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**Original Article**

# Obsessive Compulsive Disorder Symptoms and their Association with Trichotilomania, Tic and Body Dysmorphic Disorders

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## Abstract

**Background:** Obsessive-compulsive disorder (OCD) symptoms and the related disorders are subsumed under chronic psychiatric disorders which are of psychosocial and therapeutic importance. In most studies, the mean age of onset of significant OCD symptoms is adolescence period. The aim of this study was to evaluate OCD symptoms, Tic disorder, Body Dysmorphic Disorder (BDD) and Trichotilomania among middle school students in Shiraz, Iran.

**Method:** From the four educational district of Shiraz, South of Iran, 1682 middle school students, aged 14-16 yrs-old, were selected using a cluster random sampling. Persian standardized Moudsely Obsessive-Compulsive Inventory was used to assess obsessional symptoms. For evaluating BDD, Tic Disorder and Trichotilomania symptoms, a semi-structured interview was done according to Diagnostic and Statistical Manual-IV-TR (DSM-IV-TR) criteria.

**Results:** Students with more obsessional symptoms were mostly girls and showed more positive family history. They were more likely from low socioeconomic class, and their average school grades were lower. They also showed high association with BDD and Tic disorders.

**Conclusion:** This study confirmed body dysmorphic and Tic disorders to be more prevalent in individuals with obsessive-compulsive disorder symptoms. Girls, especially those from lower socioeconomic class, demonstrated increasing obsessional symptoms. Obsessive-compulsive disorder symptoms were found to affect school performance so its early diagnosis and management should be considered as a mental health priority.
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**Keywords** ● Obsessive ● compulsive ● trichotilomania ● dysmorphic ● tic

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## Introduction

During the last several decades there has been a better understanding of Obsessive-compulsive disorder (OCD). Recent medications and behavioral approaches, particularly in combination, turned to be promising in decreasing obsessional symptoms that are of significant times more common than was previously believed, with a 6-month point prevalence of 1.6%,[2,3] and a lifetime prevalence of 2.5%.[4-7]

source of personal distress and social dysfunction.[1] Different studies have shown that OCD is 50 to 100 times more common than was previously believed, with a 6-month point prevalence of 1.6%,[2,3] and a lifetime prevalence of 2.5%.[4-7]

In most studies, the mean age of onset of OCD symptoms is adolescence period.[8-13] In contrast to adult OCD patients who have either equal gender or a slight preponderance in women,[14,15] pediatric OCD patients show an approximately 3.2 male to female ratio.[8,10-13,16]

A higher prevalence of OCD is also reported in first-degree relatives of OCD patients.[17] Recently, in addition to depressive and other anxiety disorders, co-morbidity of OCD with Body Dysmorphic Disorder (BDD),[21-24] Trichotilomania (TTM) and Tic disorder caused great clinical concern.[25-31] The aim of present investigation was to study OCD symptoms and their association with BDD, TTM and Tic disorder in 14 to 16 years-old middle school students.

## Patients and Methods

This study comprised 1682 3rd grade middle school students aged 14-16 years, of which 845 girls and 781 boys were selected. Shiraz educational organization has officially divided Shiraz into four educational regions. Regions one and two have better socioeconomic status than regions three and four. The Study was performed on high school boys and girls in all four regions and survey team attending boys and girls schools were selected randomly. At first the OCD symptoms and the objective of the survey was explained to the students, then a letter of consent was obtained from all participants and their parents.

*Instrument*

Standardized Persian Maudsley obsessive-compulsive inventory (MOCI) was administered to evaluate OCD symptoms.[32] This inventory is composed of 30 yes and no questions that evaluate OCD symptoms in five subcategory of checking, washing, slowness, doubting, conscientiousness and obsessional thoughts. For every student, a semi-structured interview was done, according to DSM-IV-TR criteria, to evaluate BDD, TTM and Tic disorder. To study the family history, questions were designed, according to DSM-IV-TR criteria that looked for OCD symptoms in student's first degree relatives. School performance was assessed based on their preceding semester averages. It should be noted that in Shiraz, at the end of each semester, students learning are evaluated by official examinations designed by the Shiraz department of education.

Socioeconomic status of the students was evaluated according to their native regions. Parental level of education was classified as: below high school, high school diploma, Bachelor of Science and above. The questions asked were thus in line with their level of education. A self-designed questioner was also used to collect demographic data.

*Statistical analysis:*

The gender, family history, school performance, socioeconomic class and parental level of education in 2.5% of the students with highest scores in MOCI (score more than 20) were compared with other students. In addition, the two groups were also compared in regard to association with BDD, TTM and Tic disorder. Fisher-exact and Chi-squire tests were used for analysis of the results and $p<0.05$ was considered as significant.

## Results

The data in detail are incorporated in Tables 1-3. Thirty eight girls among 819 female students participating in the study comparing with 16 boys among 863 male students revealed obsessional symptoms. Some girls demonstrated more obsessional symptoms ($p<0.05$). 29 of 414 students with positive family history of OCD showed obsessional symptoms whereas, only 25 of the 1268 students with negative family history demonstrated those symptoms. Therefore, students with increasing OCD symptoms were found to have more positive family history ($p<0.001$). Students from higher socioeconomic class (educational region 1 and 2) demonstrated less obsessional symptoms ($p<0.005$). Students with higher school performance (grade average "A") had lesser OCD symptoms ($p<0.005$).

**Table 1:** Moudsely Obsessive-Compulsive Inventory (MOCI) scores, sex, and positive (+) or negative (-) family history of Obsessive-Compulsive Disorders (OCD) symptoms

| Number | MOCIS ≥ 20 | MOCIS < 20 |
|---|---|---|
| Boys | 16 | 847 |
| Girls | 38 | 781 |
| + OCD | 29 | 385 |
| - OCD | 25 | 1243 |

**Table 2:** MOCI scores, educational regions (E region) and grade-averages (average)

| Number | MOCIS ≥ 20 | MOCIS < 20 |
|---|---|---|
| E region 1 | 8 | 404 |
| E region 2 | 9 | 537 |
| E region 3 | 21 | 437 |
| E region 4 | 16 | 248 |
| average A | 19 | 961 |
| average B | 21 | 455 |
| average C | 13 | 193 |
| average D | 1 | 19 |

In regard to parental class of education, no significant difference was found between the two groups of the students. Those groups with higher score in MOCI were found to have more BDD and Tic symptoms ($p<0.005$). TTM symptoms between the two groups were not significantly important.

**Table 3:** MOCI scores and positive (+) or negative (-) history of Body Dysmorphic Disorder (BDD), Tic disorder (TD) and Trichotilomania (TTM) symptoms.

| Number | MOCIS ≥ 20 | MOCIS < 20 |
|---|---|---|
| + BDD | 36 | 629 |
| - BDD | 18 | 999 |
| + TD | 31 | 447 |
| - TD | 23 | 1180 |
| + TTM | 8 | 158 |
| - TTM | 46 | 1469 |

## Discussion

The age of the onset of important symptoms of OCD is during adolescence. In most studies, the mean age of onset ranges from 7.5 to 12.5 yrs and the age on assessment ranged from 12 to 15.2 yrs,[8-13] Therefore, 14 to 16-yrs-old school students were selected for this survey.

MOCI has been used for evaluating OCD symptoms in different studies,[33,34] including Persian oriented MOCI used in the present investigation. The higher scores in MOCI, the more OCD symptoms were present. Black et al tabulated 11 studies of inpatients and outpatients with OCD and found a total of 651 men (48.6%) and 685 women (51.4%).[35] In another study, of all the patients fulfilling DSM-III-R (Diagnostic and statistical manual of mental disorders, third edition-revised) criteria for OCD, 969 were males and 1071 were females.[1] Pediatric OCD were more common in boys.[8,10-13,16] Hollingsworth et al. found that 13 of 17children and adolescents (79%) with OCD were males.[36] In our survey, OCD symptoms were more prevalent in girls than boys. This can be due to technical differences in the method and sampling used and not checking the symptoms with their families. However, tThe more serious approach of girls in answering the questions can also play a role.

The role of heredity in OCD has long been suspected by clinicians.[37] Other studies showed that OCD was more common in first degree relatives of OCD patients than normal population.[17] We also found that students with higher scores in MOCI demonstrated more OCD symptoms in their first degree relatives. Most early anecdotal studies concluded that OCD patients possessed higher than average intelligence.[34] Three recent studies used Wechsler Adult Intelligence scale (WAIS) and found a small non- significant difference in full scale intelligence quotient (IQ) between OCD patients and a matched normal group.[18-20] In this survey, students with higher school performance (average "A") showed less OCD symptom. This may be due to lower intelligence in students with OCD symptoms or to the effects of OCD symptoms on the school performance. In another study, the majority (57%) of 100 OCD patients had at least another axis I DSM III-R diagnosis.[1] Rates of BDD ranging from 8% to 78% have been reported among patients with OCD.[21-24]

Studies of Tic disorder patients have reported obsessive-compulsive symptoms and OCD in 20% to 60% of patients,[27-31] and studies of OCD patients have described motor tics in more than 50% and 15%Tic disorder.[30,31] Our study confirmed the above results.

The most common co-morbid psychiatric conditions with TTM are affective and anxiety disorders with lifetime prevalence rates of 41 to 64% and 55 to 57% respectively.[25,26] In our survey, no significant difference was found between students with higher scores in MOCI and the rest of the students in regard to TTM symptoms.

One study has showed a trend for higher rates of OCD in lower socio-economic groups,[38] in line with most other psychiatric disorders detected in the survey. This is in contrast with the findings of Flament et al. who found no correlation with socio-economic status.[39] Clinical samples have consistently shown the reverse trend and the belief that OCD was a disorder of children of high social class seemed quite widespread and probably represents an artifact in clinical studies.[40] Our results, therefore, supported those of Heyman et al.[38] To our knowledge, no studies on parental class of education and the development of OCD in children have been reported. In addition, our study did not show any relationship between foregoing entities.

In this study, TD, BDD and TTM symptoms were assessed in a semi-structured interview and OCD symptoms evaluated by MOCI. If the students were interviewed individually for each of these disorders by a psychiatrist, a more efficient evaluation could have been achieved. As interview with the student's parents which could reveal information about their mental status was not done in the present study, it could be carried out in future investigations.

## Conclusion

This study showed that obsessive compulsive symptoms are more common among girls. Students from higher socioeconomic class demonstrated less obsessional symptoms.

There was an association between obsessive compulsive symptoms and Tic disorder and body dysmorphic disorder.

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