Original Article

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Dentistry Section

Oral Health Status, Hygiene Practices and Barriers to Dental Care among Individuals with Schizophrenia: A Cross-sectional Study

BS SUGANYA PRIYADHARSHINI[1], SATHYASEELAN MANIVEL[2], SRIRAM BALAJI[3], JEEVITHAN[4]

ABSTRACT

Introduction: Individuals with schizophrenia were at increased risk of poor oral health due to a combination of illness-related, behavioural and systemic factors. Despite its impact on quality of life, oral health remains underexplored in psychiatric populations in India.

Aim: To determine the prevalence of clinically diagnosed dental conditions, oral hygiene practices and service utilisation among individuals with schizophrenia in a tertiary psychiatric setting.

Materials and Methods: A cross-sectional study was conducted in the Department of Psychiatry at a tertiary care teaching hospital (KMCH Institute of Health Sciences and Research, Coimbatore, Tamil Nadu, India) over five months from March 2025 to July 2025, among 71 adults (18-65 years) with a Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5) diagnosis of schizophrenia. Psychiatric severity was assessed using the Brief Psychiatric Rating Scale (BPRS). Oral health was evaluated using the Decayed, Missing, and Filled Teeth (DMFT) index. Information on oral hygiene practices, dental service utilisation and perceived barriers to care was collected using a semi-structured questionnaire.

Results: The mean DMFT index indicated a moderate burden of dental morbidity, with decayed teeth being the most frequent findings. A significant association was observed between age and DMFT scores (p-value=0.015), peaking in the 41–50 year age group. No significant associations were found with gender, illness duration, or illness severity. Oral hygiene practices were suboptimal, with most participants brushing only once daily and over two-fifths never having visited a dentist. Xerostomia was reported by 11.3% of participants. The most common barriers to dental care were perceptual barriers, primarily lack of perceived need, dental anxiety and financial concerns- while structural barriers such as accessibility were less frequently cited.

Conclusion: The burden of preventable dental morbidity is high in adults with schizophrenia, compounded by low service utilisation and perceptual barriers.

Keywords: Barriers to care, Dental morbidity, Oral hygiene

INTRODUCTION

Schizophrenia is a chronic, multifactorial psychiatric disorder characterised by profound impairments in cognition, motivation, and social functioning [1]. These deficits impair adaptive and role functioning, compromising basic self-care, interpersonal relationships and occupational performance [2]. In addition, many individuals experience dysfunction in instrumental activities of daily living, characterised by difficulties in managing medications, meals, shopping, financial transactions, household tasks and the use of transportation [3]. As a result, a subset of individuals with significant negative and cognitive symptoms requires supported living environments to manage daily life and participate in community living [4]. In Low- and Middle-Income Countries (LMICs) such as South India, functional impairments and dependence on supported accommodation occur within resource-constrained psychiatric services, where physical and oral healthcare are often fragmented [5]. These functional limitations extend to daily self-care tasks, including oral hygiene, thereby increasing vulnerability to preventable dental disease.

People with schizophrenia experience a 10-20 year shorter life expectancy than the general population, largely attributable to physical health conditions [6], and are particularly vulnerable to dental diseases due to a combination of negative and cognitive symptoms [7-9]. Furthermore, antipsychotic medications frequently prescribed in this population may contribute to oral health deterioration through adverse effects such as xerostomia (dry mouth), sialorrhoea (excessive salivation) and oral dyskinesia [10,11], which are linked to poor oral hygiene, increased plaque accumulation, and higher rates of dental caries and periodontal disease.

Poor oral health is associated with systemic inflammation, suboptimal nutrition, and cardiometabolic risk [12]. Additionally, visible dental pathology can exacerbate low self-esteem, social withdrawal, and stigma-issues already prominent in schizophrenia [13].

Despite their heightened risk, individuals with schizophrenia face substantial barriers to oral healthcare, including a lack of awareness, dental anxiety, financial and accessibility constraints, and poor integration between psychiatric and dental services [14]. Evidence from India and other LMICs remains scarce, particularly on healthcare utilisation patterns and patient-reported barriers. The present study hypothesised that individuals with schizophrenia would show high rates of untreated dental disease and low dental service utilisation. The present study addresses this gap by examining clinical severity, oral hygiene practices, and service utilisation among individuals with schizophrenia in a tertiary psychiatric setting. Hence, the objectives of the study were to determine the prevalence of clinically diagnosed dental conditions (decayed tooth, tooth loss, and periodontal problems) among adults with schizophrenia, to describe oral hygiene practices in this population, to assess dental service utilisation patterns and to identify patient- and system-level barriers to dental care through a semi-structured questionnaire.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Psychiatry at a tertiary care teaching hospital (KMCH Institute of Health Sciences and Research, Coimbatore, Tamil Nadu, India) over five months from March 2025 to July 2025. This study was approved by the Institutional Human Ethical Committee (72/IHEC/2024). Written and informed consent was obtained from all participants, for those with impaired decisional capacity, consent was obtained from a legally accepted representative in accordance with the institutional guidelines. Individuals identified with dental problems during the

study were educated on oral hygiene and referred for appropriate dental treatment to ensure clinical benefit.

Sample size calculation: Based on prior hospital-based research involving psychiatric patients [15], which reported a caries prevalence of approximately 83% (mean caries levels consistent with DMFT ≥4), for a 95% confidence level (Z=1.96) and a precision of ±7%, the required sample size was calculated as n=165. Despite conducting a priori sample size estimation, only 71 participants were enrolled during the study period due to stringent exclusion criteria (such as comorbid substance use, significant medical illness, or intellectual disability) and feasibility constraints. Consequently, the present study is exploratory in nature, with the findings intended to generate hypotheses for future, larger-scale research.

Participants were recruited through convenience sampling from both outpatient and inpatient psychiatric services. During regular clinic hours, the research team approached patients who met the eligibility criteria and were willing to take part. This method was chosen because routine psychiatric practice is time-constrained and practical, making more structured or random sampling difficult to implement. Adults aged 18-65 years with a diagnosis of schizophrenia, confirmed by a qualified psychiatrist, were recruited. A qualified psychiatrist referred to a clinician with an Doctor of Medicine (MD)/ Diplomate of National Board (DNB) in psychiatry and valid National Medical Commission (NMC) registration, authorised to provide independent psychiatric diagnosis and treatment. The diagnosis of schizophrenia was made using the DSM-5 diagnostic criteria, following American Psychiatric Association (APA) guidelines (American Psychiatric Association, 2013) [16].

Inclusion criteria: Participants were included if they were clinically stable enough to undergo dental examination, regardless of their illness severity or remission status.

Exclusion criteria: Patients were excluded if they had any co-morbid psychiatric disorders other than schizophrenia (e.g., bipolar disorder, major depressive disorder, intellectual disability), any current or past substance use disorder, acute medical illness, uncontrolled systemic or neurological conditions, or behavioural disturbances that precluded safe dental examination.

Study Procedure

Psychiatric assessment:

Psychiatric symptom severity was assessed using the BPRS, a validated clinician-administered tool covering positive, negative, and affective symptoms [17]. A 24 items are scored on a 7-point scale, with higher scores reflecting greater severity. The BPRS has demonstrated good inter-rater reliability and validity across diverse psychiatric populations [18]. All assessments were conducted by a single trained psychiatrist to ensure scoring consistency and minimise inter-rater variability. Participants were categorised into mild, moderate, or severe illness groups based on BPRS total scores of 31, 41 and 53, respectively [18]. No copyrighted instruments were used.

Oral health examination:

All enrolled participants were referred for oral health evaluation on the same day to the dental outpatient department (OPD). A qualified dental professional, who was aware that patients were referred from psychiatry services but was not informed of their specific psychiatric diagnosis or illness severity, performed the assessments. The examination included history-taking and intraoral clinical evaluation for dental caries, periodontal disease, and other oral pathologies. The DMFT Index was recorded as per World Health Organisation (WHO) guidelines [19]. Periodontal disease was evaluated clinically without formal probing indices.

Assessment of barriers to dental care:

A semi-structured interview checklist was developed for the present study to understand the barriers that people with schizophrenia face when seeking dental care. The research team, which included psychiatrists and dental specialists, prepared the initial draft after reviewing previous studies [13,20,21] on oral health in severe mental illness and commonly described barriers such as perceived need, access, availability, financial difficulty, and dental anxiety. The draft was then reviewed by an experienced psychiatrist and two dental public health experts to ensure that the questions were clear and clinically useful. The final checklist contained five simple yes or no questions. Since the tool consisted of straightforward screening items rather than a scale requiring score calculation, formal testing of reliability or validity was not carried out.

Participants (or their caregivers, when appropriate) were asked about the presence or absence of the following potential barriers:

1. Perceived need- whether the participant believed dental care was necessary.
2. Accessibility- difficulties in physically reaching dental facilities (e.g., transport issues, distance).
3. Availability- unavailability of nearby dental services or appointment slots.
4. Financial constraints- inability to afford dental services.
5. Dental anxiety- fear or apprehension that prevents or delays dental visits.

Study for each variable of interest, standardised sources and assessment methods were employed. Sociodemographic details were obtained through structured interviews. Psychiatric diagnosis and severity were established using DSM-5 criteria and the BPRS, respectively, administered by a single trained psychiatrist. Oral health outcomes were assessed by a conducted by a dentist with a Master of Dental Surgery (MDS) degree, full registration with the Dental Council, and extensive clinical experience in routine dental assessment and management using the WHO-recommended DMFT index and clinical examination. Oral hygiene practices, dental service utilisation, and barriers to care were captured through a structured yes/no questionnaire adapted from prior literature. All participants were assessed using the same procedures and instruments, ensuring comparability across the study cohort.

STATISTICAL ANALYSIS

The primary outcome was oral health status measured using the DMFT index. Secondary outcomes included oral hygiene practices, dental service utilisation, and perceived barriers to care. Data were analysed using IBM Statistical Package for Social Sciences (SPSS) Statistics, version 25.0 [22]. Descriptive statistics were computed for all variables. The Shapiro-Wilk test was used to assess normality. Group comparisons were performed using the Kruskal-Wallis test for continuous variables and the Mann-Whitney U test for binary comparisons. A p-value of <0.05 was considered statistically significant. The study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

RESULTS

A total of 71 adults with schizophrenia participated in the study. The sample represented a broad age distribution, with the largest proportion belonging to the middle-adult age range. Men and women were almost equally represented. Most participants 48, (67.6%), had been living with schizophrenia for more than one year, and clinical severity was distributed fairly evenly across mild, moderate, and severe categories. These characteristics suggest a reasonably heterogeneous clinical sample, allowing comparison across demographic and illness-related variables [Table/Fig-1].

Most individuals 64 (90.1%) reported engaging in basic oral hygiene, primarily brushing once daily, while twice-daily brushing was uncommon. Nearly all participants 70 (98.6%) used toothpaste rather than alternative dentifrices. Despite these self-reported hygiene

Variables	Category	n (%)
Age (years)	<20	5 (7.3)
	21 - 30	18 (25.2)
	31 - 40	22 (30.8)
	41 - 50	12 (16.9)
	> 50	14 (19.8)
Gender	Male	37 (52.1)
	Female	34 (47.9)
Duration of illness	< 6 months	11 (15.5)
	6 months - 1 year	12 (16.9)
	>1 year	48 (67.6)
Severity of Schizophrenia	Mild	27 (38.0)
	Moderate	28 (39.4)
	Severe	16 (22.5)

[Table/Fig-1]: Baseline characteristics of participants (N=71).

practices, dental service utilisation remained low. A considerable proportion 30 (42.3%) had never visited a dentist, and many others had not sought care within the previous year, indicating substantial gaps in preventive and routine dental engagement [Table/Fig-2].

Variables	Category	n (%)
Brushing frequency	Once a day	64 (90.1)
	Twice a day	7 (9.9)
Brushing medium	Toothpaste	70 (98.6)
	Others	1 (1.4)
Last visit to dentist	Never	30 (42.3)
	6 months	11 (15.5)
	6 months - 1 year	7 (9.9)
	> 1 year	23 (32.4)

[Table/Fig-2]: Oral hygiene practices and dental care utilisation (N=71).

Clinical oral examinations revealed that dental caries was the most frequent, 31 (43.7%), highlighting an unmet need for early preventive care. Conditions such as dentine hypersensitivity, periodontal disease, xerostomia, malocclusion, and edentulism were also documented, reflecting a broad spectrum of oral health challenges in this group. Oral mucosal lesions were relatively uncommon, 4 (5.6%) and only a small minority presented with other less typical findings [Table/Fig-3]. Overall, the pattern of morbidity suggested a predominance of preventable dental conditions.

Condition	n (%)
Periodontal diseases	10 (14.1)
Decayed tooth	31 (43.7)
Sensitivity	17 (23.9)
Oral mucosal lesions	4 (5.6)
Malocclusion	6 (8.5)
Dry mouth	8 (11.3)
Edentulism	7 (9.9)
Others*	1 (1.4)

[Table/Fig-3]: Distribution of dental pathologies.
*Fissured tongue was seen in one patient.

When participants were asked about reasons for not seeking dental care, perceptual barriers outweighed structural barriers. Lack of perceived need emerged as the most common 14 (19.7%) obstacle, reflecting limited awareness of oral health importance. Dental anxiety and financial concerns also contributed meaningfully. In contrast, logistical issues such as accessibility 5 (7.0%) or availability 5 (7.0%) of services were less frequently reported. These findings indicate that improving knowledge and addressing fear-related concerns may have a greater impact than infrastructural modifications [Table/Fig-4].

Barriers	n (%)
Dental anxiety	8 (11.27)
Perceived need	14 (19.72)
Financial constraints	8 (11.27)
Accessibility	5 (7.04)
Availability	5 (7.04)
No barrier	31 (43.66)

[Table/Fig-4]: Reported barriers to dental care (N=71).

The overall DMFT scores showed meaningful variation across age categories. The highest burden of dental disease was noted in middle-aged and older adults, with a statistically significant age-associated trend (p-value=0.015). Younger participants showed comparatively lower DMFT values, suggesting a cumulative effect of illness duration, lifestyle factors, and delayed care-seeking over time [Table/Fig-5]. Other variables, including gender, duration of illness, schizophrenia severity, brushing frequency, and time since the last dental visit, did not demonstrate significant differences in DMFT scores.

Variables	Categories	DMFT ** (Mean±SD)	p-value
Age#	<20 years	1.80±2.17	0.015***
	21 - 30 years	0.44±0.70	
	31 - 40 years	2.14±2.21	
	41 - 50 years	3.75±3.89	
	> 50 years	5.71±9.75	
Gender$	Male	2.19±2.97	0.725
	Female	3.18±6.61	
Duration of illness#	<6 months	3.45±7.66	0.746
	6 months - 1 year	1.58±1.88	
	>1 year	2.75±4.90	
Severity of schizophrenia#	Mild	2.81±5.30	0.884
	Moderate	2.50±5.65	
	Severe	2.69±3.52	
Brushing frequency$	Once a day	2.80±5.27	0.944
	Twice a day	1.43±1.40	
Last visit to dentist#	Never	1.77±2.36	0.723
	6 months	3.82±7.77	
	6 months - 1 year	5.86±11.02	
	> 1 year	2.30±2.77	

[Table/Fig-5]: DMFT* across sociodemographic and clinical subgroups (N=71).
*DMFT: Decayed, missing, and filled teeth index; **SD: Standard deviation; ***Significant at p<0.05; # Kruskal-Wallis Test, $ Mann-whitney U Test

DISCUSSION

The present cross-sectional study demonstrated a substantial burden of dental morbidity among adults with schizophrenia, with decayed teeth and missing teeth being the most common findings. The mean DMFT index was modest compared to the general population [23], yet it showed a statistically significant association with age, peaking in the 41-50-year group. No significant differences emerged with respect to gender, duration of illness, or illness severity. Oral hygiene behaviours were suboptimal, with most participants brushing only once daily and more than two-fifths never having visited a dentist. These findings indicate that, despite being engaged in mental healthcare, a considerable proportion of individuals with schizophrenia remain at risk for preventable oral disease, underscoring the need for targeted preventive and treatment strategies within psychiatric services.

The results align with prior evidence demonstrating disproportionately high rates of dental morbidity among individuals with schizophrenia [7,10]. Global reviews confirm that individuals with schizophrenia consistently exhibit higher dental pathology than the general

population, often driven by psychotropic medication side-effects and broader psychosocial disadvantage [24]. Teng PR et al., (2016), using Taiwan's National Health Insurance Research Dataset, reported significantly lower odds of dental service utilisation among patients with severe mental illness, with the deficit most pronounced in schizophrenia [25]. Registry data from Denmark similarly revealed that only 43% of patients with schizophrenia accessed dental care annually [26]. These international observations parallel finding of the current study that most participants had not consulted a dentist within the past year, underscoring that underutilisation of dental services among individuals with schizophrenia is persistent, cross-cultural, and largely resistant to improvements in general healthcare access.

In the present study, xerostomia was reported by approximately 11.3% of participants, a finding consistent with literature linking antipsychotic use to reduced salivary flow and subsequent oral health deterioration [10]. While the current study did not assess individual medication profiles, previous research highlights the contribution of anticholinergic burden and metabolic side-effects contribute to oral health deterioration in schizophrenia [11]. When combined with socioeconomic disadvantage, limited health literacy, and stigma may further reduce the priority placed on preventive dental care, resulting in delayed presentation and treatment only at advanced stages of disease.

In the present cohort, suboptimal oral hygiene practices were highly prevalent, with the majority brushing only once daily and a large proportion never having sought dental care. Recent work (Dash P et al., 2025) in Indian psychiatric populations highlights similar patterns of neglect, where inadequate self-care and delayed treatment seeking contribute to high caries burden [27]. The findings of untreated decayed tooth as the most common pathology resonate with these reports and underscore the preventable nature of much of the observed morbidity.

In the present study, most reported barriers to dental care were perceptual rather than structural. The most common deterrent was a lack of perceived need, followed by dental anxiety and financial concerns, whereas accessibility and availability were seldom cited. These findings mirror a 2024 systematic review by Johnson AM et al., which identified similar themes- including cost concerns, dental fears, low prioritisation of oral health, and poor provider communication- as key obstacles among individuals with mental illness [28].

Addressing these attitudinal and informational barriers through psychoeducation, anxiety-reducing strategies, and integration of oral health into psychiatric care may be more effective than expanding infrastructure alone. From a clinical perspective, these findings underscore the importance of integrating oral health promotion into routine psychiatric care. Interdisciplinary collaboration between psychiatrists and dental professionals can facilitate early detection and timely management of preventable dental disease. At a public health level, targeted educational interventions to enhance awareness of oral health, coupled with strategies to reduce dental anxiety, may improve care utilisation [29]. Embedding routine dental screening into psychiatric follow-up, as recommended by recent global calls for integrated care, may help bridge this critical service gap and improve overall quality of life in individuals with schizophrenia.

The present study is among the few from India to evaluate oral health status in individuals with schizophrenia, a population often overlooked in mental health research. Strengths include the use of standardised dental assessments conducted by trained professionals, integration of psychiatric and dental data within the same cohort and exploration of both clinical correlates and patient-reported barriers to care. By capturing not only prevalence but also behavioural patterns and perceived obstacles, the study provides a more comprehensive understanding of oral health needs in this group.

Limitation(s)

The present study has some limitations. Its cross-sectional design precludes causal inferences, and recruitment from a single tertiary centre may restrict generalisability. Detailed medication profiles, dietary factors, and objective periodontal indices were not collected, and barriers were assessed using a simple checklist rather than a validated scale. The modest sample size may also have limited statistical power. Nevertheless, the study provides important insights from an LMIC context, underscoring the need to integrate oral health within psychiatric care.

Overall, the present study shows that people with schizophrenia carry a clear burden of preventable dental problems, and many do not seek care due to lack of awareness or fear, rather than true access issues. These results are in line with earlier reports from India and other countries. At the same time, the small sample, single-centre design, cross-sectional method, and simple yes/no barrier tool mean the findings should be seen as exploratory. Despite these limits, the pattern suggests that improving awareness and integrating oral health support into psychiatric services may help reduce this gap.

CONCLUSION(S)

Individuals with schizophrenia face a high burden of preventable dental morbidity, largely due to poor hygiene practices and underutilisation of services. Integrating oral health promotion into routine psychiatric care and fostering collaboration with dental services are essential to improve overall health and quality of life. Future longitudinal and interventional studies are warranted to clarify causal pathways and evaluate the effectiveness of integrated oral health strategies in this population.

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PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Psychiatry, KMCH Institute of Health Sciences and Research, Coimbatore, Tamil Nadu, India.
2. Assistant Professor, Department of Psychiatry, KMCH Institute of Health Sciences and Research, Coimbatore, Tamil Nadu, India.
3. Associate Professor, Department of Prosthodontics, KMCH Institute of Health Sciences and Research, Coimbatore, Tamil Nadu, India.
4. Professor, Department of Community Medicine, KMCH Institute of Health Sciences and Research, Coimbatore, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
BS Suganya Priyadharshini,
12th Cross Street, Thirumagal Nagar, Peelamedu Pudur, Coimbatore-641004, Tamil Nadu, India.
E-mail: suganyapriyadharshinibs@gmail.com

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