Araştırma / *Original article*

Clinical features and comorbid psychiatric disorders in children and adolescents with trichotillomania: a clinical sample

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ABSTRACT

Objective: *Trichotillomania (TTM) is characterized by the repetitive pulling out of one's own hair from the scalp, eyebrows, eyelashes, or other areas of the body and is often associated with other psychiatric disorders. In this study we aimed to investigate the clinical and sociodemographic characteristics and comorbid psychiatric disorders in children with TTM.* ***Methods:*** *Twenty-three children and adolescents (15 females and 8 males, median age: 12, range: 6-18 years), who were followed at our outpatient clinic with the diagnosis of TTM, were included in the study. The Turkish version of the Schedule for Affective Disorders and Schizophrenia for School-Age Children- Present and Lifetime version was used to detect the comorbid psychiatric disorders. Depression and anxiety levels were measured by Childhood Depression Inventory (CDI) and State-Trait Anxiety Inventory for Children, respectively.* ***Results:*** *The most commonly affected areas were; the scalp (n=13). Nine cases have been affected more than two areas. Median duration of the symptoms were 7±20.01 months (range: 7 days-72 months) at admission. 65.2% of the cases reported precipitating stress factors before the beginning of TTM symptoms. Nineteen (82.6%) subjects suffered from at least one psychiatric disorder and 14 (60.8%) from at least two psychiatric disorders. The most common comorbid disorders were anxiety disorders (n=15), disruptive behavioral disorders (n=6), tic disorder (n=3) and enuresis nocturna (n=3). The mean score in the CDI was 13.25±8.45. Mean state and trait anxiety scores were 37.19±8.01 and 37.62±7.61, respectively. There was a significant relationship between the time passed until admission to a psychiatry clinic and having multiple comorbid psychiatric disorders.* ***Conclusion:*** *High rates of comorbid psychiatric disorders were found in children and adolescents with TTM. Delay in psychiatric help-seeking seems to be associated with other psychiatric disorders. Early intervention may decrease comorbid psychiatric disorders, which may affect treatment options and prognosis.* ***(Anatolian Journal of Psychiatry 2016; 17(3):248-256)***

Keywords: *trichotillomania, childhood, adolescent, clinical characteristics, comorbidity*

Trikotillomanisi olan çocuk ve ergenlerde klinik özellikler ve eşlik eden psikiyatrik bozukluklar: Klinik bir örneklem

ÖZ

Amaç: *Trikotillomani (TTM), diğer psikiyatrik bozuklukların sık eşlik ettiği, saçlı deri, kaş, kirpik ve vücudun diğer bölgelerinden yineleyici kıl koparma davranışı ile karakterizedir. Bu çalışmada TTM'li çocuklarda klinik ve sosyodemografik özellikler ile eşlik eden psikiyatrik bozuklukların araştırılması amaçlanmıştır.* ***Yöntem:*** *Çalışmaya polikliniğimizde TTM tanısı ile izlenen 15'i kız, sekizi erkek 23 çocuk ve ergen alınmıştır (ortanca yaş 12, yaş aralığı 6-18). Psikiyatrik eş tanıların değerlendirilmesi için Okul Çağı (6-18 yaş) Çocukları için Duygulanım Bozuklukları ve Şizofreni Görüşme Çizelgesi-Şimdi ve Yaşam Boyu Versiyonu- Türkçe Versiyonu (ÇGDŞ-ŞY-T) uygulanmıştır. Depres-*

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yon ve anksiyete düzeyleri, Çocuklar için Depresyon Ölçeği ve Çocuklar için Durumluk-Sürekli Anksiyete Ölçeği ile değerlendirilmiştir. ***Sonuçlar:*** *TTM'den en sık etkilenen vücut bölgesi saçlı deridir (s=13) Dokuz olguda ikiden fazla alan etkilenmiştir. Başvuru anında belirtilerin ortanca süresi 7±20.01 aydı (aralık: 7 gün-72 ay). Olguların %65.2'si TTM'yi başlatıcı bir stresör tanımlamaktaydı. Olguların 19'unda (%82.6) en az bir psikiyatrik bozukluk, 16'sından (%60.8) en az iki psikiyatrik bozukluk eşlik etmekteydi. En sık eşlik eden psikiyatrik bozukluklar anksiyete bozukluğu (s=15), yıkıcı davranış bozuklukları (s=6), tik bozukluğu (s=3) ve enürezis nokturna (s=3) idi. Ortalama depresyon puanı 13.25±8.45 idi. Durumluk ve sürekli anksiyete ortalama puanları ise sırasıyla 37.19±8.01 ve 37.62± 7.61 idi. Başvuruya kadar geçen süre ile çoklu psikiyatrik tanı arasında anlamlı ilişki bulundu.* ***Tartışma:*** *TTM'li çocuk ve ergenlerde diğer psikiyatrik bozuklukların sık eşlik ettiğini saptadık. Psikiyatrik yardım arayışında gecikme diğer psikiyatrik bozukluklarla ilişkili görünmektedir. Tedavi seçimi ve prognozu etkileyebileceğinden, erken girişimle eşlik eden psikiyatrik bozukluklar azaltılabilir.* ***(Anadolu Psikiyatri derg 2016; 17(3):248-256)***

Anahtar sözcükler: *Trikotillomani, çocukluk çağı, adolesan, klinik özellikler, komorbidite*

INTRODUCTION

Trichotillomania (TTM) is a disorder in which one recurrently pulls out his or her hair resulting in apparent loss of hair. The patients experience rising tension before pulling and resisting that behaviour as well as pleasure when pulling the hair.[1] Studies show that children (especially preschool-aged children) are less likely to experience preceding urge or tension and are more likely to pull automatically, without reflective awareness.[2] Affected areas may also include eyebrows, eyelashes, pubic and axillary areas.[3] Pulling may associated with one or multipl sites. Although some may pull hairs in a concentrated area, resulting in easily identifiable bald spots, others may distribute their pulling over a larger area, causing thinning of hair.[4]

TTM is a rare disorder and systematic data on its prevalence is insufficient.[5] According to the DSM-IV criteria, lifetime prevalence of TTM is estimated to be between 0.6-4% in the general population.[1] Although, there is no definite information on the prevalence of TTM in children, the cases which meet DSM-IV diagnostic criteria is estimated to be under 1%.[6] In adulthood, females with TTM are admitted to the psychiatry clinics more often than males.[7-9] Findings concerning gender ratio in pediatric samples are more mixed, with some studies showing an equal gender ratio but a majority showing a significant female preponderance.[2,10] Onset of hair pulling behavior demonstrates bimodal distribution according to age, and peak age of onset is early childhood and adolescence.[11] The adolescent-onset subtype has been associated with greater severity, more co-occcuring psychopathology, and worse treatment outcome.[12,13] Although hair pulling behaviour usually begins in childhood and adolescence, studies are limited at this age group.[2]

Studies concerning comorbidity in adulthood demonstrate that affective, anxiety and substance use disorders frequently accompany TTM.[14-16] Limited studies on children and adolescents also demonstrated high rates of comorbidity including physical, emotional and functional disorders. The most frequent comorbid psychiatric disorders are reported to be anxiety disorders, depression, disruptive behavioral disorders and obsessive compulsive disorder (OCD) in pediatric TTM.[17]

Most of the studies examining the comorbidity pattern focused on specific diagnoses or performed based on clinical observation, inventories or retrospective data from files.[3] There is limited number of studies examining the clinical characteristics of youth with TTM and that use structured diagnostic interviews. Therefore, in this study, we aimed to investigate the clinical and sociodemographic characteristics of a clinical group of children and adolescents with TTM and to assess the comorbid psychiatric disorders with a semi-structured diagnostic interview.

METHODS

Sample

Twenty-three children and adolescents with TTM that admitted to the Bakirkoy Training and Research Hospital for Mental Health and Neurological Disorders child and adolescent psychiatry outpatient clinic between January 2012 and December 2012, were included in the study. TTM diagnosis was made according to the DSM-IV criteria. Exclusion criteria comprised of having an IQ (intelligence quotient) score below 70 and being diagnosed with a pervasive developmental disorder. Sociodemographic questionnaires prepared by the researchers were filled in according to the information obtained from the parents during clinical evaluation. Participants themselves, filled in the Child Depression Inventory and State-Trait Inventory for Children. Turkish version of Schedule for Affective Disorders and Schizophrenia for School-Age Children (ages 6-

18) -Present and Lifetime version (K-SADS-PL) was performed by the certified child and adolescent psychiatrists. IQ levels were evaluated with the Wechsler Intelligence Scale for Children-Revised (WISC-R).

Data collection tools

Sociodemographic Questionnaire: The questionnaire included questions on child's age, gender, parent's age, education, employment status, number of siblings, monthly family income, time interval from symptom onset to admission, treatment attempts before admission, affected body areas and previous psychiatric history if available. Monthly family income was categorized as three groups: less than 1000 TL low; 1000-4000 TL middle; more than 4000TL high income.

Children Depression Inventory (CDI): CDI is a self-report inventory for children between six and 17 years old. It was developed by Kovacs and the Turkish standardization was made by Öy.[18,19] The cut-off point for the inventory was reported as 19.

State-Trait Anxiety Inventory for Children (STAIC): STAIC is a self-report inventory which was developed by Spielberger et al.[20] Validity and reliability assessments for the Turkish version were made by Özusta.[21] The inventory included two subscales (20 items each) for state and trait anxiety.

Schedule for Affective Disorders and Schizophrenia for School-Age Children -Present and Lifetime version (K-SADS-PL)- Turkish version: It is a semi-structured interview based on DSM-IV and was developed by Kaufman et al.[22] Present and lifetime psychiatric disorders were investigated according to DSM-IV. Gokler et al. confirmed that Turkish version of K-SADS-PL is a reliable and valid diagnostic tool for childhood psychiatric disorders.[23]

Wechsler Intelligence Scale for Children-Revised (WISC-R): The scale was developed by Wechsler in 1949 and revised in 1974.[24] It was adapted to Turkish by Savaşır and Şahin.[25]

Statistical analysis

The data was analyzed using SPSS statistical package version 15.0. Analyses of the categorical and continuous variables were conducted with the Chi-square and Mann Whitney U tests, respectively. Significance level of the overall statistical evaluation was accepted $p<0.05$.

Ethics

The study was approved by the Medical Ethics Committee of the Bakirkoy State and Research Hospital for Neurological and Psychiatric Disorders. Parents of all children had signed informed consent forms prior to participation in the study. In addition, children older than 12 years signed the consent forms themselves.

RESULTS

The study sample consisted of 23 children and adolescents. Fifteen cases were girls (65.2%) and the mean age of the sample was 12.39±2.10 (range: 8-16 years). Distribution of cases according to age, gender, affected body area, comorbidity and delay between onset of symptoms to admissions shown in Table 1 and Table 2.

Time interval between onset of the symptoms to admission varied between seven days to 72 months (median: seven months). Thirteen cases (56.5%) were first admitted to our clinic, five (21.7%) were admitted to a dermatology clinic, four (17.4%) to another psychiatry clinic and one case was seen first by a family physician. The commonly affected body parts by hair pulling behavior were scalp in 20 cases (86.9%), eyebrows in nine cases (39.1%), eyelashes in six cases (26.0%), arms, legs and pubic areas in one case each (4.3%) and multiple areas in nine cases (39.1%). 65.2% of the cases reported precipitating stress factors before the beginning of TTM symptoms. Examples for these precipitating stress factors were; moving to another city, conflict between parents, problems related to alcohol use of parents, separation from peers, change of the teacher at school, maltreatment by peers, mother's starting to work, jealousy among siblings and beginning of mensturation.

Mean verbal IQ score was 81.44±15.42, mean performance IQ score was 95.0±14.55, and mean total IQ score was 86.83±15.41. The mean CDI score was 13.25±8.45. Mean state and trait anxiety scores were 37.19±8.01 and 37.62± 7.61, respectively.

82.6% of cases (n=19) had at least one comorbid psychiatric disorder and 60.9% of cases (n=14) had two or more comorbid disorders. The most common comorbid disorders were anxiety disorders (n=15), disruptive behavioural disorders (n=6), tic disorder (n=3), enuresis nocturna (n=3) and post-traumatic stress disorder (n=1). Present and lifetime psychiatric comorbid disorders are shown in Figure 1 and 2.

Table 1. Distribution of cases according to age, gender, effected body area, comorbidity and delay between onset of symptoms to admission

Age (year)	Gender	Effected body area	Present comorbidity	Lifetime comorbidity	Delay between onset of symptoms to admission (months)
13	Male	Scalp, eyelash, eyebrow	None	EN[1], NOS Anx. Dis.[2]	7
15	Male	Scalp	SP[3]	None	72
12	Female	Scalp	Spec. P[4], ADHD-AD[5]	GAD[6]	36
15	Female	Scalp, eyelash, eyebrow	ADHD-AD[5]	SP[3]	36
13	Female	Scalp	SP[3], GAD[6]	SAD[7]	5
15	Female	Scalp, pubic area	None	EN[1]	48
12	Male	Scalp	PD[8], GAD[6]	Tic Dis[9], EN[1]	0.5
11	Female	Scalp, eyelash, eyebrow	NOS Anx. Dis.[2]	SP[3], Spec. P[4]	39
12	Female	Scalp	None	None	12
14	Female	Eyelash, eyebrow, arm, leg	GAD[6], OCD[10]	None	48
15	Male	Scalp, eyebrow	SAD[7], OCD[10]	None	36
10	Female	Scalp	SP[3], Spec. P[4], EN[1]	Adj. Dis. Depr [11], SAD[7]	2
13	Female	Scalp	GAD[6]	MDD[12]	24
11	Female	Scalp	NOS Depr. Dis.[13], ADHD-Mixt[14]	Tic Dis.[9]	8
10	Male	Eyelash	ADHD-Mixt[14], Tic Dis.[9]	None	2
11	Male	Scalp	ADHD-AD[5], ODD[15]	Depr. Adj. Dis.[11]	1
13	Male	Scalp, eyebrow	Tic Dis.[9], OCD[10]	None	4
16	Female	Scalp	None	NOS Depr.Dis.[13], SP[3]	12
14	Female	Scalp	OCD[10]	None	7
12	Female	Eyelash, eyebrow	NOS Depr. Dis.[13], Spec. P[4], GAD[6]	None	4
9	Male	Scalp	SAD[7], OCD[10], Tic Dis.[9],PTSD[16], GAD[6]	None	2
11	Female	Scalp, eyelash, eyebrow	Spec. P[4], EN[1]	None	6
8	Female	Scalp	Spec. P[4], EN[1], ADHD-Mixt[14]	Depr. Adj. Dis.[11]	0.25

EN[1]: Enuresis Nocturna, NOS Anx. Dis[2]: Not Otherwise Specified Anxiety Disorder, SP[3]: Social Phobia, Spec. P[4]: Specific Phobia, ADHD-AD[5]: Attention Deficit Hyperactivity Disorder Attention Deficit Type, GAD[6]: Generalized Anxiety Disorder, SAD[7]: Sepertaion Anxiety Disorder, PD[8]: Panic Disorder, Tic Dis[9]: Tic Disorder, OCD[10]: Obsessive Compulsive Disorder, Adj. Dis. Depr[11].: Adjustment Disorder-Depressive type, MDD[12]: Major Depressive Disorder, NOS Depr. Dis[13]: Not Otherwise Specified Depressive Disorder, ADHD-Mixt[14]: Attention Deficit Hyperactivity Disorder Mixt Type, ODD[15]: Oppositional Defiant Disorder, PTSD[16]: Post Travmatic Stress Disorder)

Table 2. Gender and age groups

	n	%
Gender		
Female	15	65.2
Male	8	34.8
Age groups		
6-12 age	10	43.5
12-15 age	10	43.5
15-18 age	3	13.0

Ten mothers (43.1%) and seven fathers (30.4%) described having previous psychiatric disorder. Four mothers had depression, three had obssessive compulsive disorder (OCD), three had generalized anxiety disorder (GAD) and one had panic disorder. Among fathers, two had anxiety disorder, two had alcohol abuse, one had specific phobia, one had enuresis and one had somatic complaints. The majority of the mothers (77.3%) and the fathers (82.6%) had low education level (primary school graduate). Family income was reported as; low in 38.1%, middle in 33.3% and high in 28.6% of the families.

No statistically significant relation was found between the number of psychiatric disorders (none/ one or multiple) and the number of hair pulling area (single area or multiple) (p=0.66). Time interval between onset of the symptoms to admission was significantly longer in cases with multiple comorbid psychiatric diagnoses compared to ones who have no or only one comor-

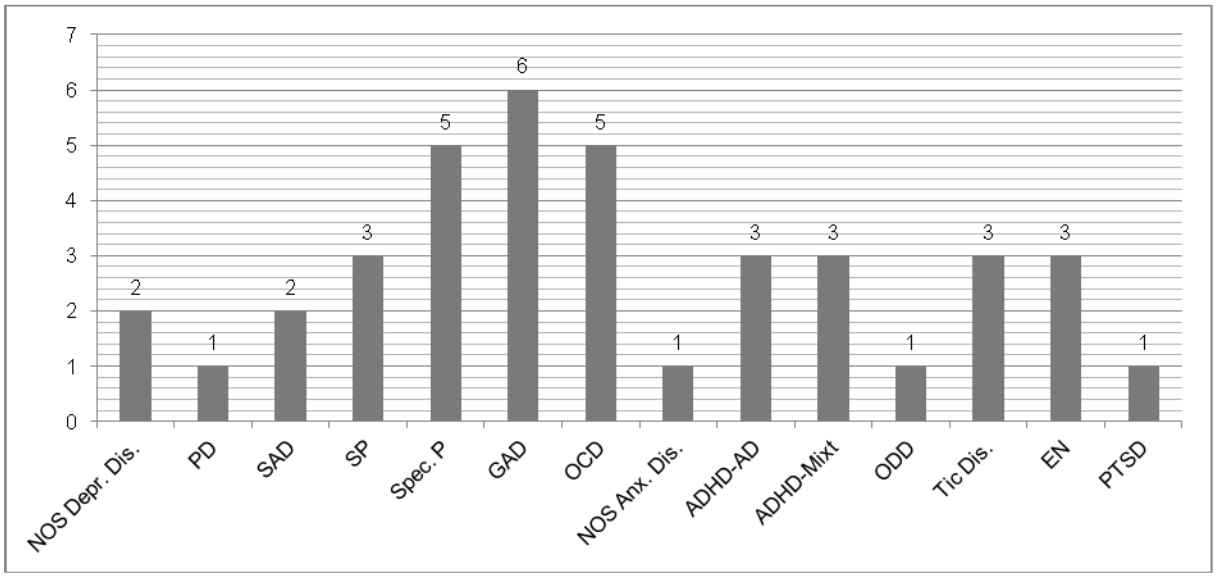

Figure 1. Distribution of psychiatric comorbidity

NOS Depr. Dis: Not Otherwise Specified Depressive Disorder, PD: Panic Disorder, SAD: Seperation Anxiety Disorder, SP: Social Phobia, Spec. P: Specific Phobia, GAD: Generalized Anxiety Disorder, OCD: Obsessive Compulsive Disorder, NOS Anx. Dis: Not Otherwise Specified Anxiety Disorder, ADHD-AD: Attention Deficit Hyperactivity Disorder Attention Deficit Type, ADHD-Mixt: Attention Deficit Hyperactivity Disorder Mixt Type, ODD: Oppositional Defiant Disorder, Tic Dis: Tic Disorder, EN: Enuresis Nocturna, PTSD: Post Travmatic Stress Disorder

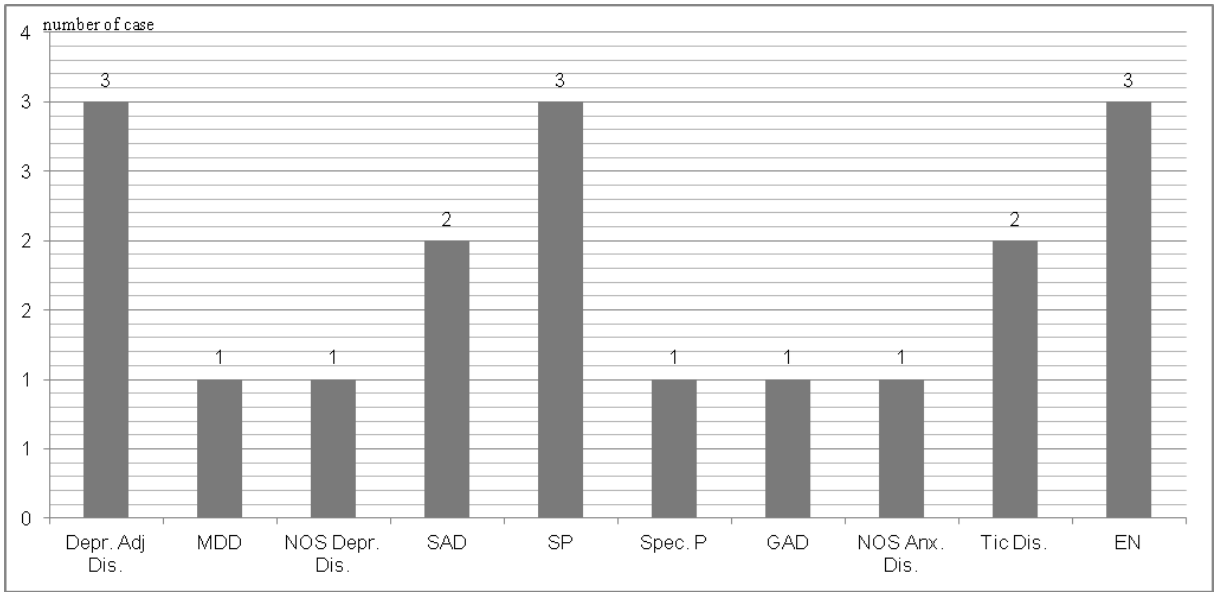

Figure 2. Lifetime psychiatric diagnosis

Depr. Adj. Dis: Depressive Adjusment Disorder, MDD: Major Depressive Disorder, NOS Depr. Dis: Not Otherwise Specified Depressive Disorder, SAD: Seperation Anxiety Disorder, SP: Social Phobia, Spec. P: Specific Phobia, GAD: Generalized Anxiety Disorder, NOS Anx. Dis: Not Otherwise Specified Anxiety Disorder, Tic Dis: Tic Disorder, EN: Enuresis Nocturna

bid psychiatric disorder (p=0.007). No statistical significance was found between low family income and multiple psychiatric comorbidity (p=0.85).

DISCUSSION

In this study the rate of trichotillomania among girls is two times higher than boys, which is similar with the gender ratios in adults. In adults, TTM is indicated to be more frequent in women with high levels as 88-98%.[26,27] However information about childhood TTM is limited, and boys and girls are considered to be equally affected in this age group.[6] Lower proportion of boys found in this study may be related to boys effort to compensate the apperance of hair pulling behaviour with having short hair cut so that lesser problems could be seen and less clinical admission might found among boys.

The mean age (12.39) and the age range (8-16 years) of the present sample were compatible with the literature reporting that TTM symptoms generally begin before 20 years of age, and frequently between 11-15 years of age.[28]

In TTM, typically, scalp is the most commonly affected area and generally hair pulling behavior affects more than one area.[3,29] One study reported 97% of their adult sample affected multiple current pulling sites.[30] Similarly, in our study scalp was the most commonly affected area and in nearly half of the cases, more than one area was affected.

In more than half of our cases, stressful life events were identified before the onset of TTM which was compatible with the literature. In children and adolescents with TTM, a precipitating stress factor is frequently identified. Stress factors reported in studies include separation from parents, parental conflict, divorce, migration, children or parent affected by other illnesses, low school performance and birth of a sibling.[31] A recent study including adult patients reported that 76% of the patients receiving TTM treatment, noted at least one traumatic event in their lives. The same study also indicated that 19% of the cases met criteria for post-traumatic stress disorder (PTSD), and intensity of hair pulling behaviour correlated with the intensity of the PTSD symptoms.[32] In another study, emotional neglect was reported to be more common in patients with TTM compared to healthy controls.[33] In our study, various stressful life events were identified before the onset of TTM. However, only one case met the PTSD diagnostic criteria. Low rate of PTSD found in our study may have stemmed from the low mean age of the sample and and the small sample size. The mean age of the sample was as low as 12.4 years, so the patients may have not experienced a serious traumatic event that would cause PTSD yet.

In our study, more than half of the cases did not receive any medical or psychiatric treatment before, and approximately a quarter of them were treated by other doctors apart from psychiatrists. In addition, time between onset of symptoms to admission was more than 12 months nearly in half of the patients. Faced with a child with non-scarring alopecia of uncertain etiology, the differential diagnosis must be explored for other underlying causes of hair loss.[34] Children and adolescents tend to hide hair pulling behaviour if not asked, and even if asked, they have difficulty in articulating their behaviour. So, clinicians may easily miss the diagnosis of TTM which is not a common and well-known disorder. In cases admitted with complaints of local or extensive hair loss, TTM should be borne in mind as a differential diagnosis, and hair pulling behaviour should be routinely inquired. Due to the fact that the first admission of several TTM cases are to dermatology or other clinics before psychiatry, the identification and guidance of them to psychiatry clinics is important for the treatment.

We found a statistically significant relationship between longer time to admission to a psychiatry clinic and having multiple comorbid psychiatric disorders. It seems that if TTM is not treated in a short time after the onset of the symptoms, the risk for the emergence of other psychiatric problems and the frequency of comorbid psychiatric disorders increase. To the best of our knowledge there is no information in the literature about the relationship between time interval before admission and multiple comorbid disorders. In this respect, especially in cases with delayed admission for psychiatric treatment, comorbid psychiatric disorders should be evaluated routinely and more carefully.

In this study, we found a high rate of comorbid psychiatric disorders. Nearly four out of five subjects had at least one comorbid psychiatric disorder and more than half of the subjects had two or more comorbid psychiatric disorders. These rates are higher than the findings of previous studies. A retrospective study by Malhotra et al. found a rate of 40% for comorbid psychiatric disorders in 20 children with TTM.[3] In other three studies including limited number of children and adolescents with TTM (n=10, n=11, n=15, respectively), psychiatric comorbidity is reported as 60-64%.[35-37] In children with TTM, it has been shown that nearly 40% of treatment seekers had at least one comorbid diag-

nosis.[29,38] Panza et al. found lower rates of comorbid mood and anxiety disorders in a youth sample than the rates reported in adult trichotillomania samples.[39] In another study 23.6% of young children with TTM endorsed at least one diagnosis of anxiety disorder, attention deficit and hyperactivity disorder (ADHD), OCD, a mood disorder and a tic disorder.[2] The high rate of comorbidity found in our study may have stemmed from a selection bias as our clinic serves as a tertiary clinic, and most of our patients come from low-income and less-educated families, possibly constituting a more severely impaired group, with a greater number of comorbidities, compared with population-based and other clinical samples. On the other hand, in most of the previous studies mentioned above, the number of subjects is limited and the assesment tools are not structured ones which may have affected the rate of psychiatric comorbidity. A study including sixty adult chronic hair pullers reported that 82% of cases had past or current axis I diagnoses other than trichotillomania which is a very similar finding with our study.[26] Another study carried out in Turkey including 19 adults with TTM indicated that 52.6% of cases had at least one current DSM-III-R Axis-1 diagnosis, and 63.1% of cases had at least one lifetime DSM-III-R Axis-I diagnosis.[28] Studies on adults indicate that most common comorbid psychiatric disorders in TTM are affective disorders, anxiety disorders and substance use disorders.[14,15] Studies including children and adolescents with TTM reported a frequency of anxiety and depressive disorders as 36-70%, disruptive behavioral disorders as 27-47%, OCD as 0-13%, and tic disorders as 9-13%.[35-37] In our study, consistent with these findings, the most common psychiatric disorders were anxiety disorders and disruptive behavioral disorders. Comorbidity with disruptive behavioral disorders was reported especially in children and adolescent groups. One study reported comorbidity with attention deficit and hyperactivity disorder (ADHD) in 9 out of 15 adolescents.[36] These findings differ from studies including adult TTM cases. Disruptive behavioral disorders accompanied one out of four cases in our study. When we think that TTM had been previously placed under 'impulse control disorders, not otherwise specified' in DSM-IV, the high rate of comorbidity with DBD found in our cases is not surprising.[40] It may be hypothesized that in some cases TTM and ADHD may stem from common developmental pathways.

In another study which included an internet-based sample of 133 children and adolescents with TTM between 10-17 years of age, 45% of the participants reported depressive symptoms and 40% reported anxiety symptoms.[41] Although the number of cases which met criteria for depression was low in our study, eight cases had high scores in the depression inventory (CDI) which is compatible with the literature.[3,41]

Generalized anxiety disorder (26.1%) and specific phobia (21.7%) and OCD (21.7%) were the most frequent anxiety disorders in our study. OCD comorbidity rate found in our study is slightly higher than the rates reported in previous studies. Previous studies reported OCD comorbidity as 13-16% in TTM cases.[42-44] The higher rate found in our study may have stemmed from the methodological differences as we used semi-structured interview. Some theories and empirical findings suggest commonalities between TTM and OCD and similarity of TTM and OCD largely focus on the compulsive aspects of hair-pulling and anxiety reduction following pulling similar to rituals and subsequent anxiety reduction in OCD.[45] In addition, according to the family history in TTM cases, OCD was reported frequently.[36] Similarly in our study approximately one fifth of the mothers had OCD. These findings support the diagnostic classification of TTM under the topic of OCD related disorders in DSM-5.[46]

We found no relationship between having multiple comorbid psychiatric disorders and hair pulling from multiple areas, receiving treatment before admission, family income level and prevalence of psychiatric disorders in parents. These findings may be due to the limited number of subjects in our study.

In conclusion, our study demonstrated high levels of psychiatric comorbidity in children and adolescents with TTM. Delay in psychiatric help-seeking seems to be associated with other psychiatric disorders. Early intervention may decrease comorbid psychiatric disorders, which may affect treatment options and prognosis. Treatment of psychiatric comorbid disorders may also help to diminish the hair pulling behavior. Future studies with higher number of children and adolescents with TTM that investigate the comorbidity pattern and the effect of comorbid disorders on hair pulling behaviour are needed.

Strengths and limitations

The strength of our study is the usage of a semi-structured interview for the assessment of comorbid psychiatric disorders. However there are

some limitations regarding this study that should be taken into account. First of all, a possible selection bias may have inflated the level of comorbidity as our clinic serves as a tertiary clinic and most of our patients come from low income and less educated families possibly constituting a more severe group, with a greater number of comorbidities. Another limitation of our study is the small sample size. Thus, the generalization of the results to community or other clinical samples of TTM sufferers should be cautious. Third, we did not use any assessment tool for measuring TTM symptom intensity and did not examine the effect of TTM symptom intensity on comorbidity pattern. Despite these limitations, the current study is important for supplying some data about the clinical characteristics and the comorbidity pattern in children and adolescents with TTM.

Authors' contributions: *H.A.: Designed the study, collected and analyzed data, wrote the manuscript; H.G.: Collected data, critically reviewed the manuscript; C.T.: Collected data, critically reviewed the manuscript; C.M.: Collected and analyzed data; T.A.: technical support and conceptual advice; A.G.K.: Collected data; K.B.: Collected data; S.K.: Collected data; Ü.Ö.Ş.: Designed the study.*

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