

Assessment of suicidal behavior in patients of obsessive-compulsive disorder: a cross-sectional study.

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Abstract:

Background: Suicide is a matter of global concern. Suicide is the result of complex interaction among biological, psychological and socio-environmental factors. Obsessive-Compulsive Disorder is a chronic disease that causes significant distress and often marked impairment. Hence, there is fair chance that patients of obsessive-compulsive disorder may experience suicidal thoughts and may even involve in suicidal acts. There is sparsity of data in this context. We conducted this study to assess suicidal behavior in patients of obsessive-compulsive disorder.

Materials and Methods: In this cross-sectional study, 80 patients of obsessive-compulsive disorder were evaluated. Their socio-demographic profiles were recorded. Yale-Brown Obsessive-Compulsive scale was applied to measure severity of obsessive-compulsive disorder. Hamilton Depression Rating Scale was used to assess any co-morbid depression. Suicidal Ideation Scale was applied to measure suicidal behavior.

Results: significant correlation was found between symptom severity of obsessive-compulsive disorder and suicidal ideation. This correlation was found to be independent of severity of co-morbid depression. Among symptom dimensions significant association was found between religious, sexual and hoarding obsession and compulsion with suicidal ideation.

Conclusion: Patients of obsessive-compulsive disorder are at risk of Suicidal behavior.

Key Word: Suicide; Obsessive-Compulsive Disorder.

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I. Introduction

Suicidal Behavior is defined as an act through which an individual harms himself, whatever may be the degree of lethal intention or recognition of genuine reason for their action^{1,2}. About 800,000 people die of suicide every year across the globe and there are many more attempts. 1.4% of all deaths worldwide are caused by suicide and it is the 15th leading cause of death worldwide³. In India the prevalence was around 15/100,000 population³.

Obsessive-Compulsive Disorder is characterized by recurrent obsessive thoughts or compulsive acts that are almost invariably distressing, repetitive and is recognized by the individual as pointless. It is the fourth commonest mental disorder⁴. Epidemiological studies across the world have estimated lifetime prevalence of it to be ranging from 2-3%. However, in India there is only one epidemiological study that estimated life time prevalence of Obsessive-Compulsive Disorder as 0.6% much lower than estimated in European and North American studies^{5,6,7}. Being a chronic distressing anxiety disorder with significant impairment there is a reasonable probability that patients of Obsessive-Compulsive Disorder have suicidal thought, suicidal plans or actually attempted suicide. There are only few studies conducted on suicidal behavior in Obsessive-Compulsive Disorder. Some of them found association between suicidal behavior and Obsessive-Compulsive Disorder^{8,9,10}. We did this study to seek more information in this context.

II. Material And Methods

This cross-sectional study was carried out on patients of Department of Psychiatry in Burdwan Medical College and Hospital, Burdwan, West Bengal from November 2014 to October 2015. Permission was obtained from institution's ethical committee. 80 consecutive patients who were diagnosed primarily with obsessive-compulsive disorder (both male and female) of age 18-60 years were evaluated for in this study after taking informed consent from participants.

Study Design: Cross-sectional observational study.

Study Location: This study was conducted in a tertiary care teaching hospital of West Bengal in the Department of Psychiatry, at Burdwan Medical College, Burdwan.

Study Duration: November 2014 to October 2015.

Sample size: 80 patients.

Sample size calculation: We as estimated the sample size by considering the population to be 470 based on the previous records from the out-patient department. We considered confidence level as 90% and confidence interval as 10%. Calculating this we got a sample size of 80.

Subjects & selection method: 80 consecutive patients presented with obsessive compulsive disorder at the out-patient department of department of psychiatry in Burdwan Medical College were evaluated.

Inclusion criteria:

1. Patients diagnosed with obsessive-compulsive disorder.
2. Patients of both genders.
3. aged between 18 and 60 years.

Exclusion criteria:

1. Co-morbid chronic medical illness.
2. Co-morbid psychotic disorder.

Procedure methodology

After written informed consent was obtained, a Specially designed Semi-Structured questionnaire was used to collect data against age, sex, religion, residence, education, occupation, marital status, family type, socio-economic status (modified Prasad's criteria), duration of obsessive-compulsive disorder, duration of treatment delay, family history of OCD and any history of previous attempt of suicide.

We used diagnostic guideline for obsessive-compulsive disorder from International Classification of Disease, 10th revision, Diagnosis and Research (ICD-10 DCR).

Yale-Brown Obsessive Compulsive Scale (Y-BOCS) was administered to each patient. It constitutes Y-BOCS Symptoms Check List to determine occurrence of different dimensions of obsessive-compulsive disorder symptomatology and a 19 items severity assessment scale. Each item has 0 to 4 scores. Scores of first 10 items of which 5 are for obsessions and 5 are for compulsions are added to get total Y-BOCS score. The total score ranges from 0-40.

17 items Hamilton Depression Rating Scale (HDRS) was applied to each patient. Item-3 of the scale is about presence of any current death wish, ideas or gestures of suicide or any attempt at suicide. Each item calculated as 0-2 to 0-4 and the total score ranges from 0-50. Score of 7 or less may be considered as normal; 8 to 13 as mild depression; 14 to 18 as moderate; 19 to 22 as severe and 23 above as very severe.

Suicidal Ideation Scale (SIS) was administered. The scale consists of 19 items to evaluate patient's suicidal ideations. The total score ranges from 0 to 38. Higher scores indicate greater suicidal ideation.

Statistical analysis

Collected data were analyzed using Statistical Package for Social Sciences (SPSS) Version-20. Descriptive statistics including Chi-square test was used to analyze various socio-demographic data; Independent-t test was done to compare different parameters used; correlations between parameters were calculated using Pearson's Co-efficient; regression analysis was done to predict variance of outcome variables upon independent variables.

III. Result

Table no 1 : Shows socio-demographic characteristic of the study subjects

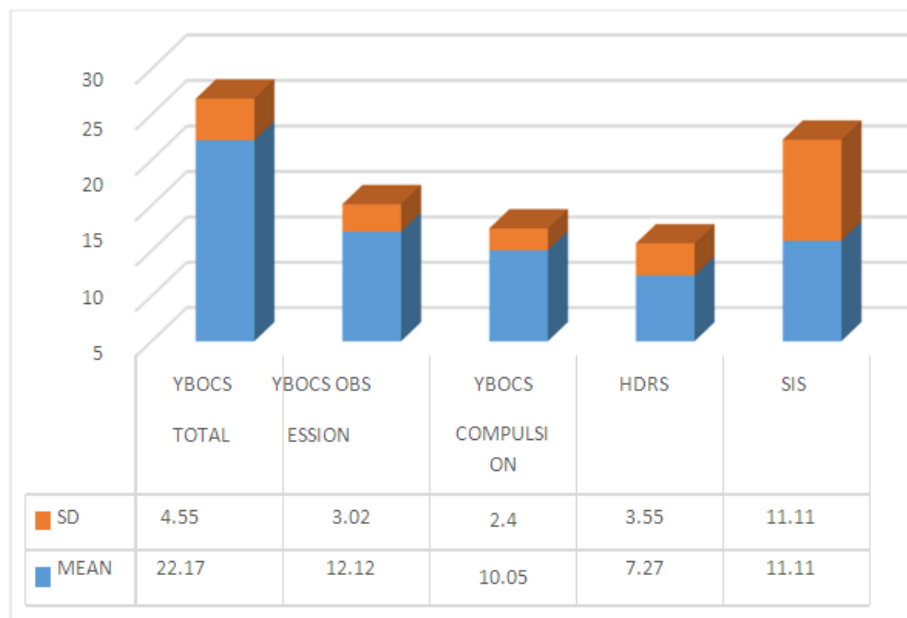
Table no 1. Socio-Demographic Characteristic of sample (n=80)			
Age (Years) Mean ± SD		35.22 ± 1.60	
Variable		Number	Percentage
Sex	Male	32	40
	Female	48	60
Residence	Rural	54	67.5
	Semi-urban	18	22.5
	Urban	8	10
Marital Status	Single	18	22.5
	Married	56	70
	Separated/widowed	6	7.5
Socio-Economic Status	Class-I	8	10
	Class-II	10	12.5

	Class-III		12	17.5
	Class-VI		14	15
	Class-V		36	45

Table no2: Shows clinical characteristic of study subjects.

		Mean	SD
Duration of OCD (months)		68.62	62.38
Duration untreated		39.9	51.49
		Number	Percentage
Family H/O Suicide		34	42.5
Past suicidal attempt		18	22.5
Symptoms Dimensions of OCD			
	Aggressive obsession	57	71.3
	Contamination obsession	60	75
	Sexual obsession	42	52.5
	Hoarding obsession	16	20
	Religious obsession	42	52.5
	Symmetry obsession	31	38.8
	Miscellaneous obsession	29	36.3
	Somatic obsession	31	38.8
	Cleaning compulsion	60	75
	Checking compulsion	65	81.3
	Repetition compulsion	31	38.8
	Counting compulsion	31	38.8
	Ordering compulsion	31	38.8
	Hoarding compulsion	16	20
Miscellaneous compulsion	29	63.8	

The severity of OCD, Suicidal Ideation and Co-morbid Depression was measured and described as means and standard deviations of Y-BOCS, SIS and HDRS respectively and shown in **Table. 3:**



Comparison of Socio-Demographic Profile and Suicidal behavior:

Chi-square test was done to compare between qualitative groups and Independent sample t-test was done to compare difference of mean of SIS score in individual groups. ANOVA and Post Hoc test were done where applicable. Results are shown through Table. 4 to Table. 13.

Table.4: Past History of Suicidal Attempt

	Previous Suicidal Attempt		Chi- square(df)	p-value
	yes	No		
Sex	4	28	3.059(1)	0.104
male				
female	14	34		
Total	18	62		

Table.5: Current Suicidal Ideation

	Current Suicidal Ideation		Chi- square(df)	p-value
	Yes	No		
Sex	12	20	4.82(1)	0.04*
male				
female	30	18		
Total	42	38		

*significant at 0.5 level

Table.6 Comparison of Sex and means of SIS score

Table.6 Comparison of Sex and means of SIS score				
Sex	SIS score(mean±SD)	T	df	P-value
Male(n=32)	7.68±10.08	-2.77	78	0.007**
Female(n=48)	14.33±11.07			

SD= Standard Deviation, **=significant (two sided) at 0.01 level.

Table.7 Comparison of Religion and means of SIS score

Table.7 Comparison of Religion and means of SIS score				
Religion	SIS score(mean±SD)	T	df	P-value
Hindu (n=50)	12.76±11.21	1.29	78	0.262
Muslim(n=30)	14.33±11.07			

Table.8 Comparison of Family type and means of SIS score

Table.8 Comparison of Family type and means of SIS score				
Family type	SIS score(mean±SD)	t	df	P-value
Nuclear(n=40)	12.09±12.11	0.30	78	0.765
Extended(n=40)	11.30±10.16			

Table.9 Comparison of Education groups and means of SIS score

Table.9 Comparison of Education groups and means of SIS score			
SIS Mean Square	F(df)	P-value	
798.22	7.52(2)	0.001**	

**significant at 0.01 level.

Post Hoc test suggested statistically significant mean difference of both 'illiterate' and 'up to class-XII' groups over 'class-XII to graduate' group.

Table.10 Comparison of Occupation groups and means of SIS score

Table.10 Comparison of Occupation groups and means of SIS score	
SIS Mean Square	F(df)P-value

459.45	4.552(5) < 0.001**
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**significant at 0.01 level.

Post Hoc test suggested statically significant mean differences of ‘unemployed’ group over ‘semiskilled’, ‘skilled’ and ‘student’ groups.

Table.11 Comparison of Marital Status and means of SIS score

Table.11 Comparison of Marital Status and means of SIS score		
SIS Mean Square	F(df)	P-value
303.79	2.554(2)	0.084

Table.12 Comparison of Residence groups and means of SIS score

Table.12 Comparison of Residence groups and means of SIS score		
SIS Mean Square	F(df)	P-value
299.35	2.51(2)	0.88

Table.13 Comparison of Socio-Economic groups and means of SIS score

Table.13 Comparison of Socio-Economic groups and means of SIS score		
SIS Mean Square	F(df)	P-value
205.88	1.727(4)	0.153

Comparison of Clinical profile and means of SIS score:

Independent sample t-test and correlation test were done to compare duration of OCD and duration of untreated period with means of SIS score **Table.14:**

Table.14: Comparison of Duration of OCD and Duration Untreated with SIS score			
SIS			
	mean±SD	Pearson's coefficient	P-value
Duration of OCD	68.62±62.62	0.383**	<0.001
Duration Untreated	39.9±51.49	0.160	0.155

**significant at 0.01 level

Comparison of OCD Symptoms Dimensions and means of SIS score is shown in **Table. 15:**

Symptoms Dimensions	SIS Score	Mean ± SD	t(df)	P-value
Aggressive Obsession	Yes(n=65)	12.03±11.26	0.59(78)	0.55
	No(n=15)	10.13±10.68		
Contamination Obsession	Yes(n=60)	10.4±10.6	-1.8(78)	0.075
	No(n=20)	15.5±11.9		
Sexual Obsession	Yes(n=42)	15.69±11.09	3.65(78)	<0.001**
	No(n=38)	7.38±9.42		
Hoarding Obsession	Yes(n=16)	18.06±11.09	2.66(78)	0.009**
	No(n=64)	10.07±10.4		
Religious Obsession	Yes(n=42)	15.69±11.09	3.65(78)	0.001**

	No(n=38)	7.38±9.42		
Symmetry Obsession	Yes(n=31)	11.96±10.83	0.186(78)	0.853
	No(n=49)	11.48±11.4		
Miscellaneous Obsession	Yes(n=29)	9.89±11.89	-1.08(78)	0.283
	No(n=51)	12.68±10.63		
Somatic Obsession	Yes(n=31)	10.09±12	-1.01(78)	0.316
	No(n=49)	12.67±10.52		
Cleaning Compulsion	Yes(n=60)	10.4±10.6	-1.8(78)	0.075
	No(n=20)	15.5±11.9		
Checking Compulsion	Yes(n=65)	12.03±11.26	0.59(78)	0.55
	No(n=15)	10.13±10.68		
Repetition Compulsion	Yes(n=31)	11.96±10.83	0.186(78)	0.853
	No(n=49)	11.48±11.4		
Counting Compulsion	Yes(n=31)	11.96±10.83	0.186(78)	0.853
	No(n=49)	11.48±11.4		
Ordering Compulsion	Yes(n=31)	11.96±10.83	0.186(78)	0.853
	No(n=49)	11.48±11.4		
Hoarding Compulsion	Yes(n=16)	18.06±11.09	2.66(78)	0.009**
	No(n=64)	10.07±10.4		
Miscellaneous Compulsion	Yes(n=29)	9.89±11.89	-1.08(78)	0.283
	No(n=51)	12.68±10.63		

**significant at 0.01 level

Comparison of OCD Symptoms Severity and SIS score:

Pearson’s correlation test between Y-BOCS and SIS was done to assess correlation of OCD symptoms severity and suicidal ideation.

Table.16: Correlation of Y-BOCS and SIS

SIS Total Score		
	Pearson Correlation	P-value
YBOCS		
Total Score	0.740**	<0.001
Obsession		
Score	0.812**	<0.001
Compulsion		
Score	0.446**	<0.001

**=Significant at 0.01 level.

Comparison of Y-BOCS score and HDRS score:

Pearson’s correlation test was done to compare Y-BOCS score and HDRS score. Results are shown in **Table.17**

Table.20: Correlation of Y-BOCS and HDRS		
HDRS Score		
	Pearson Correlation	P-value
YBOCS		
Total Score	0.167	0.138
Obsession		
Score	0.305**	0.006
Compulsion		
Score	0.065	0.564

**=Significant at 0.01 level.

Comparison of Severity of co-morbid depression and SIS score:

Pearson’s correlation test between HDRS and SIS was done to assess correlation of severity of depression and suicidal ideation and shown in **Table no. 18.**

Table.18: Correlation of YBOCS and HDRS with SIS		
SIS Total Score		
	Pearson Correlation	P-value
HDRS SCORE	0.292**	0.009

**=Significant at 0.01 level.

Partial Correlation of YBOCS and SIS scores controlling for HDRS:

Controlling HDRS score partial correlation between YBOCS and SIS scores was done and results are shown in **Table no.19**

Table.19: Partial Correlation between YBOCS and HDRS			
Control Variable		SIS	
		Pearson Correlation	P-value
HDRS	YBOCS	0.769**	<0.001

**=significant at 0.01 level.

Regression analysis to look for Causal Association:

As both Y-BOCS and HDRS was found positively and statistically significantly correlated with SIS score, Regression analysis was done to look for causal association between two variates.

Initially linear regression was done taking SIS score as outcome variable and Y-BOCS TOTAL SCORE, Y-BOCS OBSESSION SCORE, Y-BOCS COMPULSION SCORE and HDRS SCORE as predictors. Result is shown in **Table no. 20:**

Suicidal Ideation Scale Score		
	R-square	P-value
Y-BOCS TOTAL	0.59	<0.001**
Y-BOCS OBSESSION	0.66	<0.001**
Y-BOCS COMPULSION	0.19	<0.001**
HDRS	0.08	<0.009**

Results showed Y-BOCS Total score predicted 59% of variance of SIS score; Y-BOCS Obsession score predicted 66% of variance of SIS score; Y-BOCS Compulsion score predicted 19% of variance of SIS score and HDRS score predicted 8% of SIS score.

When Multiple Linear Regression was done (forced entry method), initially Y-BOCS Total and Y-BOCS Obsession scores were added and in second step Y-BOCS Total, Y-BOCS Obsession and HDRS scores were added as independent variables and SIS score as outcome variable. Result is shown in **Table no. 21:**

Table no. 21:		
Suicidal Ideation Scale score		
	R-square	P-value
Model.1	0.677	<0.001**
Model.2	0.682	<0.001**

It was seen that Y-BOCS Total and Y-BOCS Obsession scores together predicted 67.7% of variance in SIS score whereas Y-BOCS Total score, Y-BOCS Obsession score and HDRS score together predicted 68.2% of variance in SIS score.

IV. Discussion

In this study female (60%) participants outnumbered male (40%) participants. The finding corroborates with majorities of the previous studies that found a female preponderance^{11,12,13,14}.

The mean age of the study population was 35.22±1.6 years that indicates majorities of them belonged to early adulthood.

67.5% of the study subjects were from rural back ground and 45% of the subject belonged to Socio-Economic Class-V (according to modified Prasad's criteria).

The mean duration of Obsessive-Compulsive Disorder was 68.62±62.38 months in consistent with the known fact that OCD is a chronic disease. The mean duration of untreated illness was 39.9 months (standard deviation 51.49) indicating that majorities of the patients presented at the treatment facility late in their illness.

The study found 22.5% of the subjects had previous history of at least one suicidal attempt in their life time. Similar finding was found in previous study¹⁵.

Among clinical dimensions of OCD symptoms, Contamination obsession (75%) and Checking compulsion (81.3) followed by Cleaning compulsion (75%) had the highest occurrence among the subjects. This finding is consistent with the finding of previous study⁵.

The mean Y-BOCS Total score was 22.17±4.55. The mean Y-BOCS Obsession score was 12.12±2.03 and the mean Y-BOCS Compulsion score was 10.12±2.4. This indicates most of the subjects were symptomatic.

The mean HDRS score was 7.27±3.55. The finding indicates many of them had depression of at least moderate severity (HDRS>7). Similar result was found in Previous study¹⁰.

Among 32 male subjects 12 had current suicidal ideation and among 48 females 30 had recently contemplated about committing of suicide. The frequency of suicidal thought was greater among females than in males and the difference was statistically significant (p-value 0.104). Frequency of previous history of suicidal attempt was greater among females (14 out of 48) than in males (4 out of 32). However, the difference was not significant (p-value 0.104). Previous studies also found higher suicidal ideations among females^{16,17,18}.

The mean SIS score was 11.67±11.11. Although SIS score has no specific cut off value most of the studies had taken SIS score 6 or more as severe risk for suicide¹⁸.

The study found significant difference in SIS score among females (p-value 0.007) than males. Previous studies also found higher suicidal ideation among females¹⁶.

The study found significant 'between groups' difference in SIS score in lower two education groups i.e. 'illiterate' and 'up to Class-XII' over upper education group i.e. 'Class-XII to Graduation' (p-value 0.001). This indicates that suicidal ideation was higher among lower education groups.

Significant 'between groups' difference in SIS score was also found in 'unemployed' over 'semi-skilled', 'skilled' and 'student' groups (p-value <0.001) indicating higher suicidal ideation in unemployed subjects.

The duration of OCD was found to be positively correlated (p-value <0.001) with the SIS score indicating higher suicidal ideation among patients who had longer duration illness.

Regarding OCD symptoms dimensions, Sexual obsession (p-value <0.001), Religious obsession (p-value <0.001) and Hoarding obsession and Compulsion (p-value 0.009) showed significant difference in SIS score. Previous studies also found significant difference of SIS score in sexual/religious dimensions¹⁶.

The study found significant correlation of Y-BOCS Total score, Y-BOCS Obsession Score and Y-BOCS Compulsion score with SIS score. This suggests that patients who had higher severity of OCD was at higher risk of suicide. In previous studies similar correlation with SIS score were found with Y-BOCS Total and Y-BOCS Obsession scores but not with Y-BOCS Compulsion score^{15,9}.

Significant correlation (p-value 0.009) was found between HDRS and SIS scores. Previous study by Amanda M Moskowitz (2011) found that depression partially mediates suicidal risk in OCD.

Partial Correlation of SIS and HDRS scores (p-value <0.001) controlling for HDRS suggested that although depression was a confounding factor of suicidal ideation severity of OCD was independently a risk factor for suicidal ideation.

When degree of causal association of Y-BOCS and HDRS scores predicting the variance of SIS score were searched in regression analysis the result showed Y-BOCS Total score predicted 59% of variance (p-value <0.001); Y-BOCS Obsession score predicted 66% of variance (p-value <0.001); Y-BOCS Compulsion score predicted 19% of variance (p-value <0.001) and HDRS score predicted only 8% of variance (p-value 0.009) in SIS score.

When multiple linear regression was done it was found that Y-BOCS Total and Y-BOCS Obsession scores together predicted 67.7% of variance in SIS score whereas Y-BOCS Total, Y-BOCS Obsession and HDRS scores together predicted 68.2% of variance (p-value <0.001). The results suggested that over all severity of OCD and Obsession alone but not the severity of compulsion and co-morbid depression predicted the degree of suicidal ideation. This is in contrast with the findings of the previous study by Torres AR et al (2008) that showed severity of depression as an independent predictor of suicidal risk in patients of OCD.

V. Conclusion

Patients of Obsessive-Compulsive Disorder are at risk of suicidal behavior.

Patients with symptoms in sexual, religious and hoarding dimensions are at higher risk of suicidal ideation. Severity of obsession and severity of OCD as a whole increases the risk of suicide. Suicidal risk should be assessed in severely ill OCD patients.

Association of suicidal behavior and obsessive-compulsive disorder is independent of co-morbid depression.

References

- [1]. da Silva Cais C, Stefanello S, Fabrício Mauro M, Vaz Scavacini de Freitas G, Botega N. Factors Associated with Repeated Suicide Attempts. *Crisis*. 2009;30(2):73-78.
- [2]. Maris R. Suicide. *The Lancet*. 2002;360(9329):319-326.
- [3]. Shah A. The relationship between suicide rates and age: an analysis of multinational data from the World Health Organization. *International Psychogeriatrics*. 2007;19(06).
- [4]. Karno M. The Epidemiology of Obsessive-Compulsive Disorder in Five US Communities. *Archives of General Psychiatry*. 1988;45(12):1094.
- [5]. Reddy Y, Rao N, Khanna S. An overview of Indian research in obsessive compulsive disorder. *Indian Journal of Psychiatry*. 2010;52(7):200.
- [6]. Degonda M, Wyss M, Angst J. The Zurich Study XVIII. Obsessive compulsive disorders and syndromes in the general population. *European Archives of Psychiatry and Clinical Neuroscience*. 1993;243(1):16-22.
- [7]. Regier D, Farmer M, Rae D, Myers J, Kramer M, Robins L et al. One-month prevalence of mental disorders in the United States and sociodemographic characteristics: the Epidemiologic Catchment Area study. *Acta Psychiatrica Scandinavica*. 1993;88(1):35-47.
- [8]. Kamath P, Reddy J. Suicidal Behavior in Obsessive-Compulsive Disorder. *The Journal of Clinical Psychiatry*. 2007;68(11):1741-1750.
- [9]. Trivedi J, Nischal A, Sinha P, Verma S, Dhyani M. Suicidal behaviour of Indian patients with obsessive compulsive disorder. *Indian Journal of Psychiatry*. 2013;55(2):161.
- [10]. Alonso P, Segalàs C, Real E, Pertusa A, Labad J, Jiménez-Murcia S et al. Suicide in patients treated for obsessive-compulsive disorder: A prospective follow-up study. *Journal of Affective Disorders*. 2010;124(3):300-308.
- [11]. Rasmussen S, Tsuang M. Clinical characteristics and family history in DSM-III obsessive-compulsive disorder. *American Journal of Psychiatry*. 1986;143(3):317-322.
- [12]. Akhtar S, Wig N, Varma V, Pcrshad D, Verma S. A Phenomenological Analysis of Symptoms in Obsessive-Compulsive Neurosis. *British Journal of Psychiatry*. 1975;127(4):342-348.
- [13]. Chakraborty A, Banerjee G. RITUAL, A CULTURE SPECIFIC NEUROSIS, AND OBSESSIONAL STATES IN BENGALI CULTURE by AJITA CHAKRABORTY and G. BANERJEE. *Indian Journal of Psychiatry* 17(1975): 211-16, 273-83. *Transcultural Psychiatric Research Review*. 1977;14(2):189-192.
- [14]. Manchanda R, Sethi B, Gupta S. Obsessive Compulsive Neurosis In North India. *Indian Journal of Psychiatry*. 1978;20(2):183-187.
- [15]. Torres A, Ramos-Cerqueira A, Torresan R, Domingues M, Hercos A, Guimarães A. Prevalence and Associated Factors for Suicidal Ideation and Behaviors in Obsessive-Compulsive Disorder. *CNS Spectrums*. 2007;12(10):771-778.
- [16]. Dell'Osso L, Casu G, Carlini M, Conversano C, Gremigni P, Carmassi C. Sexual obsessions and suicidal behaviors in patients with mood disorders, panic disorder and schizophrenia. *Annals of General Psychiatry*. 2012;11(1):27.
- [17]. Simons R, Murphy P. Sex differences in the causes of adolescent suicide ideation. *Journal of Youth and Adolescence*. 1985;14(5):423-434.
- [18]. Sokero T, Leskela U, Rytsala H, Lestela-Mielonen P, Melartin T, Isometsa E. Risk factors for suicidal ideation and attempts among psychiatric patients with major depressive disorder. *European Psychiatry*. 2002;17:204.

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