Quality of life and self-esteem in children with chronic tic disorder

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Abstract

Aim: In this study, it was aimed to evaluate the quality of life and self-esteem in children and adolescents with Tourette syndrome (TS) and other chronic motor or vocal tic disorders in comparison with the control group. This is the first study examining the effects of quality of life and self-esteem on each other in chronic tic disorders.

Material and Methods: Among 62 patients aged between 6 and 16 years who were diagnosed with chronic tic disorder according to the Diagnostic and Statistical Manual of Mental Disorders-IV, 57 patients who met the study inclusion criteria constituted the study group and 57 age- and gender-matched individuals constituted the control group (Ethics committee file number: 2009/69; ethics committee meeting number: 2009/14 (11.06.2009); ethics committee decision number: 16). The Rosenberg self-esteem scale, Pediatric Quality of Life Inventory, Children's Depression Inventory, Screen for Child Anxiety Related Disorders, Maudsley Obsessional Compulsive Inventory and the Schedule for Affective Disorders and Schizophrenia-Present and Lifetime version were applied to the children and adolescents.

Results: In the study group, all quality of life subtests were found to be lower compared to the control group both in children and adolescents except for self-reported emotional functionality and social functionality. Being below the age of 12 years and female gender were found to be predictors of low self-esteem in tic disorder. In the reports obtained from the children and adolescents, low self-esteem was related with decreased quality of life in all areas except for academic functionality.

Conclusions: Children and adolescents with tic disorder experience functional disruption with a higher rate compared to the group without a psychiatric disorder or severe medical condition. Applying holistic approaches considering other clinical psychiatric symptoms as a part of chronic tic disorder will be useful in increasing the quality of life and self-esteem of these children. (Türk Ped Arş 2014; 49: 323-32)

Key words: Self-esteem, child psychiatry, tic disorders, Tourette syndrome, quality of life

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Introduction

Tic disorders (TD) constitute a wide spectrum ranging from transient tic disorders to chronic states accompanied by varying degrees of dysfunction (1, 2). Tourette syndrome (TS) which includes severe vocal and motor tics is at the furthest end of this spectrum (2). Studies have shown the presence of a negative social perception against children and adults with vocal or motor tics independent of accompanying behavioral problem (3, 4). Tics not only affect social perception. They also affect the quality of life of the individuals who experience this (5-11).

"Quality of life"(QOL) is defined as the satisfaction of the person with life and personal well-being. Health-related quality of life is the perception of the patient in the issue of how he/she is affected by his/her disease and treatment in the multidimensional setting including physical, intellectual and social areas (12). Studies examining quality of life in tic disorders in pediatric patients are relatively few (6-8, 10, 13). Studies have shown that individuals with TS experience more difficulty in social interaction with their peers and in areas of familial, school and social functionality (14-16). The factors which affect the quality of life in individuals with tic disorder include tic severity (5-7, 9), depression (5, 9, 10), obsessive compulsive symptoms, (5, 7, 8, 10, 11), anxiety (5), attention deficit hyperactivity disorder (ADHD) (7, 8, 10, 11), being a jobholder in adult patients (5) and externalization problems in children (6).

Self esteem is considered a significant variable of the methods of coping with problems. It has been shown that adolescents with a high self esteem cope with problems better compared to the ones with a low self esteem (17). Tic disorders may lead to disruption in self esteem, social adaptation and academic and work performance (18).

In this study, it was aimed to examine the quality of life in children with chronic tic disorder and to investigate self esteem in these individuals additionally.

Material and Methods

Sample

The research subject was presented to the ethics committee of Karadeniz Technical University (KTU) Medi-cal Faculty and the study was initiated after obtaining approval (ethics committee file number: 2009/69; ethics committee meeting number: 2009/14 (11.06.2009); ethics committee decision number: 16). An informed consent form was presented to the children-adolescents and parents by the physician who conducted the study and the ones who accepted participation were included in the study.

The sample of the study was composed of 57 children-adolescents between the ages of 6 and 16 years who presented to KTU Child and Adolescent Psychiatry Outpatient Clinic and were diagnosed with TS and other chronic tic disorder (CTD) according to DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders-4th edition) (2) and their parents and teachers. This sample is the same sample examined in the article titled "Sociodemographic, clinical properties and risk factors in chronic tic disorders" (19). All subjects were included in the study at first presentation because of tics and at least 2-3 interviews were performed. The control group was composed of 57 children-adolescents who presented because of different causes (visual inspection, upper respiratory tract infection (URTI), psychological consultancy, vaccine side effect etc.) and who were similar to the study group in terms of age and gender. Study exclusion criteria in both groups included uneducated parents, insufficient capacity of the child-adolescent to fill in the scale and presence of an accompanying chronic medical condition (19).

Sixty-two patients with TS and CTD were seen during the period of the study, but three were excluded because mental retardation, one was excluded because of type 1 diabetes mellitus and one was excluded because the family could not spare enough time to fill in the scales (19).

Data collection tools

The Semi-Structured Interview Form was used to obtain sociodemographic information related with the children and adolescents. The Yale Global Tic Severity Scale (YGTSS) was used to grade the severity of tic, the Rosenberg Self-esteem Scale was used to evaluate self esteem, the quality of life scale for children-(5-7 years) parent form and (8-12, 13-18 years) child and parent forms were used to evaluate the quality of life. The Screening and Assessment Scale based on DSM-IV was applied to the parents and teachers to evaluate disrup-

tive behavior disorders. The Children's Depression Inventory (CDI), Screen for Child Anxiety Related Disorders and Maudsley Obsessional Compulsive Inventory were used to determine depression, anxiety and obsessive compulsive symptoms.

When establishing the control group the Schedule for Affective Disorders and Schizophrenia for school age children-Present and Lifetime version (K-SADS) was used to determine if any psychiatric disease was present or not. The forms were primarily applied to the parents in the childhood age group and to the children themselves in the adolescence age group. If the individual met the diagnostic criteria of any psychiatric disorder, the interview was finalized and the individual was excluded from the study. If the diagnostic criteria of any psychiatric disorder were not met, the interview was completed. If there was incompatibility between the information obtained from different sources, the clinician used his/her own clinical judgement.

Semi-structured interview form

This form includes the data related with the parents' and siblings' age, education, medical and psychological health, familial history of mental condition and substance use, seperation/divorce/death, monthly income, residental house, familial properties (nuclear/large family) and the clinical information related with psychiatric examination findings belonging to the child.

The Yale Global Tic Severity Scale (YGTSS)

The Yale Global Tic Severity scale (YGTSS) is an 11-item interview related with the severity of motor and vocal tics filled in by clinicians (20). The clinician initially records if motor and vocal tics are present in the last week acording to the statement of the family and child while observing the behavior. Afterwards, the clinician evaluates the severity of motor and vocal tics in five different dimensions: number, frequency, intensity, complexity and prevention. In addition, YGTSS includes a separate scale which focuses on problems in inter-personal, academic and occupational areas. Five index scores include total motor tic score, total phonic tic score, total tic score, whole disorder grading and global severity score. Adaptation of this scale to the Turkish population and its validity and reliability study was performed by Zaimoğlu et al. (21).

The Quality of Life Scale for Children (QOLS)

The Quality of Life Scale for Children is a general quality of life scale which assesses the physical and psychosocial experiences independent of disease in children between the ages of 2 and 18 years. It was developed by Varni et al. (12) in 1999 and its Turkish validity and reliability study was performed by Üneri (22) and Memik et al. (23). The scale is composed of 23 items. The items are scored between 0 and 100. Scoring is made in three areas. Psychosocial health total score is calculated by calculation of item scores for the scale total score (STS), physical health total score (PHTS) and emotional, social and school functioning. The higher the score for the Quality of Life Scale for children, the better is the perception of health-related quality of life.

The Rosenberg self-esteem Scale

This scale which evaluates global self-esteem was developed by Morris Rosenberg in 1963 (24). Its Turkish reliability and validity study was performed in 1986 by Çuhadaroğlu (25) and the first 10 items of the test which assess self-esteem was used. The subjects achieve scores between 0 and 6 according to the self-assessment system of the scale. A score of 0-1 is considered high self-esteem, a score of 2-4 is considered moderate self-esteem and a score of 5-6 is considered low self-esteem. A high score indicates a low self-esteem, while a low score indicates a high self-esteem.

The Screening and Assessment Scale based on DSM-IV for disruptive behavior disorders

This scale was developed by Turgay (26) to screen disruptive behavior disorders based on the DSM-IV diagnositic criteria. Its validity and reliability study for Turkey was performed by Ercan et al. (27). This scale is filled in by the parents and teachers of the child.

The Child Depression Inventory (CDI)

The Child Depression Inventory is a self-assessment scale for children aged between 6 and 17 years which is used in investigating childhood depression. The Turkish adaptation of this scale which was developed by Kovasc et al. (28) was performed by Öy (29).

The Screen for Child Anxiety Related Emotional Disorders (SCARED)

The Turkish validity and reliability study of this scale which was developed by Birmaher et al. (30) was performed by Karaceylan Çakmakçı (31). It is filled in by

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reading the items to the child or the child himself/herself reads the items. The higher the score obtained, the higher is the general axiety level.

The Maudsley Obsessional Compulsive Inventory
This is a self-reported scale used to measure the type and extensiveness of obsessive compulsive symptoms in healthy individuals and in psychiatric patient groups. While the original form of the scale (32) includes the subscales of controlling, cleaning, slowness and suspicion, the subscale of rumination was added to the Turkish version (33). The cut-off score was not calculated in the Turkish validity and reliability study.

The Schedule for Affective Disorders and Schizophrenia for school age children-Present and Lifetime version (K-SADS-PL)
The Turkish reliability and validity study of the scale which was developed by Kaufman et al. (34) was performed by Gökler et al. (35) in 2004. The Schedule for Affective Disorders and Schizophrenia for school age children-Present and Lifetime version is a semi-structured interview form used to determine present and lifetime psychopathologies in children and adolescents. Mood disorders, psychotic disorders, anxiety disorders, elimination disorders, disruptive behavioral disorders, substance abuse, eating disorders and tic disorders can be evaluated with the Schedule for Affective Disorders and Schizophrenia for school age children-Present and Lifetime version. In the study, at least one parent who could give information about the child was included in the assessment.

Statistical analysis
Statistical Package for Social Sciences, (SPSS Inc., Chicago, IL, USA) Windows 13.0 package program was used for statistical assessments. The data which were obtained by measurement were espressed as arithmetic mean (X) and standard deviation (SD) and the data obtained by counting were expressed as (%). A p value of <0.05 was considered significant.

For the quantitative variables of two groups One-Sample Kolmogorov-Smirnov test was used to determine if the data carried variability conditions. Mean score difference between the groups were compared by using Student's t-test for the quantitative variables which were compatible with the normal distribution and by using Mann-Whitney U test for the quantitative variables which were not compatible with the normal distribution.

Correlation analyses were used to determine the direction and degree of the relation between two quantitative variables.

The differences between the groups in terms of ordinal (categorical, quantitative) data including gender and self-esteem in terms of frequency were examined with X^2 (chi-square) test. Multivariate logistic regression analyses were performed to determine the independent risk factors which would predict presence of tic disorder, self-esteem and total qualitay of life score.

Results

The sociodemographic data related with the subjects are given in detail in the article titled "Sociodemographic, clinical properties and risk factors in chronic tic disorders" (19).

Assessment of the groups in terms of quality of life
The scores of the quality of life scale filled in by the parents of the children in the study group are statistically significantly different from the control group (Table 1). Among the scores of the quality of life scale filled in by te children and adolescents in this group, the scores for physical functionality, school functionality, psychosocial functionality and total health were found to be statistically significantly low (Table 1). In the areas of emotional and social functionality reported by the children and adolescents, no statistical significance was observed which was different from the reports of the parents.

In the group with tic disorder, generally, the relation between the quality of life scores reported by the child and the quality of life scores reported by the parents was examined. No relation could be found between them.

Evaluation of the groups by the results of the Rosenberg self-esteem scale
The results of the Self-esteem Scale which was used to assess the self-esteem of the sample was defined as "high (a score of 0-1), moderate (a score of 2-4) and low (a score of 5-6) self esteem" and the distribution was examined (Tabe 2).

Table 1. The mean subscale and total scores of the reports of the children and parents for the Quality of Life for Children by patient group and control group

	Patient	Control	(U;Z) or t	p
Parental report (n=57)				
Physical functionality[+]	73.2±16.5	79.6±19.5	(1159.5;-2.639)	0.008*
Emotional functionality	64.3±19.2	72.4±18	-2.328	0.022*
Social functionality[+]	74.3±21.4	89.9±13.4	(859.5;-4.384)	<0.0001*
School functionality	66.5±21.7	80.7±16.4	-3.933	<0.0001*
Psychosocial health	68.4±17.3	81.3±13.5	-4.407	<0.0001*
Total health	70.1±15.3	80.8±13.5	-3.960	<0.0001*
Reporting of the chhild-adolescent (n=50)				
Physical functionality[+]	75.1±12.6	81.2±14.9	(824.5;-2.937)	0.003*
Emotional functionality	66.9±20.2	71.9±17.1	-1.325	0.188
Social functionality[+]	80.3±19.1	87±13.7	(1034.5;-1.504)	0.132
School functionality	64±18.9	74.9±17.6	-2.976	0.004*
Psychosocial health	70.5±16.1	77.8±13.7	-2.428	0.017*
Total health	72±13.2	78.7±12.9	-2.564	0.012*

[+]Mann-Whitney U test was performed; *p<0.05; (U;Z) values are given for Mann-Whitney U tests and t value is given for Student's t-test.

Table 2. Distribution of the levels of self-esteem of the groups

Levels of self-esteem*	Patient (n=57) Number	%	Control (n=57) Number	%
High	20	35.1	42	73.7
Moderate	33	57.9	15	26.3
Low	4	7.0	0	0.00
Total	57	100	57	100

*Rosenberg self-esteem scale was applied. A score of 1 in this scale is considered high self-esteem, a score of 2-4 is considered moderate self-esteem and a score of 5-6 is considered low self-esteem.

While the mean score for the Rosenberg Self-esteem Scale was 2.3±1.5 in the patient group, it was found to be 1.2±1 in the control group (<0.0001). In the comparison by age groups in the study group, there was a significant difference between the age group below 12 years (2.7±1.4) and above 12 years (1.5±1.4) in terms of the scores for the Rosenberg Self-esteem Scale (p=0.004).

The correlation between the scores of the Quality of Life Reported by the Child and Parents and YGTSS was analysed. There was a significant correlation only between Psychosocial health reported by the child and adolescent and YGTSS phonic tic score (r=0.33; p=0.019) and YGTSS total tic score (r=0.28; p=0.046). This correlation was also observed between the total health score and YGTSS phonic tic score (r=0.29; p=0.04).

The correlation of Quality of Life scores with CDI, SCARED, MOCI and Rosenberg Self-esteem Scale is given in Table 3.

When seperated by age groups, a negative correlation was present between physical functionality, social functionality, psychosocial health and total health scores in the age group of 12 years and above (Table 4).

The factors affecting self-esteem in the group with tic disorder

In the logistic regression analysis performed to determine the risk factors for low and moderate self-esteem in the group with chronic tic disorder, being below the age of 12 years and having female gender were found to be the risk factors which lowered self-esteem. The risk of low-moderate self-esteem is increased 6.5-fold in the childhood age group with chronic tic disorder compared to adolescents. In the girls with chronic tic disorder, the risk of low-moderate self-esteem is increased 6.7-fold (Table 5).

Discussion

In this study, the quality of life, self-esteem and factors affecting these were investigated in children and adolescents with TS and CTD. The quality of life was found to be lower in the subjects in the group with

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Table 3. The relation of the quality of life scores with CDI, SCARED, Maudsley Obsessive-Compulsive Disorder Inventory, Rosenberg Self-esteem scale

	CDI		SCARED		Maudsley		Self-esteem	
Parental reporting	r	p	r	p	r	p	r	p
Physical functionality	-0.04	0.757	0.22	0.099	0.17	0.200	0.10	0.453
Emotional functionality	0.13	0.352	0.00	0.995	0.09	0.475	-0.06	0.626
Social functionality	-0.04	0.758	-0.02	0.860	0.08	0.535	-0.14	0.286
School functionality	-0.11	0.396	0.13	0.334	0.09	0.462	0.11	0.407
Psychosocial health	-0.12	0.387	0.04	0.740	0.12	0.382	-0.03	0.798
Total health	-0.10	0.451	0.11	0.430	0.15	0.259	0.00	0.962
Reporting of the child-adolescent								
Physical functionality	-0.16	0.269	-0.35*	0.012	-0.12	0.405	-0.32*	0.022
Emotional functionality	-0.32*	0.022	-0.44**	0.001	0.04	0.761	-0.34*	0.015
Social functionality	-0.23	0.103	-0.55**	0.000	0.06	0.680	-0.39**	0.004
School functionality	-0.16	0.269	-0.09	0.507	-0.07	0.614	-0.01	0.905
Psychosocial health	-0.28*	0.49	-0.44**	0.001	-0.00	0.980	-0.30*	0.034
Total health	-0.26	0.67	-0.49**	0.000	-0.05	0.715	-0.34*	0.017

*p<0.05, **p<0.01
CDI: Child Depression Inventory; SCARED: Screen for Child Anxiety Related Disorders

Table 4. Results of the correlation analysis of the self-esteem and quality of life scores by age groups

	6-11 years Self-esteem		12-16 years Self-esteem	
Parental reporting	r	p	r	p
Physical functionality	-0.04	0.806	-0.06	0.785
Emotional functionality	0.08	0.615	-0.37	0.085
Social functionality	-0.04	0.799	-0.35	0.114
School functionality	0.02	0.907	0.09	0.666
Psychosocial health	0.02	0.912	-0.25	0.261
Total health	-0.01	0.952	-0.21	0.336
Reporting of the child-adolescent				
Physical functionality	-0.24	0.221	-0.47*	0.028
Emotional functionality	-0.26	0.168	-0.37	0.089
Social functionality	-0.24	0.227	-0.56*	0.007
School functionality	0.02	0.903	-0.20	0.371
Psychosocial health	-0.20	0.308	-0.43*	0.045
Total health	-0.24	0.215	-0.47*	0.027

*p<0.05

Table 5. Risk factors for low and moderate self-esteem in the group with chronic tic disorder

	B	OR	95% CI	P
Age				
12-16 years		1		
6-11 years	1.880	6.553	1.658-25.903	0.007
Gender		1		
Male				
Female	1.903	6.708	1.067-42.163	0.042
Tourette syndrome				
Yes		1		
No	-1.302	0.272	0.055-1.339	0.109

control group were compatible with the studies performed previously (5-11). However, low values were found in all areas reported both by the child and parents in two studies in which the same QOL scale was used (6, 7). The finding that the patient group was not different from the control group in the areas of emotional and social functionality in our study was related with the fact that the control group achieved the lowest mean QOL scores in the area of emotional functionality and the group with TD achieved the highest QOL mean scores in the area of social functionality. It was observed that the children in the control group who had no psychological dis-

TS and CTD in the reports of both the children and parents in all areas except for the area of emotional and social functionality reported by the child compared to the control group. The results of our study except for the finding that there was no difference in these two QOL subdimensions compared to the

ease frequently experienced the emotions including fear, scare, sadness, difficulty in sleep and concern about what would happen to himself/herself which were asked in the area of physical functionality in the Quality of Life Scale for children.

The group with tic disorder stated that they did not frequently experienced problems with their peers. In the study of Stokes et al. (36) in which peer problems in TS were examined, it was found that TS patients were more timid and less popular, but not different in terms of the factor of agression. The fact that the subjects with TD achieved a high mean score of quality of life in the area of social functionality which questioned the relations with peers in our study may reflect social adaptation which occurs because of the chronicity of the problem.

It was found that there was no relation between the scores of quality of life reported by the child and parents in the group with tic disorder. This finding is a significant clinical finding indicating that parents may underestimate or exaggerate the effect of chronic tic disorder on their childrens' functionality. In clinical practive, it may be useful to plan intervention by evaluating the point of view of both the parents and the child.

An inverse relation was found between the quality of life scores reported by the child and CDI, SCARED scores. In the study performed by Lin et al. (37) in 2007, it was found that psychosocial stress and depression level predicted the future severity of tic.

No significant relation was found between the severity of tic and the quality of life scores. Bernard et al. (8) and Eddy et al. (10) also reached similar results in their studies. However, there are also studies which found that the severity of tic affected the quality of life (5-9, 11).

The self-esteem in children with tic disorder which was another main objective of this study was found to be significantly lower compared to the control group. Khalifa et al. (38) found the level of sense of self to be significantly lower compared to the control group. In a review study, Bloch and Leckman (39) stated that approaches directed to increase self-esteem were significant to obtain positive results in individuals with TS in the adulthood owing to strenghtening of friendship and discovery of areas of interest. The logistic regres-

sion analysis used in our study found that the risk of low or moderate self-esteem was increased by 6.5-fold in the childhood age group with TS and CTD compared to adolescents. Elstner et al. (5) proposed that the problems of TS patients who had been diagnosed long time ago might be different from the newly diagnosed patients and further studies related with the newly diagnosed group were needed. Our study included both children and adolescents and the majority of the patients were newly diagnosed. The fact that the children with chronic tic disorder had lower self-esteem compared to adolescents might arise from their inability to activate their mechanisms of coping with their new diagnoses. In this study, the risk of low or moderate self-esteem was higher in the girls with TD. This disorder which affects the whole life and may lead to negative social perception like Tourette syndrome lowers self-esteem to a greater extent in the female gender.

There is a negative correlation between the physical functionality, emotional functionality, social functionality, psychosocial health and total health scores and the self-esteem scores. This negative correlation is significant considering that high scores are indicators of low self-esteem when evaluating self-esteem. As the quality of life decreases, the self-esteem of the individual decreases. A high self-esteem was found to be related with a high quality of life.

When the relation of the quality of life scores reported by the child and parents with YGTSS scores was analysed, it was found that the psychosocial health scores reported by the child and total health scores had a weakly positive correlation with YGTSS vocal tic score. Again, there was a positive correlation between the psychosocial health score reported by the child and YGTSS total tic score (r=0.28, p=0.04). The Yale Global Tic Severity Scale total tic score is obtained from the sum of motor and vocal tic scores. It is notable that this weak correlation was present between the QOL subscales reported by the child and YGTSS total tic and vocal tic scores, but absent in the reports of the parents. The child who is aware of his/her vocal tic probably tries to emphasize that he/she is good in other areas and thus compensates the state which he/she finds as a defect in himself/herself. Here, the relation is weak, but it may be valuable in terms of indicating the need for more detailed evaluation and further

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studies examining defense mechanisms in individuals with increased severity of tic.

According to the correlation analyses, there is a negative correlation between accompanying depressive findings and emotional functionality and psychosocial health subscores considering the reports of the child and adolescent. The intensity of the accompanying depressive symptoms in individuals with tic disorder appears to be related with a low quality of life. Increased level of axiety leads to a decrease in both physical functionality and psychosocial health (also affecting the emotional and social functionality subscales) and thus the total health variable of QOL. Absence of this relation in the parental reports shows that children and adolescents with tic disorder experience psychosocial distresses and disturbance in functionality which the parents are not aware of.

Low self-esteem according to the reports of the child and adolescent is related with a decrease in all QOL areas except for school functionality. A decrease in the QOL areas excluding school and emotional functionality in the adolescence is markedly related with a decrease in self-esteem. It is possible that quality of life and self-esteem are two concepts which are interrelated and which directly affect each other. Studies directed to increase one may result in an increase in the other.

In the logistic regression analysis performed to determine the risk factors for a low and moderate self-esteem in the group with Tourette syndrome and CTD, being below the age of 12 years and female gender were found to be the factors which decreased self-esteem in TS and CTD. The young age may probably be related with underdeveloped defense mechanisms. The lowering effect of being a girl with tic disorder on the self-esteem may be related with the standarts of judgement of the society we live in. Performance of this study in different societies may be useful in elucidating the effect of gender on self-esteem in tic disorder.

All these results show that patients with TS and CTD have lower quality of life and lower self-esteem. In previous studies, it has been reported that children with tics experience problems in school, house and social lives in relation with tic (40). Comorbidities probably increase the severity of this impact further. Negative effects can be partially decreased by evaluating all disorders together rather than treating only the tic symptoms. Psychotherapeutical approaches which develop coping abilities of individuals may also be useful.

Conclusively, TS and CTD is a severe disorder which affects the individual's life in many areas. Attention deficit and hyperactivity disorder, obsessive compulsive behavior frequently accompany tics and should be assessed. Perceiving these symptoms as a part of the disorder, intervening with an integrated approach may be useful in increasing the quality of life and self-esteem in children-adolescents with TS and CTD.

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