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## EXAMINATION OF CONSULTATIONS REQUESTED FROM THE CHILD AND ADOLESCENT PSYCHIATRY CLINIC AND FACTORS PREDICTING SUBSEQUENT OUTPATIENT CLINIC ATTENDANCE

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### Abstract

**Objective:** The aim of this study is to evaluate consultations received by the child and adolescent psychiatry consultation-liaison unit and identify factors predicting attendance at the outpatient clinic following consultation.

**Methods:** A retrospective review was conducted on all consultations requested from the consultation-liaison psychiatry (CLP) unit at our clinic between August 2021 and March 2022. The files of cases who subsequently attended the recommended outpatient clinic were also examined. Data including age, gender, birth and developmental history, family characteristics, school history, clinical features, and number of consultations were recorded and analyzed.

**Results:** The median age of the sample was 15.1 years (25%: 13.3 - 75%: 16.7). Among the cases, 128 (61.5%) were female and 80 (38.5%) were male. Of the consultations requested, 149 (71.6%) were from emergency services, while 52 (25%) were from inpatient services, with pediatric hematology being the most frequent service. The primary reasons for consultation were suicide attempts (22.1%) and agitation (19.2%). Approximately 26% of cases remained undiagnosed. Major depressive disorder was the most frequently diagnosed condition, accounting for 25.5% of cases. Among the cases recommended for outpatient follow-up at the time of consultation (86% of the total), 53% attended their scheduled appointments. In the predictive model for outpatient attendance, agitation ( $\beta$ =2.11, *p*<0.05) and suicide attempts ( $\beta$ =0.564, *p*<0.001) significantly predicted attendance.

**Conclusion:** This study contributes to the existing literature by examining factors influencing the follow-up process. Our findings support the notion that agitation and suicide attempts are associated with increased morbidity. Early detection of high-risk behaviors such as suicide attempts and agitation is believed to reduce psychiatric morbidity and mortality rates, while also improving treatment compliance.

Keywords: Consultation-liaison, child and adolescent psychiatry, psychosomatic medicine, suicide, agitation.



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## Introduction

Consultation-Liaison Psychiatry (CLP) is a discipline that evaluates psychiatric consultations and focuses on pharmacotherapy and psychotherapy interventions in outpatients and inpatients. Pediatric consultation liaison psychiatry (P-CLP) emerges as a sub-specialty of child and adolescent psychiatry. P-CLP deals with the psychosocial factors that affect the treatment compliance of the patient and their family, makes the differential diagnosis of psychosomatic conditions, determines the relationship between the onset and continuation of the symptoms, communicates with the caregiver and the treatment team, and ensures the follow-up of the treatment.<sup>1</sup>

It is estimated that one-fifth of the child and adolescent population may experience a chronic illness or physical dysfunction throughout their development.<sup>2</sup> Co-occurrence of mental and physical health problems is common in children and adolescents with chronic health problems.<sup>3</sup> A study conducted in the United States shows that 18% of inpatients in children's hospitals are accompanied by a mental illness.<sup>4</sup> In hospital conditions, psychological factors can often exacerbate symptoms associated with physical illness. At the same time, emotional and somatic symptoms that may occur during follow-up; can be attributed to medical complications or misinterpreted as symptoms of medical conditions (such as pain, fatigue, sleep disturbance, delirium symptoms), thereby increasing the likelihood of causing increased healthcare utilization and costs.<sup>5</sup>

Studies have reported longer hospital stays in patients with primary or co-existing psychiatric disorders during hospitalization.<sup>6</sup> It has been shown that P-CLP services reduce medical complications, duration of hospital stay and number of hospitalizations in internal and surgical units, facilitating the treatment of psychiatric disorders with cognitive behavioral or supportive interventions, and access to appropriate psychiatric treatment after discharge.<sup>7</sup>

The quality of P-CLP services can improve the pathological course by reducing relapses, re-admissions and supporting resilience. Hence, there is a critical need to establish and enhance efficient pediatric consultation services aimed at addressing the needs of children and adolescents experiencing physical illnesses alongside emotional and behavioral challenges. For these reasons, in our study, it was aimed to examine the consultations requested from the CLP unit, to evaluate the status of the cases during the follow-up, and to investigate the factors predicting the follow-up process.

### Methods

### Sample

The sample of this study consists of 208 cases evaluated by Kocaeli University Faculty of Medicine, Department of Child and Adolescent Psychiatry, CLP unit between August 2021 and March 2022.

### **Procedure and Ethics Committee Approval**

All consultations requested from the CLP unit in Kocaeli University Faculty of Medicine, Department of Child and Adolescent Psychiatry between August 2021 and March 2022, and the files of the cases that admitted to the recommended outpatient clinic control were retrospectively scanned. In this unit, no files have been deactivated as the registration system was preplanned beforehand. Of the cases for which consultation is requested; A form was created Factors Predicting Outpatient Application After Consultation

containing information such as; age, gender, birth and developmental history, family characteristics, school history, clinical characteristics, number of consultations.

## Consultation Liaison Psychiatry (CLP) Unit

The CLP unit in our clinic is a specialized unit where outpatient and inpatient consultations requested from other clinics are evaluated, and the data of these patients are recorded and archived. The unit operates under the supervision of a faculty member, with at least two child and adolescent psychiatry residency students. Within this particular unit, psychiatric diagnoses are ascertained based on the classification system outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).<sup>8</sup>

### Statistical Analysis

The suitability of the numerical variables to the normal distribution was evaluated with the "Kolmogrov Smirnov" test of normality. Average values of 25% and 75% were given for the data that did not fit the normal distribution. Categorical variables were given as number (n) and percentage (%). Multiple linear regression analysis was used to evaluate the factors predicting the number of outpatient visits. The model incorporated various parameters, including age, agitation, history of suicide attempts, gender, school attendance, consultation time, length of stay, number of consultations, admission history, and drug use.

### Results

The median age of the sample was 15.1 years (25%:13.3-75%:16.7%). Among the cases, 128 (61.5%) were female and 80 (38.5%) were male. The median value of education time was 10 (25%:8-75%:11). The sociodemographic and family characteristics of the sample are given in Table 1.

Table 1. Sociodemographic and family characteristics

		n	%
Age*		15.1	13.3-16.7
Gender	Female	128	61.5
Genuer	Male	80	38.5
	Formal	152	73.1
Education	Open plan	10	4.8
	Drop out	28	13.5
Education duration (years)*		10	8-11
Fomily true	Elementary	90	43.3
Family type	Extended	50	24
Develoal illness in the family	Yes	94	45.2
Physical illness in the family	No	112	53.8
Montol illnoss in the form?	Yes	84	40.4
Mental illness in the family	No	124	59.6

\*: median, 25%-75%, n: Number of patients, %: Percentage

Of the consultations requested, 149 (71.6%) were from emergency services, while 52 (25%) were from inpatient services, with pediatric hematology being the most frequent service. The primary reasons for consultation were suicide attempts (22.1%) and agitation (19.2%). Approximately 26% of cases remained undiagnosed. Major depressive disorder was the most frequently diagnosed condition, accounting for 25.5% of cases. Among the cases, 20 were diagnosed with conduct disorder (9.6%), and 17 were diagnosed with anxiety

disorder (8.2%). Details regarding consultation information are given in Table 2.

**Table 2.** Consultation information

		<b>n</b> 149	<u>%</u>
Department requesting consultation	Emergency Inpatient clinic	149 52	71. 25
Department requesting consultation	Outpatient clinic	52 6	2.9
	Pediatric hematology-oncology	13	6.3
	Pediatric endocrinology	9	4.3
	Pediatric infectious diseases	9	4.5 3.8
	Pediatric gastroenterology	6	2.9
	Physical therapy and rehabilitation	4	1.9
Clinic requesting consultation	Nephrology	3	1.4
	Pediatric ICU	3	1.4
	Pediatric Neurology	2	1
	Gynecology & Obstetrics	2	1
	Dermatology	1	0.5
	Pediatrics (Other)	6	2.9
Number of consultation*		1	1-
	Suicide attempt	46	22
	Agitation	40	19
	Psychosomatic	31	14
	Anxious-depressive appearance	29	13
	Trauma	17	8.2
Reason for requesting consultation	Suicidal ideation	14	6.′
	Problems with treatment compliance	14	6.′
	Drug side effects	3	1.4
	Substance use	3	1.4
	Mourn	1	0.5
	Other	10	4.8
Fime of consultation	During working hours	131	63
i ime of consultation	Out of working hours	77	37
	Discharge	193	92
Consultation outcome	Referral to another hospital	12	5.8
	Treatment rejection	3	1.4
	Undiagnosed	54	26
	Major depressive disorder	53	25
	Adjustment disorder	20	9.6
	Anxiety disorder	17	8.2
	Oppositional defiant disorder/Conduct disorder	10	4.8
	Conversion disorder	10	4.8
	Autism spectrum disorder	7	3.4
Psychopathology	Obsessive compulsive disorder	6	2.9
sychopathology	Mood disorder	6	2.2
	Substance abuse disorder	6 6	2.9
	ADHD		
	Eating disorder	6 5	2.9
	Psychosis	5 5	2.4 2.4
	Delirium Shakan habu gundrama	2	1
	Shaken baby syndrome	1	0.5
Use of psychotropic drugs before admission	Yes	73	35
	No	135	64
Starting psychotropic drug treatment at consultation	Yes	121	58
	No	87	41
	SSRI+AP	42	20
	SSRI	41	19
Type of psychotropic drug	AAP	23	11
	TAP	7	3.4
	BDZ	6	2.9
Dutpatient clinic control recommendation	Yes	180	86
supulent ennie control recommendation	No	28	13
	Yes	112	53
Jutnationt clinic control attendance	105		
Outpatient clinic control attendance Outpatient clinic control number*	No	67	32

\*: median, 25%-75%, n: Number of patients, %: Percentage, SSRI: Selective serotonine reuptake inhibitors, AP: Antipsychotic, AAP: Atypical antipsychotic, TAP: Typical antipsychotic, BDZ: Benzodiazepine, ADHD: Attention deficit hyperactivity disorder, ICU: Intensive care unit

A model was created in order to determine the factors affecting the patients' treatment compliance by multiple linear regression analysis. Variables such as age, gender, agitation, suicide attempt, school attendance, consultation request time, length of hospitalization, number of consultations, history of previous application to child psychiatry and initiation of drug therapy were included to the Factors Predicting Outpatient Application After Consultation

model. In order of importance, the predictors for the outpatient clinic application were; agitation ( $\beta$ =2.101, p<0.05), attempted suicide ( $\beta$ =0.564, p<0.001). The model created for this analysis was significant (F=4.261, p<0.001) and explained 62% of the variance. The evaluation of the outpatient clinic attendance with multiple linear regression analysis is given in Table 3.

Table 3. Factors affecting attendance to the outpatient clinic cont	rol
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	β (%95 B)	t	р
Age	,018 (0,169; 0,192)	0,133	0,895
Agitation	2,101 (2,406; 46,948)	2,278	,031*
Suicide attempt	,564 (1,744; 6,127)	3,692	,001**
Gender	-,016 (-1,145; 1,020)	-0,119	0,906
Education	0,006 (-,607; ,636)	0,048	0,962
Time of consultation	,218 (-,513; 4,189)	1,607	0,120
Hospitalization duration	-,246 (-,092; ,042)	-0,770	0,448
Number of consultation	-1,900 (-1,356; ,041)	-1,934	0,064
History of child psychiatry admission	-,023 (-1,169; ,142)	-0,173	0,864
Starting medical treatment	-,258 (-2,221; ,257)	-1,629	0,115
Model analysis		$F=4,261,p<0,001, R^2=0,62$	

Multiple linear regression analysis, Durbin Watson:1.689, \* P< 0.05, \*\* P< 0.01

## Discussion

The objective of this study was to investigate the factors associated with consultations requested from our Consultation-Liaison Psychiatry (CLP) unit and subsequent attendance at the outpatient clinic for follow-up. Findings from the analysis revealed that consultations were predominantly requested from the emergency department, primarily related to agitation and suicide attempts. Furthermore, these factors were found to significantly predict attendance at the outpatient clinic.

Unlike the results of the study conducted at Eskişehir University in 2019 (71% inpatient, 21% pediatric emergency and 8% outpatient clinic), in our study, the predominance of emergency service consultations is remarkable.<sup>9</sup> Aktepe et al. reported less frequent emergency department admissions in their study.<sup>10</sup> Colpan et al. showed in their study that the most frequent consultation request was from the emergency department.<sup>11</sup> It is assumed that the increase in the number of admissions with psychiatric symptoms to the emergency department contributed to this result. A study examining pediatric emergency department visits for children discharged with psychiatric diagnoses from 2001 to 2010 demonstrated an increasing number of patients each year, supporting the hypothesis.<sup>12</sup> In addition, the limited access to the outpatient clinic during the pandemic may have caused an increase in psychiatric emergencies.

Among the clinics in which consultations were requested, the pediatric health and diseases clinic exhibited the highest frequency (22.6%), while the pediatric hematology-oncology clinic ranked first with a prevalence of 6.3%. Similarly, Woodgate and Garralda listed the pediatric units for which consultation was requested; intensive care (37%), hematology (26%), oncology (26%) and neurology (22%) clinics, respectively.<sup>13</sup> Many studies on this subject show that pediatric psychiatry consultations are requested at higher rates from patients hospitalized in pediatric clinics compared to other clinics.<sup>10,14,15</sup> According to reports, pediatricians have demonstrated a greater ability to recognize psychiatric symptoms compared to physicians from other specialties who work with the pediatric population. This observation may be

attributed to the inclusion of a one-month child psychiatry rotation within the pediatrics residency program in our country.<sup>16</sup>

In our study, upon examining the gender distribution of patients for whom consultations were requested, a predominant presence of females was observed, accounting for 61.5% of the cases. This finding aligns with existing literature, which consistently reports a range of 54% to 70% in favor of female gender within similar populations.<sup>14,16–18</sup> On the contrary, previous studies involving children and adolescents have consistently reported that boys exhibit a higher prevalence of externalizing and communication problems, while girls tend to have a higher prevalence of internalizing problems.<sup>19</sup> Furthermore, studies have indicated that adolescent girls constitute the majority hospitalizations related to drug intoxication.<sup>20</sup> Additionally, it is well-established that the prevalence of psychopathologies is higher in girls compared to boys, particularly during early adolescence.<sup>21</sup> Therefore, the differential rates of consultations between gender groups can be attributed to the varying incidence of psychopathologies in boys and girls. The median age of the patients for whom consultation was requested was found to be 15.1, and the superiority of the adolescent age group is remarkable. In a recent study, it was reported that 75.6% of the consultations requested from the emergency department consisted of adolescents between the ages of 13-18 and that adolescents were most frequently referred by suicide attempts.<sup>22</sup> In a study conducted in the Netherlands, an analysis was conducted on two distinct age groups, namely children and adolescents, who sought psychiatric care in the emergency department over a period of 9 years. The findings revealed that the majority of participants fell within the age range of 12-18, encompassing 1695 adolescents. Additionally, the study reported fewer consultation requests from children aged 4-12, which was attributed to a lower occurrence of psychiatric crises or a decreased incidence of behavioral problems that pose a threat to others within this age group.<sup>23</sup> The fact that the prevalence of psychiatric illness in adolescence is higher than in

childhood also contributes to this result.<sup>24</sup>

In the study of Alpaslan et al., it was reported that the most common reason for seeking consultation was suicide attempt.<sup>14</sup> On the other hand, there are also studies reporting that behavioral problems and hyperactivity are the most common reasons for seeking psychiatric consultation.<sup>15</sup> Mutlu et al. conducted a study revealing that the predominant symptoms leading to admissions to the psychiatry emergency department over a one-year period were suicidal ideation (21.0%) and aggression (20.7%).<sup>25</sup> Our study findings are consistent with the existing literature regarding the reasons for requesting consultations. Furthermore, given that psychosomatic symptoms emerged as the third most common reason for consultation in our sample, it underlines the importance of employing comprehensive psychiatric evaluation and treatment approaches. By doing so, unnecessary medical tests and interventions can be minimized, leading to potential reductions in costs and hospital stay duration.

In our study, psychiatric diagnoses were identified in 74% of children and adolescents included in the analysis. The most prevalent psychiatric diagnosis was major depressive disorder, accounting for 25.5% of the cases, followed by conduct disorder at 9.6%. In the existing literature, studies present varying rankings in terms of the frequency of psychiatric diagnoses observed in cases where consultations were sought. Anxiety (30%) and depressive disorders (29%) were found to be the most common psychiatric diagnoses in a retrospective study of 279 patient files who applied to the psychiatry consultation liaison service in a third degree pediatric hospital in a 6-month period. In this study, the presence of more than one psychiatric comorbidity was shown in 43% of the patients.<sup>26</sup> A study conducted in our country in 2021 shows that the most common mental disorder diagnosis is depression (19%) as a result of consultation evaluation.<sup>27</sup> In a one-year retrospective study, in which a total of 302 patients were included and 94% of the patients were diagnosed with mental illness, the three most common diagnoses after the first consultation evaluation were conduct disorders (30.8%), anxiety disorders (22.5%) and depressive disorders (11.3%).<sup>28</sup> In a study by Simsek et al., in which they evaluated the child psychiatry consultations requested for inpatients and outpatients, the most common psychiatric diagnoses were; major depressive disorder, conduct disorder, bipolar disorder.<sup>9</sup> Considering the studies evaluating the consultations requested for inpatients, Göker et al. reported depressive disorder, anxiety disorders and mental retardation, Kiliç et al. reported depressive disorder, ADHD and conduct disorder, as the most common psychiatric diagnoses.<sup>16,17</sup> Despite the low consultation rate related to a depressiveanxious presentation, the prominence of depressive disorder as the most prevalent diagnosed psychopathology and a significant underlying factor for suicide attempts highlights the importance of assessing depression in patients seeking consultations for psychosomatic symptoms.

In our study, it was observed that 26% of the cases did not exhibit any psychiatric disorder. These findings align with recent studies in the national literature, which also report similar rates of cases without a diagnosed psychiatric disorder.<sup>9,14</sup> In a study conducted in 2017, it was reported that a high rate of 72.2% of the patients who were asked for consultation were not diagnosed with any mental disorder.<sup>15</sup> Considering that the diagnoses in the studies were based on cross-sectional evaluations during the consultation, it is believed that follow-up could be beneficial for patients who did not receive a psychiatric diagnoses.

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group may carry a relatively higher risk for developing mental disorders over time.

In our study, it was found that 58.2% of the patients who sought consultation were initiated on psychotropic medications. The most commonly prescribed treatment regimens were a combination of antipsychotic and selective serotonin re-uptake inhibitors (SSRI) (20.2%) and SSRI monotherapy (19.7%). Upon analyzing the two-year consultation data, it was observed that psychoeducation practices incorporating pharmacotherapy were more frequently employed compared to medical treatment alone, which differs from findings reported in other studies. Specifically, psychoeducation practices involving pharmacotherapy were utilized in 37.7% of the patients. The most commonly prescribed pharmacological agents in our study were SSRIs, antipsychotics, benzodiazepines, and methylphenidate, in that order.<sup>27</sup> Studies made in our country shows that the rate of starting medical treatment varies between 29-49%.<sup>11,17</sup> The higher rate of drug initiation observed in our study may be attributed to the higher proportion of admissions to the emergency department, which likely includes patients requiring immediate and urgent treatment. While the selection of psychotropic drugs may vary across different studies, several studies have consistently reported selective serotonin reuptake inhibitors (SSRIs) as the most commonly prescribed class of medications.<sup>14,29</sup> The high prevalence of depression in our sample likely influenced the selection of psychotropic agents.

In this study, it was determined that 53% of the cases who were recommended to have outpatient control at the time of consultation, which was 86% of the total, were actually present at their outpatient clinic appointment. In other studies conducted in Turkey, the rate of follow-up admittance was found to be between 34% and 75%.<sup>9,10,30,31</sup> The findings from this study indicate that there are deficiencies in accessing mental health services among children who require ongoing treatment. It is suggested that various factors contribute to this situation, including families' limited knowledge regarding child psychiatry, prevailing prejudices regarding psychiatric treatment, and a scarcity of child and adolescent psychiatrists.<sup>32–34</sup>

In child and adolescent psychiatry practice, agitation is yet important but a nonspecific symptom and can accompany many psychopathologies. Furthermore, agitation can also occur in medical conditions unrelated to psychiatric disorders, such as delirium, traumatic brain injury, infections, and adverse effects of medications.<sup>25</sup> Since agitation is a symptom covering many conditions, it may have appeared as a factor predicting the follow-up. At the same time, the outward and sometimes destructive nature of such symptoms leads the person or the physician to seek assistance and intervention. Consequently, this may lead families to seek medical attention for their children more frequently.

In a study conducted with patients between the ages of 12 and 18, who admitted to emergency department due to suicide attempt, it was found that 77.8% had psychiatric disorders, and 58.3% of these adolescents had previous psychiatric complaints and were diagnosed with depression most frequently.<sup>35</sup> Since past suicidal attempts are strong predictors of subsequent ones, clinical follow-up after emergency intervention considered to be needed more frequently.<sup>36</sup>

In a study evaluating children and adolescents who applied to the emergency department of a mental health hospital; In patients presenting with aggression and self-harm, the rate of

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receiving previous mental health services was found to be significantly higher than in patients presenting with anxiety and somatic symptoms. Complaints of aggression and selfharm indicate the presence of more severe psychopathology and a higher need for treatment compared to other psychiatric disorders <sup>25</sup>. In a cohort study comprising 210 children, where aggressive behavior and suicidal ideation were identified as the primary reasons for emergency psychiatric consultation, it was revealed that patients with a history of psychiatric disorders and previous admissions to the psychiatry service had a hospitalization rate approximately seven times higher than those without such a history.<sup>37</sup> In a study of 989 pediatric psychiatric patients evaluated in the emergency department of a university hospital in Belgium, it is noteworthy that more than 60% of the admissions from 2003 to 2008 consisted of suicide attempts and aggression against others.<sup>38</sup> The presence of high percentages of suicidal ideation/attempt and behavioral problems shown in similar studies underlines the importance of effectively treating these problems and the close monitoring in the follow-up period.

### Conclusion

In this study, it was aimed to review the P-CLP services of our clinic and to examine the factors that predicted attendance in follow-up. It is anticipated that our study will make a valuable contribution to the existing literature by providing updated information on P-CLP. Our study also differs from other studies in terms of examining the factors affecting the follow-up process. In conclusion, our findings suggest that aggression and suicide attempts are significant risk factors for increased morbidity. Early identification and intervention in high-risk situations such as suicide and agitation are believed to have the potential to reduce psychiatric morbidity and mortality while promoting compliance to medical treatment. However, further research with larger sample sizes and controlled study designs is needed to comprehensively evaluate risk factors and explore the intricate relationships involved.

### Limitations

The limitations of the study can be considered as being retrospective, cross-sectional, evaluating the post-pandemic period, and not evaluating the reasons for abstinence in the follow-up period.

### **Conflict of Interest**

The authors have no conflicts of interest to disclose.

### **Compliance with Ethical Statement**

Ethics committee approval was obtained for the study from the Kocaeli University Faculty of Medicine Non-Interventional Research Ethics Committee with the number 2022/99 dated 28.03.2022.

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### **Author Contributions**

Study idea/Hypothesis: ÖK, FBA, FD; Study design: ÖK, FBA; Data preparation: ÖK, FBA, FD; Literature search: FBA, ÖK; Manuscript writing: FBA, ÖK, FD.

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