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A clinical study of multi-dimensional model of Obsessive Compulsive Disorder (OCD)

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ABSTRACT

The present study was conducted with an aim to study multi – dimensional model of OCD and to find relation of OCD symptom severity with insight. Study was done on 100 patients of OCD who attended psychiatry OPD for first time with age range between 14-60 years. The data was collected using Y-BOCS and insight scale. The data was analysed using SPSS software. The findings of study are: Out of a total of 100 patients 56% were male and 44% were female. Most of the patients were having severity ranging from moderate to severe and correlation analysis between severity score of OCD and insight score showed positive correlation. The contamination obsessions (29.93%) were most common obsessions in sample, followed by aggression (27%), pathological doubts (15.2%), sexual (7.3%), preoccupation with symmetry 6.9%, religious 5.1% and hoarding obsessions (1.63%). Cleaning and washing were most common compulsion forming 40.4% of the total, followed by checking (23.5%), miscellaneous (13.2%) and hoarding compulsions forming 1.4% of total compulsion. By factor analysis 16 factors with eigen value more than one were found but the overall significant observed factors were 6, when cut off point for factor loading was taken as correlation of ≥ 0.50.

Keywords: Insight, OCD,

Introduction

The obsessive compulsive disorder (OCD) is a severe chronic neuropsychiatric illness affecting 2-3% of adult, characterized by obsession and compulsion. The obsession are persistent, intrusive and distressing images, thoughts or impulses whereas compulsion are repetitive behavior or mental acts, the patients feels driven to perform, to prevent or to reduce distress or to prevent feared events or situation.

The OCD is now recognized as a common and treatable form of major mental disorder. Prevalence of OCD has been increasing over the years because of better recognition of this disorder by the clinician and increasing number of patients coming for treatment. The Epidemiological Catchment Area (ECA) survey in 1984 in United State reported it as 4th most common psychiatric disorder with a prevalence of 1.6% over 6 months and life-time prevalence of 2.5%.[1-2]

Although standard nomenclature regards OCD as a unitary nosological entity, patients typically display a wide variety of obsessions and/or compulsions of varying severity. The diversity of demographic and clinical characteristics, nature of OCD symptoms (predominance of obsession or compulsions), associated comorbid disorders and response to treatment

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interventions, suggest that important subtypes of OCD may exist. However, earlier attempts for symptom-based taxonomies have met with limited success. Indeed, the categorical studies that used mutually exclusive subgroups of patients (e.g. checkers versus washer) to determine a specific relationship with clinical variables such as psychopathology, response to treatment, or genetic and neurobiological variables were relatively uninformative, and follow-up studies reported important changes in constellation of symptoms overtime.[3-5] In contrast to these, more recent statistical approaches, based on factor analysis and taking into account the complexity of OC symptoms seen in patient, tended to identify dimensions that could be more effective in symptom based taxonomies and finding suggest that they even remain stable overtime. These studies suggest the presence of certain broad symptom domains that capture the heterogeneity of OC symptoms. The dimensional approach might help guide research on neurobiology and treatment of OCD. This approach may help in developing specialized treatment for each type of symptom of patient, so one of aim of our study is to study dimensions of OCD by factor analysis.

Evidence for patients with OCD have a range of insight has been increasing. It remains to be seen whether patients with poor insight have different course, symptom dimensions patient response than patients with better insight, therefore present study is to explore the multidimensionality of OCD in relation to level of insight. **AIM** - To delineate the dimensions of OCD by factor analysis. To compare the clinical presentation in different dimensions on the basis of level of insight.

Review of Literature

The multi-dimensional of OC symptoms was studied by Summerfeldt et al (1999) which also support the multi-dimensionality of OCD. It was performed on large sample of

OCD adult patient to test different models of symptom grouping. Using confirmatory factor analysis, they examined four model: a single factor (i.e. OCD as a single dimension), a two-factors (i.e. obsession and compulsion), the three factor model of Baer, and four factor model and found that only model composed of four factors fitted adequately. However, parameter estimates showed within factor heterogeneity, as well as overlap between factors, most notably between factor 1 and 3.[6]

A similar type of study done by Mataix et al (1999) in which 354 out patients with primary OCD were administered Y-BOCS-CL and its 13 main symptom categories were factor analysed by using PCA. The identified dimensions were then entered into multiple regression models as outcome predictor of response to selective serotonin reuptake inhibitor (SSRI); they identified five factors that explained 66.5% variance in outcome; symmetry/ ordering, hoarding, contamination/ cleaning, aggressive/ checking and sexual/ religions obsession. The identified symptoms dimension are congruent with those identified in early reports and patients vary in their response to treatment with SSRI. The presence of hoarding obsession and compulsion is associated with poor response to SSRI.[7]

Mataix-Cols et al (2002) did two year follow up study to explore the symptom stability in adult OCD and reported that symptoms dimensions appeared to be more stable over time. Although there was decrease in intensity of dimensions, not correlated to overall reduction of severity of disorder, shift from one dimension to another were rare.[8]

Mataix-Cols et al (2006) recently summarized this literature involving over 2000 patients and found strong evidence of at least four symptom dimensions and concluded multidimensional model of OCD propose a middle ground between lumping and splitting perspective and disorder can be better understood as a spectrum of multiple potentially overlapping syndrome.[9]

Indian studies

One study by Ray (1964) evaluated 42 consecutive cases in New Delhi. It was observed that most patients fell into the category of Obsessive ruminative state & Obsessive Compulsive state. The content was predominantly about the themes of contamination and aggression. Moreover, an excess of divorcee or separated ones in the sample was found. Also the patients were found to be more educated and economically sound.[10]

There have been other studies by Akhtar (1979); Akhtar, Wig and Varma (1975) and Akhtar Varma and Pershad (1975) from India, which have observed the phenomenology and other socio-demographic variables, and found similar results.[11-13]

Among the various demographic variables, the studies concluded that the form of the obsessions is affected primarily by the intrinsic factors (such as age, sex, IQ), while the content is influenced by more extrinsic factors (such as religion, locality, and social class). The marital life of the cases was also compared with those of the western counterparts and it was found that these patients had a fairly well adjusted married life and satisfactory sexual relations.

Study done by Khanna and Kaliperumal (1990) by using cluster analysis, founded several clusters which involved washing, checking, thoughts of past and embarrassing behavior and depression. Eighty nine percent could be fitted into at least one cluster; over half could be fitted into at least one cluster; over half could be fitted into only one cluster and

washers and checkers made up more than half of sample studies.[14]

In a study done by Khanna et al (1992) on 32 subjects of OCD for explaining different dimensions of OCD, the authors found intrusiveness and repetitiveness formed relatively discrete dimensions, while resistance, distress, irrationality, interference and ease of dismissal tended to be associated within themselves. An anxiety provoking effect was an additional dimension observed among compulsion.[15]

In a study by Khanna and Girishchandra (2001), the authors studied the phenomenology of 202 patients and found that the most commonly occurring obsessive symptoms were obsessional doubts about routine activities, followed by obsessions about dirt or germs, bodily wastes or secretions. The most commonly occurring compulsions were hand washing, followed by bathing and grooming and the need to ask, and need for reassurance Based on the symptoms seen, they did a factor analysis, and obtained five factors, or five subtypes. These are:

(1) Contamination obsessions and washing compulsions. (2) Symmetry and hoarding obsessions and arranging and hoarding compulsions. (3) Doubts, aggressive obsessions and checking compulsions. (4) Superstitious fears and behaviors, mental rituals, need to touch / tap /rub. (5) Sexual and religious obsessions.[16]

Material and Method

Present study was conducted in department of psychiatry Pt. B.D. Sharma, PGIMS, Rohtak. This is a prime institution in state of Haryana. For the present study 100 consecutive new patients of OCD attending psychiatry OPD were taken. Inclusion Criteria Age between 14-60 years, Clinically diagnosed case of obsessive compulsive disorder who fulfill DSM-IV criteria, Willing to give valid written informed consent.

Exclusion Criteria

Co-morbid physical illness, Co-morbid substance abuse, History of any neuro-psychiatric illness before the onset of OCD, Un-willing to give valid written informed consent.

Instruments used

1. Diagnostic and statistical manual – 4th edition (DSM-IV)[17.] Yale-Brown obsessive compulsive scale (Y-BOCS) (Goodman et al.1989a). This scale rates obsessive compulsive symptoms in patients diagnosed as having OCD. This scale has two components (1) a symptom checklist and (2) severity rating scale., **Insight scale-**The insight scale has 32 items to be answered yes, no or do not know. The scale each can be administered by one observer but can also be self-rated. Questions pertaining to following areas are included in the scale: Hospitalization, Mental illness in general, Perception of being ill, Changes in the self, Control over the situation, Perception of the environment, Wanting to understand one's situation

Procedure: The patients were interviewed individually. Inclusion and exclusion criteria were applied and those who fulfilled the criteria and consented for the study were taken into study. Diagnosis was confirmed by the consultant as per DSM-IV criteria and semi-structure performa for socio-demographic profile fulfilled and Y-BOCS check list and Insight scale were applied and data was collected.

Result

Table 1 describe the age and sex distribution of study population. There are 56 male and 44 female in study population. There was preponderance of the younger subjects in the sample, 83% were below 40 years of age.

Table 1. Age And Sex distribution of population

Age range	Male (%)	Female (%)	Total
<20	9	7	16
21-30	28	15	43
31-40	9	15	24
41-50	4	11	15
51-60	2	0	2
	56	44	100

In the study sample most patients were literate to some degree. Majority (47%) had studied up to matriculation, 29% of subjects had graduate and / or master degree. Twenty five percent of the subjects had education less than middle level. (Table 2)

Table 2. Education Status of the study population

Status	Male	Female	Frequency	Cumulative percentage
Illiterate	0	2	2	2
Primary	2	5	7	9
Middle school	13	3	16	25
Matriculate	12	10	22	47
Senior secondary	12	9	21	68
Graduate	7	9	16	84
Masters	9	4	13	97
Others	2	1	3	100
Total			**100**	

The table 3 shows the family characteristics of the patients. As shown in table most of the patients were married and belonging to nuclear family and were from rural background.

Table 3. Characteristics of family

Variable	Number	Percentage
1. Marital status		
a. Married	70	70
b. Unmarried	30	30
2. Family type		
a. Nuclear	78	78
b. Joint	22	22
3. Domicile		
a. Urban	46	46
b. Rural	54	44

An analysis of obsessive symptoms revealed that preoccupation about contamination was the dominant symptom (29.93%) followed by aggression (27%), sexual obsession (7.3%), preoccupation with symmetry (6.9%), religious obsession (5.1%) and hoarding (1.63%) of total obsession. 15.2% had miscellaneous obsession with doubts. (Table 4)

Table 4. Symptomatic presentation (obsession)

Obsessions	Frequency	Percentage
Aggression	133	27
Contamination	147	29.93
Sexual	36	7.3
Hoarding	8	1.63
Religious	25	5.1
Symmetry	34	6.9
Miscellaneous	75(20)	15.2
Somatic	33	6.74

Table 5 shows the symptomatic presentation of compulsions in the patients. It is clear from the table that cleaning and washing compulsion were most dominant (40.4%), which were followed by the checking (23.5%), repeating (10.9%) ordering (5.4%), counting 4.8% and hoarding 1.4%.

Table 5. Symptomatic presentation (compulsion)

Compulsion	Frequency	Percentage
Cleaning and washing	141	40.4
Checking	82	23.5
Repeating	38	10.9
Counting	17	4.8
Ordering	19	5.4
Hoarding	5	1.4
Miscellaneous	46	13.2

Table 6 shows division of the patients according to YBOC severity score and its relationship with insight score. The sample was grouped into mild to extreme degree on the basis

Table 6. Distribution of patients according to severity and its relation with insight score (Group A and B)

Severity score	Frequency	Mean±SD	Range	Group A item	Group B item
Mild	8	8±0.75	7-9	18.75±4.06	12.12±2.031
Moderate	18	15.88±2.72	12-19	20.5±3.03	12.67±2.20
Severe	62	23.61±1.43	21-26	22.01±1.60	13.95±0.38
Extreme	12	31.75±2.83	31-33	22.41±0.514	13.94±1.44
	100	21.95±6.05		21.56±2.27	13.63±1.21

of Y-BOC severity score. The severity was correlated with insight score calculated on preliminary insight scale. The Pearson's product moment correlation coefficients were

calculated. The data shows that severity of obsessive symptoms correlated with insight scale scores as depicted in graph. The YBOC severity score was significantly correlated with the insight score (correlation analysis between insight score of group A and B items was Y-BOC severity score gave r value 0.395 and 0.426 which was significant at $p<0.005$) as shown in scatter diagram.

Table 7. Varimax rotated factor matrix along with Eigen value, percentage of variance and cumulative percentage

Factor	Total eigen value	% of variance	Cumulative %
1	7.852	13.775	13.775
2	5.537	9.714	23.489
3	4.268	7.488	30.977
4	3.901	6.843	37.820
5	3.119	5.472	43.293
6	2.919	5.121	48.414
7	2.726	4.783	5.3197
8	2.640	4.632	57.829
9	1.932	3.390	61.219
10	1.853	3.251	64.471
11	1.592	2.793	67.264
12	1.367	2.393	69.663
13	1.335	2.342	72.005
14	1.210	2.122	74.127
15	1.146	2.010	76.13
16	1.018	1.787	77.927

A principal component analysis was done on the items of YBOCS symptoms checklist. The items were then factor analysed using varimax rotation. 16 factors with Eigen value over one accounted for a cumulative variance of 77.927 were found. The table 7 gives the factor loading for 16 factor. It is clear from the table that factor one account for 13.77% of variance and cumulative percentage for 8 factors was 57.82%

Factor analysis of individual items

Table 8. (1-6) gives the individual items loading for different factors.

1. Item loading for Factor I

Item	Name	Loading
Y23	Hoarding Obsessions	0.789
Y3	Violent or horrific images	0.730
Y7	Fear will steal things	0.683
Y9	Fear will be responsible for something else terrible happening	0.661
Y18	No concern with consequences of contamination other than how it might feel	0.644
Y8	Fear will harm others because not careful enough	0.637
Y4	Fear of blurting out obscenities or insults	0.633
Y5	Fear of doing something else embarrassing	0.600
Y6	Fear will act on unwanted impulses	0.594
Y19	Forbidden or perverse sexual thoughts, images or impulses	0.577
Y20	Content involves children or incest	0.576
Y30	Fear of not saying just the right thing	0.573
Y25	Excess concern with right/wrong, morality	0.563
Y24	Concerned with sacrilege and blasphemy	0.514
Y1	Fear might harm self	0.514

2. Item loading for Factor II

Item	Name	Loading
Y16	Concerned will get ill because of contaminant	.720
Y41	Excessive or ritualized handwashing	.691
Y11	Concern with dirt or germs	.578
Y42	Excessive or ritualized showering, bathing, toothbrushing, grooming, or toilet routine	.750
Y43	Involves cleaning of household items or other	.557
Y15	Bothered by sticky substance or residues	.535
Y12	Excessive concern with environmental contaminants	.520

3. Item loading for Factor III

Item	Name	Loading
Y32	Intrusive (non-violent) images	.568
Y36	Colours with special significance	.530

4. Item loading for Factor IV

Item	Name	Loading
Y21	Content involves homosexuality	.656
Y20	Content involves children or incest	.485

5. Item loading for Factor V

Item	Name	Loading
Y29	Fear of saying certain things	.774
Y54	Ordering / arranging compulsion	.575
Y27	Symmetry obsession Not accompanied by magical thinking	.549

6. Item loading for Factor VI

Item	Name	Loading
Y58	Need to touch, Tap, or rub*	.509

The first factor that represented 13.775% of total variance with a loading ranging from 0.53 to 0.78, comprised of mixed obsessions mostly of aggression, sexual, religious, hoarding and miscellaneous obsessions. The second factor contained obsessions of contamination and cleaning and washing compulsions, comprising of 9.7% of total variance with loading ranging from 0.52 to 0.72. The third factor consists of miscellaneous obsessions (non violent images and colour with special significance) with 6.8% of total variance, with loading ranging from 0.53 to 0.56. The fourth factor reflects sexual obsessions with variance of 6.483 and loading ranging from 0.48 to 0.65. The fifth factor consists of obsessions regarding symmetry along with miscellaneous obsession of fear and represents 5.47% of total variance with loading ranging from 0.54 to 0.77. Factor 6 consists of miscellaneous compulsions (need to touch / tap or rub), representing 4.63% of total variance with loading value of 0.509. Somatic obsessions were moderately co-related with miscellaneous obsession in factor 3, but were not included in factor 3 because chosen cut off point for inclusion was a co-relation of 0.50 or higher. The chosen cut off point for factor loading was taken 0.50 for this study to increase the validity of dimension. For factor 7 to 16 none items had value more than this, so overall significant observed factor were 6.

Discussion

OCD is a chronic debilitating condition that is one of the most common causes of mental disability. The condition is phenomenologically diverse and the presentation are variable across the patients and time. The complexities and diversities of presenting symptoms make OCD difficult to diagnose and manage. The categorical approach to OCD had been fraught with difficulties to explain diversities. In fact the researches have pointed out the limitation of both the unitary as well as categorical concept.

In the present study, the sex ratio was tilted slightly towards the male side with 56 males and 44 females comprising whole of the sample. The majority of the patients belonged to young and the middle age groups. The result are comparable to the results of the cross-national study by National Collaborative Study Group (1994) (1:1.67: ranging from 1.25:1 in Munich to 1:3.8 in New Zealand). The above ratio is also comparable to that found in other hospital based studies. There are other studies, which have found greater prevalence in males as compared to females (Okasha (2:1)[18], 1994; Khanna (1:0.65), 1987[19]). The male preponderance is explained due to the socio-cultural taboos, prevalent in Eastern communities, in which women feel hesitant to consult a doctor, and moreover, certain rituals like washing and cleaning are deeply ingrained in their societies and perhaps conform to their social role of home maker so lesser number of women perceive their symptoms absurd or irrelevant.

Most of the patients were of younger than 30 years of age (59%) while 17% of the patients were older than 40 years of age. These results are in agreement with recent studies {Rasmussen (1992)[20], Khanna (1987)[19]} which have found frequencies ranging from 60% to 70%, of the patients younger than 25 years of age. Some older studies by Pollitt (1957)[21] and Kringlen (1965)[22] had found that patients presented at a later age (27-35 years). This could be possibly due to scarce availability of psychiatric facilities in earlier times. Two interlinked reasons can be put forward to explain this – the greater awareness in public regarding the condition because of education and media coverage, and the availability of psychiatric services.

An attempt was made to see the educational status of study population. Most of the patients were educated and there was a preponderance of males in higher study group. Studies conducted in the past by Dutta, Rasmussen, Black found that there was an excess of individuals with higher intelligence in a significant proportion of patients, the career achievement level however was found to be lower than the educational attainment. Khanna also observed that patients with higher education status present early for consultation than those with lower educational level.[19] The findings also reflect the general composition of the society, where more males are having higher education then female as in our society the education is linked to the carrier and male is supposed to be the main bread earner in the family.

When the characteristics of family like relation of marital status, family structure and domicile of the family were analysed. It was found that most of person were married. Although marital status was not found to be predictor of course in various follow up studies, a recent prospective study of 107 subjects found that being married significantly increased the probability of partial remission, with married patients more than twice as likely to remit as unmarried one (Stekette et al.1999) . Most of the patients were from nuclear family (78%) and from rural background (54%).[23]

On analyzing overall symptomatic presentation we observed that most common observation were of contamination followed by aggression, miscellaneous obsession with doubts, sexual, symmetry, religious and hoarding and most common compulsion were washing and cleaning followed by checking, miscellaneous, repeating, symmetry, counting and hoarding obsession. The result of our study are consistent with study done previously by the Rasmussen and Eisen (1998) in which they observed fear of contamination as most common obsession, followed by pathological doubts, aggression, sexual and religious as least

common obsessions.[24] They also observed washing / cleaning as most common compulsion followed by need to ask with hoarding as least common compulsion. One of the many possible explanation for this may be that in our culture a lot of emphasis is placed on the purity and cleanliness, even cleansing is mandatory at the start of most rituals. Since the culture and society is ritualistic in our country so a lot of emphasis is placed on the ideas relating to contamination and washing. We also observed that these contamination obsessions were more common in females as compared to the aggressive obsessions which were more common in males. This may be due to the fact that in our culture females mostly does house-hold work and they are more concerned with contamination and even menstruation is considered as dirty and in some areas even females, are not allowed to do religious ceremonies while in this period so obsessions related to contamination are more common in the females.

Most of the patients were having severity ranging from moderate to severe. The mean score severity of all patients were 21.95±6.05. The reasons for this may be that patients may recognize that their symptoms are odd but fail to realize that they are a medical problem, even if they recognize the problem they tend to hide it from others. Others may feel that they can handle the problem themselves, or that it will get over by itself or sometimes may feel that no one can help them so they come for treatment only when they have high severity. Mean insight score of group A items was 21.56±2.27 and of group B items was 13.63±1.21. When relation between Y-BOC severity score and insight score was analysed, it was observed that severity score correlated positively with the insight. So as the insight increases in OCD patients, they feel more distress by the obsessive thoughts contrast from those person with poor insight.

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