted for when interpreting these results. First, some clinical characteristics like emotion dysregulation, impulsivity, patterns of dysfunctional behavior, and lack of adherence related to the risk of readmission were not evaluated here. Another limitation was that this study was carried out in a single mental health hospitalization unit. Also, although the study period was relatively long, this characteristic limits the generalizability of the results to other study settings. Furthermore, our study information was drawn from clinical records, and the reliability of this information might be limited. Finally, not all personality disorder diagnoses were equally represented within the study sample.

Conclusions

This study identified several risk factors associated with hospital readmission in individuals with personality disorders, including younger age, previous admission history, voluntary admission, specific personality disorder types, and comorbidity with affective and anxiety disorders.

Table 3. Multivariate mixed logistic model of early readmission and readmission at 1 year.

Model 1: Early readmission	B	SE	Wald	95% CI	OR	*p*
Age	–0.025	0.007	13.872	0.962/0.988	0.973	<0.001
Previous admissions						
Yes	0.642	0.172	13.800	1.354/2.666	1.900	<0.001
No (Ref.)*						
Character of the admission						
Voluntary	0.299	0.140	4.559	1.025/1.773	1.348	0.033
Involuntary (Ref.)						
Length of stay	0.012	0.007	3.472	0.999/1.026	1.013	0.062
Model 2: Readmission at 1 year	**B**	**SE**	**Wald**	**95% CI**	**OR**	***p***
Age	–0.026	0.006	18.081	0.962/0.986	0.973	<0.001
Previous admissions						
Yes	0.671	0.140	22.918	1.486/2.573	1.956	<0.001
No (Ref.)						
Character of the admission						
Voluntary	0.220	0.130	2.876	0.966/1.608	1.246	0.090
Involuntary (Ref.)						
Length of stay	0.011	0.006	3.264	0.999/1.023	1.011	0.071
Comorbidity						
F1**. Consumption	0.469	0.242	3.746	0.994/2.572	1.598	0.053
F2. Psychosis	0.246	0.281	0.763	0.737/2.219	1.279	0.382
F3. Affective	0.546	0.244	4.980	1.069/2.791	1.726	0.025
F4. Anxiety	0.650	0.306	4.505	1.051/3.491	1.915	0.034
Others	0.255	0.214	1.425	0.849/1.965	1.292	0.233
No comorbidity (Ref.)						
Diagnosis						
Schizoid	–0.262	0.371	0.499	0.372/1.592	0.770	0.480
Histrionic	0.017	0.343	0.002	0.519/1.994	1.017	0.960
Paranoid	–0.434	0.437	0.985	0.275/1.526	0.648	0.321
Mixed	–0.270	0.188	2.059	0.528/1.104	0.763	0.151
Others	–0.425	0.155	7.535	0.483/0.886	0.654	0.006
Borderline (Ref.)						

* Ref. = reference variable for the logistic regression.

** F-codes from the ICD-10. SE, Standard error; CI, Confidence interval.

Addressing these risk factors in clinical practice may be crucial to reducing the high readmission rates observed in this vulnerable population. Furthermore, this study underscores the need for future research to gain a deeper understanding of the risk factors for readmission in this population.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are not publicly available due to confidentiality reasons but are available from the corresponding author on reasonable request.

Author Contributions

VCA, YGI, AG, and JGP made substantial contributions to the conception and design of the study. ABA, VCA, and JGP were responsible for the acquisition of data. VCA, AG, YGI, MTR, JMGC and JGP conducted the analysis and interpretation of the data. All authors (VCA, AG, YGI, MTR, ABA, JMGC, and JGP) were involved in drafting the manuscript or revising it critically for important intellectual content. All authors read and approved the final manuscript and agreed to be accountable for all aspects of the work, ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethics Approval and Consent to Participate

The Málaga Province Research Ethics Committee approved the study (11/16PI6). The Ethics Committee granted permission to use the information without the need for signing the informed consent. Confidentiality of the data was maintained at all times. The study adhered to the principles of the Declaration of Helsinki.

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Conflict of Interest

The authors declare no conflict of interest. Jose Guzman-Parra is serving as one of the Editorial Board members of this journal. We declare that Jose Guzman-Parra had no involvement in the peer review of this article and has no access to information regarding its peer review.

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