

Efficacy and Tolerability of Fluoxetine over Sertraline in Patients with Obsessive Compulsive Disorder

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Abstract:

Background: Obsessive-compulsive disorder (OCD) is a chronic psychiatric condition characterized by intrusive thoughts (obsessions) and repetitive behaviors (compulsions), leading to significant distress. Selective serotonin reuptake inhibitors (SSRIs) such as Fluoxetine and Sertraline are the primary pharmacological treatments for OCD. However, comparative studies on their efficacy and tolerability remain limited. **Objective:** This study aimed to evaluate the effectiveness and tolerability of Fluoxetine versus Sertraline in OCD patients. **Methods:** This longitudinal analytical study was conducted at Dhaka Medical College, Bangladesh, from January to December 2022. A total of 232 OCD patients, diagnosed based on DSM-5 criteria, were recruited from the Department of Psychiatry. Participants were divided into two groups: Group A (n = 116) received Fluoxetine, and Group B (n = 116) received Sertraline for three months. Symptom severity

was assessed using the Yale- Brown Obsessive-Compulsive Scale (Y-BOCS), and data were analyzed using SPSS version 25. **Results:** Both medications significantly reduced Y-BOCS scores ($p = 0.000$); however, Fluoxetine demonstrated superior efficacy. After three months, Fluoxetine-treated patients showed greater symptom reduction (8.52 ± 2.15 vs. 10.1 ± 3.58 , $p = 0.000$). Recovery rates were higher in the Fluoxetine group (60.42% vs. 39.58%), though not statistically significant. Fluoxetine had better tolerability, with dry mouth (30.1%) being the most common side effect, whereas Sertraline was associated with higher agitation (34.7%) and hallucinations (28.7%). **Conclusion:** Fluoxetine showed greater efficacy and better tolerability than Sertraline, making it a preferred treatment option for OCD. Further studies with larger samples are recommended.

Keywords: Fluoxetine, Sertraline, OCD, SSRI's, CBT.

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Introduction:

Obsessive compulsive disorder (OCD) is a chronic illness that can cause marked distress and disability. It is a complex disorder with a variety of manifestations and symptom dimensions, some of which are underrecognized. The pathogenesis of OCD is a complex interplay between neurobiology, genetics,

and environmental influences. Historically, dysfunction in the serotonin system is postulated to be the main factor in OCD pathogenesis, given the selective response to serotonergic medication.¹

Obsessions are frequent upsetting thoughts, in the process of trying to control them; a person feels an overwhelming urge to repeat certain rituals or behaviors which are referred to as compulsions. People with obsessive Compulsive Disorder (OCD) fail to control their obsessions and compulsions and gradually the rituals end up controlling them.² OCD is a chronic illness that produces substantial impairment of normal, daily life activities. OCD initially thought to be a rare disorder is now classified as the fourth most common psychiatric disorder worldwide after substance abuse, specific phobias and major depression.³

In general, dosages higher than those used in depression are necessary to obtain an optimal anti-OCD effect. With fluoxetine, for example titration is not pursued further in most depression patients who have not responded at all to 40 mg daily. By contrast, in a large controlled trial in OCD patients, the response to fluoxetine was best in the 60-mg daily treatment arm.⁴ Consequently, when an SSRI is used to treat OCD, the maximal recommended dosage, if tolerated, should be used before it is concluded that a patient is resistant to a particular drug. Finally, reports for some SSRIs indicate that, in some patients, additional benefits can be obtained from regimens beyond the maximal recommended dosages.

Methods:

Study Design

This longitudinal analytical study was conducted to evaluate the effects of Fluoxetine and Sertraline in patients diagnosed with obsessive-compulsive disorder (OCD). In this study, Obsessive-Compulsive Disorder (OCD) is defined as a psychiatric condition characterized by persistent, intrusive thoughts (obsessions) and repetitive behaviors or mental acts (compulsions) aimed at reducing distress. Diagnosis was confirmed using DSM-5 criteria, requiring significant time consumption, distress, or impairment in daily functioning. Patients were assessed by a qualified psychiatrist at Dhaka Medical College Hospital.

Study Site

The study was carried out in the Department of Pharmacology at Dhaka Medical College, Dhaka,

Bangladesh. Patient recruitment and sample collection were conducted in the Department of Psychiatry at Dhaka Medical College Hospital, Dhaka, Bangladesh.

Period of Study

The study was conducted over a 12-month period, from January 2022 to December 2022.

Sample Size & Sampling Technique

A total of 232 patients diagnosed with OCD participated in the study. Participants were divided into two groups:

- Group A (n = 116): Treated with Fluoxetine for a consecutive period of three months.
- Group B (n = 116): Treated with Sertraline for a consecutive period of three months.

Patients were selected based on predefined inclusion and exclusion criteria using purposive sampling.

Inclusion Criteria:

Patients were included in the study if they had a confirmed diagnosis of obsessive-compulsive disorder (OCD) according to DSM-5 criteria. Eligible participants were between 18 and 60 years of age and had not received any selective serotonin reuptake inhibitors (SSRIs) in the past six months. Additionally, only those who were willing to participate and provided informed consent were enrolled in the study.

Exclusion Criteria:

Patients were excluded from the study if they had any comorbid psychiatric disorders, such as schizophrenia or bipolar disorder, or a history of substance abuse or dependence. Individuals with known hypersensitivity or contraindications to Fluoxetine or Sertraline were also not eligible for participation. Pregnant or lactating women were excluded to avoid potential risks. Additionally, patients with significant medical conditions that could interfere with treatment outcomes, including uncontrolled diabetes, cardiovascular disease, or hepatic impairment, were not included in the study.

Data Collection:

After obtaining informed consent, data were collected from participants using a predesigned structured questionnaire through face-to-face interviews and direct observation. The questionnaire covered demographic information, clinical history, and relevant study variables.

Statistical Analysis:

Statistical analyses were performed using Microsoft Excel (Windows-based) and Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics were used to summarize the data, while inferential statistical methods were applied to compare treatment outcomes between the two study groups.

Ethical Approval:

The study was conducted following ethical guidelines and was approved by the Institutional Ethics Committee of Dhaka Medical College. Written informed consent was obtained from all participants before their inclusion in the study. Confidentiality of patient data was maintained, and participants retained the right to withdraw from the study at any stage without any consequences. The study adhered to the ethical principles outlined in the Declaration of Helsinki (1964) and its subsequent amendments.

Results:

The study comparing the efficacy and tolerability of Fluoxetine vs. Sertraline in patients with Obsessive-Compulsive Disorder (OCD) demonstrated that while both medications significantly reduced symptoms over 1.5 and 3 months, Fluoxetine provided greater improvement in symptom severity, tolerability, and recovery rates. Figure-1 (Age Distribution) showed that the majority of participants (62.1%) were aged 18-30 years, with a mean age of 32 years (SD: 8.6). Figure-2 (Gender Distribution) indicated a higher prevalence of females (53.9%) compared to males (46.1%). Figure-3 (Smoking History) showed that 80.2% of participants were non-smokers, while 15.5% were smokers and 4.3% did not disclose their status. In terms of symptom severity, Table-I (Y-BOCS Scores) showed that both groups had statistically significant improvement ($p = 0.000$), but Fluoxetine-treated patients (Group A) had a greater reduction in OCD symptoms compared to Sertraline (Group B) at both 1.5 months ($p = 0.000$) and 3 months ($p = 0.000$). This was further supported by Table-II (Severity Scale Analysis), which revealed that after 1.5 months, 61.1% of Fluoxetine-treated patients had only mild symptoms, while 71.4% of Sertraline-treated patients were still in the moderate category ($p = 0.000$). After 3 months, 28.2% of Fluoxetine-treated patients reached the subclinical range, whereas 21.8% of Sertraline-treated patients still had severe symptoms, confirming Fluoxetine’s faster and superior symptom reduction. Despite this, Table-III (Outcome Analysis) indicated that the recovery rate was higher in the Fluoxetine group (60.42% vs. 39.58%), and recurrence was lower (47.44% vs. 52.56%), but the association was not statistically significant ($p > 0.05$). Table-IV

(Correlation Analysis) revealed that in the Sertraline group, higher baseline Y-BOCS scores were significantly associated with increased recurrence risk ($p = 0.001$), whereas in the Fluoxetine group, this correlation was not significant at 1.5 months but became significant at 3 months, suggesting that Sertraline patients had a greater likelihood of symptom relapse. Table-V (Adverse Effects Analysis) highlighted significant differences in tolerability, with Fluoxetine being associated with higher rates of dry mouth (30.1%) and heartburn (22.3%), while Sertraline had significantly higher rates of agitation (34.7%), hallucinations (28.7%), and confusion (5%), making Sertraline less tolerable ($p = 0.001$). Overall, the study findings suggest that Fluoxetine was more effective in reducing OCD symptoms, had a lower likelihood of severe side effects, and demonstrated a better overall efficacy-to-tolerability ratio compared to Sertraline, making it a potentially preferable treatment option for OCD patients.

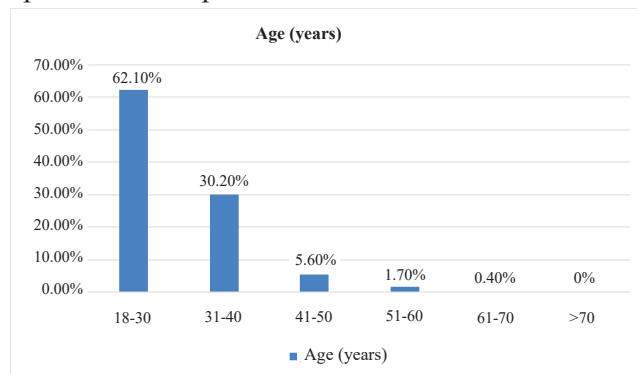


Figure-1: Distribution of the participants according to age.

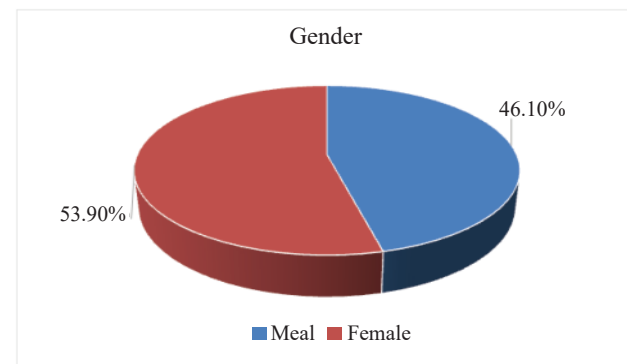


Figure-2: Distribution of the participants according to gender.

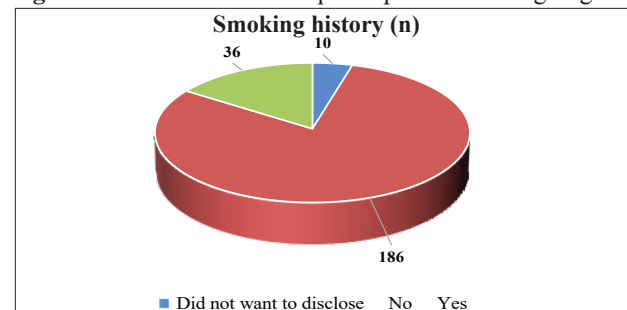


Figure III: Distribution of the participants according to smoking history.

Table-I: Distribution of the participants according to Yale Brown OCD scale.

Yale Brown Obsessive-compulsive scale	Group A(flouxetine)		Group B(sertraline)		P value
	n	Mean± SD	n	Mean± SD	
During enrollment	116	22.41±2.63	116	22.97±3.84	^a 0.197 ^{ns}
After 1.5 months	108	14.78±2.34	105	16.43±3.97	^a 0.000 ^s
After 3 months	103	8.52±2.15	101	10.1±3.58	^a 0.000 ^s
P value		^b 0.000 ^s		^b 0.000 ^s	

Table II: Distribution of the participants according to severity scale.

Severity scale	Group A(flouxetine)		Group B(sertraline)		P value
	n	(%)	n	(%)	
During enrollment					
Subclinical symptoms	0	0	0	0	^c 0.000 ^s
Mild symptoms	0	0	2	1.7	
Moderate symptoms	100	86.2	52	44.8	
Severe symptoms	15	12.9	62	53.5	
Extreme symptoms	1	0.9	0	0	
After 1.5 months					
Subclinical symptoms	0	0	5	4.8	^c 0.000 ^s
Mild symptoms	66	61.1	25	23.8	
Moderate symptoms	42	38.9	75	71.4	
Severe symptoms	0	0	0	0	
Extreme symptoms	0	0	0	0	
After 3 months					
Subclinical symptoms	29	28.2	19	18.8	^c 0.000 ^s
Mild symptoms	38	36.9	5	5	
Moderate symptoms	36	35	55	54.5	
Severe symptoms	0	0	22	21.8	
Extreme symptoms	0	0	0	0	

Table-III: Association between outcomes among the groups.

Outcome	Group A(flouxetine)		Group B(sertraline)		P value
	n	%	n	%	
Recovered	29	60.42	19	39.58	^d 0.001 ^{ns}
Recurrence	74	47.44	82	52.56	

Table-IV: Correlation between Yale Brown scale, severity score and outcome of the patients of two groups.

Variables	Group A outcome		Group B outcome	
	Correlation coefficient	P value	Correlation coefficient	P value
YBOCS score(at baseline)	0.040	^c 0.686 ^s	0.324	^c 0.001 ^s
YBOCS score(after 1.5 month)	0.179	^c 0.070 ^{ns}	0.401	^c 0.000 ^s
YBOCS score(after 3 months)	0.840	^c 0.000 ^s	0.666	^c 0.000 ^s
Severity score(at baseline)	-0.028	^c 0.779 ^{ns}	0.315	^c 0.001 ^s
Severity score(after 1.5 months)	-0.057	^c 0.564 ^{ns}	0/374	^c 0.000 ^s
Severity score(after 3 months)	-0.041	^c 0.677 ^{ns}	0.492	^c 0.000 ^s

Table-V: Distribution of the study participants according to adverse effect.

Adverse effects	Group A		Group B		P value
	n	%	n	%	
Dry mouth	31	30.1	8	7.9	^d 0.001 ^s
Heart burn	23	22.3	6	5.9	^d 0.001 ^s
Difficulty breathing	3	2.9	0	0	^d 0.001 ^s
Agitation	0	0	35	34.7	^d 0.001 ^s
Hallucinations	0	0	29	28.7	^d 0.001 ^s
Confusion or Memory problems	0	0	5	5	^d 0.001 ^s
Headache	9	8.7	13	12.9	^d 0.001 ^s
Sexual problems (decrease libido)	12	11.7	15	14.9	^d 0.001 ^s
Drowsiness	7	6.8	10	9.9	^d 0.001 ^s

Discussion:

The present study compared the efficacy and tolerability of Fluoxetine and Sertraline in patients with obsessive-compulsive disorder (OCD). The findings suggest that while both selective serotonin reuptake inhibitors (SSRIs) significantly reduced OCD symptoms over three months, Fluoxetine demonstrated superior efficacy in symptom reduction, recovery rates, and tolerability. These results are consistent with previous studies that highlight the effectiveness of SSRIs in OCD treatment and contribute to the ongoing discussion on optimal pharmacological interventions for OCD.

Efficacy of Fluoxetine vs. Sertraline

Our findings indicate that Fluoxetine led to a greater reduction in Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) scores compared to Sertraline. At 1.5 months, the mean Y-BOCS score in the Fluoxetine group was significantly lower than that of the Sertraline group (14.78 ± 2.34 vs. 16.43 ± 3.97, p = 0.000), and this trend persisted at 3 months (8.52 ± 2.15 vs. 10.1 ± 3.58, p = 0.000). These findings align with a randomized controlled trial by Hollander et al. (2003), which reported a greater decrease in Y-BOCS scores with Fluoxetine compared to Sertraline at equivalent dosages.⁵ Similarly, Montgomery et al. (2001) found that higher doses of Fluoxetine (60 mg) were more effective in reducing OCD severity than lower doses of Sertraline (50–100 mg).⁶ These results reinforce the importance of using optimal SSRI dosages to achieve maximum therapeutic benefit in OCD patients.

Severity Reduction and Recovery Rates

A detailed analysis of symptom severity revealed that at 1.5 months, 61.1% of Fluoxetine-treated patients had only mild symptoms, whereas 71.4% of Sertraline-treated patients remained in the moderate severity category (p = 0.000). After three months, 28.2% of Fluoxetine-treated patients reached the subclinical range, whereas 21.8% of Sertraline-treated overall recovery rates, the Fluoxetine group exhibited a higher proportion of recovered patients (60.42% vs. 39.58%) and a lower recurrence rate (47.44% vs. 52.56%). Although these differences were not statistically significant (p > 0.05), they align with findings by Goodman et al. (2014), which suggested that Fluoxetine is associated with lower relapse rates than Sertraline.⁹ The potential advantage of Fluoxetine in long-term maintenance therapy may be attributed to its longer half-life, which provides sustained pharmacodynamic effects and reduces the risk of withdrawal symptoms upon discontinuation.¹⁰

Correlation Between Baseline Symptom Severity and Recurrence

Our correlation analysis revealed that higher baseline Y-BOCS scores were significantly associated with an increased risk of recurrence in the Sertraline group ($p = 0.001$), whereas this correlation was not significant in the Fluoxetine group at 1.5 months but became significant at 3 months. This suggests that Sertraline-treated patients had a greater likelihood of symptom relapse compared to those receiving Fluoxetine. These findings are supported by Koran et al. (2007), who reported that Fluoxetine provides more stable symptom control and a lower probability of early relapse in OCD patients.¹¹ This suggests that Fluoxetine may be a more effective option for patients at higher risk of recurrence.

Adverse Effects and Tolerability

Both Fluoxetine and Sertraline were associated with distinct side effect profiles. Fluoxetine-treated patients experienced higher rates of dry mouth (30.1%) and heartburn (22.3%), whereas Sertraline-treated patients exhibited significantly higher rates of agitation (34.7%), hallucinations (28.7%), and confusion (5%) ($p = 0.001$). These findings are consistent with prior studies, which suggest that Sertraline is more likely to cause agitation and psychomotor disturbances, whereas Fluoxetine is more commonly associated with gastrointestinal side effects.¹² A study by Ravizza et al. (1996) found that Fluoxetine generally has a favorable safety profile but is linked to more gastrointestinal discomfort, while Sertraline is more frequently associated with central nervous system-related side effects.¹³ Our tolerability findings also align with a systematic review by Bloch et al. (2010), which concluded that while both medications are well tolerated, Fluoxetine has a superior efficacy-to-tolerability ratio, making it a preferred first-line treatment for OCD.¹⁴ The higher incidence of agitation and hallucinations in the Sertraline group could negatively impact adherence and increase dropout rates, as suggested by Fineberg et al. (2013).¹⁵ This highlights the importance of considering side effect profiles when selecting an SSRI for OCD treatment, as tolerability can significantly influence patient compliance and overall treatment success.

Limitations of the study:

The present study was conducted in a very short period due to time constraints and funding limitations. The small sample size was also a limitation of the present study.

Conclusion:

In conclusion, this study demonstrates that Fluoxetine is more effective in reducing OCD symptoms, has a lower likelihood of severe side effects, and provides a better efficacy-to-tolerability ratio compared to Sertraline. These findings support the preferential use of Fluoxetine in the treatment of OCD, particularly in cases requiring sustained symptom management.

Recommendation:

This study can serve as a pilot to much larger research involving multiple centers that can provide a nationwide picture, validate regression models proposed in this study for future use and emphasize points to ensure better management and adherence.

Acknowledgements:

The wide range of disciplines involved in the efficacy and tolerability of fluoxetine and sertraline in patients with obsessive compulsive disorder (OCD) research means that editors need much assistance from references in the evaluation of papers submitted for publication.

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