



Gender differences in obsessive-compulsive disorder: Findings from a multicentric study from northern India



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ABSTRACT

Obsessive-compulsive disorder (OCD) is phenotypically heterogeneous. Gender is an important factor mediating this heterogeneity. We examined gender differences in a large sample ($n = 945$) of OCD patients under a multicentric study in India. Cross-sectional assessments were done on consecutive adult (> 18 years) treatment-seeking patients with a DSM-5 diagnosis of OCD. Subjects were assessed on Structured Clinical Interview for DSM-5-Research Version for comorbid psychiatric illnesses, Yale Brown Obsessive Compulsive Scale for OCD phenomenology and symptom severity, Brown Assessment of Beliefs Scale for insight, Beck's Depression Inventory for severity of depressive symptoms, and the Obsessive Beliefs Questionnaire. On multivariate backward Wald logistic regression analysis, males (59.7%) had more years of education, had a higher rate of checking compulsions and comorbid substance use disorders. Women were more likely to be married, more commonly reported precipitating factors, had a higher rate of hoarding compulsions and comorbid agoraphobia. Findings from this large study validate gender as an important mediator of phenotypic heterogeneity in OCD. The mechanistic basis for these differences might involve complex interactions between biological, cultural and environmental factors.

1. Introduction

Population prevalence of OCD varies between 0.5–2% (Fontenelle et al., 2006; Gururaj et al., 2016). OCD ranks among the top 10 mental illness related causes of disability (Eaton et al., 2008). OCD has neurobiological underpinnings. Hypogyrication in the parietal, insular,

temporal and frontal regions (Rus et al., 2016) is seen in patients with OCD, along with alterations in white matter integrity, influenced by glutamatergic, and dopaminergic gene polymorphisms (Gasso et al., 2015). Neurobiological discovery is hampered by the phenotypic heterogeneity of this disorder. OCD is quite heterogeneous in symptom dimensions, age at onset, comorbidities, etc. (Lochner and Stein, 2003;

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Miguel et al., 2005).

Gender is, plausibly, a key mediator of phenotypic variation in OCD (Mathis et al., 2011). This is expounded by the predominance of females in late onset OCD (Sharma et al., 2015), and illness onset or exacerbations associated with reproductive life cycle stages (Frydman et al., 2014; Williams and Koran, 1997). Even though with comparable prevalence rates (Lochner and Stein, 2001), males have a younger age at onset (Torresan et al., 2009), a higher familial loading, and a more severe, continuous course of illness; whereas females have higher rates of 'acute' onset, episodic course of illness with identifiable precipitating factors (Castle et al., 1995; Fontenelle et al., 2002; Tukul et al., 2004). Certain symptom dimensions seem to be 'gender-related', e.g. sexual, religious, and symmetry related obsessions in males, and contamination and hoarding symptoms in females (Bogetto et al., 1999; Castle et al., 1995; de Mathis et al., 2006; Jaisooriya et al., 2009; Labad et al., 2008; Lensi et al., 1996; Lochner et al., 2004; Torresan et al., 2009). Gender differences have also been reported for comorbid illnesses – females have more depressive disorders and eating disorders, while males have more social phobia, tic disorders and substance use disorders (Bogetto et al., 1999; Torresan et al., 2013). Gender differences in age at onset, comorbidities, and symptom dimensions indicate possibly different etiopathogenetic mechanisms underlying the disorder. The influence of psychosocial factors, which could differ across cultures, on help-seeking behavior could affect *apparent* gender differences. It is therefore essential to replicate gender differences in large samples of OCD subjects, from culturally different backgrounds. This would help tease out differences emanating from the socio-cultural context from those resulting from a biological effect of gender.

A couple of Indian studies have been published on gender differences in OCD from one centre in the southern part of the country (Cherian et al., 2014b; Jaisooriya et al., 2009). Over its vast stretch, India varies substantially in literacy rates and socio-economic status, variables that would play an important role in help-seeking behavior, especially in the area of mental illnesses. The data for the present paper was collected as part of a multi-centric hospital-based study conducted predominantly in northern India. We collected data on a large sample ($n = 945$) of treatment seeking individuals with OCD. In the present paper, we focus on gender differences in the sample. The main aim of the original study was to identify phenotypic clusters in OCD by carrying out broad phenotypic characterization (demographic details, symptom dimensions, obsessive beliefs, insight, obsessive-compulsive spectrum disorders) and using cluster analytic methods. This work is still ongoing.

2. Method

A uniform research protocol was followed and Institutional Ethics committees at all participating centres approved the study. Psychiatrists experienced in diagnosing and treating OCD supervised data collection at each center.

2.1. Study design & sample

At 16 participating centres (government/private-run, teaching/non-teaching institutions predominantly in the northern part of India), treatment-seeking subjects, aged ≥ 18 years with a DSM-5 (American Psychiatric Association, 2013) diagnosis of OCD were recruited over a period of one year. Those who consented were included. Subjects were excluded if they had a history of Psychosis or Bipolar disorder antedating the onset of OCD, Intellectual Disability, Autism spectrum disorder, Dementia, Organic Brain syndrome, obsessive Compulsive symptoms occurring as part of a general medical or neurological disorder, and medication or substance-induced symptoms. Cross-sectional in-person interviews were carried out.

2.2. Tools

Data was collected on a specifically designed proforma to record sociodemographic and clinical details such as comorbid diagnoses, age at onset of illness, duration of illness, family history. A detailed psychiatric assessment was performed using the *Structured Clinical Interview for DSM-5-Research Version (SCID-5-RV)* (First et al., 2015). The SCID-5 is a semi-structured interview for making diagnoses of psychiatric disorders as per the DSM-5. It can be used by clinicians or other trained mental health professionals. The 'Research Version' (SCID-5-RV) is a comprehensive tool that generates current and lifetime disorders. OCD phenomenology and symptom severity were assessed using the *Yale Brown Obsessive Compulsive Scales (YBOCS)* – checklist and symptom severity (Goodman et al., 1989a,b). YBOCS is the most widely used instrument used to assess OCD symptoms and their severity. Increasing scores correlate with deterioration in quality of life and increase in disability (Eisen et al., 2006). *Brown Assessment of Beliefs Scale (BABS)* (Eisen et al., 1998) was used to assess insight. BABS rates the degree of conviction and insight into pathological thoughts and beliefs. It is useful in patients with OCD who typically show varying degrees of insight into illness. *Beck's Depression Inventory (BDI)* (Beck et al., 1996) was used to assess the severity of depressive symptoms in patients; depression is common in OCD patients and it can affect symptom severity (Yap et al., 2012) and treatment outcome (Overbeek et al., 2002). *Obsessive Beliefs Questionnaire (OBQ)* (Obsessive Compulsive Cognitions Working Group, 2005) is a tool developed by the Obsessive-compulsive cognitions workgroup to ascertain beliefs posited to play an important role in the development and maintenance of obsessive-compulsive disorder. A 44-item version, used in this study, was developed from factor-analysis of an 87-item original questionnaire. The OBQ measures both cognitive (responsibility & threat estimation, perfectionism and intolerance for uncertainty) and meta-cognitive (importance of controlling thoughts) belief patterns; these could be differentially associated with OCD symptom dimensions and worry (Myers et al., 2008).

2.3. Statistical analysis

Univariate analyses for gender differences were carried out with Student's *t*-test for continuous variables and chi-squared test for categorical variables. Multivariate binary backward (Wald) logistic regression analysis was carried out on variables showing significant differences on univariate testing, to estimate the *male: female odds ratios*. All tests were two-tailed and statistical significance was fixed at $p = 0.05$. "R" version 3.4.1 was used for all statistical tests.

3. Results

A total of 945 subjects were recruited. Of the 16 centres, 4 centres contributed > 100 patients each (range 100–120); 9 centres contributed between 40–60 participants each; the remaining 3 centres contributed 20 or less participants. All patients were recruited from outpatient services. Most of the subjects were recruited from Government run institutions ($n = 785$, 83.1%) and teaching centers ($n = 887$, 93.9%). Only 7% of the sample ($n = 67$) was treatment-naïve; 13% had a treatment duration ≤ 3 months, while another 20% had been on treatment for 4–12 months. Thus, 60% of the sample included in this study was patients on long-term treatment and follow-up. Mean age of the sample was 32.62 ± 10.34 years (range 18–72 years). Males formed 59.7% of the sample. Percentage of males varied between 40–80% across individual centres. 2 of the 16 centres had 40–50% males, 9 centres had 50–60% males, 3 centres had 60–70% males and 2 centres had $> 70\%$ males. There was no difference in gender distribution between subjects recruited from teaching/non-teaching or government/non-government centres. The socio-demographic and clinical profile of the sample is presented in Table 1 below.

As seen in Table 1, on univariate analysis males were younger, more

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