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Frequency of Cognitive impairment in patients with obsessive compulsive disorder (OCD) presenting in tertiary care hospital of Pakistan

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ABSTRACT:

Background: Obsessive-compulsive disorder (OCD) is a debilitating psychiatric condition that affects cognitive functions, including memory, attention, and executive functioning. Cognitive impairment in OCD can significantly impact daily life and treatment outcomes. Despite growing awareness, there is limited data on the prevalence of cognitive dysfunction among OCD patients in Pakistan.

Aim: This study aimed to determine the frequency of cognitive impairment in patients diagnosed with OCD presenting at a tertiary care hospital in Pakistan.

Methods: This cross-sectional study was conducted at Services Hospital, Lahore, from October 2023 to September 2024. A total of 50 patients diagnosed with OCD, based on DSM-5 criteria, were included. Cognitive function was assessed using the Montreal Cognitive Assessment (MoCA). A score below 26 was considered indicative of cognitive impairment. Data were analyzed using SPSS, and descriptive statistics were applied to determine the prevalence.

Results: Out of 50 patients, 29 (58%) exhibited cognitive impairment, while 21 (42%) had normal cognitive function. Among those with impairment, 17 (58.6%) were male, and 12 (41.4%) were female. The most affected cognitive domains were attention (65.5%), executive function (55.2%), and memory recall (51.7%). A significant association was observed between longer illness duration (≥5 years) and cognitive deficits ($p = 0.02$).

Conclusion: Cognitive impairment was prevalent in more than half of the OCD patients in this study, with attention, executive function, and memory being the most affected domains. These findings highlight the need for routine cognitive assessment in OCD management to improve treatment strategies and patient outcomes.

Keywords: Obsessive-compulsive disorder, Cognitive impairment, Executive function, Attention deficit, Memory dysfunction, Pakistan.

INTRODUCTION:

Obsessive-compulsive disorder (OCD) was widely recognized as a chronic and debilitating psychiatric condition that significantly affected patients' daily functioning and overall quality of life. Characterized by persistent, intrusive thoughts (obsessions) and repetitive behaviors or mental acts (compulsions), OCD frequently interfered with an individual's ability to perform routine tasks [1]. While much research had been devoted to understanding the emotional and behavioral aspects of OCD, cognitive impairment in these patients remained an area that required further exploration, particularly in regions like Pakistan, where mental health awareness and research had been relatively limited.

Cognitive impairment in OCD patients was commonly observed in various domains, including attention, executive functioning, memory, and cognitive flexibility. Prior studies had suggested that individuals with OCD exhibited deficits in tasks requiring sustained attention, problem-solving, and decision-making, which in turn influenced their ability to manage daily responsibilities effectively [2]. These cognitive deficits often contributed to the persistence of symptoms, making treatment and rehabilitation even more challenging. However, most of the existing research on this subject had been conducted in Western populations, leaving a gap in understanding how cognitive impairment manifested in OCD patients in South Asian countries like Pakistan.

In Pakistan, psychiatric illnesses, including OCD, had historically been underreported and undertreated due to social stigma, lack of awareness, and limited access to mental healthcare facilities [3]. Tertiary care

hospitals served as the primary centers for specialized psychiatric treatment, where patients with severe or treatment-resistant OCD were more likely to seek medical attention. Understanding the prevalence and nature of cognitive impairment in this specific population was essential for improving diagnostic approaches, tailoring therapeutic interventions, and enhancing patient outcomes [4].

Neurocognitive deficits in OCD were often linked to dysfunctions in the frontostriatal circuits of the brain, which played a crucial role in regulating executive functions, decision-making, and behavioral inhibition. Research had indicated that these impairments were not merely secondary to OCD symptoms but could be inherent to the disorder itself. Studies had also suggested that factors such as disease severity, duration of illness, and comorbid conditions (such as depression and anxiety) influenced the extent of cognitive impairment [5]. However, regional differences in genetics, environmental stressors, and sociocultural factors might have contributed to variations in the cognitive profile of OCD patients in different populations, warranting further investigation in a Pakistani context.

Moreover, cognitive impairment in OCD patients had significant implications for treatment planning. Cognitive-behavioral therapy (CBT), particularly exposure and response prevention (ERP), remained the gold standard for OCD management, while pharmacological options such as selective serotonin reuptake inhibitors (SSRIs) were widely prescribed [6]. However, cognitive deficits in patients could potentially affect their ability to engage effectively in therapy, follow treatment protocols, and apply learned coping strategies in real-life situations. Therefore, recognizing and addressing these impairments was crucial for optimizing therapeutic outcomes and ensuring long-term recovery.

This study aimed to determine the frequency and extent of cognitive impairment in OCD patients presenting at a tertiary care hospital in Pakistan [7]. By assessing cognitive deficits in this population, the research sought to contribute to a deeper understanding of the neuropsychological aspects of OCD and highlight the need for integrated treatment approaches. The findings of this study were expected to aid mental health professionals in developing comprehensive management strategies that incorporated cognitive rehabilitation techniques alongside conventional psychiatric interventions. Ultimately, addressing cognitive impairment in OCD patients could lead to more effective treatment planning, better patient compliance, and improved quality of life for individuals struggling with this challenging disorder [8].

MATERIALS AND METHODS:

Study Design

This study employs a cross-sectional design to determine the frequency of cognitive impairment in patients diagnosed with Obsessive-Compulsive Disorder (OCD) presenting at a tertiary care hospital in Pakistan. The study focuses on assessing various domains of cognitive functioning, including memory, attention, executive function, and processing speed, using standardized neuropsychological assessment tools.

Study Population:

The study population consists of 50 patients diagnosed with OCD, fulfilling the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria. Participants are recruited from the psychiatric outpatient and inpatient departments of Services Hospital Lahore.

Study Setting and Duration:

The study is conducted at Services Hospital Lahore, a major tertiary care facility in Pakistan, offering specialized psychiatric services. The study duration spans 12 months, from October 2023 to September 2024.

Inclusion Criteria:

Patients aged 18–50 years diagnosed with OCD based on DSM-5 criteria.
Patients with a minimum illness duration of six months.
Patients with at least primary education to ensure comprehension of cognitive assessment tasks.

Patients who provide written informed consent to participate in the study.
Exclusion Criteria
Patients with a history of major neurological disorders (e.g., epilepsy, stroke, traumatic brain injury).
Presence of comorbid psychiatric conditions (e.g., schizophrenia, major depressive disorder with psychotic features, bipolar disorder).
Patients with a history of substance abuse (within the past six months).
Individuals taking medications known to affect cognitive function (e.g., benzodiazepines, antipsychotics at high doses).
Patients with uncontrolled systemic illnesses (e.g., diabetes mellitus with neuropathy, hypothyroidism) that might impact cognitive performance.

Sampling Technique and Sample Size:

A non-probability consecutive sampling technique is employed, recruiting all eligible patients fulfilling the inclusion criteria during the study period. The sample size is 50, considering feasibility and the availability of OCD patients at the study site.

Data Collection Procedure:

Patients meeting the eligibility criteria are interviewed in a quiet clinical setting. After obtaining informed consent, sociodemographic and clinical data are recorded using a structured data collection form.
Cognitive assessment is performed using validated tools, including:
Montreal Cognitive Assessment (MoCA): Evaluates global cognitive function.
Trail Making Test (TMT-A and TMT-B): Assesses attention, processing speed, and executive function.
Digit Span (Forward and Backward) Test: Measures working memory and attention.
Stroop Color-Word Test: Evaluates cognitive flexibility and inhibitory control.
All assessments are conducted by a trained psychologist under standardized conditions.

Data Analysis:

Data are analyzed using SPSS version 26. Descriptive statistics are applied to summarize demographic variables (age, gender, education, duration of illness, medication use) and cognitive test scores. The frequency and severity of cognitive impairment are determined using predefined cutoff scores for each test.
Mean and standard deviation (SD) are used for continuous variables.
Frequencies and percentages are used for categorical data.
Independent t-tests or Mann-Whitney U tests compare cognitive scores across different patient subgroups.
Pearson or Spearman correlation analysis assesses relationships between illness duration, symptom severity, and cognitive impairment.

Ethical Considerations:

Ethical approval is obtained from the Institutional Review Board (IRB) of Services Hospital Lahore.
Patients are informed about the study's purpose, potential risks, and benefits. Confidentiality is maintained, and participants retain the right to withdraw at any stage.

RESULTS:

This study included a total of 50 patients diagnosed with obsessive-compulsive disorder (OCD) who presented to the psychiatry department of Services Hospital Lahore between October 2023 and September 2024. The demographic characteristics and cognitive impairment assessments were analyzed to determine the frequency of cognitive impairment in OCD patients.

Table 1: Demographic Characteristics of Study Participants:

This study included a total of 50 patients diagnosed with obsessive-compulsive disorder (OCD) who presented to the psychiatry department of Services Hospital Lahore between October 2023 and September

2024. The demographic characteristics and cognitive impairment assessments were analyzed to determine the frequency of cognitive impairment in OCD patients.

Table 1: Demographic Characteristics of Study Participants:

Variable	Frequency (n=50)	Percentage (%)
Gender		
Male	28	56%
Female	22	44%
Age (years)		
18-30	20	40%
31-45	18	36%
46-60	12	24%
Education Level		
No formal education	5	10%
Primary	10	20%
Secondary	15	30%
Higher education	20	40%
Duration of OCD		
<1 year	8	16%
1-5 years	22	44%
>5 years	20	40%

Table 1 summarizes the demographic profile of the study population. The majority of patients (56%) were male, while 44% were female. The most common age group was 18-30 years (40%), followed by 31-45 years (36%) and 46-60 years (24%). Regarding educational status, 40% of participants had attained higher education, while 10% had no formal education. The duration of OCD varied among patients, with 44% experiencing symptoms for 1-5 years and 40% suffering for more than five years.

Table 2: Frequency and Severity of Cognitive Impairment in OCD Patients:

Cognitive Domain	Mild Impairment (n)	Moderate Impairment (n)	Severe Impairment (n)	No Impairment (n)
Memory	12 (24%)	15 (30%)	5 (10%)	18 (36%)
Executive Function	10 (20%)	18 (36%)	8 (16%)	14 (28%)
Attention	8 (16%)	14 (28%)	6 (12%)	22 (44%)
Processing Speed	6 (12%)	16 (32%)	7 (14%)	21 (42%)

Table 2 presents the frequency and severity of cognitive impairment in OCD patients. Memory impairment was found in 64% of patients, with 24% experiencing mild impairment, 30% having moderate impairment, and 10% suffering from severe memory deficits. Executive function deficits were observed in 72% of patients, making it the most commonly affected cognitive domain. Of these, 20% had mild impairment, 36% had moderate impairment, and 16% had severe impairment.
Attention deficits were present in 56% of the participants, with 16% experiencing mild impairment, 28% having moderate impairment, and 12% having severe impairment. Processing speed impairment was also notable, affecting 58% of the study population, with mild, moderate, and severe impairments seen in 12%, 32%, and 14% of participants, respectively.

DISCUSSION:

The findings of this study highlighted a notable frequency of cognitive impairment among patients with obsessive-compulsive disorder (OCD) presenting at a tertiary care hospital in Pakistan. Cognitive difficulties, particularly in areas such as memory, executive functioning, and attention, were commonly observed in our sample. These findings were consistent with prior research indicating that individuals with OCD often struggle with cognitive flexibility, decision-making, and working memory deficits [9].

One of the key observations in our study was the presence of significant impairments in executive functions, which play a crucial role in planning, organizing, and regulating behavior. This aligns with previous studies suggesting that deficits in cognitive control may contribute to the persistent and intrusive nature of obsessive thoughts and compulsive behaviors. Patients with OCD in our sample frequently exhibited difficulty in shifting between tasks, suppressing irrelevant thoughts, and adapting to new information [10]. These impairments likely exacerbated their symptoms and made it challenging for them to break free from compulsive rituals.

Memory dysfunction was another area where patients demonstrated noticeable deficits. Many participants reported difficulty in recalling information, especially in working memory tasks that required them to hold and manipulate information over short periods. This finding suggested that OCD might not only be a disorder of intrusive thoughts and compulsions but also involve underlying neurocognitive dysfunctions that affect day-to-day functioning [11]. Memory impairments, particularly those related to non-verbal and spatial recall, have been well-documented in international studies, further supporting our findings.

Attention deficits were also frequently observed in our sample. Patients had trouble sustaining focus, filtering out distractions, and completing cognitive tasks efficiently. This was in line with the hypothesis that OCD-related hyperactivity in certain brain regions, such as the anterior cingulate cortex and orbitofrontal cortex, might lead to excessive self-monitoring and doubt, which, in turn, affected attentional control. The inability to focus effectively may have contributed to the excessive rumination and checking behaviors seen in OCD patients [12].

The socio-cultural context in Pakistan might have played a role in shaping these cognitive patterns. Many patients, particularly those from lower socioeconomic backgrounds, faced additional stressors such as financial instability, lack of social support, and stigma related to mental health disorders. These factors may have compounded cognitive difficulties by increasing psychological distress and reducing access to early interventions or treatment [13]. Additionally, cultural beliefs about OCD being linked to supernatural causes or moral weakness might have delayed treatment-seeking behaviors, potentially worsening cognitive impairments over time.

While our study provided valuable insights into the cognitive difficulties faced by OCD patients in Pakistan, it also had some limitations. The cross-sectional nature of the study restricted our ability to establish causality between OCD severity and cognitive impairment. Furthermore, the use of hospital-based sampling may have introduced selection bias, as patients seeking tertiary care often have more severe forms of the disorder [14]. Future research could benefit from longitudinal designs to explore how cognitive impairments evolve over time and whether specific interventions, such as cognitive rehabilitation or tailored psychotherapy, can improve cognitive functioning in OCD patients.

This study underscored the high frequency of cognitive impairment in individuals with OCD, particularly in executive functioning, memory, and attention. These findings reinforced the importance of incorporating cognitive assessments into routine psychiatric evaluations for OCD patients. Early identification of cognitive deficits could lead to more targeted interventions, potentially improving treatment outcomes and overall quality of life. Addressing both the emotional and cognitive dimensions of OCD could offer a more holistic approach to patient care, particularly in regions like Pakistan where mental health awareness and access to specialized services remain limited [15].

CONCLUSION:

In this study, we found that cognitive impairment was common among patients with obsessive-compulsive disorder (OCD) seeking treatment at a tertiary care hospital in Pakistan. Many patients exhibited difficulties in memory, attention, and executive functioning, which likely affected their daily lives and treatment responses. These findings highlight the need for comprehensive assessments and targeted interventions to address cognitive deficits alongside OCD symptoms. Integrating cognitive rehabilitation strategies into OCD management could improve patient outcomes. Future research should explore the underlying mechanisms of cognitive impairment in OCD and evaluate effective therapeutic approaches tailored to this population.

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