

# Factors predicting drop-out in community mental health centres

BLANCA REÑESES<sup>1</sup>, ELENA MUÑOZ<sup>2</sup>, JUAN JOSÉ LÓPEZ-IBOR<sup>1</sup>

<sup>1</sup>Institute of Psychiatry and Mental Health, San Carlos University Hospital, Complutense University, Madrid, Spain

<sup>2</sup>Department of Psychology, Universitat Oberta de Catalunya, Barcelona, Spain

*This study aimed to identify treatment, therapist and patient factors associated with dropping out of treatment in four outpatient mental health services. The experimental group comprised all 789 individuals who attended for the first time the mental health services during one year and dropped out of treatment in the same year or during the two following ones. The control group consisted of the same number of individuals, chosen at random from patients who, in the same year, attended for the first time the services and did not subsequently drop out of treatment. The overall drop-out rate was 33.2%. According to logistic regression analysis, the predictive factors of dropping out were: being treated in a particular centre, the involvement of more than one therapist in treatment, having no previous history of psychiatric disorders, being young and being male.*

**Key words:** Drop-out, community mental health care, use of psychiatric services

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Estimated drop-out rates in outpatient psychiatric services vary considerably, ranging from 20 to 60% (1-9). This variation can be attributed to discrepancies in the way dropping out is defined (10), differences in sample composition, the setting in which the phenomenon is analysed and the study design. The drop-out rate is highest at initial appointments (11); therefore studies that include the first stages of treatment find higher drop-outs rates (12).

Younger patients are more likely to drop out of any kind of treatment (3,5,13-15). Living alone (3,6,16,17), being divorced, unmarried or widowed (3,17), a low socioeconomic status (2,3,5), being unemployed or having a job that is low on the social scale (18), and having a low level of education (14) are also associated with a higher drop-out rate.

The nature of the outpatient clinical setting and a lower level of patient satisfaction have also been identified as predictive factors for dropping out (16,19,20).

Concerning the factors related to patient's illness, a positive association has been found between dropping out and a higher degree of severity of the symptoms (1,12). There are some data supporting the notion that a diagnosis of schizophrenia increases the likelihood of dropping out (3,21,22), as well as data contradicting this notion (6,8,16). Low rates of adherence to treatment have been reported among patients with personality disorders and post-traumatic stress disorder (3), and higher levels of adherence to outpatient therapy among those with depressive disorders (3,23).

A previous history of psychiatric treatment has been associated with a lower drop-out rate (6,12). Adherence to outpatient treatment seems to improve when both pharmacological treatment and psychotherapy are prescribed, as opposed to the prescription of just one form of treatment (5,24). There are no specific studies on the influence of therapists' characteristics on drop-out rate in outpatient services.

The aim of this study was to analyse the factors associated with dropping out of contact with outpatient services. In

particular, we explored the influence of patients' socio-demographic features, clinical diagnosis, type of treatment received and characteristics of therapists.

## METHODS

The study was carried out in the public outpatient psychiatric services of one of Madrid health care areas, corresponding to two health care districts, namely Centro and Latina. Together, they have a population of 350,000 inhabitants with quite comparable socio-demographic characteristics. The studied catchment area has four mental health centres which are integrated in a network of services. All the professionals work with the same model of care, range of services and functional hierarchy. Each centre is staffed by psychiatrists, clinical psychologists, nurses, social workers and auxiliary personnel. For the purpose of this study, the four centres were identified as A, B, C and D. The patients selected for the study were attended to by a total of 22 psychiatrists and clinical psychologists.

The Register of Mental Health Cases of the Community of Madrid is the information system of Madrid outpatient services. It is a cumulative register containing a record of all the care-related dealings with patients of all mental health centres since 1987, including information on socio-demographic characteristics, ICD-9 diagnoses, the type of treatment received and the professional responsible for it. The register also contains data related to admissions to and discharges from hospitals. The register contains all the diagnoses received by each patient over the course of an episode of illness.

We carried out a non-matched retrospective case-control study based on administrative records, covering one year in the above-mentioned four mental health services. The experimental group included all the individuals over the age of 18 who, during the index year, were seen for the first time in

one of the four mental health centres and, after attending two initial appointments, agreed on a psychiatric treatment from which they dropped out in the same year or in the two following years. Specific exclusion criteria were: attending just one appointment; non-attending a pre-arranged appointment, in spite of a later contact with the mental health care centre, and age under 18.

For the purposes of this study, dropping out was defined as the unilateral interruption of treatment by the patient, without a further contact with the service in the following six months. Having been discharged on medical grounds, having died or having moved to a different health area were not considered as drop-outs.

The control group consisted of patients chosen at random from all those who, in the same period of time, were seen for the first time in the above-mentioned centres and who, after attending two initial appointments, were prescribed psychiatric treatment and duly complied to it. Due compliance was defined as continuous contact with the centre according to the agreements with the therapist.

The socio-demographic variables considered in the study were: age, sex, marital status, living arrangements (alone, with partner or children, with biological family, with other relatives, in sheltered accommodation), level of education (no education, primary studies, secondary studies, university studies), occupation, occupational status (active, unemployed, pensioner, student, domestic tasks). The level of education variable includes four categories referring to the highest level achieved as part of studies that can be accredited in accordance with Spanish legislation.

The type of care and treatment variables considered in the study were: the mental health care centre attended, the treatment received (pharmacological treatment, individual psychotherapy, group psychotherapy, combined pharmacological and psychotherapeutic treatment, other types), number of sessions attended during current episode (less than 5, from 5 to 9, more than 9), practitioner responsible for treatment (each practitioner was identified by a number from 1 to 22), number of practitioners responsible for the case during the period covered by the study (one practitioner, more than one practitioner).

The clinical variables considered in the study were: primary diagnosis (according to the ICD-9), number of diagnoses recorded, previous psychiatric treatment (outpatient treatment, hospital treatment, both). To simplify the analysis of the data, eight categories were considered for the primary diagnosis: organic psychotic disorders (290-294), neurotic disorders (300), alcohol and drug abuse and/or dependence (303-305), adjustment disorders (308, 309), schizophrenia and paranoid states (295, 297, 298.3, 298.4), affective disorders (296, 298.0, 311), personality and behaviour disorders (301, 312), and eating disorders (307.1, 307.5).

The therapist variables considered in the study were profession (psychiatrist or psychologist), sex, age, years of experience in the centre, type of contract (permanent staff, stand-in staff or temporary staff), years of professional experience

in public health care system.

The data concerning the patients, the treatment they received and the type of care involved were obtained from the Register of Mental Health Cases of the Community of Madrid. To guarantee the reliability of the data obtained, the details of 75% of the sample were checked against the corresponding original medical records. There were no significant discrepancies between the two sources of information. The data concerning practitioners were obtained by an ad-hoc questionnaire. All the practitioners responsible for the subjects included in the sample compiled the questionnaire.

In the statistical analysis, dropping out of treatment was the dependent variable, and the above mentioned socio-demographic, type of care and treatment, clinical and therapist features were the independent variables. With all the study's variables being taken as qualitative, both descriptive statistics and cross tabs were produced. The cross tabs were used to obtain the Fisher exact statistic, the window value and the 95% confidence interval. Additionally, a logistic regression model was adjusted in steps in order to evaluate the association of the variables for which a bivariate analysis gave a  $p < 0.05$ . The IT package used to carry out the entire statistical analysis was the version 11.0 of SPSS (Statistical Package for Social Sciences) for Windows.

## RESULTS

The results of the comparative bivariate analysis of the socio-demographic characteristics of the patients who dropped out of treatment and those who did not are shown in Table 1. There were significant differences in terms of age, level of education, marital status, living arrangements, occupation and occupational status. The proportion of patients who dropped out was higher among the 18-32 age group and lower among the over 60 age group. Patients with university studies and those without studies had the lowest tendency to drop out of treatment. The drop-out rate was significantly higher among people who were unmarried, and in those who lived alone or with their biological family. Patients with lower skilled jobs were more likely to drop out of treatment. Additionally, there were higher drop-out rates among patients who were unemployed or students than among those who were in active employment, carried out domestic tasks or had retired.

The results of the comparative bivariate analysis between the two groups based on the clinical and care-related variables are shown in Table 2. Patients with eating disorders and those with a primary diagnosis of abuse of alcohol or other drugs had the highest drop-out rates, followed by those with personality disorders. The drop-out rate was substantially lower among subjects who had previously received psychiatric treatment as outpatients or in hospital. The drop-out rate was lower among patients who received pharmacological treatment in comparison to those whose only treatment was group or individual psychotherapy. Significant

**Table 1** Socio-demographic characteristics of drop-outs and controls

Variables (%)	Drop-outs (n=789)	Controls (n=789)	p
<i>Age</i>			
18-32 years	57.7	42.3	.009
33-43 years	50.5	49.5	
44-60 years	49.4	50.1	
Over 60 years	45.6	54.4	
<i>Gender</i>			
Male	51.9	48.1	.256
<i>Educational level</i>			
No studies	37.1	62.9	.050
Elementary studies	51.6	48.4	
Secondary studies	53.2	46.8	
University studies	46.8	53.2	
<i>Marital status</i>			
Married	46.2	53.8	.015
Single, divorced, separated, widowed	52.6	47.4	
<i>Living arrangements</i>			
Alone	54.3	45.7	.002
With partner and/or children	45.4	54.6	
With father, mother or both	56.0	44.0	
With relatives other than the parents	57.3	42.7	
In an institution	30.0	70.0	
<i>Occupation</i>			
Professional, technical personnel, executive and manager	41.6	58.4	.027
Staff of administrative services	41.9	58.1	
Commercial and sales	58.3	41.7	
Tourism, security, construction and transportation	55.0	45.0	
Armed forces and not well-specified occupations	52.1	47.9	
<i>Occupational status</i>			
Employed	52.0	48.0	.046
Unemployed	57.4	42.6	
Retired or on pension	43.8	56.2	
Student	55.0	45.0	
Housewife	41.4	58.6	

differences were found with regard to the mental health care centres where patients were treated. The drop-out rate was lower among those from centres A and D.

The comparative bivariate analysis of the variables related to therapists is shown in Table 3. The drop-out rate was significantly higher among patients attended to by more than one practitioner over the course of their therapy. Patients treated by practitioners employed on a stand-in or temporary basis had a greater tendency to drop out than those treated by permanent staff. No difference was noted between patients treated by a psychiatrist and those treated by a clinical psychologist. The drop-out rate corresponding to individual therapists ranged from 0% to 66.7%, thus involving significant differences and a high level of variability.

The overall drop-out rate for the geographical area studied was 33.2%. It ranged from 28.9% in centre A to 51.4% in centre C.

The logistic regression model shown in Table 4 includes the possible predictive factors for patients dropping out of treat-

**Table 2** Clinical and mental health care variables in drop-outs and controls

Variables (%)	Drop-outs (n=789)	Controls (n=789)	p	
<i>Diagnoses</i>				
Organic psychoses	40.0	60.0	.023	
Neurosis	49.0	51.0		
Alcohol and drug abuse and/or dependence	61.7	38.3		
Adjustment disorder	43.7	56.3		
Schizophrenia and other psychoses	50.0	50.0		
Affective psychoses	50.7	49.3		
Personality disorders	55.3	44.7		
Eating disorders	66.7	33.3		
<i>Previous psychiatric treatment</i>				
Outpatient or hospital treatment	44.5	55.5		.000
No treatment	56.0	43.9		
<i>Type of treatment</i>				
Pharmacological treatment only	44.7	55.3	.003	
Individual psychotherapy only	54.5	45.4		
Group psychotherapy only	63.5	36.5		
Pharmacological treatment + individual psychotherapy	50.4	49.6		
Other modalities	59.6	40.4		
<i>Sessions</i>				
Less than 4	44.7	55.3	.000	
4 to 9	57.7	42.3		
More than 9	49.0	51.0		
<i>Mental health centres</i>				
Centre A	46.9	53.1	.008	
Centre B	53.9	46.1		
Centre C	57.9	42.1		
Centre D	46.1	53.9		
<i>Number of practitioners involved</i>				
Only one therapist	46.5	53.5	.000	
More than one therapist	59.4	40.6		

**Table 3** Characteristics of the therapist in drop-outs and controls

Variables (%)	Drop-outs (n=789)	Controls (n=789)	p
<i>Profession</i>			
Psychologist	46.6	53.4	.160
Psychiatrist	51.2	48.8	
<i>Gender</i>			
Male	51.1	48.9	.344
<i>Age</i>			
46 year old or less	46.0	54.0	.008
More than 46 year old	54.9	45.1	
<i>Years in the current job</i>			
Less than 10 years	52.3	47.7	.552
10 years or more	50.4	49.6	
<i>Type of contract</i>			
Permanent staff	47.9	52.1	.001
Stand-in or temporary staff	58.3	41.7	
<i>Years of experience</i>			
Less than 16 year	50.4	49.6	.561
16 years or more	52.2	47.8	

ment at the centres studied. The model originally included all the variables for which there were significant differences in the comparison between the experimental and the control

**Table 4** Logistic regression: factors predicting drop-out

Variables	p	OR	95% CI
Age (18-32 years vs. other age groups)	.013	1.446	(1.080 - 1.938)
Gender (male vs. female)	.016	1.429	(1.068 - 1.911)
Living arrangements (alone vs. other situations)	.009	1.818	(1.163 - 2.843)
Previous treatment (yes vs. no)	.002	1.504	(1.156 - 1.957)
Centre of care (C vs. other centres)	.030	1.710	(1.053 - 2.776)
Number of practitioners involved (one vs. more than one)	.000	2.045	(1.569 - 2.666)

group. In the end, the variables retained in the logistic regression equation were age (the 18-32 age group compared to the over-32 age group), sex (female compared to male), living arrangements (living alone compared to any other living arrangements), previous history of psychiatric care (no vs. yes), the centre providing care (centre C compared to any of the other three) and the number of practitioners involved in the process (involvement of more than one psychiatrist or psychologist in addition to the main practitioner responsible for treatment). The regression equation established on the basis of the variables in question has a predictive value concerning dropping out of treatment of 69.1%.

## DISCUSSION

The outpatient care drop-out rate for patients receiving treatment for the first time during a year was 33.2% over the three-year period and ranged between 28.9 and 51.4% in the four mental health centres. This figure is within the average of previous studies, where the rates varied between 16 and 60% (1,5,7,8,13,25-27). However, it is difficult to compare the global drop-out figures, due to differences in study methodologies and in the health care systems. Our drop-out rate is lower than that found in  $\alpha$  study by Percudani et al (7), carried out in Italy, in an area with a health care system similar to ours: the difference might be partly explained by the fact that we excluded patients who only attended the first appointment. On the other extreme, our figure is higher than that of Edlund et al (5), who used a much more conservative drop-out criterion and also included patients treated in different treatment settings. Two other studies similar to ours have been undertaken in Spain. They both included first visits and had higher drop-out rates: 42% (28) and 67% (29).

We found an interesting difference in the drop-out figures between the mental health centres. Patients treated in centre C had a 1.7 times higher risk of dropping out than the other three centres in the area. This fact, added to the difference observed in patient drop-out depending on the therapist responsible for their treatment (between 0 and 67%) leads us to conclude that the influence of a particular practitioner, as well as the centre's working methods, may be important factors. In the four centres, the organization of care was similar and there were no social differences between the relevant populations.

Our bivariate analysis showed that therapists under 46 years old and with stable employment in the service were associated with a lower drop-out rate, whereas there were no differences between patients treated by a psychiatrist or a psychologist, or by those with more or less professional experience. The logistic analysis found no specific professional characteristics which could be considered as factors predicting drop-out. In Hong Kong, Pang et al (27) reported that patients treated by permanent practitioners have a lower drop-out rate than those treated by temporary staff members.

We found that the fact of being attended to by more than one practitioner during the observation period, whether simultaneously or sequentially, was a factor increasing the drop-out rate. We were not able to find any previous studies focusing on the influence of therapist discontinuity on the drop-out phenomenon.

Male gender, being young and living alone were found to be risk factors for drop-out, in line with the majority of previous studies (3,5,8,13-15,28).

In our study, the clinical diagnosis does not appear as a drop-out risk factor in the logistic analysis. However, four European studies (6-8,16) reported that patients with a diagnosis of schizophrenia and other psychoses were more likely to continue their treatment than patients with neurotic and personality disorders. A diagnosis of schizophrenia was found to greatly increase the chance of continuing treatment in the study by Rossi et al (8). However, a study carried out in the US (15) reported that schizophrenia patients had higher drop-out rates than those with other illnesses. These differences may be explained by the differing models of psychiatric care in the various study locations.

The type of treatment received did not appear to be a predicting factor in the logistic regression analysis, while, in the bivariate analysis, patients receiving pharmacological treatment, alone or in combination with individual psychotherapy, had a lower tendency to drop out than those who only received group or individual psychotherapy. This finding is consistent with some previous studies (28,30).

Patients without a previous history of psychiatric treatment had a greater tendency to drop out than those who had been previously treated, whether as outpatients or admitted hospital patients. We lack sufficient data to be able to interpret this fact, although it is in line with other studies (6,12,31).

As our study was based on a register of cases, it was not possible to determine whether the subjects had genuinely dropped out of psychiatric treatment or had continued their therapy in the private sector or through primary healthcare services. The conclusions therefore only apply to non-compliance to the service and not to psychiatric treatment in general.

The sample included patients who attended at least two appointments, therefore excluding those who dropped out after just one appointment. Despite the limitation it entails, this selection criterion was established to guarantee that only patients prescribed treatment in the centres were included in

the sample, thus ruling out one-off consultations and cases immediately referred to primary healthcare services.

Finally, our findings cannot be generalized to settings with different models of care or types of services.

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