Psychiatric Quarterly (2019) 90:185–196
https://doi.org/10.1007/s11126-018-9616-1

ORIGINAL PAPER

Factors Associated with Long-Stays in an Italian Psychiatric Intensive Treatment Facility: 1-Year Retrospective Observational Analysis

Rosaria Di Lorenzo[1] · Teresa Olmi[2] · Giulia Rioli[3] · Gian Maria Galeazzi[4] · Paola Ferri[3]

Published online: 28 November 2018

Abstract
Psychiatric Intensive Treatment Facilities (PITF) are health inpatient settings for patients affected by sub-acute psychiatric disorders with impaired personal and social functioning. The aim of this study is to analyse the demographic and clinical variables related to long-stays in an Italian PITF in order to highlight the risk factors for stay lengthening. We retrospectively collected the selected variables from all patients and their stays in a PITF from 1 to 11-2016 to 31-10-2017. We divided the stays according to the median of duration, ≤29 and > 29 days, to compare selected variables in the two groups of stay length. Patients hospitalized for >29 days more frequently presented "Self-neglect", nursing diagnosis NANDA-I, and needed economic social service support. Multiple linear regression revealed that the presence of some variables as "many medical consultations", "economic social service support", "clinical interviews extended to institutional figures" were statistically significantly associated with an increased stay duration, suggesting that both clinical severity and difficult economic conditions were associated with the lengthening of stay. The knowledge of these factors can contribute to improve psychiatric treatments, reducing potential risk conditions for patient institutional dependence.

Keywords Psychiatric intensive treatment facility · Duration of stay · Rehabilitative programs · Nursing diagnoses

Introduction

In recent decades, Mental Health Services of many Western countries have undergone a deep transformation in structure, goals and practices [1], evolving from hospital-based treatment to community care model [2]. This transformation has led to significant changes in the modality of delivering services as well as in the therapeutic attitudes of professionals [3]. Attention of professionals is now oriented not only to remission of symptoms, but also to recovery of

✉ Rosaria Di Lorenzo
saradilorenzo1@alice.it; r.dilorenzo@ausl.mo.it

Extended author information available on the last page of the article

patients' health in a holistic sense [4], according to the so-called "recovery-oriented care model" [5].

Current Psychiatric Residential Facilities originate from therapeutic communities born in the United Kingdom after the second World War for the treatment of war trauma, had a significant diffusion in the 1960s in Great Britain and the USA for residential treatment of patients affected by drug addiction [6]. These models have gradually changed, evolving from rigid and inflexible settings to less rigid and more flexible treatment models, especially for patients affected by "dual diagnosis" condition, i.e. from substance abuse in comorbidity with mental health disorders [7].

In the specific Italian context, after the 180 Law of 1978 [8] which closed asylums, Mental Health Departments (MHD) were established in order to provide community-based care, treatments and rehabilitative programs for patients affected by psychiatric disorders. In accordance with the Italian Ministry of Health [9], Psychiatric Intensive Treatment Facilities (PITF) are 24-h health care facilities for patients with severe impairments of personal and social functioning who need intensive rehabilitation interventions. The maximum hospital stay is normally 30 days and can be extended up to 60 days. PITF staff provides diagnostic, therapeutic, basic rehabilitation and psychosocial treatments aimed at improving clinical and functioning conditions. In recent years, studies on the efficacy of residential treatments mainly conducted in the United States of America have highlighted the efficacy of the residential facility model, especially in reducing drug abuse and, in some cases, improving comorbid psychiatric disorder [10–12]. Numerous studies have reported the efficacy of PITF treatments in many different disorders and conditions: Twohig et al. [13] describe the increasing diffusion of residential treatments for patients affected by Feeding and Eating Disorders who need more intensive care due to the lack of response to outpatient treatments; Sofko, Currier, and Drescher [14] showed symptomatology improvement at discharge from a residential psychiatric facility and after 4-month follow-up in patients affected by post-traumatic Stress Disorder related to war experiences. In Italy, despite the complex management and the high economical costs of residential treatments, few studies focused on psychiatric residential settings [6]. One of the first Italian studies [6] about the efficacy of residential treatments in a sample of 81 patients affected by severe Psychotic and Personality Disorders, often in comorbidity with Substance Abuse, reported improvements in global functioning, quality of life, self-confidence with reduced behavioural avoidance strategies at the discharge and after 6–12 month follow-up. In evaluating the positive result of this treatment, however, a high drop-out rate was found, especially in those suffering from severe Personality Disorders and in comorbidity with Substance Use Disorders. The predictive factors of an early treatment interruption were represented by previous unstable housing condition, in particular homelessness, and heavy Substance Abuse before the admission [6]. Another Italian authors highlighted the efficacy of two-year residential treatment in improving general psychopathology, negative symptoms and occupational functioning on patients affected by schizophrenia [15]. The "PERDOVE project", a study conducted in a residential facility in Northern Italy, with long-term hospitalizations ranging from 3 to 6 years or more, showed that disability in psychosocial functioning, cognitive impairment and severe psychiatric symptoms changed during the residential facility stay: acute symptoms decreased, whereas psychosocial functioning remained stable or worsened, especially in the area of working skills and interpersonal relationships [16]. The clinical results of another study conducted in a residential setting that offered clinical activities and psychotherapeutic treatments (social skills training, individual and group psycho-education, job training, manual or expressive activities) aimed at reducing the hostility of patients

suffering from bipolar disorder with and without a history of hetero-aggressive violent behaviour, showed a significant association between residential psychotherapeutic interventions and levels of verbal aggression and hostility, potentially decreasing the frequency of physical aggression against others [17]. A further study conducted in Italy highlighted that the psychosocial interventions provided in day centres and residences are associated with an improvement of functional outcomes, as social relationships, work, management of conflicts with other subjects [18]. These results are in agreement with other previous national and international studies [19–27]. Literature data show that not only the care setting, but also the therapeutic model, is crucial in the efficacy of PITF treatments. A recent study by Magliano and colleagues [18] in a residential structure showed that combined individual and group interventions ("Combined Individual and Group Intervention") were more efficacious than "usual", individual treatment. More recent studies have highlighted the factors related to the lengthening of stay in psychiatric facilities: higher age and a primary diagnosis of psychotic or affective disorder were associated with increased length of stay in Switzerland facilities [28], whereas both economic difficulties and clinical severity can condition the length of stay in Brazilian acute psychiatric facilities [29].

Aim

To analyse the demographic and clinical variables related to the length of stay in an Italian PITF in order to highlight the risk factors for stay lengthening. In accordance with our hypothesis, patients who need longer stays can suffer from more severe disorders and require complex rehabilitative programs.

Material and Methods

This research is a monocentric retrospective observational study. It was approved by the Local Ethics Committee (Protocol number 3582/2017, 26th September 2017) and was conducted according to general ethical procedures (Declaration of Helsinki). Written informed consent was obtained from each participant.

Our 12-bed PITF is located in the building of one of the two Mental Health Centres of the town and caters for patients with mental disorders from the related catchment areas of 260,132 inhabitants, who need intensive rehabilitation in a residential setting. Admission is always voluntary. The staff is composed of one responsible senior psychiatrist, one full-time and one part-time senior psychiatrists, 4 full time residents in Psychiatry, 7 nurses, 6 nursing assistants and a chief nurse. This facility is a part of the Mental Health Department and is connected with all other local health and social services.

All patients admitted to our PITF, located in a Northern Italian town, from 1 to 11-2016 to 31-10-2017 were enrolled in the study.

For each patient, the following demographic and clinical variables, extrapolated from PITF electronic database and medical and nursing records, were collected.

a) Demographic variables: age (years), gender (male/female), nationality (Italian/non-Italian), life environment (parental family/marital/protected facility/alone/homeless), economic condition (economic social service support/no economic social service support), employment (employed/unemployed/retired for disability/retired for age/ student).

b) Clinical variables:

- Community-based services before the admission (Involvement of Mental Health Service, Involvement of other or multiple services as Social Services, Drug Abuse Services, etc., No involvement of any community-based service);
- Reasons for admission (Acute worsening of psychopathology, Familial relational conflicts, Social problems, Need for PITF activities after psychiatric ward discharge);
- Nursing diagnosis at admission, according to NANDA International [30];
- Place of provenance (Home, Hospital ward);
- Therapeutic adherence [High (the patient did not stop drug therapy before admission), Low (the patient stopped drug therapy before admission)];
- Presence/absence of Organic comorbidities (cardiovascular, metabolic, gastrointestinal comorbidities; other diseases);
- Psychiatric activities during the stay (Individual patient interview, Meeting with patient and caregiver, Meeting with patient and responsible clinician, Meeting with patient, caregiver and responsible clinician);
- Medical non-psychiatric activities during PITF stays (Examinations or consultations, Non-psychiatric drugs, Multiple non-psychiatric medical activities, None);
- Rehabilitation programs: (One program, More than one program);
- Health of the Nation Outcome Scales (HoNOS) [31] score at admission and at the discharge;
- Destination at discharge (Home, Psychiatric Ward, Medical Ward, Other Protected Residential Facilities);
- Psychiatric diagnosis at discharge, according to the International Classification of Diseases 9th edition (ICD-9-CM) [32].

Statistical Analysis

We analysed the selected variables in our sample divided by gender. We divided all stays in PITF during the year of the observation study into two groups according to the median of stay duration in order to compare the selected variables of two different groups for length of stay. We performed descriptive statistics: percentages for categorical variables and means, medians and standard deviations for continuous variables. We applied Chi2 test for percentage comparisons, paired and unpaired Student *t*-test for mean comparisons. We applied stepwise (backward selection) model of multiple linear regression for analysing the correlation between clinical and demographical variables (independent variables) and both the duration of stay and HoNOS scores (dependent variables). Statistical significance was set at $p < 0.05$. The statistical analysis was conducted using STATA-12 (2011).

Results

The demographic and clinical characteristics of our patients ($n = 106$, 55 females, 51 males) divided into the two groups according to the median duration of their stays (≤ 29 and > 29 days), are highlighted in Table 1. Economic support from social service was the only variable statistically significant (Pearson chi2 = 4.99; $p = 0.027$) between the two groups. In fact, most

Table 1 Demographic and clinical variables of our sample, according to the median length of stay

Demographic and clinical variables	≤ 29 Day stay patients *N* = 83 (78%)	> 29 Day stay patients *N* = 23 (22%)	Total patients N = 106 (100%)	Statistical test probability
Age (m ± SD)				
Years	45.90 ± 14.74	47.956 ± 16.04	46.35 ± 14.98	Not statistically significant
Nationality, n (%)				
Italian	69 (83%)	19 (83%)	88 (83%)	Not statistically significant
Non Italian	14 (17%)	4 (17%)	18 (17%)	
Living environment, n (%)				
Marital family	23 (28%)	8 (35%)	31 (29%)	Not statistically significant
Parental family	30 (36%)	7 (30%)	61 (35%)	
Protected facility	11 (13%)	1 (4%)	12 (11%)	
Alone	15 (18%)	5 (22%)	20 (19%)	
Homeless	4 (5%)	2 (9%)	6 (6%)	
Economic support from social service, n (%)				
Present	63 (76%)	12 (52%)	75 (71%)	Pearson Chi2 = 4.99 $p = 0.027$
Absent	20 (24%)	11 (48%)	21 (29%)	
Employment, n (%)				
Employed	18 (22%)	4 (17%)	22 (21%)	Not statistically significant
Unemployed	47 (57%)	14 (61%)	78 (57%)	
Retired for age	9 (11%)	0 (0%)	9 (8%)	
Retired for disability	7 (8%)	4 (17%)	11 (10%)	
Student	2 (2%)	1 (5%)	3 (3%)	
Community service treatments, n (%)				
Mental health service	48 (58%)	11 (48%)	59 (56%)	Not statistically significant
Other or more services	30 (36%)	12 (52%)	42 (40%)	
None	5 (6%)	0 (0%)	5 (5%)	

of the subjects (71%, 75 patients) not economically supported by social service due to sufficient economic conditions, presented shorter stays in our PITF (76% vs 52%) (Table 1).

In our sample, some variables statistically differed between males and females: 44% of females lived in an acquired family vs 14% of males, who more frequently remained in their parental house (Pearson chi2 = 12.31; $p = 0.015$); males were assisted and treated by more than one community service (Pearson chi2 = 6.09; $p = 0.04$) and presented higher HoNOS scores at both admission ($t = -2.10$, $p = 0.037$) and discharge ($t = -2.4633$, $p = 0.015$) than females.

We collected 128 PITF stays (because some patients were admitted more than once in the observation period), which were divided into two groups according to the median of duration: ≤29 and > 29 days. In Table 2, the clinical variables related to PITF stays, divided according to the median duration, are shown. The main clinical reason for PITF admissions was represented by "Acute worsening of psychopathology", followed by "Social problems", "Familial relational conflicts" and "Need for PITF activities after psychiatric ward discharge", without any statistically significant difference between the two stay duration groups (Table 2).

Patients admitted to our PITF came mostly from their home or from a hospital ward, and 53% of them had a history of poor therapeutic adherence without any statistically significant difference between the two stay groups, both of them treated with pharmacological therapies (Table 2).

Most patients had already been treated by community Mental Health Services or by more than one community service, whereas only 5 patients (5% of all PITF stays) had not been treated by any service (Table 2).

"Meeting with patient, caregiver and responsible clinician" was the most frequent psychiatric activity in our PITF, followed by "Meeting with patient and responsible clinician" and

Table 2 Clinical variables of the PITF stays, divided by the median of duration of stays

Clinical variables	≤ 29 Day stays $N = 103$ (80%)	>29 Day stays $N = 25$ (20%)	Total stays $N = 128$ (100%)	Statistical test probability
Motivations for admission, n (%)				
Acute worsening of psychopathology	64 (62%)	13 (52%)	77 (60%)	Not statistically significant
Familial relational conflicts	12 (12%)	2 (8%)	14 (11%)	
Social problems	23 (22%)	9 (36%)	32 (25%)	
Need for PITF activities after psychiatric ward discharge	4 (4%)	1 (4%)	5 (4%)	
Place of origin, n (%)				
Home	78 (76%)	19 (76%)	97 (76%)	Not statistically significant
Hospital ward	25 (24%)	6 (24%)	31 (24%)	
Therapeutic adherence, n (%)				
Low	53 (51%)	14 (56%)	67 (53%)	Not statistically significant
High	50 (49%)	11 (44%)	61 (47%)	
Organic comorbidity, n (%)				
Present	58 (56%)	17 (68%)	75 (59%)	Not statistically significant
Absent	45 (44%)	8 (32%)	53 (41%)	
Psychiatric activities during PITF stays, n (%)				
Individual patient interview	22 (21%)	1 (4%)	23 (18%)	Not statistically significant
Meeting with patient and caregiver	17 (16%)	4 (16%)	21 (16%)	
Meeting with patient and responsible clinician	16 (15%)	7 (28%)	23 (18%)	
Meeting with patient, caregiver and responsible clinician	48 (47%)	13 (52%)	61 (48%)	
Medical non-psychiatric activities during PITF stays, n (%)				
None	18 (17%)	0 (0%)	18 (14%)	Pearson chi2 = 20 $p = 0.018$
Examinations or consultations	72 (70%)	16 (64%)	88 (69%)	
Non-psychiatric drugs	1 (1%)	0 (0%)	1 (1%)	
Multiple non-psychiatric medical activities	12 (12%)	9 (36%)	21 (16%)	
Rehabilitative programs during PITF stays, n (%)				
One program	49 (47%)	15 (60%)	64 (50%)	Not statistically significant
More than one program	54 (52%)	10 (40%)	64 (50%)	
HoNOS scale score, m ± SD				
At admission	19.89 ± 6.9	21.28 ± 7.27	20.16 ± 6.78	Not statistically significant
At discharge	14.43 ± 7.5*	14.28 ± 5.4**	14.41 ± 7.12§	
Destination at discharge, n (%)				
Home	78 (76%)	19 (76%)	97 (76%)	Not statistically significant
Psychiatric ward	11 (11%)	2 (8%)	13 (10%)	
Medical ward	12 (12%)	4 (16%)	16 (12%)	
Other protected residential facilities	2 (2%)	0 (0%)	2 (2%)	

*vs HoNOS at the admission of ≤ 29 day stays, $t = 10.9$, $p < 0.001$

**vs HoNOS at the admission of > 29 day stays, $t = 5.49$, $p < 0.001$

§ vs HoNOS at the admission of total stays, $t = 11.81$, $p < 0.001$

"Individual patient interview", without any statistically significant difference between the two groups of stay duration (Table 2).

In 69% of PITF stays, non-psychiatric medical activities, in particular "Examinations and/or consultations", were performed with a statistically significant difference between the two groups (Pearson chi2 = 20, $p = 0.018$). In the longer duration stay group, all patients performed one or more non-psychiatric medical activity, in comparison with 83% patients of the other group (Table 2).

A tailored rehabilitative program was implemented with similar percentage in both groups of stays, without statistically significant difference (Table 2).

The HoNOS showed a significant improvement of our patients' clinical conditions at discharge in comparison with admission ($t = 11.81$, $p < 0.001$), without any statistically significant difference between the two groups of stays (Table 2).

The discharge destination was more frequently home, followed by non-psychiatric ward, a psychiatric ward and finally another rehabilitative facility. The destination at discharge did not statistically significantly differ between the two groups of stays (Table 2).

In Table 3, the nursing and psychiatric diagnoses are shown. The most frequent NANDA-I diagnosis at PITF admission was "Impaired Mood Regulation", followed by "Disturbed Personal Identity". NANDA-I nursing diagnoses statistically significantly differed between the two groups of stays: in particular, "Impaired Mood Regulation", "Disturbed Personal Identity" and "Ineffective Impulse Control" were more frequent among the shorter stays (Table 3).

Among the psychiatric diagnoses at discharge (according to the ICD-9 CM), the most frequent was "Schizophrenia and Other Psychotic Disorders", followed by "Dysthymia, Anxiety Disorders, Adjustment Disorders", "Bipolar Disorders", "Organic Psychosis", "Personality Disorders", "Mental Retardation" and "Substance and Alcohol Abuse", without any statistically significant difference between the two groups (Table 3).

In Table 4, the variables statistically significantly related to stay duration (days) and HoNOS score at discharge (multiple linear regression analysis, stepwise model) are shown.

A positive statistically significant correlation was found between the stay duration in days (dependent variable) and the following (independent) variables:

- "Multiple non-psychiatric medical activities" compared to "None";
- "Economic social service support", compared to "None";

Table 3 Nursing and psychiatric diagnoses of the PITF stays, divided by the median of stays

Diagnoses	≤ 29 Day stays N = 103 (80%)	>29 Day stays N = 25 (20%)	Total stays N = 128 (100%)	Statistical test probability
Nursing diagnoses at admission (NANDA-I), n (%)				
Impaired mood regulation	38 (36%)	7 (28%)	45 (35%)	Pearson chi2 = 19.97
Disturbed personal identity	18 (17%)	0 (0%)	18 (14%)	$p = 0.018$
Anxiety	2 (2%)	2 (8%)	4 (3%)	
Ineffective impulse control	13 (12%)	1 (4%)	14 (10%)	
Impaired social interaction	1 (1%)	1 (4%)	2 (1%)	
Social isolation	4 (3%)	1 (4%)	5 (3%)	
Dysfunctional family processes	9 (8%)	3 (8%)	12 (9%)	
Risk-prone health behavior	9 (8%)	3 (12%)	12 (9%)	
Risk for suicide	8 (7%)	1 (4%)	9 (6%)	
Self-neglect	7 (6%)	7 (28%)	14 (10%)	
Psychiatric diagnoses at discharge (ICD-9 CM), n (%)				
Schizophrenia and other psychotic disorders	36 (35%)	8 (33%)	42 (34%)	Not statistical significant
Bipolar disorders	14 (13%)	2 (8%)	16 (14%)	
Dysthymia, Anxiety disorders, Adjustment disorders	26 (25%)	6 (24%)	32 (25%)	
Mental retardation	3 (3%)	0 (0%)	3 (2%)	
Personality disorders	9 (9%)	4 (16%)	13 (10%)	
Substance and alcohol abuse	3 (3%)	0 (0%)	3 (2%)	
Organic psychosis	12 (12%)	5 (20%)	17 (13%)	

Table 4 Statistically significant variables related to stay duration (days) and HoNOS score at discharge (multiple linear regression analysis, step-wise model)

Statistically significant variables related to stay duration (days)	Coeff.	Standard error	Probability	95% Confidence interval
Multiple non-psychiatric medical activities (vs None)*	17.76	4.92	0.001	8; 27.51
Economic social service support (vs None)*	6.73	3.32	0.045	0.15; 13.32
Meeting with patient and responsible clinician (vs Individual patient interview)*	11.51	4.57	0.013	2.45; 20.56
NANDA-I Nursing diagnosis: "Self-neglect" (vs "Impaired mood regulation")*	13.86	4.56	0.003	4.81; 22.9
Statistically significant variables related to HoNOS score at discharge	Coeff.	Standard error	Probability	95% Confidence interval
Male (vs Female)*	3.27	1.19	0.007	0.92; 5.62
Meeting with patient, caregiver and responsible clinician (vs Individual patient interview)*	−6.05	1.59	0.001	−9.20; −2.89
Low adherence to pharmacological therapy (vs High adherence to pharmacological therapy)*	3.89	1.16	0.001	1.59; 6.20

*Reference variable

- "Meeting with patient and responsible clinician", compared to "Individual patient interview";
- NANDA-I: "Self-neglect", compared to "Impaired Mood Regulation".
- The following variables were positively correlated with the HoNOS score at discharge in a statistically significant way:
- "Male" gender compared to "Female";
- "Low adherence to pharmacological therapy" compared to "High adherence to pharmacological therapy".
- The following variable was positively correlated with the HoNOS score at discharge in a statistically significant way:
- "Meeting with patient, caregiver and responsible clinician" compared to "Individual patient interview".

Discussion

Our research investigated the demographical and clinical variables related to the length of stay of patients treated in a PITF.

The demographic characteristics of our sample showed that the majority of our patients were Italian, lived in parental or marital family, were in sufficient economic conditions although most of them were unemployed and were in care at Mental Health Service. Our sample, divided according to the median of stay duration, showed that the only significant difference between the two stay groups was represented by the economic conditions, which required economic social service support in the >29 day stay group.

In our sample, we highlighted some gender differences suggesting that males suffered from more severe and complex disorders than females: males often lived at home with their parental family, whereas females lived in an acquired family; males were assisted and treated by more than one community service whereas females were in care of only one service, usually Mental Health Service; females showed greater improvement at discharge compared to males, according to HoNOS scores. These results overlap the most recent literature about gender differences in psychiatric disease severity and therapeutic response [33, 34].

The comparison between the two stay groups showed that many clinical variables and socio-economic conditions negatively impacted on our PITF stay duration. Regarding the clinical factors, our investigation highlighted that "Self-neglect", among NANDA-I nursing diagnosis, "multiple non-psychiatric medical activities", among non-psychiatric medical activities, and "meeting with patient and responsible clinician", among psychiatric activities, represented risk factors for the lengthening of stays, as our regression model suggested. "Self-neglect" indicated the regressive behaviour which needed rehabilitation for daily life activities and self-care. This condition linked to the impairment of autonomy induced by psychiatric illnesses can condition the stay duration in psychiatric facilities, as another Italian study, the "PERDOVE project" [16], highlighted. We underline that "meetings with patient and responsible clinician" could indicate that no caregiver or family member of these patients was available to participate in the psychiatric program during PITF stay. Moreover, need for "multiple non-psychiatric medical activities" could suggest the clinical complexity of these patients and, in the same time, their difficulty in undergoing medical investigations as well as caring for themselves at home. Associated to the above-mentioned clinical reasons, the economic conditions, documented by the need for a social support, influenced stay duration in our PITF. In fact, economic condition statistically significantly differed between the two stay groups and represented a risk factor for longer stays in our regression model, in accordance with another recent study [29]. This result is in line with the literature that highlights the frequent association between low socio-economic status and mental illness [35]. We have to note that, although the most frequent motivation for PITF admission was "Acute worsening of psychopathology" and the most frequent psychiatric diagnosis at discharge was "Schizophrenia and other Psychotic disorders", our analysis highlights that other variables indicating complex therapeutic and care needs, were associated with an increased risk for the lengthening of stay duration in our facility, in line with other recent studies [28, 29].

The significant improvement of HoNOS scores at discharge suggests that PITF programs were effective for improving the overall health status and social functioning of patients, independently from our length of stay. At our regression model, the factors associated with an increase score of HoNOS, indicating a worsening of psychiatric conditions, were "male gender" and "low adherence to pharmacological therapy" in comparison with "female gender" and "high adherence to pharmacological therapy", respectively, whereas "Meeting with patient, caregiver and responsible clinician" compared to "Individual patient interview" represented a variable significantly related to a reduction of HoNOS score, suggesting that complex relational intervention could be a factor of clinical improvement.

Moreover, the most frequent destination at discharge was home, without any significant difference between the two length stay groups, result that indirectly suggests a satisfactory recovery of patients' autonomy. In this regard, we put in evidence that our PITF carried out the rehabilitative and therapeutic function mandated by the National Health Plan: to serve as transition between hospital treatment and community care in order to overcome the drastic interruption of life represented by psychiatric diseases and avoid the risk for regressive dependence of patients from institution. Similar clinical improvement at discharge from a residential facility has been reported in most studies [5, 10, 12, 14, 15], which highlighted that the rehabilitative programs applied during residential facility stay can help patients to regain their ability to live independently and their personal autonomy.

Our results lead us to reflect on the complexity of psychiatric therapeutic and care that cannot be identified by only a label of diagnosis and cannot be implemented in short periods as those provided by hospital setting, which, according to national health system organization, are

reserved for acute crisis and not for long periods in order to avoid the risk of a chronic dependence on institutions [36].

Strenghts and Limitations

The present study has several limitations. Firstly, the present study was conducted on a limited size sample, without any comparison with patients from other residential facilities. Secondly, the retrospective design did not allow us to establish causative inferences among the selected variables. Nevertheless, this study design, easy to conduct and without economic costs, allowed us to appreciate the variables related to the length of PITF stays in order to implement perspective research to investigate the phenomenon in detail.

Although our study analysed many variables, additional variables could be evaluated, due to the complexity of clinical care and treatments performed in a PITF. In any case, this study can represent an example of program evaluation by means of NANDA-I diagnoses, which were very helpful in understanding what happened to patients at their facility admissions concerning their care needs. Therefore, this work can provide a more comprehensive look at a service and the people in more informative way.

Conclusions

In our sample, clinical severity, as we hypothesized, but also difficult socio-economic conditions were associated with the lengthening of PITF stay duration. These conditions require complex and long-term therapeutic and rehabilitative programs to counteract potential risk for patient institutional dependence. Prospective studies involving multiple sites of similar programs are needed to deepen the effectiveness of rehabilitative facility treatments for mental health of patients.

Acknowledgements Patients hospitalized in the psychiatric intensive treatment facility where this research was implemented and all professionals of this unit.

Compliance with Ethical Standards

Ethical Statements This research was approved by local Ethics Committee (Protocol number 3582/2017, 26th September 2017).

Conflicts of Interest None.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

1. Accordino MP, Porter DF, Morse T. Deinstitutionalization of persons with severe mental illness: context and consequences. J Rehabil. 2001;67:16–21.
2. Caldas de Almeida JM, Mateus P, Tomè G. Towards community-based and socially inclusive mental health care. Situation analysis and recommendations for action. In: Joint Action on Mental Health Well Being; 2015. http://www.mentalhealthandwellbeing.eu/assets/docs/publicationsWP5%20Final-20151203075843.pdf. Accessed 10 Aug 2018.

3. Pyke J, Lowe J. Supporting people, not structures: changes in the provision of housing support. Psychiatr Rehabil J. 1996;19:5–12.
4. Accordini M, Saita E, Irtelli F, Buratti M, Savuto G. Stories of change: the text analysis of handovers in an Italian psychiatric residential care home. J Psychiatr Ment Health Nurs. 2017. https://doi.org/10.1111/jpm.12377.
5. Thomas KA, Rickwood DJ, Brown PM. Symptoms, functioning and quality of life after treatment in a residential sub-acute mental health service in Australia. Health Soc Care Community. 2017. https://doi.org/10.1111/hsc.12301.
6. Salvi V, Boccardo F, Giannini P, Corulli M. [Treatment outcomes of psychiatric rehabilitation: a follow-up study at an italian therapeutic community]. [Article in Italian]. Riv Psichiatr. 2016. https://doi.org/10.1708/2246.24198.
7. De Leon G, Sacks S, Staines G, McKendrick K. Modified therapeutic community for homeless mentally ill chemical abusers: treatment outcomes. Am J Drug Alcohol Abuse. 2000;26:461–80.
8. 180 Italian Law of 13 May 1978. [Voluntary and mandatory health checks and treatments]. [Document in Italian]. http://www.salute.gov.it/imgs/C_17_normativa_888_allegato.pdf. Accessed 10 Aug 2018.
9. Italian Ministry of Health. (2013). [Psychiatric Residential Facilities, Conference 17 October 2013]. [Document in Italian]. https://www.salute.gov.it/imgs/C_17_pubblicazioni_2460_allegato.pdf. Accessed 10 Aug 2018.
10. Nuttbrock LA, Rahav M, Rivera JJ, Ng-Mak DS, Link BG. Outcomes of homeless mentally ill chemical abusers in community residences and a therapeutic community. Psychiatr Serv. 1998;49:68–76.
11. Urbanoski KA, Kelly JF, Hoeppner BB, Slaymaker V. The role of therapeutic alliance in substance use disorder treatment for young adults. J Subst Abus Treat. 2012. https://doi.org/10.1016/j.jsat.2011.12.013.
12. Bride BE, Macmaster SA, Morse SA, Watson CM, Choi S, Seiters J. A comparison of opioid and nonopioid substance users in residential treatment for co-occurring substance use and mental disorders. Soc Work Public Health. 2016;31:678–87.
13. Twohig MP, Bluett EJ, Torgesen JG, Lensegrav-Benson T, Quakenbush-Roberts B. Who seeks residential treatment? A report of patient characteristics, pathology, and functioning in females at a residential treatment facility. Eat Disord. 2015. https://doi.org/10.1080/10640266.2014.959845.
14. Sofko CA, Currier JM, Drescher KD. Prospective associations between changes in mental health symptoms and health-related quality of life in veterans seeking posttraumatic stress disorder residential treatment. Anxiety Stress Coping. 2016. https://doi.org/10.1080/10615806.2016.1157171.
15. Guazzelli M, Palagini L, Giuntoli L, Pietrini P. Rehab rounds: outcomes of patients with schizophrenia in a family-style, residential, community-based program in Italy. Psychiatr Serv. 2000;51:1113–5.
16. de Girolamo G, Candini V, Buizza C, Ferrari C, Boero ME, Giobbio GM, et al. Is psychiatric residential facility discharge possible and predictable? A multivariate analytical approach applied to a prospective study in Italy. Soc Psychiatry Psychiatr Epidemiol. 2014. https://doi.org/10.1007/s00127-013-0705-z.
17. Candini V, Buizza C, Ferrari C, Boero ME, Giobbio GM, Goldschmidt N, et al. Violent behavior of patients living in psychiatric residential facilities: a comparison of male patients with different violence histories. Int J Law Psychiatry. 2015. https://doi.org/10.1016/j.ijlp.2015.01.020.
18. Magliano L, Puviani M, Rega S, Marchesini N, Rossetti M, Starace F, et al. Feasibility and effectiveness of a combined individual and psychoeducational group intervention in psychiatric residential facilities: a controlled, non-randomized study. Psychiatry Res. 2016. https://doi.org/10.1016/j.psychres.2015.12.009.
19. Falloon IRH. Family interventions for mental disorders: efficacy and effectiveness. World Psychiatry. 2003;2:20–8.
20. Vittorielli M, Pioli R, Brambilla L, Archiati L, Rossi G, Sleijpen C, et al. [Efficacy of the "VADO" approach in psychiatric rehabilitation: a controlled study]. [Article in Italian]. Epidemiol Psichiatr Soc. 2003;12:43–52.
21. Gigantesco A, Vittorielli M, Pioli R, Falloon IR, Rossi G, Morosini P. The VADO approach in psychiatric rehabilitation: a randomized controlled trial. Psychiatr Serv. 2006;57:1778–83.
22. Pioli R, Vittorielli M, Gigantesco A, Rossi G, Basso L, Caprioli C, et al. Outcome assessment of the VADO approach in psychiatric rehabilitation: a partially randomised multicentric trial. Clin Pract Epidemiol Ment Health. 2006;2:5.
23. Magliano L, Fiorillo A. Psychoeducational family interventions for schizophrenia in the last decade: from explanatory to pragmatic trials. Epidemiol Psichiatr Soc. 2007;16:22–34.
24. Velligan DI, Diamond PM, Maples NJ, Mintz J, Li X, Glahn DC, et al. Comparing the efficacy of interventions that use environmental supports to improve outcomes in patients with schizophrenia. Schizophr Res. 2008. https://doi.org/10.1016/j.schres.2008.02.005.
25. Candini V, Buizza C, Ferrari C, Caldera MT, Ermentini R, Ghilardi A, et al. Is structured group psychoeducation for bipolar patients effective in ordinary mental health services? A controlled trial in Italy. J Affect Disord. 2013. https://doi.org/10.1016/j.jad.2013.05.069.
26. Quee PJ, Stiekema AP, Wigman JT, Schneider H, van der Meer L, Maples NJ, et al. Improving functional outcomes for schizophrenia patients in the Netherlands using cognitive adaptation training as a nursing intervention - a pilot study. Schizophr Res. 2014. https://doi.org/10.1016/j.schres.2014.06.020.
27. Ghadiri Vasfi M, Moradi-Lakeh M, Esmaeili N, Soleimani N, Hajebi A. Efficacy of aftercare services for people with severe mental disorders in Iran: a randomized controlled trial. Psychiatr Serv. 2015. https://doi.org/10.1176/appi.ps.201400111.

28. Habermeyer B, De Gennaro H, Frizi RC, Roser P, Stulz N. Factors associated with length of stay in a Swiss mental hospital. Psychiatry Q. 2018. https://doi.org/10.1007/s11126-018-9569-4.
29. Baeza FL, da Rocha NS, Fleck MP. Predictors of length of stay in an acute psychiatric inpatient facility in a general hospital: a prospective study. Rev Bras Psiquiatr. 2018. https://doi.org/10.1590/1516-4446-2016-2155.
30. NANDA International. Nursing diagnoses: Definitions & Classification 2018–2020. 11th ed. New York: Thieme Medical Publishers; 2018.
31. Lora A, Bai G, Bianchi S, Bolongaro G, Civenti G, Erlicher A, Maresca G, Monzani E, Panetta B, Von Morgen D, Rossi F, Torri V, Morosini P. The Italian version of HoNOS (health of the nation outcome scales), a scale for evaluating the outcomes and the severity in mental health services. [Article in Italian]. 2001; https://doi.org/10.1017/S1121189X00005339.
32. Ministry of Labor, Health and Social Policies. ICD-9-CM: International Classification of Diseases, 9th revision, Clinical Modification, 2007. Italian version. Roma: Istituto poligrafico e Zecca dello Stato; 2008.
33. Di Lorenzo R, Sagona M, Landi G, Martire L, Piemonte C, Del Giovane C. The revolving door phenomenon in an Italian acute psychiatric Ward: a 5-year retrospective analysis of the potential risk factors. J Nerv Ment Dis. 2016. https://doi.org/10.1097/NMD.0000000000000540.
34. Xiong N, Wei J, Fritzsche K, Leonhart R, Hong X, Li T, et al. Correction to: psychological and somatic distress in Chinese outpatients at general hospitals: a cross-sectional study. Ann General Psychiatry. 2018. https://doi.org/10.1186/s12991-018-0177-3.
35. World Health Assembly, 65. Global burden of mental disorders and the need for a comprehensive, coordinated response from health and social sectors at the country level: report by the secretariat. World Health Organization. 2012; http://www.who.int/iris/handle/10665/78898. Accessed 10 Aug 2018.
36. de Girolamo G, Polidori G, Morosini P, Scarpino V, Reda V, Serra G, Mazzi F, Alonso J, Vilagut G, Visonà G, Falsirollo F, Rossi A, Warner R. Prevalence of common mental disorders in Italy: results from the European study of the epidemiology of mental disorders (ESEMeD). Soc Psychiatry Psychiatr Epidemiol 2006;41:853–861.

Affiliations

Rosaria Di Lorenzo[1] · Teresa Olmi[2] · Giulia Rioli[3] · Gian Maria Galeazzi[4] · Paola Ferri[3]

Teresa Olmi
olmi.aseret@gmail.com

Giulia Rioli
giulyrioli@hotmail.it

Gian Maria Galeazzi
gianmaria.galeazzi@unimore.it

Paola Ferri
paola.ferri@unimore.it

[1] Psychiatric Intensive Treatment Facility, Department of Mental Health and Drug Abuse, AUSL Modena, 41122 Modena, Italy

[2] School of Nursing, University of Modena and Reggio Emilia, 41124 Modena, Italy

[3] Section of Clinical Neuroscience, Department of Biomedical Metabolic and Neural Sciences, University of Modena and Reggio Emilia, 41124 Modena, Italy

[4] Section of Clinical Neuroscience, Department of Biomedical Metabolic and Neural Sciences. Department of Mental Health and Drug Abuse, AUSL Modena, University of Modena and Reggio Emilia, 41124 Modena, Italy