

Oral Health-related Quality of Life among Psychiatric In- and Outpatients Diagnosed with Different Disorders in Indore, Central India

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ABSTRACT

Aim: To assess oral health-related quality of life among psychiatric patients.

Materials and methods: A total of 400 inpatients and outpatients reporting to the Department of Psychiatry was taken as the final sample. Subjects diagnosed with mental illness and on medication for at least 1 year, who were able to respond to the pro forma and oral health impact profile (OHIP) questionnaire, were included. A guided, self-administered structured questionnaire was designed to include sociodemographic characteristics and short form of the OHIP-14 consisting of 14 items covering 7 domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. It was used to assess the impact of oral conditions on well-being and quality of life. The data collected were subjected to statistical analysis using SPSS IBM version 20.0.

Results: The highest mean OHIP score for the disorders was seen among the patients diagnosed with schizophrenia for functional limitation (2.73 ± 1.194), 2.91 ± 1.111 for psychological discomfort, 2.67 ± 1.203 was recorded for physical disability, 2.79 ± 1.156 was the mean score for psychological disability followed by a score of 2.87 ± 1.172 for social disability. The highest mean score for the handicap domain was recorded for schizophrenia patients (2.73 ± 1.241) whereas for physical pain, a mean score of 3.01 ± 1.261 was recorded for patients diagnosed with bipolar disorder.

Conclusion: Based on the findings of the study, it can be stated that the psychiatrists should pay attention to the dental anxiety concerns of the patients and encourage them to visit oral health professionals.

Clinical significance: The study highlights the importance of incorporating dental health education to psychiatric rehabilitation programs.

Keywords: Disability, Oral hygiene, Pain, Psychological, Quality of life.

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INTRODUCTION

The disabled comprise a substantial section of the community and it is estimated that there are about 500 million people with disabilities worldwide.¹ The World Health Organization (WHO) has defined a handicapped person as one who over an appreciable period is prevented by physical or mental conditions from full participation in normal activities of their age-groups including those of social, recreational, educational, and vocational nature.²

Mental illnesses are characterized by alterations in thinking, mood or behavior (or some combination thereof) associated with significant distress, and impaired functioning over an extended period of time. The symptoms of mental illness vary from mild to severe, depending on the type of mental illness, the individual, the family, and the socioeconomic environment. In some cases, however, the duration and intensity of painful feelings or disorienting patterns of thought may interfere seriously with everyday life. Ordinary coping skills are overwhelmed, and people may need help in regaining balance and restoring their fullest functioning. According to the WHO, major depression is the fourth leading cause of disability-adjusted life years (DALYs) in the world. It is the leading cause of years of life lived with disability (YLD), and bipolar is the sixth leading cause.³

Mental illness affects people of all nations and at all economic levels. Psychiatric disorders affect the general behavior of a

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person, impair the level of functioning, and alter perception. This group is often neglected because of ignorance, fear, stigma, misconception, and negative attitudes.⁵ People with severe mental illness are susceptible to oral disease for a number of reasons: these include lack of motivation, overall healthcare negligence including poor oral hygiene, fear, specific dental phobia, dental costs, difficulty in accessing healthcare facilities, the side effects of psychiatric drugs such as dry mouth (xerostomia), lack of family and/or community support networks, not least the social stigma that alludes to mental illness.⁴⁻⁸

A strong interaction exists between oral health and mental health. In one direction, about half of all dental patients experience some anxiety about their dental visits, and in some cases, this leads to dental phobia, a form of specific phobia. Perception of dental pain may also be exacerbated by depression or anxiety, regardless of the degree of oral pathology. In the other direction, psychiatric illness can lead to poor oral health. People with mental illness, particularly severe mental illness, are at greater risk of oral health problems including poor oral hygiene, rampant dental decay, advanced generalized periodontal disease, multiple missing teeth, ill-fitting dental prostheses, various oral-facial pain syndromes, xerostomia, poor nutrition, and poor diet; the heavy consumption of sugary drinks; comorbid substance misuse including tobacco, alcohol, or psychostimulants; and financial or other barriers to accessing dental care.^{4,9}

Assessing the oral health-related quality of life in the psychiatric patients is one of the primary needs. The oral health impact profile (OHIP-14) is an impressive range of instrument that assesses the impact of oral conditions on well-being and quality of life. The OHIP-14 measures people's perception of the social impact of oral disorders on their well-being.¹⁰⁻¹³ The questions in the OHIP capture seven conceptually formulated dimensions that are based on Locker's theoretical model of oral health.¹⁴ Although literature search has revealed a majority of the previous studies in psychiatric patients have reported overall poor oral health, unmet treatment needs, and/or unavailability of oral health services for these individuals in different parts of the world,^{5,8,15} there exists a paucity of literature about oral health-related quality of life in the psychiatric patients in Indian population. Hence, this study was undertaken to assess oral health-related quality of life among psychiatric patients reporting to the Department of Psychiatry at Sri Aurobindo Institute of Medical Sciences and Postgraduate Institute, Indore.

MATERIALS AND METHODS

The present study was conducted from August 2016–March 2017 at the Department of Psychiatry, Sri Aurobindo Institute of Medical Sciences and PG Institute, Indore, to assess oral health-related quality of life among psychiatric patients. This hospital was selected

as it provides a tertiary level of healthcare to patients from both rural and urban areas and from the adjoining areas of Indore city irrespective of their socioeconomic status. Ethical approval for the study was obtained from the Institutional review board of Sri Aurobindo College of Dentistry and the concerned unit head of the Department of Psychiatry. The sample size was calculated using Epi Info software. A minimum required sample size of 388 patients was calculated considering the nonresponse rate. However, a total of 400 inpatients and outpatients reporting to the Department of Psychiatry were taken as the final sample. Subjects diagnosed with mental illness and on medication for at least 1 year, who were able to respond to the pro forma and OHIP questionnaire, were included. Written informed consent was obtained from the study subjects/ caregivers before conducting the study by either taking a signature or a thumb impression. Any systemic disorders or conditions contraindicating oral examination, brain injury, intellectual disability, aggression tendencies, and lack of cooperation were excluded from the study. The visiting schedule was planned after discussion with the authorities such that the regular curriculum of the respective unit was not disturbed.

A guided, self-administered structured questionnaire pro forma was designed to include sociodemographic characteristics and short form of the OHIP-14 consisting of 14 items covering 7 domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicaps. Each item was scored on a 5-point Likert scale: 0, never; 1, hardly ever; 2, occasionally; 3, fairly often; and 4, very often or every day. Cumulative OHIP-14 score was calculated by adding the scores of all items, and a higher score represents a poorer oral health-related quality of life. The clinical examination involved inspection of oral cavity with plain mouth mirror, explorer, and community periodontal index (CPI) probe under good illumination using a LED torch. All the examinations were performed by the principal investigator along with trained assistant for recording the findings.

The data collected were subjected to statistical analysis using SPSS IBM version 20.0. The level of significance was fixed at 5%, and $p \leq 0.05$ was considered statistically significant. Continuous variables were summarized by mean and standard deviation. Student's *t*-test and analysis of variance (ANOVA) were employed to compare the mean differences between the groups for different responses.

RESULTS

The age-wise and gender-wise mean OHIP scores among the study subjects are as shown in Tables 1 and 2, respectively. Most of the study subjects had painful aching in their mouth, and it was uncomfortable for them to eat any food because of problems with their teeth, mouth, or dentures. The highest mean OHIP score

Table 1: Comparison of mean OHIP scores among the study population with respect to age

Variables	OHIP							
	Functional limitation	Physical pain	Psychological discomfort	Physical disability	Psychological disability	Social disability	Handicap	Total
Mean ± (SD)	Mean ± (SD)	Mean ± (SD)	Mean ± (SD)	Mean ± (SD)	Mean ± (SD)	Mean ± (SD)	Mean ± (SD)	Mean ± (SD)
Age <30 (n = 128)	1.85 ± 1.095	2.47 ± 1.131	2.13 ± 1.219	1.92 ± 1.296	2.00 ± 1.297	2.21 ± 1.173	1.77 ± 1.339	2.05 ± 0.951
31–60 (n = 237)	2.47 ± 1.174	2.76 ± 1.150	2.74 ± 1.108	2.32 ± 1.197	2.37 ± 1.168	2.56 ± 1.104	2.18 ± 1.347	2.49 ± 0.986
>61 (n = 35)	3.30 ± 0.778	3.44 ± 0.793	3.28 ± 1.023	3.12 ± 1.017	2.98 ± 1.331	3.37 ± 0.731	3.04 ± 1.244	3.22 ± 0.860
<i>p</i> value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

(S), significant ($p \leq 0.05$); (HS), highly significant ($p \leq 0.001$). Test: analysis of variance (ANOVA)



was recorded for physical pain among males in the age-group of 1–30 years. The mean differences among the different domains of OHIP were found to be highly significant with p -value <0.05 (Tables 1 and 2).

The mean OHIP scores with respect to various socioeconomic status classes are as shown in Table 3. It was observed that most of the study subjects belonging to upper class, upper middle class, and middle class had painful aching in their mouth, and it was uncomfortable for them to eat any food because of problems with

their teeth, mouth, or dentures. However, the psychiatric patients belonging to lower middle class and those of lower socioeconomic status reported to be more self-conscious and tensed because of their teeth, mouth, or dentures.

Table 4 shows the mean OHIP scores among the study subjects in relation to the disorder. The highest mean score for the handicap domain was recorded for schizophrenia patients (2.73 ± 1.241) whereas for physical pain, a mean score of 3.01 ± 1.261 was recorded for patients diagnosed with bipolar disorder. Among

Table 2: Comparison of mean OHIP scores among the study population with respect to gender

Variables Mean \pm (SD)	OHIP							
	Functional limitation Mean \pm (SD)	Physical pain Mean \pm (SD)	Psychological discomfort Mean \pm (SD)	Physical disability Mean \pm (SD)	Psychological disability Mean \pm (SD)	Social disability Mean \pm (SD)	Handicap Mean \pm (SD)	Total Mean \pm (SD)
Gender Male (n = 228)	2.24 \pm 1.139	2.58 \pm 1.148	2.48 \pm 1.184	2.16 \pm 1.193	2.19 \pm 1.230	2.37 \pm 1.112	1.97 \pm 1.330	2.29 \pm 0.964
Female (n = 172)	2.48 \pm 1.243	2.91 \pm 1.116	2.73 \pm 1.183	2.39 \pm 1.326	2.46 \pm 1.267	2.72 \pm 1.49	2.33 \pm 1.409	2.57 \pm 1.057
<i>p</i> value	<0.046	<0.004	<0.037	<0.078	<0.029	<0.003	<0.009	<0.005

(S), significant ($p \leq 0.05$); (HS), highly significant ($p \leq 0.001$). Test: Student's *t*-test

Table 3: Comparison of mean OHIP scores among the study population with respect to socioeconomic status

Variables Mean \pm (SD)	OHIP							
	Functional limitation Mean \pm (SD)	Physical pain Mean \pm (SD)	Psychological discomfort Mean \pm (SD)	Physical disability Mean \pm (SD)	Psychological disability Mean \pm (SD)	Social disability Mean \pm (SD)	Handicap Mean \pm (SD)	Total Mean \pm (SD)
SES Upper class (n = 171)	2.08 \pm 1.178	2.62 \pm 1.186	2.52 \pm 1.240	2.27 \pm 1.262	2.26 \pm 1.246	2.39 \pm 1.125	1.98 \pm 1.383	2.30 \pm 1.009
Upper-middle (n = 105)	2.46 \pm 1.116	2.82 \pm 1.149	2.56 \pm 1.161	2.10 \pm 1.204	2.21 \pm 1.249	2.52 \pm 1.144	2.15 \pm 1.332	2.40 \pm 0.991
Middle (n = 62)	2.41 \pm 1.255	2.70 \pm 1.128	2.48 \pm 1.127	2.15 \pm 1.243	2.32 \pm 1.211	2.53 \pm 1.176	2.03 \pm 1.381	2.37 \pm 1.002
Lower- middle (n = 53)	2.72 \pm 1.170	2.80 \pm 1.066	2.84 \pm 1.141	2.49 \pm 1.335	2.49 \pm 1.331	2.80 \pm 1.128	2.42 \pm 1.367	2.65 \pm 1.051
Lower (n = 9)	3.22 \pm 0.666	3.38 \pm 0.485	3.66 \pm 0.433	3.33 \pm 0.661	3.16 \pm 0.968	3.44 \pm 0.527	3.55 \pm 0.726	3.39 \pm 0.540
<i>p</i> value	<0.001	<0.246	<0.026	<0.034	<0.191	<0.023	<0.006	<0.009

(S), significant ($p \leq 0.05$); (HS), highly significant ($p \leq 0.001$). Test: analysis of variance (ANOVA)

Table 4: Comparison of mean OHIP scores among the study population with respect to disorder

Variables	Disorder							<i>p</i> value
	Schizophrenia (n = 111) Mean \pm (SD)	Major anxiety (n = 82) Mean \pm (SD)	Major depressive (n = 77) Mean \pm (SD)	Bipolar (n = 31) Mean \pm (SD)	Substance dependence (n = 61) Mean \pm (SD)	Obsessive compulsive (n = 15) Mean \pm (SD)	Dementia (n = 23) Mean \pm (SD)	
OHIP score Functional limitation	2.73 \pm 1.194	1.93 \pm 1.148	2.07 \pm 1.065	2.24 \pm 1.465	2.50 \pm 1.064	2.70 \pm 1.065	2.39 \pm 1.076	<0.001
Physical pain	2.87 \pm 1.045	2.42 \pm 1.252	2.53 \pm 1.194	3.01 \pm 1.261	2.99 \pm 0.955	2.93 \pm 1.193	2.52 \pm 1.038	<0.013
Psychological discomfort	2.91 \pm 1.111	2.23 \pm 1.237	2.48 \pm 1.110	2.56 \pm 1.382	2.72 \pm 1.085	2.66 \pm 1.248	2.36 \pm 1.263	<0.007
Physical disability	2.67 \pm 1.203	1.92 \pm 1.254	1.99 \pm 1.255	2.43 \pm 1.364	2.31 \pm 1.187	2.16 \pm 1.263	2.10 \pm 1.043	<0.001
Psychological disability	2.79 \pm 1.156	1.84 \pm 1.253	2.00 \pm 1.255	2.50 \pm 1.500	2.40 \pm 1.132	2.16 \pm 1.011	2.26 \pm 0.951	<0.001
Social disability	2.87 \pm 1.172	2.24 \pm 1.163	2.31 \pm 1.115	2.45 \pm 1.280	2.71 \pm 0.959	2.36 \pm 0.875	2.28 \pm 0.974	<0.001
Handicap	2.73 \pm 1.241	1.74 \pm 1.379	1.74 \pm 1.415	2.19 \pm 1.492	2.07 \pm 1.344	2.23 \pm 1.115	1.86 \pm 0.956	<0.001
Total	2.80 \pm 1.024	2.05 \pm 1.019	2.16 \pm 0.898	2.48 \pm 1.114	2.53 \pm 0.915	2.46 \pm 0.897	2.25 \pm 0.871	<0.001

(S), significant ($p \leq 0.05$); (HS), highly significant ($p \leq 0.001$). Test: analysis of variance (ANOVA)

all the disorders, schizophrenia patients were the most affected. They had trouble pronouncing any word, felt that their taste had worsened, were more self-conscious, and felt tensed because of problems with their teeth, mouth, or dentures. The patients had an unsatisfactory diet and also had to interrupt meals. They found it difficult to relax and were also a bit embarrassed because of problems with their teeth, mouth, or dentures. Schizophrenia patients felt a bit irritable with other people, had difficulty in doing their usual jobs, felt life in general to be less satisfying, and had been totally unable to function because of problems with their teeth, mouth, or dentures.

Table 5 shows the mean OHIP scores among the study subjects with respect to the oral hygiene practices followed. The oral hygiene practices included three components namely method of cleaning, material used for cleaning, and frequency of cleaning. An overall mean OHIP score of 2.22 ± 1.024 was seen among the study subjects using toothbrush whereas 2.79 ± 0.867 was the mean score of the psychiatric subjects using finger as a method of cleaning. The differences were found to be statistically significant with p -value <0.05 . The mean OHIP scores were significantly higher among the subjects using the toothpowder and brushing once daily when compared to psychiatric subjects using toothpaste and brushing more than once daily for cleaning their teeth (p -value <0.05 , Table 5).

DISCUSSION

In the present study, the highest mean OHIP score with respect to age was recorded for physical pain in the age-group 1–30 years (2.47 ± 1.13) followed by 2.76 ± 1.150 in the age-group 31–60 years and 3.44 ± 0.793 in the age-group 61–90 years. With respect to gender also, the highest mean OHIP score was recorded for physical pain among the males (2.58 ± 1.148) whereas 2.91 ± 1.116 was the mean score for females. It was seen that most of the study subjects had painful aching in their mouth, and it was uncomfortable for them to eat any food because of problems with their teeth, mouth, or dentures.

Patel et al. carried out a study to assess the prevalence of oral diseases and oral health-related quality of life in people with severe mental illness undertaking community-based psychiatric care.¹⁶ The results of the study are in accordance with the findings of our study. It was seen in their study that the most frequently reported impact was physical pain with the highest proportions of respondents reporting painful aching in the mouth and finding it uncomfortable to eat any foods, although this was reported more frequently in the survey (79.8%, $n = 71$) than nationally (30%).

The highest mean OHIP score in the present study for disorders was seen among the patients diagnosed with schizophrenia (2.80 ± 1.024). The results showed that among all the disorders, schizophrenia patients were the most affected. They had trouble pronouncing any word, felt that their taste had worsened, were more self-conscious, and felt tensed because of problems with their teeth, mouth, or dentures. The patients had an unsatisfactory diet and also had to interrupt meals. They found it difficult to relax and were also a bit embarrassed because of problems with their teeth, mouth, or dentures. Schizophrenia patients felt a bit irritable with other people, had difficulty in doing their usual jobs, felt life in general to be less satisfying, and had been totally unable to function because of problems with their teeth, mouth,

Table 5: Comparison of mean OHIP scores among the study population with respect to oral hygiene practices

Variables	Oral hygiene practices										
	Method of cleaning*					Material used for cleaning*					
	Toothbrush (n = 272)	Finger (n = 126)	Others (n = 2)	p value	Toothpaste (n = 270)	Powder (n = 128)	Others (n = 2)	p value	Once daily (n = 364)	More than once daily (n = 36)	p value
Functional limitation	2.09 ± 1.152	2.88 ± 1.086	3.25 ± 1.060	<0.001	2.10 ± 1.142	2.84 ± 1.134	3.25 ± 1.060	<0.001	2.41 ± 1.175	1.63 ± 1.112	<0.001
Physical pain	2.54 ± 1.215	3.10 ± 0.860	4.00 ± 0.000	<0.001	2.55 ± 1.214	3.08 ± 0.876	4.00 ± 0.000	<0.001	2.82 ± 1.109	1.75 ± 1.045	<0.001
Psychological discomfort	2.40 ± 1.233	2.97 ± 0.979	4.00 ± 0.000	<0.001	2.43 ± 1.234	2.91 ± 1.011	4.00 ± 0.000	<0.001	2.65 ± 1.186	1.97 ± 1.035	<0.001
Physical disability	2.11 ± 1.255	2.56 ± 1.193	4.00 ± 0.000	<0.001	2.12 ± 1.258	2.53 ± 1.198	4.00 ± 0.000	<0.002	2.32 ± 1.255	1.68 ± 1.109	<0.003
Psychological disability	2.12 ± 1.264	2.69 ± 1.125	4.00 ± 0.000	<0.001	2.12 ± 1.267	2.68 ± 1.123	4.00 ± 0.000	<0.001	2.35 ± 1.255	1.81 ± 1.115	<0.013
Social disability	2.33 ± 1.170	2.92 ± 0.953	4.00 ± 0.000	<0.001	2.33 ± 1.171	2.91 ± 0.955	4.00 ± 0.000	<0.001	2.59 ± 1.118	1.87 ± 1.173	<0.001
Handicap	1.97 ± 1.372	2.42 ± 1.328	4.00 ± 0.000	<0.003	1.96 ± 1.378	2.44 ± 1.306	4.00 ± 0.000	<0.001	2.20 ± 1.380	1.40 ± 1.094	<0.001
Total	2.22 ± 1.024	2.79 ± 0.867	3.89 ± 0.151	<0.001	2.23 ± 1.024	2.77 ± 0.878	3.89 ± 0.151	<0.001	2.48 ± 1.004	1.73 ± 0.857	<0.001

*Others as category was not considered for analysis since there were only two patients in the group. Student's t-test was used to test the significance. (S), significant ($p < 0.05$); (HS), highly significant ($p < 0.001$). Test: Student's t-test



or dentures. However, bipolar patients reported to have more painful aching in their mouth and were the most uncomfortable of all the disorders to eat any food because of problems with their teeth, mouth, or dentures.

Previous literature has shown that oral health-related quality of life was significantly correlated with psychological factors, such as depression and anxiety. On the contrary, another study suggested that patients view their oral health as impaired only if the symptoms of disease affect their functioning. It was suggested that the functioning of the mouth or body could be seen as a link between health-related quality of life and oral health-related quality of life.¹⁷ Recent research has highlighted that oral disorders have emotional and psychosocial consequences as serious as other disorders.^{18,19}

In a study conducted by Buunk-Werkhoven among imprisoned Dutch forensic psychiatric patients to assess their oral health-related quality of life, it was seen that dental anxiety and unhealthy dentition jointly explained 26.7% of the variance in oral health-related quality of life and the better the patients performed their oral hygiene behavior, the better their oral health-related quality of life.²⁰ In our study, an overall mean OHIP score of 2.48 ± 1.004 was seen among the study subjects brushing once daily whereas 1.73 ± 0.857 was the mean score of psychiatric subjects brushing more than once daily. The prevalence of oral disease is suggestive of inefficient good oral hygiene behavior (OHB).

At the end of the study, all the psychiatric patients reporting to the Department of Psychiatry at Sri Aurobindo Institute of Medical Sciences and Postgraduate Institute, irrespective of age, gender, socioeconomic status, occupation, education, and disorder diagnosed with, were educated regarding oral health and acceptable oral hygiene behaviors and were referred to Sri Aurobindo college of Dentistry for any further dental treatment required.

Although the sample size in this cross sectional study was moderate, the present study can be used as basis for planning longitudinal or cross-sectional studies with a larger sample size. Since the study was based at a diverse site, the question of how to generalize findings must be considered carefully. A large-scale study and a long-term follow-up are required for further assessments in this regard.

CONCLUSION

Based on the findings of the study, it can be stated that the psychiatrists should pay attention to the dental anxiety concerns of the patients and encourage them to visit oral health professionals. The study highlights the importance of bridging dental health education to psychiatric rehabilitation programs.

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