Clinical profile and outcome in a large sample of children and adolescents with obsessive–compulsive disorder: A chart review from a tertiary care center in India

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ABSTRACT

Background: Obsessive–compulsive disorder (OCD) is a common psychiatric illness in children and adolescents. Till date, the sample sizes in the Indian studies have been relatively small.
Methodology: The present study is a retrospective chart review of a large sample of children and adolescents diagnosed with OCD in a tertiary care center
Objectives: The objectives of this study were to characterize the clinical profile and to evaluate outcome of OCD in children and adolescents
Results: Fear of contamination and washing/cleaning compulsions were the most common presenting symptoms. Most of the patients were male with two-thirds having a comorbid disorder. Major depressive disorder was the most common comorbid disorder. The rates of attention deficit hyperactivity disorder, disruptive behavioral disorders, and tic disorders were low when compared to Western studies. One-third of the patients received adequate trial of serotonin reuptake inhibitors and 36% received cognitive behavior therapy. Fifty-four percent of patients had a poor outcome with hospitalization, longer duration of illness, earlier onset of OC symptoms, and family history of OCD being the predictors of poor outcome.
Conclusion: The present study of a large sample of patients with juvenile OCD highlights the low rate of comorbid disruptive behavior disorders as reported in the earlier Indian studies and a favorable short-term outcome in approximately 56% of the patients.

Key words: Adolescent, child, India, obsessive–compulsive disorder, study

INTRODUCTION

Obsessive–compulsive disorder (OCD) is a common psychiatric illness, not only in adults but also in children and adolescents as well. Studies of the prevalence in adult epidemiologic samples have shown rates of 1%–3%.¹⁻³ Epidemiologic studies among the pediatric population have found similar rates, ranging from 0.8% to 3.3%.⁴⁻¹⁰ In adult studies, the onset has frequently been reported in the early twenties,¹¹ while reports in children and adolescents veer more toward a prepubertal

How to cite this article: Deepthi K, Sagar Kommu JV, Smitha M, Reddy YC. Clinical profile and outcome in a large sample of children and adolescents with obsessive–compulsive disorder: A chart review from a tertiary care center in India. Indian J Psychiatry 2018;60:205-12.
onset. There are also reports of an earlier onset in boys as compared to girls.

While it has been debated if juvenile OCD and adult OCD fall along a continuum, or if juvenile OCD is a distinct subtype that shares some phenotypic features with adult OCD, important similarities and differences between the two have emerged. While studies in adult OCD patients have shown an equal gender distribution, studies in the juvenile age group have shown a male preponderance. Juvenile OCD is reported to have a strong familial aggregation with greater morbidity risk in relatives of probands with early-onset OCD than in relatives of probands with adult-onset OCD. Recent controlled family studies have reported age-corrected morbidity risk of about 12% in families of adults and 25% in families of children and adolescents. A family study from this center reported morbidity risk of only 4% in first-degree relatives which is considerably lower than what has been reported in previous studies.

With regard to symptoms, majority of studies in children and adolescents have reported multiple obsessions and compulsions. Recent Indian studies have reported varied findings with clinic-based studies reporting obsessions of contamination and washing/cleaning compulsions as being most common, whereas a recent epidemiological study reported cognitive obsessions and cognitive compulsions as most common symptoms. Higher rates of aggressive obsessions and hoarding/saving compulsions, as compared to adults, were found in one study. Insight into the illness has been found to be poorer in children than in adult OCD. This may be related to the limited ability of children to articulate their obsessions.

Recent studies of OCD in children and adolescents have reported high rates of comorbidity. Noteworthy is the high rate of tic disorders and disruptive behavior disorders in this population. Geller et al., in addition to high rates of disruptive behavior disorders, reported high rates of mania (27%) and psychosis (30%). Comorbidity rates in a previous study from this site have not been as high.

It is often stated that juvenile OCD is “chronic and debilitating.” Follow-up studies have reported low rates of remission and recovery. Younger age at onset has also been correlated with poorer outcomes in adults. However, the meta-analysis by Stewart et al. has indicated that long-term persistence of juvenile OCD may not be as high as once thought, with almost two-thirds of the 16 studies reviewed showing that full syndromal OCD did not persist in majority of the patients. In a 2–9-year follow-up study of 58 children and adolescents from this center, almost half of the sample (48%) was “true remitters” (i.e., had no OCD and were not on treatment) and only 21% had clinical OCD at follow-up.

From this brief review, it appears that the OCD in childhood and adolescence is associated with a high risk of familial aggregation, greater comorbidity with tics and disruptive behavior disorders, poorer insight, and somewhat poor prognosis. Indian studies report lower rates of comorbidity with tics and disruptive behavior disorders, lower family loading for OCD and good prognosis. While there are few large studies from other centers in the world, sample sizes in Indian studies, including those from this center, have been relatively small. Therefore, we report sociodemographic and clinical profile of a large sample of children and adolescents with OCD who received treatment at the Child and Adolescent Psychiatry (CAP) Services of the National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru between the years 1998 and 2014.

**MATERIALS AND METHODS**

Case records of the patients seen at the CAP services from January 1998 to December 2014 formed the data source of this study. The CAP department at NIMHANS caters to children and adolescents up to age 17. There is no definite catchment area for the CAP services although a majority is from the state of Karnataka and the neighboring states. All patients undergo a detailed clinical evaluation according to a prespecified topical format based on an unstructured psychiatric interview with both the child and the parent(s). The topical format includes sociodemographic information, presenting complaints, a history of present illness in chronological order of complaints, developmental history, temperament, family history, treatment details, and a mental status examination that involves a direct interview with the child or the adolescent. Diagnosis and management are confirmed by a consultant child and adolescent psychiatrist. A proportion of children (n = 167, 37%) were also assessed with the Yale–Brown Obsessive–Compulsive Scale (Y-BOCS).

Information from the case records was extracted and entered in a specially devised proforma. The proforma contained sociodemographic information, illness variables (e.g., age at onset, duration of illness), OS symptom profile, comorbid disorders, details of treatment, and course and outcome. Based on the information in the file, we broadly categorized insight as good and poor. Following were the definitions of insight based on Y-BOCS:

- **Good insight** – The patient should accept the absurd/excessiveness/irrational nature of the thoughts/doubts/behaviors
- **Poor insight** – Patient being either fully convinced that thoughts/doubts/behaviors are reasonable or believing that thoughts/doubts/behavior are not unreasonable or excessive though he/she may accept the evidence to the contrary.

We recorded outcome in children who had follow-up information of at least 3 months after initial consultation.
The outcome was defined as following:

- Clinical OCD – patient continued to fulfill Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) criteria for OCD
- Subclinical OCD – patient’s symptoms not severe enough to meet DSM-IV criteria; there is no significant distress or interference in functioning
- No OCD – patient did not report any OS symptoms.

A total of 502 case records with a diagnosis of OCD as per DSM-IV criteria were reviewed. Of these 51 were excluded as they had comorbid mental retardation. After exclusion, 451 case records were included for analysis.

**Statistical analysis**

Statistical analysis was performed with Statistical Package for the Social Sciences (SPSS), version 15.0 (SPSS Inc, Chicago, IL, USA). Descriptive statistics were used to describe the data. Between-group comparisons were made using the independent t-test and Chi-square/Fisher’s exact for continuous and discrete variables, respectively. To determine the predictors of prognosis, we employed logistic regression (backward, Wald) analysis. All tests were two-tailed and statistical significance was set at \( P < 0.05 \).

**RESULTS**

Sociodemographic and clinical characteristics are shown in Table 1. The sample was largely self-referred and boys constituted about three-fourth of the sample. More than a half of the sample had childhood onset OCD (≤12 years) and more than three-fourth had good insight into the illness. One hundred and seventy-two patients (38.1%) had been hospitalized at some time during their course of illness.

The chief symptoms are shown in Table 2. Chief symptoms are those which were the source of distress and the cause for consultation. It is evident that the contamination fears and washing and cleaning compulsions were the predominant symptoms. Miscellaneous obsessions and compulsions were also common symptoms.

Sixty-five percent of the sample had at least one comorbid psychiatric disorder [Table 3]. The most common comorbid disorder was major depressive disorder (13.5%). The rates of comorbid disruptive behavior disorders, tic disorders, and impulse control disorders were somewhat low [Table 3]. Rates of psychosis, pervasive developmental disorders, impulse control disorders, body dysmorphic disorder, and eating disorders were even lower.

Treatment characteristics are shown in Table 4. One-third of the sample was drug naïve at consultation. Although a majority (92%) had been treated with serotonin reuptake inhibitors (SRIs), an adequate trial\(^{[47]}\) was received by only about a third of the patients. It is notable that

| Variable                                    | n (%)/mean (SD) |
|--------------------------------------------|-----------------|
| Gender                                     |                 |
| Male                                       | 325 (72.1)      |
| Female                                     | 126 (27.9)      |
| Education                                  |                 |
| Illiterate                                  | 8 (1.8)         |
| ≤5 years of formal education               | 64 (14.2)       |
| >5 years of formal education               | 378 (83.8)      |
| Open schooling (NIOS)                      | 1 (0.2)         |
| Domicile                                   |                 |
| Rural                                      | 100 (22.2)      |
| Urban                                      | 351 (77.8)      |
| Referral status                            |                 |
| Self-referred                              | 239 (53.0)      |
| GP/physician                               | 66 (14.6)       |
| Psychiatrist                               | 85 (18.8)       |
| Others                                     | 61 (13.5)       |
| Age (years)                                |                 |
| Age at first consultation for treatment (years) | 12.01 (2.47)  |
| Age at onset of OCD (years)                | 10.67 (3.01)    |
| Duration of illness (months)\(^{\dagger}\)  | 25.51 (25.86)   |
| Duration of untreated illness (months)\(^{\ddagger}\) | 19.59 (24.67)  |
| Childhood onset (onset ≤12 years)          | 236 (52.3)      |
| Number hospitalized                        | 172 (38.1)      |
| Mode of onset                              |                 |
| Acute (within 2 weeks)                     | 27 (6)          |
| Insidious (>2 weeks)                       | 424 (94)        |
| OCD subtype                                |                 |
| Predominantly obsessive                     | 38 (7.6)        |
| Predominantly compulsive                   | 37 (7.4)        |
| Mixed                                      | 428 (85.0)      |
| History of OCD in first-degree relatives   | 77 (17.1)       |
| Y-BOCS score at baseline (n=167)           | 21.95 (8.41)    |
| Insight                                    |                 |
| Good                                       | 360 (79.8)      |
| Poor                                       | 91 (20.2)       |

\(^{\dagger}\)Median duration=18 months; \(^{\ddagger}\)Median duration=12 months.

Of the 451 patients, the outcome could be determined in 277 patients (61.4%). For the remaining patients, chart information was inadequate to determine outcome since they did not have 3-month follow-up information. About 10% of the sample had no clinical OCD. Those with “subclinical OCD” and “no OCD” were considered to have good outcome (\( n = 150 \)) and those with “clinical OCD” were considered to have poor outcome (\( n = 127 \)). Those with good and poor outcome were compared with respect to demographic features, clinical profile, comorbidity, and adequacy of treatment. Those with poor outcome had a higher rate of hospitalization (48.8% vs. 31.3%, \( \chi^2 = 8.81, P = 0.003 \)), cleaning/washing compulsions (45.2% vs. 32.7%, \( \chi^2 = 14.42, P = 0.04 \)), checking compulsions (20.6% vs. 13.3%, \( \chi^2 = 14.42, P = 0.04 \)), and family history of OCD (24.4% vs. 14%, \( \chi^2 = 4.89, P = 0.03 \)). Patients with poor outcome also had a longer duration of illness.
Table 2: Obsessive-compulsive symptom profile (n=451)

| Obsessive-compulsive symptoms | Chief symptoms*, n (%) |
|-------------------------------|------------------------|
| **Obsessions**                |                        |
| Contamination                 | 185 (43.1)             |
| Aggressive                    | 75 (15.7)              |
| Sexual                        | 36 (8.0)               |
| Religious                     | 11 (2.4)               |
| Hoarding                      | 2 (0.4)                |
| Pathological doubts           | 49 (10.9)              |
| Need for symmetry/exactness   | 24 (5.4)               |
| Miscellaneous                 | 156 (34.6)             |
| Superstitious fear/magical beliefs | 67 (14.9)         |
| Intrusive thoughts            | 77 (17.1)              |
| Others                        | 12 (2.7)               |
| **Compulsions**               |                        |
| Washing and cleaning          | 181 (40.1)             |
| Checking                      | 71 (15.5)              |
| Repeating and counting        | 47 (10.9)              |
| Collecting                    | 9 (2.0)                |
| Ordering                      | 23 (5.1)               |
| No compulsions                | 94 (20.8)              |
| Miscellaneous                 | 204 (45.2)             |
| Cognitive                     | 40 (9.1)               |
| Pathological slowness         | 12 (2.7)               |
| Proxy compulsions             | 32 (7.1)               |
| List making                   | 3 (0.7)                |
| Need to ask/tell/confess      | 9 (2.0)                |
| Need to touch/tap/rub         | 24 (5.4)               |
| Reassurance seeking           | 39 (8.7)               |
| Ritualistic blinking/staring  | 6 (1.3)                |
| Superstitious behaviors       | 25 (5.5)               |
| Self-damaging behaviors       | 5 (1.1)                |
| Others                        | 8 (1.8)                |

Table 3: Lifetime comorbid disorders (n=451)

| Comorbid disorder            | n (%) |
|------------------------------|-------|
| Any comorbidity              | 293 (64.9) |
| Any affective disorder       | 97 (21.5)  |
| Major depressive disorder    | 61 (13.5)  |
| Recurrent depressive disorder| 8 (1.8)    |
| Dysthymia                    | 5 (1.1)    |
| Bipolar disorder             | 23 (5.1)   |
| Substance dependence         | 1 (0.2)    |
| Any tic disorder             | 45 (9.9)   |
| Transient tic disorder       | 11 (2.4)   |
| Chronic motor/vocal tic disorder| 13 (2.9)|
| Tourette’s disorder          | 8 (1.8)    |
| Tic disorder NOS             | 13 (2.9)   |
| Any disruptive behavior disorder| 61 (13.5)|
| ADHD                         | 30 (6.6)   |
| ODD                          | 22 (4.9)   |
| CD                           | 9 (2.0)    |
| Any anxiety disorder         | 47 (10.4)  |
| Generalized anxiety disorder | 7 (1.5)    |
| Panic disorder               | 4 (0.9)    |
| Agoraphobia                  | 2 (0.4)    |
| Specific phobia              | 4 (0.9)    |
| Social anxiety disorder      | 24 (5.3)   |
| Separation anxiety disorder  | 6 (1.3)    |
| Any psychotic disorder       | 4 (0.9)    |
| Schizophrenia                | 1 (0.2)    |
| Psychosis NOS                | 3 (0.7)    |
| Any pervasive developmental disorder | 14 (3.2) |
| Autistic disorder            | 3 (0.7)    |
| Asperger’s disorder          | 8 (1.8)    |
| PDD NOS                      | 3 (0.7)    |
| Any impulse control disorder | 5 (1.1)    |
| Trichotillomania             | 4 (0.9)    |
| Intermittent explosive disorder | 1 (0.2) |
| Adjustment disorder          | 4 (0.9)    |
| Any specific learning disability | 55 (12.2)|
| Reading                      | 14 (3.1)   |
| Writing                      | 13 (2.9)   |
| Arithmetic                   | 17 (3.8)   |
| Mixed                        | 12 (2.7)   |
| Any eating disorder          | 2 (0.4)    |
| Any body dysmorphic disorder | 2 (0.4)    |
| Any dissociative disorder    | 5 (1.1)    |
| Any sleep disorder           | 1 (0.2)    |
| Any speech disorder          | 4 (0.9)    |

*Table depicts chief symptoms at presentation. A given patient could have more than one type of obsessions/compulsions

(27.34 ± 25.53 vs. 20.78 ± 25.26, t = −2.14, P = 0.03) and were more likely to have earlier onset of symptoms (10.44 ± 2.85 vs. 11.14 ± 2.61, t = 2.11, P = 0.04).

To identify predictors of prognosis, we employed binary logistic regression analysis. Variables which were significant in the univariate analyses were included in the regression analysis. These include rate of hospitalization, visual/auditory imagery, ordering compulsion, family history of OCD, contamination obsessions, aggressive obsessions, religious obsessions, hoarding, need for symmetry number of comorbid psychiatric disorders, and duration of illness. Hospitalization, longer duration of illness, earlier onset of OC symptoms, and family history of OCD were predictors of poor outcome in regression analysis with overall prediction rate of 96%.

DISCUSSION

This study set out to examine the clinical profile and outcome in a large sample of children and adolescents with OCD attending specialized CAP services of a major psychiatric hospital in India. Main findings of the study are as follows: (1) the sample was overrepresented by boys and most had both obsessions and compulsions; (2) fears of contamination and washing/cleaning compulsions were the most common symptoms; (3) poor insight was reported in over a fifth of the sample; (4) comorbidity was present in well over a half of the sample (65%) but found unusually low rates of disruptive behavior disorders, tic disorders, OCD spectrum disorders, anxiety disorders, and psychosis and bipolar disorder; (5) a majority was treated with SRIs but not many received adequate trials and CBT was administered even less commonly; and (6) Overall outcome was good despite less intense treatment.

Sociodemographic profile

Majority of patients (72%) were male and were adolescents by the time they had sought consultation at our center. This
Table 4: Treatment details (n=451)

| Variable                                    | n (%)       |
|---------------------------------------------|-------------|
| Drug naïve at first consultation            | 152 (33.7)  |
| Nonresponder at registration               | 14 (3.1)    |
| Treatment with SRI                          | 463 (92.0)  |
| At least one adequate trial                 | 142 (28.2)  |
| ≥2 adequate trials                          | 21 (4.2)    |
| Never treated with SRI                      | 40 (8.0)    |
| SRI used                                    |             |
| Fluoxetine                                  | 330 (73.2)  |
| Fluvoxamine                                 | 69 (15.3)   |
| Sertraline                                  | 82 (18.2)   |
| Clomipramine                                | 50 (11.1)   |
| Escitalopram                                | 51 (11.3)   |
| Citalopram                                  | 21 (4.7)    |
| Paroxetine                                  | 8 (1.8)     |
| Treatment with augmenting agents            | 157 (31.2)  |
| Risperidone                                 | 108 (21.5)  |
| Olanzapine                                  | 23 (4.6)    |
| Quetiapine                                  | 3 (0.6)     |
| Other atypical antipsychotic drugs          | 8 (1.8)     |
| Haloperidol                                 | 3 (0.6)     |
| Clonazepam                                  | 9 (1.8)     |
| Lithium                                     | 19 (3.8)    |
| Buspirone                                   | 3 (0.6)     |
| Clomipramine                                | 6 (1.2)     |
| ERP/CBT + SRI                               | 165 (32.8)  |
| ERP/CBT alone                               | 16 (3.2)    |
| ECT                                         | 1 (0.2)     |

SRI – Serotonin reuptake inhibitor; ERP – Exposure and response prevention; CBT – Cognitive behavioral therapy; ECT – Cognitive behavioral therapy

Table 5: Comparison of key findings of our study with recent studies of pediatric obsessive compulsive disorder with large samples

| Variable                   | Mataix-Cols et al., 2008 | Masi et al., 2010 | Langley et al., 2010 | Selles et al., 2014 | Nakatani et al., 2011 | Current study |
|----------------------------|----------------------------|-------------------|----------------------|---------------------|-----------------------|--------------|
| Sample size                | 238                        | 257               | 215                  | 292                 | 365                   | 451          |
| Male-to-female ratio       | 1.67                       | 2.09              | 1.33                 | 1.01                | 1.42                  | 2.58         |
| Mean age (years)           | 13.8±2.3                   | 13.6±2.7          | 11.8±3.0             | 12.8±2.4            | 13.8±2.5              | 12.8±2.47    |
| Comorbidities              |                            |                   |                      |                     |                       |              |
| Anxiety disorders          | Not available              | GAD-39%           | Social phobia-38%    | ADHD-17% ODD-22%    | ADHD-20%              | Not available |
|                           |                            |                   | CD-9%                |                     | Disruptive Behavior Disorders-13% | ADHD-6.6% ODD-4.9% |
| Externalising disorders    | Not available              | 33%               | 45%                  | Not available       | Not available         | ADHD-6.6% ODD-4.9% |
| Mood disorders             | Not available              | Depression-27%    | Not available        | Depression-17%      | Not available         | Depression-13.5% BPAD-5.1% |
| Tic disorders              | 27%                        | 39%               | 39%                  | Any Tic disorder-25%| Tourette’s syndrome-13%| Tourette’s syndrome-1.8% |

GAD – Generalized anxiety disorder; ADHD – Attention deficit hyperactivity disorder; CD – Conduct disorder; PDD – Pervasive developmental disorder; BPAD – Borderline personality disorder; ODD – Oppositional defiant disorder; OCD – Obsessive-compulsive disorder; OCD–CD – Obsessive-compulsive disorder and Conduct disorder; OCD–PDD – Obsessive-compulsive disorder and Pervasive developmental disorder; OCD–BPAD – Obsessive-compulsive disorder and Borderline personality disorder

Indian Journal of Psychiatry Volume 60, Issue 2, April-June 2018
Symptom profile
Fear of contamination and washing/cleaning compulsions were the most common presenting symptoms in this study. This finding is similar to that reported in a recent Indian study. Previous studies have reported that children often display compulsions without well-defined obsessions, but in our sample, “predominant compulsions” and “predominant obsessions” subtypes of OCD were uncommon (7.4% and 7.6%) compared to the “mixed” (85%). It is interesting to note that miscellaneous obsessions (34.6%) and compulsions (45.2%) were next most common symptoms after contamination and washing-related symptoms. Miscellaneous obsessions (62%) and compulsions (47%) were common in an earlier study from our center. Often, enough attention is not given to these symptoms even when systematically assessed and are excluded even from factor analytical studies. It is possible that miscellaneous types of symptoms are frequently found in children but often ignored. That these symptoms were associated with poor outcome (discussed later) emphasizes the need to evaluate them systematically.

Comorbidity
While comorbidity was found in less than three-fourth of the sample, rates of disruptive behavior disorders (ADHD in particular) and tic disorders (Tourette syndrome in particular) were very low. ADHD is considered by some to be a developmental marker of juvenile OCD. Studies from other parts of the world have reported high rates of comorbidity with ADHD. In the study by Leonard et al., the rate of ADHD was 26% and in the studies by Geller et al., the rates of ADHD was as high as 57%. The 6.6% rate of ADHD in this study is similar to the low rates of 3%–18% reported in three previous studies from this center which assessed comorbidity using structured instruments. A recent Indian epidemiological study reported 28% prevalence of ADHD in adolescents with OCD. Our finding suggests that a majority of juveniles seem to have OCD that is not comorbid with ADHD. However, low rate of ADHD does not rule out a possibility that ADHD + OCD may be a developmental subtype of OCD. Even the rate of conduct disorder is low in our sample (2%).

The relationship of comorbid Tic disorders with early onset OCD is of considerable interest. The rate of “any” tic disorder was low (9.9%), but rate of Tourette’s syndrome (TS) (1.8%) and chronic motor tics (2.9%) was even lower. In the previous Indian studies from this center, rates of TS and other tics have varied from 11%–15% to 17%–59%, respectively.

Recent Western studies with large sample of children and adolescents have reported high rates of comorbid anxiety disorders, affective disorders, tic disorders, and disruptive behavioral disorders compared to the findings of our study [Table 5]. Data on comorbid mood and anxiety disorders from an earlier study at our center showed that the rates were definitely less when compared to the recent Western studies. The finding of low rates of comorbid anxiety, mood, tic and disruptive behavioral disorders in the present study is similar to such findings in the studies on juvenile OCD done at our center about two decades ago.

The main strength of this study is the large sample. The obvious drawback of the study is the retrospective study design. However, the diagnosis in each case record is reached only after interview with both the child and parent. To minimize selection bias, those cases where a diagnosis of OCD could not be made confidently were not included in this study. No structured evaluation instruments were used when the detailed assessments were done. However, the assessments follow a prespecified topical format and information in all areas are systematically collected. A consultant in child psychiatry confirmed the diagnosis for each patient. Each patient has been seen by a mean of 5 clinicians during their treatment at our center. A large number of patients did not have even a single follow-up. If the reasons for not reporting for a follow-up included no perceived improvement in the condition, this might be a possible source of bias.

One finding of this study is the low rate of OCD among the first-degree relatives of patients. Parental axis I disorder has been reported in Leonard et al.’s study as predicting a worse outcome at follow-up. Other studies have reported that family history may not be as predictive.

Another main finding of this study is that 150 of the 277 (54.5%) patients in whom outcome data was collected, had poor prognosis at follow-up. Only short-term outcome can be commented upon in this study and may represent an initial good response to medication. A good short-term outcome to medication has been associated with good medium-term outcome in one study. While being consistent with the previous follow-up from this center, this is in contrast to the more guarded prognosis reported in most other studies, though in the meta-analysis by Stewart et al., the illness did not persist as a full clinical syndrome in majority of the patients in two-thirds of the studies reviewed. Severity of illness, need for hospitalization, early onset, and psychiatric comorbidity were linked to a greater persistence of the illness. Palermo et al. reported that 42% experience a remission by early adulthood and that primary hoarding symptoms predicted a worse life quality. Storch et al. reported that contamination/cleaning and aggressive/checking dimensions as well as low insight, OCD symptom severity, family accommodation, and depressive symptoms as predictors of poor outcome. Micali et al. reported poor outcome in 41% of patients with duration of illness being the main predictor of such outcome.

In the Pediatric Obsessive Compulsive Treatment Study, Garcia et al. reported on predictors and moderators of
treatment outcome in patients randomly assigned to sertraline therapy, CBT, or combination treatment; patients with a family history of OCD were not likely to benefit from CBT alone, but responded to combination therapy; those with a less severe illness, less functional impairment, greater insight, fewer externalizing symptoms, and lower levels of family accommodation showed greater treatment response.\[6,8\]

It is important to note that 92% of our sample received treatment with SSRI’s. In only 16 (3.2%) patients, cognitive behavior therapy was used without accompanying medication. It is not clear whether the favorable outcome is due to lesser severity of illness, especially in self-referred cases. It is also possible that improvement is due to medications per se in a review of 21 studies of over 1300 pediatric patients, Mancuso et al. reported the efficacy of serotoninergic medications in the short- and medium-term treatment of OCD.\[6,8\] If so, initiating some form of treatment, even with pharmacotherapy alone, would benefit children and adolescents with OCD. This might be more relevant where the facilities or access to psychotherapy are limited.

**CONCLUSION**

It is possible that juvenile OCD has good outcome even with drug treatment alone and that prognosis may not be as poor as previously envisaged. The natural course and outcome of OCD in children and adolescents will however need to be studied further.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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