


# Clinical attendance rates and associated factors after discharge of patients treated in a child psychiatry clinic

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## Abstract

**Aim:** Continual attendance at clinical follow-ups of children and adolescents after inpatient psychiatric treatment is an important problem affecting morbidity and mortality. In this study we aimed to research the follow-up attendance rates after hospital discharge and influencing factors in a child and adolescent psychiatric inpatient clinic.

**Material and Methods:** Patient data between 2013 and 2016 were retrospectively investigated and cases with at least 3 months of history after discharge were included in the study. After discharge, cases who attended the following first 2 consecutive clinic appointments were accepted as attending follow-up. Variables related to sociodemographic characteristics, psychiatric diagnosis, applied treatment, kind of admission and discharge, duration of stay, applied psychometric scale scores were also recorded.

**Results:** Two-hundred and forty-one cases (65.7%) attended the first two consecutive appointments, while 126 cases (34.3%) did not attend a total of 367 cases. Low socioeconomic level and alcohol use were found to be associated independently with lower attendance rates while pharmacotherapy, admission from outpatient clinic and those with first-degree relatives who had mental disorders associated independently with higher attendance rates.

**Conclusion:** Regular and consistent follow-up after discharge from children and adolescents may be an important indicator of compliance with treatment. Studies have reported that repeated psychiatric admissions to hospital are lower among patients who are compliant with treatment compared to those who do not comply. We believe our study will contribute to the literature on understanding the attendance rates and effective factors for clinical check-ups after discharge.

**Keywords:** Adolescent; attendance; child; discharge; follow-up

## INTRODUCTION

Lack of attendance at clinical checkups after inpatient psychiatric treatment among children and adolescents is an important morbidity and mortality issue. Many factors, such as patient and social environment characteristics as well as current mental disease and medications used, affect checkup attendance after patients are discharged. Attendance at clinical checkups is a subheading of compliance with treatment (1). Attending or not attending the first appointment after discharge is a strong indicator of the patients' treatment compliance (2). In child psychiatry clinics, nonattendance rates at checkups after discharge are 15–28% (3,4), and patients who do not attend checkups are four times more likely than attendees to be readmitted to the hospital (5).

Various studies show that studies on clinical follow-up after discharge are limited and older. In the current

studies, the scope of the results determined by looking at the various variables was examined. Four significant factors promote patients' lack of attendance at the first appointment after discharge: the unwillingness of the patient during admission and discharge or discharge before the end of treatment, not identifying who will check up with the patient and where the checkup will occur during the patient's discharge, problems with the patient's primary support group, and the length of time between the appointment and discharge dates (6). In another similar study; being younger, having a poor family support system, not taking psychotropic medications, and having health insurance were identified (7).

Lack of patient compliance with checkups causes increased recurrence rates, more serious prognoses, increased number and length of hospital stays and homicidal or suicidal behavior. Long hospital stays,

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high symptom severity, continuity of treatment, multiple medication use and use of antipsychotic medications increase attendance at clinical checkups (7-10). Studies have attempted to compare the psychosocial factors that affect checkups after hospital discharge in patients with current mental diagnoses. In this study, the relationship between variables such as demographic data, treatment type, admission and discharge characteristics, psychiatric diagnosis and patients' scale points with checkups was examined. The number of studies examining the factors that affect checkups among child and adolescent patients after discharge from inpatient clinic in our country is very low. However, although a study with adult psychiatric patients was found on this subject, no study in children and adolescents was found (11).

This study; focused on outpatient follow-up after discharge from patients treated in child and adolescent psychiatry inpatient clinic. Outpatient follow-up of patients discharged appears to be important in terms of continuity of previously taken treatments. We think that hospitalization in patients is an important parameter in maintaining continuity in outpatient follow-up. The data in this study also aims to share the data of our inpatient clinic. In addition, it emphasizes the importance of the in-clinic experience. This study aimed to research the factors that affect attendance at clinical checkups after discharge in patients who received inpatient treatment.

## MATERIAL and METHODS

Inonu University faculty of medicine consisted of the data of patients hospitalized in the child and adolescent psychiatry clinic from late 2013 to mid-2016. In the screening, data of 303 patients were reached. Of the 367 total admissions, 253 were patients admitted to the clinic once, 38 were patients admitted twice, 10 were admitted three times, and two were admitted four times. The basic condition for classifying the case as attending a checkup was compliance with the checkup date given by the doctor. Patients who attended the first two appointments after they were discharged comprised the "attended follow-up" patient group. Patients who did not attend any appointments or attended only once after discharge comprised as the "did not attend follow-up" patient group. The cases discharged within the previous three months were excluded from the study because their checkup attendance was unknown.

Sociodemographic data, the patient's hospitalization features and psychiatric diagnoses and psychometrically applied scale data were obtained during the screening. Retrospectively, this scan is based on written papers and computer data. Patient demographics; age, sex, educational, family socioeconomic level, who they live with, smoking, alcohol and drug abuse, mental disorder in first-degree relatives were included. Psychiatric diagnoses based on *Diagnostic and Statistical Manual of Mental Disorders-5* (DSM-5) (12), applied treatments (pharmacotherapy, cognitive behavior therapy, multiple medication use, use of antidepressants, antipsychotics,

anxiolytics, mood stabilizer and psychostimulants); form of admission and discharge (number of admissions, form of admission, form of discharge, discharge state, and duration of stay) were recorded. Cognitive behavioral therapy was applied as a psychotherapy method during hospitalization. At least two drug uses were determined as multiple drug use. His current admission was noted for the first time, and the second and more. Her hospitalization from the outpatient clinic and the emergency room or other service room was given in two categories. In order to decide on the discharge of patients, family-doctor distinction was made, since it was possible to exit with the written consent of the families. During discharge, it was determined as a complete return to its healthy state (complete remission) and a partial return to its previous healthy state (partial remission). And, apart from either situation, two categories were created, with no benefit (as is) from his hospitalization. And also the length of hospital stay was noted.

Psychometric scales applied by researchers in inpatient clinic are as follows:

**Child Depression Inventory (CDI):** It is a 27-item self-report scale developed by Kovacs (13), applicable to children between the ages of 6-17. The validity and reliability study in our country was conducted by Oy (14) and measures depressive symptoms.

**State-Trait Anxiety Inventory 1-2 (STAI-1, 2):** While the state anxiety form only gives information about what is felt at that moment, the continuity anxiety form has been developed to measure what has been felt for the last 7 days. It is a Likert-type self-report scale consisting of twenty items (15). The validity and reliability of the scale in Turkish was made by Ozusta et al (16).

**The Child Posttraumatic Stress Disorder Reaction Index (CPTSD-RI):** The scale includes questions related to the three sub-dimensions of posttraumatic stress disorder: re-experiencing, avoidance and arousal symptoms. It is used to measure the severity of diagnosis and trauma (17). The validity and reliability of the scale in Turkish was made by Erden et al (18).

**Wechsler Intelligence Scale for Children (WISC-R):** It consists of two parts: verbal and performance. Verbal score gives performance score and total intelligence score. The standardization of WISC-R on Turkish children was carried out by Savaşır and Şahin in the 6-16 age group (19).

### Inpatient Clinic Characteristics

Two doctors, one nurse, and two other personnel worked in the ten-patient clinic, performing routine examination and observing the patients. Handwritten records are written and stored in patient files. In addition, data is transferred to the computer via epicrisis. Patients included those admitted after consultation with the clinic, emergency services, or other clinics. The DSM-5 was used for psychiatric diagnoses. Data in the patient files was recorded by the doctor during observations and monitoring on the clinic. Reasons for discharge included

full remission, partial remission, current state, family request, or transfer to another clinic. In the inpatient clinic, while the patient is out of the hospital, a method is followed to test the functionality of the patients: before patients were discharged, their homes were inspected and the state of their external environment was checked. Patients with discharge decisions made after home inspections were conducted were given a checkup appointment at least one week later.

### Missing Data and Statistical Assessment

Missing data; some demographic data were insufficient in the files of some patients because the data were obtained from the patients' written and computer records. This was observed only in sociodemographic data and scales used.

All the analyses were performed using the Statistical Program for the Social Sciences software version 23.0 (SPSS Inc., Chicago, IL). The Pearson chi-square test was applied to the descriptive categorical variables related to disease characteristics and clinical check-ups. Compliance with normal distribution was determined using the Shapiro-Wilk test. The non-parametric Kruskal Wallis variance analysis and Mann-Whitney U test were used for group comparisons. After analyzing the relationship between sociodemographic data, psychiatric

diagnoses, hospitalization and treatment features and multiple logistic regression analysis was applied to determine which factors affect post-discharge follow-up. The significance of the model was determined using the Hosmer and Lemeshow test (chi-square=0.543, df=8, p=0.299). Additionally, the coefficients for the estimated multiple logistic regression model were checked using the Omnibus test, and they were significant (chi-square=76.164, df=6, p<0.001). The significance level was p<0.05.

### RESULTS

Of the cases, 65.7% (n=241) attended the first two consecutive appointments after discharge, while 34.3% (n=126) were identified as non-attending. Those with low socioeconomic levels ( $X^2=11.435$ , p=0.001) and cases that involved alcohol abuse ( $X^2=7.880$ , p=0.01) had lower rates of attendance, while those continuing in formal education ( $X^2=8.942$ , p=0.003) and those with mental disorders among their first-degree relatives ( $X^2=4.676$ , p=0.005) had higher rates of attendance. No statistically significant differences were found between the groups in terms of age, sex, who they lived with, smoking habits, and drug abuse (p>0.05) (Table 1).

**Table 1. Sociodemographic data of the study population**

	Did not attend follow-up (n=126) n(%)	Attended follow-up (n=241) n(%)	$\chi^2$	p
<b>Sex</b>				
Female	84 (66.7)	155 (64.3)	0.201	0.654
Male	42 (33.3)	86 (35.7)		
<b>Education</b>				
Continuing	93 (75.6)	210 (87.9)	8.942	<b>0.003**</b>
Not continuing	30 (24.4)	29 (12.1)		
<b>Family socioeconomic level</b>				
Low	81 (69.2)	108 (50.0)	11.435	<b>0.001**</b>
Moderate-high	36 (30.8)	108 (50.0)		
<b>Lives with</b>				
Both parents together	100 (79.4)	189 (78.4)	0.044	0.834
Separate from one or both parents	26 (20.6)	52 (21.6)		
<b>Smoking habit</b>				
Yes	32 (29.9)	56 (25.8)	0.609	0.435
No	75 (70.1)	161 (74.2)		
<b>Alcohol abuse</b>				
Yes	15 (14.4)	11 (5.2)	7.880	<b>0.005**</b>
No	89 (85.6)	201 (94.8)		
<b>Drug abuse</b>				
Yes	17 (16.0)	22 (10.2)	2.242	0.134
No	89 (84.0)	193 (89.8)		
<b>Mental disorders among first degree relatives</b>				
Yes	39 (35.8)	105 (48.4)	4.676	<b>0.031*</b>
No	70 (64.2)	112 (51.6)		
	<b>Median (Min-Max)</b>	<b>Median (Min-Max)</b>	<b>Z</b>	<b>p</b>
<b>Age</b>	15.1 (2-17.8)	15.2 (1.5-17.7)	-0.731	0.465

\*p<.05; \*\*p<.01; \*\*\*p<.001

Cases with schizophrenia spectrum and other psychotic disorders ( $X^2=7.240$ ,  $p=0.007$ ) and with feeding and eating disorders ( $X^2=4.527$ ,  $p=0.033$ ) had higher attendance rates, while cases with intellectual disability ( $X^2=9.434$ ,  $p=0.002$ ) had lower attendance rates. However, no statistically significant differences were found between the groups with other psychiatric diagnoses, such as depressive disorders, disruptive, impulse-control and conduct disorders, trauma and stressor-related disorders, as well as bipolar and related disorders, anxiety disorders, somatic symptoms and related disorders, dissociative disorders, neurodevelopmental disorders, and obsessive-compulsive and related disorders ( $p>0.05$ ) (Table 2).

The cases that received pharmacotherapy ( $X^2=31.010$ ,

$p<0.001$ ), used antipsychotics ( $X^2=21.251$ ,  $p<0.001$ ), and were prescribed multiple medications ( $X^2=6.693$ ,  $p=0.010$ ) had higher attendance rates. The cases with more than one admission ( $X^2=14.127$ ,  $p<0.001$ ), who were admitted from the outpatient clinic ( $X^2=13.951$ ,  $p<0.001$ ), were discharged based on a doctor's advice ( $X^2=5.480$ ,  $p=0.019$ ), were discharged with full or partial remission ( $X^2=11.089$ ,  $p=0.001$ ), and had longer hospital stays ( $Z=-5.998$ ,  $p<0.001$ ) had statistically significantly higher attendance rates. No statistically significant differences were found between the groups of cases receiving only cognitive behavior therapy and those using antidepressants, anxiolytics, mood stabilizers, and psychostimulants (Table 2).

**Table 2. Psychiatric diagnosis, treatments applied and form of admission and discharge of the study population**

	Did not attend follow-up (n=126) n(%)	Attended follow-up (n=241) n(%)	$\chi^2$	p
<b>Schizophrenia spectrum and other psychotic disorders</b>				
Present	15 (11.9)	57 (23.7)	7.240	<b>0.007**</b>
Absent	111 (88.1)	184 (76.3)		
<b>Depressive disorders</b>				
Present	57 (45.2)	90 (37.3)	2.147	0.143
Absent	69 (54.8)	151 (62.7)		
<b>Disruptive, impulse-control and conduct disorders</b>				
Present	19 (15.1)	32 (13.3)	0.224	0.636
Absent	107 (84.9)	209 (86.7)		
<b>Trauma and stressor-related disorders</b>				
Present	13 (10.3)	16 (6.6)	1.538	0.215
Absent	113 (89.7)	225 (93.4)		
<b>Bipolar and related disorders</b>				
Present	3 (2.4)	11 (4.6)	1.075	0.300
Absent	123 (97.6)	230 (95.4)		
<b>Anxiety disorders</b>				
Present	8 (6.3)	15 (6.2)	0.002	0.963
Absent	118 (93.7)	226 (93.8)		
<b>Feeding and eating disorders</b>				
Present	2 (1.6)	16 (6.6)	4.527	<b>0.033*</b>
Absent	124 (98.4)	225 (93.4)		
<b>Somatic symptom and related disorders</b>				
Present	6 (4.8)	14 (5.8)	0.176	0.675
Absent	120 (95.2)	227 (94.2)		
<b>Dissociative disorders</b>				
Present	4 (3.2)	5 (2.1)	0.418	0.518
Absent	122 (96.8)	236 (97.9)		
<b>Neurodevelopmental disorders</b>				
Present	3 (2.4)	8 (3.3)	0.251	0.617
Absent	123 (97.6)	233 (96.7)		

<b>Obsessive-compulsive and related disorders</b>				
Present	3 (2.4)	11 (4.6)	1.075	0.300
Absent	123 (97.6)	230 (95.4)		
<b>Intellectual disability</b>				
Present	22 (17.5)	17 (7.1)	9.434	<b>0.002**</b>
Absent	104 (82.5)	224 (92.9)		
<b>Pharmacotherapy</b>				
Yes	97 (77.0)	231 (95.9)	31.010	<b>&lt;0.001***</b>
No	29 (23.0)	10 (4.1)		
<b>Cognitive behavior therapy</b>				
Yes	61 (48.4)	133 (55.2)	1.524	0.217
No	65 (51.6)	108 (44.8)		
<b>Multiple medication use</b>				
Yes	64 (50.8)	156 (64.7)	6.693	<b>0.010**</b>
No	62 (49.2)	85 (35.3)		
<b>Antidepressant use</b>				
Yes	66 (52.4)	133 (55.2)	0.262	0.608
No	60 (47.6)	108 (44.8)		
<b>Antipsychotic use</b>				
Yes	71 (56.3)	191 (79.3)	21.251	<b>&lt;0.001***</b>
No	55 (43.7)	50 (20.7)		
<b>Anxiolytic use</b>				
Yes	26 (20.6)	58 (24.1)	0.552	0.514
No	100 (79.4)	183 (75.9)		
<b>Mood stabilizer use</b>				
Yes	10 (7.9)	19 (7.9)	0.000	0.986
No	116 (92.1)	222 (92.1)		
<b>Psychostimulant use</b>				
Yes	3 (2.4)	13 (5.4)	1.802	0.180
No	123 (97.6)	228 (94.6)		
<b>Number of admissions</b>				
Once	117 (92.9)	186 (77.2)	14.127	<b>&lt;0.001***</b>
Multiple	9 (7.1)	55 (22.8)		
<b>Form of admission</b>				
From the outpatient clinic	84 (67.2)	202 (84.2)	13.951	<b>&lt;0.001***</b>
From emergency, transfer from outside the province or other clinics	41 (32.8)	38 (15.8)		
<b>Form of discharge</b>				
Family Request	34 (27.9)	39 (17.2)	5.480	<b>0.019**</b>
Doctor Advice	88 (72.1)	188 (82.8)		
<b>Discharge state</b>				
Full or Partial Remission	69 (56.6)	168 (74.0)	11.089	<b>0.001**</b>
As is	53 (43.4)	59 (26.0)		
	<b>Mean±SD</b>	<b>Mean±SD</b>	<b>Z</b>	<b>p</b>
<b>Admission duration</b>	13.3±16.03	23.30±20.92	-5.998	<b>&lt;0.001***</b>

\*p&lt;.05; \*\*p&lt;.01; \*\*\*p&lt;.001

Cases who attended checkups had statistically significantly higher points on the psychometric scales requested during their inpatient stays, including the STAI-1 ( $t=0.00$ ,  $p=0.027$ ), WISC-R verbal ( $t=0.27$ ,  $p=0.001$ ), performance ( $t=4.52$ ,  $p=0.002$ ), and total ( $t=0.48$ ,  $p=0.003$ ) tests, than those who did not attend. No significant difference was found in the CDI, STAI-2 and CPTS-RI scale scores between the groups ( $p>0.05$ ) (Table 3).

The variables with statistically significant differences

between the two groups were included in the multiple logistic regression analysis. The independent variables that influenced checkup attendance after discharge are shown in Table 4. High socioeconomic level, using no alcohol, mental disorders among first degree relative, pharmacotherapy, admission from outpatient clinic, and duration of hospital stay were identified as independent variables that positively affected checkup attendance after discharge ( $p<0.05$ ).

**Table 3. Scale scores of the study population**

Scales	Did not attend follow-up (n=126)	Attended follow-up (n=241)	p
CDI	20.95±10.21	21.80±11.58	0.581
STAI-1	46.36±13.72	50.65±13.48	<b>0.027*</b>
STAI-2	53.15±14.09	56.49±13.93	0.098
CPTS-RI	42.78±19.17	50.83±17.93	0.298
WISC-R			
Verbal	61.60±20.13	78.29±15.49	<b>&lt;0.001***</b>
Performance	62.87±23.98	79.85±14.22	<b>0.002**</b>
Total	64.00±16.39	76.88±14.38	<b>0.003**</b>

CDI, Children Depression Inventory; STAI-1, Spielberg State and Trait Anxiety Inventory-1; STAI-2, Spielberg State and Trait Anxiety Inventory-2; CPTS-RI, The Child Posttraumatic Stress Disorder Reaction Index; WISC-R, Wechsler Intelligence Scale for Children

**Table 4. Multiple logistic regression analysis for clinical attendance**

Factors	$\beta$	S.E.	p	OR	95% CI	
					Lower	Upper
High socioeconomic level	1.097	0.332	0.001	2.996	1.563	5.742
Using no alcohol	1.280	0.549	0.020	3.597	1.228	10.539
Mental disorder in first degree relative	0.685	0.321	0.033	1.985	1.057	3.725
Pharmacotherapy	2.575	0.604	<0.001	13.127	4.021	42.852
Kind of admission (admitted from outpatient clinic)	1.361	0.353	<0.001	3.898	1.952	7.784
Duration of hospital stay	0.019	0.902	0.042	1.019	1.001	1.038

## DISCUSSION

We investigated the outpatient follow-up features of patients discharged from psychiatric inpatient clinic. Low socioeconomic level and alcohol use were found to be associated independently with lower attendance rates while pharmacotherapy, admission from outpatient clinic and those with first-degree relatives who had mental disorders associated independently with higher attendance rates. Also, continuing education, psychiatric diagnoses of schizophrenia spectrum and other psychotic disorders with feeding and eating disorders, multiple medication use, antipsychotic use, multiple admissions, discharge with doctor's advice, discharge with full and partial remission, STAI-1 and WISC-R verbal, performance and the total scores of those who continued their

outpatient follow-up were found to be higher attendance rates. Among the psychiatric diagnoses, the intellectual disability was found higher in those who did not continue their follow-up.

Studies that investigate attendance rates at clinical checkups after patients are discharge from child and adolescent psychiatric clinics and their related factors are limited. Compliance with treatment after discharge and attendance at outpatient appointments are important for patients who have been monitored and treated at inpatient clinic. Noncompliance with treatment occurs in many ways, such as the irregular use of prescription medications, use of nonprescription medications, missing appointments and checkups, and similar behaviors (1). In Turkey, the noncompliance of patients who underwent

treatment is 51% in the short term and 25% in the long term. In both periods, the leading causes of noncompliance include negation of the disease, stigma, side effects of the medication, and difficulties related to medication use (20). A study of noncompliance among 313 psychotic patients who did not attend their first appointments identified five significant determinants of noncompliance: young age, ethnic differences, insufficient family support systems (including material insufficiencies), lack of health insurance, and lack of antipsychotic medication treatment use. Taking medications increased compliance with appointments (6). Not attending the first appointment resulted in increased readmission to the hospital and increased the risk of violence against the patient and others.

In the literature, a variety of durations were considered when determining nonattendance at checkups after discharge (21-23). No standardized duration of study was found. In this study, we accepted attendance at the first two consecutive clinical checkups as a determinant of attendance.

In this study, the rate of nonattendance was 34.3%. The rate of nonattendance at checkups in our study is higher, though close, to the rates found in the literature. Glyngdal et al. (24) focused on the length of time before patients attended their first appointments and reported that 32% of patients had not attended their first appointments within six months of their discharges. The differences in the checkup-attendance rates in this and other studies are due to differences in the research methods, sociocultural factors, and conditions related to health services access in the countries in which the studies were conducted.

Individuals who were continuing their formal educations and had moderate and high family socioeconomic levels had significantly higher checkup attendance rates. Kazdin (25) listed low family socioeconomic level, access problems, and family stress factors as treatment obstacles. Minty and Anderson (26) reported that having a single parent and low socioeconomic level affected checkup rates. In our study, low socioeconomic level was found to be effective, but having a single parent did not appear to affect checkups. Aker et al. (27) reported that the alcohol and drug abuse was related to medication noncompliance. In our study, alcohol abuse affected attendance at checkups. However, the low number of our patients with drug abuse problems made it difficult to identify how drug abuse affected checkup attendance. Additionally, our study found that patients with mental disorders among first-degree relatives had higher checkup attendance rates. Accordingly, the incidence of mental disorders in first-degree relatives increases previous experience of parents, increasing the continuation of their children's clinical checkups.

The data from studies about attendance at checkups based on psychiatric diagnosis appear to be inconsistent. Killaspy et al. (9) found that the checkup attendance rates of patients with depressive and anxiety disorders

were high. A similar study found that the checkup rates of patients with somatoform and depressive disorders were high; however, the authors reported the checkup attendance rates of those with anxiety disorders was low (30). In our study, anxiety and depressive diagnoses were not related to checkup attendance. Wang et al. (21) reported that hospital admission for adult depression diagnosis resulted in 62.7% attendance at outpatient checkups for longer than four months after discharge, and longer hospital stays and multiple medication use were related to outpatient checkup rates. Wang et al. (21) studied adult cases, but the authors found characteristics similar to our study. Another study reported that the checkup rates were high for depressive disorders and somatoform disorders (23). Rifel et al. (31) studied an adult patient group over 12–24 months and found that patients with major depressive disorders, panic disorders, and other anxiety disorders as well as those that abused alcohol had low checkup attendance rates. In our study, the attendance rates for those in the feeding and eating disorder category were significantly high; however, no other study on checkup attendance rates in patients with feeding and eating disorders was found. One study reported that the outpatient attendance rates for cases with schizophrenia spectrum and other psychotic disorders were low (22). A study of schizophrenia patients conducted during the first three months after discharge from the hospital found 50% partial noncompliance and 20% full noncompliance rates (32). Our study shows the opposite; however, the majority of studies were conducted with adult patient participants. The inclusion of parents in child and adolescent's checkups may change the results.

In our study, clinical checkup attendance was higher among those with pharmacotherapy, multiple medication use (21), and antipsychotic use, which is in accordance with the literature. Kruse et al. (7) observed that not using antipsychotics caused lower checkup attendance rates. However, other studies found that the use of antipsychotics was not related to checkup attendance (28). Diaz et al. (28) determined that treatment compliance in the first three months after discharge from the hospital was 47%. The authors stated that although antipsychotic use was not related to treatment compliance, dose frequency was a determinant. Multiple medication use is an increasing treatment trend in psychiatry (29). In our study, the use of multiple medications increased the patients' checkup attendance rates. The high checkup attendance rates of cases with multiple medication and antipsychotic use may be explained by the possible side effect risks of the medications and their monitoring requirements.

Patients who were discharged with full or partial remission were expected to continue their clinical checkups due to family and patient motivation. Cases admitted from emergency services or who were transfer from outside the province or other clinics had lower motivation for clinical appointment attendance than those admitted from the clinic. The checkup attendance rates may be low for cases transferred from outside the province due to access issues.

Stein et al. (8) stated that long hospital stays increased checkup attendance, while the checkup attendance rates of those discharged due to family request, in spite of their doctors' orders, were low. In our study, long hospital stays increased checkup attendance rates after discharge. Additionally, cases with more than one admission had significantly higher checkup attendance rates. Detailed and repeated interviews increase the psychotherapeutic relationship between the patient and doctor, so lengthened hospital stay and more than one admission strengthens patients' motivation to attend their checkups.

Cases with higher scores on the STAI-1 scale and the WISC-R intelligence verbal, performance, and total points tests had higher checkup attendance rates. No significant difference was identified in the CDI, STAI-2 and CPTS-RI scale scores between the groups. With regard to the CDI scale scores and depressive disorder diagnosis, the results showed no significant difference in compliance between the groups. A similar result was found for CPTS-RI with trauma and stressor-related disorders, and the STAI-2 scale with anxiety disorders. However, it may be difficult to state how these scales affect checkup-attendance rates after discharge. High scores on the WISC-R intelligence test appear to be related to checkup attendance rates. Lower verbal, performance, and total intelligence scores affected attending checkups. In addition, cases with a mental deficiency diagnosis had low checkup attendance rates. No study was found that investigated the relationship between the WISC-R tests and other applied scales and checkup attendance. Therefore, our study is the first of its kind.

The retrospective investigation of patient files is a significant limitation in terms of lost data. Loss of data in categories like maternal and paternal educational levels, family smoking habits, and alcohol and drug use habits caused some patients to be excluded from the study. In addition, there may be patients who continued their follow-up in another province after discharge. In addition, there were deficiencies in sociodemographic data. And it was observed that the scales used were not applied to some patients. However, since the health system does not allow this follow-up, we have no information. However, our study had a large sample size and assessed many factors that affect checkup attendance after discharge.

## CONCLUSION

In conclusion, cases with low socioeconomic levels, who abused alcohol, and with an intellectual disability diagnosis had low checkup-attendance rates. Cases continuing their educations; with mental disorders among first-degree relatives; with schizophrenia spectrum and other psychotic disorders; with feeding and eating disorder diagnoses; receiving pharmacotherapy; using antipsychotics and multiple medications; with more than one admission; admitted from the outpatient clinic; discharged based on a doctor's advice or with full or partial remission; with longer hospital stays; and those with high STAI-1 and WISC-R verbal, performance, and

total test scores had higher checkup-attendance rates. We believe that our study will contribute to understanding clinical checkup-attendance rates, including the factors that affect these rates. Prospective studies on this topic in the future will provide significant contributions to the literature.

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*Ethical approval: As it is a retrospective study, ethical approval is not required. (Bakınız: Klinik araştırmalar hakkında yönetmelik Madde 2, alt madde 2).*

## REFERENCES

1. Docherty JP, Fiester SJ. The therapeutic alliance and compliance with psychopharmacology. *Psychiatry Update* 1985;4:607-32.
2. Kruse GR, Rohland BM. Factors associated with attendance at a first appointment after discharge from a psychiatric hospital. *Psychiatr Serv* 2002;53:473-6.
3. Mathai J, Markantonakis A. Improving initial attendance to a child and family psychiatric clinic. *Psychiatr Bull* 1990;14:151-2.
4. Stallard P, Sayers J. An opt-in appointment system and brief therapy: Perspectives on a waiting list initiative. *Clin Child Psychol P* 1998;3:199-212.
5. Nelson EA, Maruish ME, Axler JL. Effects of discharge planning and compliance without patient appointments on readmission rates. *Psychiatr Serv* 2000;51:885-9.
6. Compton TC, Rudish EB, Craw J, et al. Predictors of missed first appointments at community mental health centers after psychiatric hospitalization. *Psychiatr Serv* 2006;57:531-7.
7. Kruse GR, Rohland BM, Wu X. Factors associated with missed first appointments at a psychiatric clinic. *Psychiatr Serv* 2002;53:1173-6.
8. Stein BD, Kogan JN, Sorbero MJ, et al. Predictors of timely follow-up care among Medicaid-enrolled adults after psychiatric hospitalization. *Psychiatr Serv* 2007;58:1563-9.
9. Killaspy H, Banerjee S, King M, et al. Prospective controlled study of psychiatric out-patient non-attendance. *Br J Psychiatry* 2000;176:160-5.
10. Lindström E, Bingefors K. Patient compliance with drug therapy in schizophrenia. *Pharmacoeconomics* 2000;18:105-24.
11. Unal S, Cakil G, Elyas Z. Taburculuk sonrası tedaviye gelmeyen psikotik hastaların özellikleri. *Anadolu Psikiyatri Derg* 2006;7:69-75.
12. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub. 2013.



13. Kovacs M. Rating scales to assess depression in school-aged children. *Acta Paedopsychiatr* 1981.
14. Oy B. Çocuklar için depresyon ölçeği: Geçerlik ve güvenilirlik çalışması. *Türk Psikiyatri Derg* 1991;2:132-6.
15. Spielberger CD. State-trait anxiety scale for children: preliminary manual. 1973.
16. Ozusta S. Çocuklar için durumluk-sürekli kaygı envanterinin uyarlama, geçerlik ve güvenilirlik çalışması. *Türk Psikol Derg* 1995;10:32-44.
17. Pynoos RS, Frederick C, Nader K, et al. Life threat and posttraumatic stress in school-age children. *Arch Gen Psychiatry* 1987;44:1057-63.
18. Erden G, Kilic EZ, Uslu R, et al. Çocuklar için Travma Sonrası Stres Tepki Ölçeği. Türkçe geçerlilik, güvenilirlik ön çalışması. *Cocuk Genc Ruh Saglik Derg* 1999;6:143-9.
19. Savaşır I, Şahin N. Wechsler çocuklar için zeka ölçeği (WISC-R) el kitabı. Türk Psikologlar Derneği Yayınları, Ankara, 1995.
20. Dilbaz N, Karamustafaloğlu O, Oral T, et al. Psikiyatri polikliniğe başvuran şizofreni hastalarında tedaviye uyumun ve uyumu etkileyen faktörlerin değerlendirilmesi. *Klin Psikofarmakol Bul* 2006;16.
21. Wang HR, Song HR, Jung YE, et al. Continuity of outpatient treatment after discharge of patients with major depressive disorder. *J Nerv Ment Dis* 2013;201(6):519-24.
22. Adelufosi AO, Ogunwale A, Adeponle AB, et al. Pattern of attendance and predictors of default among Nigerian outpatients with schizophrenia. *Afr J Psychiatry* 2013;16:283-7.
23. Gili M, Luciano JV, Serrano MJ, et al. Mental disorders among frequent attenders in primary care: a comparison with routine attenders. *J Nerv Ment Dis* 2011;199:744-9.
24. Glyngdal P, Sorensen P, Kistrup K. Non-compliance in community psychiatry: failed appointments in referral system top sychiatric outpatient treatment. *Nord J Psychiatry* 2002;56:151-6.
25. Kazdin, AE. Dropping out of child therapy: Issues for research and applications for practice. *Clin Child Psychol Psychiatry* 1996;1:133-56.
26. Minty B, Anderson C. Non-attendance at initial outpatient appointments at a hospital-based child psychiatric clinic. *Clin Child Psychol Psychiatry* 2004;9:403-18.
27. Aker T, Üstünsoy S, Kuğu N, et al. Psikotik bozukluğu olan hastalarda tedaviye uyum ve ilaç tedavisine uyumsuzluğu değerlendirme ölçeği. 36. Ulusal Psikiyatri Kongresi Özet Kitabı 2000.
28. Diaz E, Neuse E, Sullivan MC, et al. Adherence to conventional and atypical antipsychotics after hospital discharge. *J Clin Psychiatry* 2004;65:354-60.
29. Uluoğlu C. Psikiyatrik hastalıklarda polifarmasi ne zaman akılcıdır? *Klin Psikiyatr Derg* 2007;10:151-64.
30. Norton J, David M, De Roquefeuil G, et al. Frequent attendance in family practice and common mental disorders in an open access health care system. *J Psychosom Res* 2012;72:413-8.
31. Rifel J, Švab I, Selič P, et al. Association of common mental disorders and quality of life with the frequency of attendance in Slovenian family medicine practices: longitudinal study. *PLoS One* 2013;8.
32. Olfson M, Mechanic D, Hansell S, et al. Predicting medication Noncompliance after hospital discharge among patients with schizophrenia. *Psychiatr Serv* 2000;51:216-22.