

## Ten-Year Experience Outcomes of a Day Treatment for Children and Adolescents with Psychiatric Disorders

### Psikiyatrik Hastalığı Olan Çocuk ve Ergen Hastalara Hizmet Veren Gündüz Kliniği'nin On Yıllık İzlem Sonuçları

Hatice ÜNVER<sup>1</sup>, İhsan KARA<sup>2</sup>, Nursu ÇAKIN MEMİK<sup>2</sup>, Özlem YILDIZ GÜNDOĞDU<sup>2</sup>, Ayşen COŞKUN<sup>2</sup>

<sup>1</sup>Department of Child and Adolescent Psychiatry, Marmara University Pendik Research and Training Hospital, İstanbul, Turkey

<sup>2</sup>Department of Child and Adolescent Psychiatry, Kocaeli University School of Medicine, Umuttepe, Kocaeli, Turkey

#### ABSTRACT

**Introduction:** It was aimed to evaluate the efficacy of a day treatment clinic in Turkey and which has been serving for ten years for children and adolescents with psychiatric disorders.

**Methods:** 262 patients who completed day treatment within ten years were tested at intake and discharge. The patients' functioning was assessed using the Children's Global Assessment Scale (CGAS), Clinical Global Impression Scale (CGIS), state-trait anxiety inventory for children, depression rating scale for children, Coopersmith self-esteem inventory for children. Pre/post treatment comparisons were made on same variables.

**Results:** Statistical analyses showed that, improvement was maintained on all measures. The high CGAS scores at discharge were showed well-being and good functioning of patients. The CGIS scores varied from moderately disturbed (4.83±0.88) to much improved (2.55±0.93)

demonstrated that treatment responses showed improvement. Wilcoxon T tests showed that patients were significantly more anxious and depressive at intake and had more problems in self esteem. State-trait anxiety inventory for children and depression rating scale for children scores decreased and Coopersmith self-esteem inventory for children scores improved with day treatment.

**Conclusion:** This study points that as results of ten-year experience, day treatment approach seems effective and therefore to be the treatment of choice for treating children and adolescents with psychiatric disorders. It also shows the necessity of a treatment that combines multiple modalities like day treatment and day treatment must be more generalize for these patient population.

**Keywords:** Day treatment, children, adolescent, psychiatric disorders

#### ÖZ

**Amaç:** Bu çalışmada psikiyatrik hastalığı olan çocuk ve ergenlere on yıldır hizmet veren gündüz kliniğinin etkinliğinin değerlendirilmesi amaçlanmıştır.

**Yöntem:** Yaklaşık on yıl içerisinde gündüz kliniğini tamamlayan 262 hasta kliniğe girişte ve taburculukta değerlendirilmiştir. Hastaların işlevsellikleri çocuklar için genel değerlendirme ölçeği (ÇGDÖ), klinik global izlem ölçeği (KGİ), çocuklar için durumluk - sürekli kaygı ölçeği, çocuklar için depresyon ölçeği, Coopersmith benlik saygısı ölçeği - çocuk formu ile değerlendirilmiştir. Tedavi öncesi ve sonrası değerlendirmeler benzer değişkenler üzerinden yapılmıştır.

**Sonuçlar:** İstatistiksel analizler değerlendirilen tüm alanlarda iyileşmeler olduğunu göstermiştir. Taburculukta yüksek ÇGDÖ puanları hastaların iyilik hallerini ve iyi işlevselliklerini göstermiştir. KGİ puanları orta derecede

rahatsız (4,83±0,88)'dan çok düzelmiş (2,55±0,93) maddesine değişim göstermiştir. Wilcoxon T testi sonuçları hastaların tedavi başlangıcında anlamlı olarak daha anksiyöz ve depresif olduklarını; benlik saygıları ile daha fazla sorunları olduğunu göstermiştir. Çocuklar için depresyon ölçeği ve durumluk-sürekli kaygı ölçeği puanlarında azalma saptanırken, Coopersmith benlik saygısı ölçeği puanları artış göstermiştir.

**Tartışma:** Bu çalışma on yıllık izlemin sonuçlarına göre, gündüz kliniği yaklaşımının etkin olduğunu ve psikiyatrik hastalığı olan çocuk ve ergenlerin tedavisi için tercih edilebileceğini göstermiştir. Ayrıca gündüz kliniği gibi kapsayıcı tedavilere ihtiyacın olduğu ve bu hasta grubu için bu tür tedavi yaklaşımlarının yaygınlaştırılması gerektiği düşünülmüştür.

**Anahtar Kelimeler:** Gündüz kliniği, çocuk, ergen, psikiyatrik hastalıklar

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#### INTRODUCTION

The history of day treatment in psychiatry for adult patients is not too old. Day clinics were reportedly opened in 1938 first in Russia, then in Canada at the end of 1940's, in England at the beginning of 1950's, and at

the middle of 1950's in United States (1, 2). Zimet and Farley quoted that day treatment clinics for children and adolescents were more than 350 in United States between 1961 and 1981 (3). There is only a single day

**Correspondence Address/Yazışma Adresi:** Hatice Ünver, Department of Child and Adolescent Psychiatry, Marmara University Pendik Research and Training Hospital, İstanbul, Turkey  
**E-mail:** drhaticeunver@gmail.com

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treatment clinic in Turkey for children and adolescents with psychiatric disorders, and it serves since ten years.

Medical treatments are mostly effective for psychiatric disorders in children and adolescents, but not in normalizing the social functioning, and relations with peers and parents. So, interventions for these patient groups, target the patients' social system as a whole. Previous studies have shown that day treatment has positive effects on academic achievement, peer relations, behavioral disorders, and family functioning (4, 5). In addition, day treatment approach allows therapist to work with the patient on interpersonal, academic, familial, and behavioral difficulties, while maintaining his/her family and social settings (6). Day treatment maintains the links between patients and their parents, friends, and community (7).

It was reported that wide variability of psychiatric disorders may be treated in day treatment (8–12). However, it was reported that children and adolescents diagnosed with schizophrenia and forensic psychiatric patients are more likely benefit inpatient units vs. day treatment; nevertheless, there is no statistical difference between inpatient units and day treatment for children and adolescents with psychiatric disorders except the aforementioned disorders (4, 13–15).

In literature, the studies conducted on day treatment are limited. This limitation negatively affects the recognition, reliability and generalization of day treatment clinics. In this study, it was aimed to investigate the efficacy of a day treatment which has been serving for ten years. Particularly, it was aimed to examine the extend of improvement in numerous areas including functioning, depression, anxiety, and self-esteem levels after day treatment.

## METHODS

### Participants

Patients who were followed at Kocaeli University School of Medicine child and adolescent psychiatry day treatment clinic between 25.07.2007/25.07.2017 have determined as sample of the study. All patients and their parents were approved. Ethic committee approval was taken from Local Ethics Committee of Kocaeli University School of Medicine. Patients were assessed at intake and discharge the children's

global assesment scale, clinical global impression scale, state-trait anxiety inventory for children, depression rating scale for children and Coopersmith self-esteem inventory for children.

### Setting

Day treatment is located at Kocaeli University School of Medicine Hospital. During the ten-year period, in day treatment unit; 3 or 5 psychiatrists, 3 teachers, 1 social worker were employed although the numbers varied from time to time. Patients with many different psychiatric disorders, such as disruptive behavior disorders, anxiety disorders, pervasive developmental disorders, or mood disorders were treated together in day treatment. The diagnosis was based on intake assessment, school records and referring clinician's information. Most of the patients who were followed in outpatient clinics were referred to day treatment. The patients attended the day treatment from 9 AM to 4 PM, 5 days per week. Individualized academic program and therapeutic intervention were administered by a certified teacher and psychiatrist. One hour per day of special individualized education was consisted for each patient. Multimodal treatment plan, including cognitive behavioral therapy, psychoeducation, occupational therapy, milieu therapy and pharmacotherapy was performed throughout in day treatment and patients participated in activities such as sports, handmades, cooking activities, games and group activities. Medications were used when required. At the visits two times per week, where the treatment team and patients meet, the homeworks were given, difficulties experienced by the patient in day treatment were handled, the skills were planned, the responses/side effects/compliance of medicines were discussed. Parents sessions were conducted once a week. In day treatment, the family was evaluated in detail, and if necessary, parents were advised to seek the help of an adult psychiatrist. Biological diseases have also been evaluated consultation and liaison. Dietary and nutritional counseling was also provided (16, 17). The weekly plan of day treatment is shown in Table 1.

### Measurements

#### Children's global assessment scale (CGAS)

Adapted from the global assessment scale for adults, this scale is scored on the basis of clinician observations during the course of treatment. The CGAS is a measure of the overall well-being and functioning of the patient using variables such as symptoms, social and school functioning and coping strategies. At this scale, the patient is given a score of 100,

**Table 1.** Day treatment weekly plan

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9.00–9.55	Visit-medication/ Individual and group activities	Medication/Individual and group activities	Medication/Individual and group activities	Medication/Individual and group activities	Visit-medication/ Individual and group activities
10.00–10.55	Individual therapy	Individual therapy	Individual therapy	Individual therapy	Individual therapy
11.00–11.45	Individual and group activities	Individual and group activities	Individual and group activities	Individual and group activities	Individual and group activities
12.10–12.45	Lunch				
13.00–13.20	News	News	News	News	Team meeting
13.30–14.00	Allowed break	Allowed break	Allowed break	Allowed break	
14.00–15.00	Individual education	Individual education	Individual education	Individual education	
15.00–15.55	Individual and group activities	Individual and group activities	Individual and group activities	Individual and group activities	
15.55–16.00	Convention and leaving				

\*Individual and group activities: sports, handmades, cooking activities, games

taking into consideration the above mentioned characteristics. High scores indicate well-being status and good functioning (18). This scale has been adapted to Turkish in “Affective Disorders and Schizophrenia Interview Schedule for School Children” (19).

### **Clinical global impression scale (CGIS)**

CGIS was developed by Guy et al. to assess the course of all psychiatric disorders at all ages. CGIS is filled in during a semi-structured interview conducted by a clinician to assess treatment responses for patients with psychiatric disorders: I. CGIS-Disease Severity (CGIS-DS): A measure of total seven values. The patient has a score between 1 and 7 points, depending on the severity of disease; “1=No disease, 2=Mental disease at border, 3=Disease at mild level, 4=Disease at moderate level, 5=Disease at significant level, 6=Disease at severe level, 7=Disease at worst level.” II. CGIS-Global Recovery (CGIS-GR): A measure of total seven values. The patient has a score between 1 and 7 points, degree of recovery at discharge; “1=Too much improvement, 2=Much improvement, 3=Minimal improvement, 4=No change, 5=Minimal worsening, 6=Fair worsening, 7=Too much worsening” (20).

### **State-trait anxiety inventory for children**

State-trait anxiety inventory for children is a self-reported scale consisting of two sub-scales, which measure state and trait anxiety, developed by Spielberger et al. in 1973 (21). The validity and reliability studies for Turkish children were made by Özusta (22).

### **Depression rating scale for children**

It is a 27-item self-reported scale developed by Kovacs (23), which can be applied to children aged 6–17 years. The validity and reliability studies for Turkish children were made by Öy and a score of more than 19 indicates pathologies (24).

### **Coopersmith self-esteem inventory for children**

It is a 57-item self-report scale developed by Coopersmith (25). The validity and reliability studies was done by Güçray (26).

### **Statistical analysis**

The data were evaluated using the Statistical Package for Social Sciences (SPSS) 10.0 program for Windows. Descriptive statistical methods (mean, standard deviation) were used. Wilcoxon T tests were used in the comparison of the two groups. The results were evaluated at 95% confidence interval,  $p < 0.05$  significance.

## **RESULTS**

In day treatment, 262 patients were treated within 10 years. The mean age of patients between the ages of 6–17 was  $13.6 \pm 2.14$  years and 117 (44.7%) male and 145 (55.3%) female patients. The diagnostic distribution of the patients is shown in Table 2. It was found that 82 (31.3%) patients received two Axis I and 125 (49.6%) patients received more than two Axis I diagnoses. The most frequently recognized diagnose was attention deficit hyperactivity disorder; 194 patients diagnosed with attention deficit hyperactivity, 173 (90.1%) of them have a comorbid disorder and 70 patients diagnosed with anxiety disorders, 65 (92.86%) of them have a comorbid disorder, either. Psychopharmacological treatment distribution is shown in Table 3; 17 patients followed without medication and psychostimulant + SSRI combined treatment was mostly prescribed.

As indicated in Table 4, mean CGAS score was  $55.96 \pm 8.12$  at intake of treatment and it was  $71.26 \pm 11.11$  at discharge. There was a statistically significant increase in the CGAS score ( $z = -11.72$ ;  $p < 0.001$ ). Mean CGIS-DS mean score was  $4.83 \pm 0.88$ . The CGIS-GR mean score was  $2.55 \pm 0.93$  at discharge. A score of 3 or less according to CGIS-GR is considered “cured”. At intake depression rating scale for children mean score was  $21.25 \pm 13.08$ . At discharge, the mean score was  $12.08 \pm 10.05$  ( $z = -8.87$ ,

**Table 2.** Diagnosis distribution

DSM-IV	N	%
Attention deficit hyperactivity disorder	194	74.9
Oppositional defiant disorder	74	28.6
Dsylexia	67	25.9
Enuresis	11	4.2
Post traumatic stress disorder	7	2.7
Major depressive disorder	53	20.5
Major depressive disorder with psychosis	2	0.8
Separation anxiety disorder	15	5.8
Generalized anxiety disorder	30	11.6
Obsessive compulsive disorder	36	13.9
Panic disorder	4	1.5
Social phobia	19	7.3
Conversion disorder	25	9.7
Somatoform disorders	2	0.8
Pain disorders	1	0.4
Autism spectrum disorders	3	1.2
Asperger syndrome	18	6.9
Schizophrenia	1	0.4
Schizoaffective disorder	2	0.8
Articulation disorder	9	3.5
Borderline mental functioning	63	24.3
Mild mental impairment	19	7.3

**Table 3.** Psychopharmacological treatment distribution

	N	%
Psychostimulant	30	11.3
Atomoksetine	7	2.4
Selective serotonin reuptake blocker (SSRI)	34	12.6
Antipsychotic	10	3.6
Psychostimulant + SSRI	63	23.7
Mood stabilizer	3	0.8
SSRI + antihistaminic	1	0.4
SSRI + antipsychotic	20	7.5
Antipsychotic + mood stabilizer	4	1.2
Psychostimulant + SSRI + antipsychotic	17	6.3
Tricyclic antipsychotic	3	0.8
Antipsychotic + mood stabilizer + SSRI	3	0.8
Psychostimulant + mood stabilizer + antipsychotic	5	1.6
Psychostimulant + atomoksetine + antipsychotic	6	2
Psychostimulant + atomoksetine	7	2.4
Atomoksetine + antipsychotic	6	2
SSRI + mood stabilizer	3	0.8
Psychostimulant + antipsychotic	19	7.1
Without medication	17	6.3

**Table 4.** Comparisons between intake and discharge scores in day treatment

	INTAKE Mean ± SD	DISCHARGE Mean ± SD	Z	P*
CGAS	55.96±8.12	71.26±11.11	-11.72	<0.001
Depression scale	21.25±13.08	12.08±10.05	-8.87	<0.001
State anx scale	41.32±12.83	32.83±10.57	-7.90	<0.001
Trait anx scale	46.38±13.16	38.67±12.74	-7.98	<0.001
Coopersmith self-esteem inventory	29.38±10.48	36.60±10.64	-8.21	<0.001
CGIS-DS/CGIS-GR	4.83±0.88	2.55±0.93		

CGAS, Children's Global Assessment Scale; CGIS-DS/CGIS-GR, Clinical Global Impression Scale-Disease Severity/Clinical Global Impression Scale-Global Recovery.

\*Wilcoxon T Test

$p < 0.001$ ). State anxiety inventory for children mean score at intake was  $41.32 \pm 12.83$ . At discharge, it was  $32.83 \pm 10.57$  ( $z = -7.90$ ,  $p < 0.001$ ). Trait anxiety inventory for children mean score was  $46.38 \pm 13.16$ . At discharge, it was  $38.67 \pm 12.74$  ( $z = -7.98$ ,  $p < 0.001$ ). The mean score of Coopersmith self-esteem inventory for children was  $29.38 \pm 10.48$  at intake. At discharge it was  $36.60 \pm 10.64$  ( $z = -8.21$ ,  $p < 0.001$ ).

## DISCUSSION

In this study, day treatment was found to be effective for children and adolescents with psychiatric disorders. As results; CGAS scores showed major improvements in functioning, CGIS scores changed positively with the treatment, the depression rating scale for children and state-trait anxiety inventory for children scores was normal zone at discharge and Coopersmith self-esteem inventory scores was increased. Comparisons between intake and discharge scores showed that improvements were maintained on all measures.

In literature, there are not many studies on follow-up children and adolescents in day treatment. Studies are especially about adult patients with diagnosed schizophrenia or substance use disorders (27, 28). As studies that compares day treatments and inpatient units; day treatment has been shown to reduce stigmatization. Similarly, it is known that day treatment is less costly than inpatient units and has less restrictive conditions (10, 28). Daily functionality of patients followed in day treatment is better and there is not a re-adaptation process after day treatment discharge (11). Another study showed that day treatments have better outcomes for patients who have high motivation for treatment and who live in stressful home conditions with high emotional expression. It is thought that patients experience less demand and more help throughout their treatments in inpatient units than their homes, it may cause secondary gains and regression. It is also reported that patients may return after inpatient units discharge to trigger home conditions so they have a higher risk of illness recurrence (29). It is important that patients' social interactions on their own environments are not interrupted in day treatment; family and social settings are maintaining. The patients are evaluated in their social systems. Day treatment offers the advantage of community location and preservation of links to parents and peers. It may be difficult for less motivated patients coming to day treatment every day and continuing their daily lives after day treatment. Child and adolescent patients continue to day treatment similar to school and in day treatment it is easier to handle stressful conditions in daily lives such as peer and family relations.

Schimmelman et al. showed that including parents to day treatment affects treatment results positively (30). In our study, interviews with

parents focused on parenting skills and dysfunctional patient-parent interactions. In a study, it was shown that 33 children and adolescents with severe conduct disorder who were followed for 5 years after discharge from day treatment had sustained their gains, and the role of family was particularly emphasized (6). Intensive parent training has positive effects on our results. The growing awareness of psychiatric disorders in children and adolescents affected parents to include day treatment trainings, thus structured interviews and follow-ups may have increased parental satisfaction. In our clinic, weekly psychiatric sessions with parents increase the chance of short-term observation and crisis intervention.

It has been shown that day treatment in children and adolescents is therapeutic for many mental illnesses (30). In our study, pre/post treatment results of patients with many different diagnoses and comorbidities were evaluated including autism and psychosis. Only 4 autistic patients were included in a study investigated the effectiveness of remoting interventions to gain social skills (31). In our study, 18 patients with Asperger syndrome and 3 patients with autistic disorder who were treated in day treatment and were adhered to day treatment under therapist close observation. In day treatment, initiatives have been implemented intensively in addressing these deficits.

Some studies about day treatments have diagnostically homogeneous patient groups. Goldfarb et al. compared 14 patients with schizophrenia treated and followed in day treatment and 13 patients with schizophrenia treated in inpatient units, and the results showed that the outcome of the inpatient units was better (4). However, in diagnostically heterogeneous patient groups, there is no difference between treatment results of day treatment and inpatient units (14, 15). In our study, psychiatric disorders of patients were diagnostically heterogeneous and majority of patients benefited from treatment.

Grizenko et al. compared with 25 children with behavioral disorders in day treatment and 25 healthy children matched for age and gender. At the beginning of the treatment, children in day treatment group had low self-esteem, poor peer relations, depression, and hopelessness levels compared to the healthy group; but after day treatment, no difference was reported between two groups (32). Although 262 patients in this study were not compared with healthy children and adolescents, but day treatment seems to be effective when pre-and post-treatment data are considered. All these results are thought to be an eclectic effect of cognitive behavioral therapy, pharmacotherapy, occupational therapy, milieu therapy and family therapy.

Unfortunately, this study did not have a control group because of ethical reasons. It is impossible to ascribe all improvement in patients' functioning



to day treatment. It had not state the natural course of the disorders, but severity of disorders was high and improving likelihood with natural course was seen low. In future studies, comparing the treatment results will be interpreted more significant with age, gender and diagnostic matched patients in day treatment and inpatient units. Furthermore, there are other limitations in this study; the long-term efficacy of day treatment was not examined in a later period after discharge, different assessments for different diagnosis have not been done, and all patients are compared with the same variables.

In literature, day treatment in children and adolescents with psychiatric disorders has not been sufficiently investigated. In this study, it was aimed to evaluate ten-year experience outcomes of 262 patients. Improvement in the self-report scale scores was found statistically significant. When the results of this study are evaluated, day treatment seems therapeutically beneficial for children and adolescents with psychiatric disorders. In this study, the aim was to pull the attention to the effectiveness and necessity of day treatment.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Kocaeli University School of Medicine.

**Informed Consent:** Written informed consent was obtained from parents of patients who participated in this study.

**Peer-review:** Externally peer-reviewed.

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