Original Article

Determination of Oral Health Related Quality of Life in Secondary School Going Children using OIDP Index - A Cross Sectional Study

Monika Kumari[1]*, Irfan Ali[2], Binod Shankar[3], Reya Shree[4], Lav Kumar Niraj[5], Sumit Sharan Sinha[6]

[1] Assistant Professor, Department of Public Health Dentistry, Dental College Azamgarh, Azamgarh, Uttar Pradesh, India.

[2] Tutor, Department of Public Health Dentistry, Government Dental College, Srinagar, India.

[3] Private Consultant, Department of Prosthodontics and Crown & Bridge, Patna, Bihar, India.

[4] Tutor, Department of Periodontology and Implantology, D.J College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.

[5] Assistant Professor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.

[6] Tutor, Department of Oral and Maxillofacial Pathology, D.J College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India..

Email: [1] mr078242@gmail.com

***Corresponding Author:** Monika Kumari

Assistant Professor, Department of Public Health Dentistry, Dental College Azamgarh, Azamgarh, Uttar Pradesh, India.

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Abstract

Introduction-Dental caries is a multifactorial infectious microbial disease that affects 60–90% of school-aged children. It is a serious health issue in the majority of industrialised nations.

Materials and Methods-A cross-sectional survey of school children was conducted to assess the relationship between dental caries and OHRQoL. The independent sample t-test was used to assess the relationship between the mean of C-OIDP dimensions and the prevalence of dental caries. Any p-value less than 0.05 were considered as significant.

Results-Mean OIDP score for all dimensions (except eating) was higher in subjects with caries than in subjects without caries among rural schoolchildren. With the exception of eating, speaking, cleaning, working, and emotion, there was a statistically significant difference in OIDP scores between subjects with and without caries. (T-test independent).

Conclusion- The current study shows positive relation between caries and OHRQoL. Therefore, it is important to encourage the use of OHRQoL measures in children to learn more about dental health and how it affects kids' overall health.

Keywords: Dental Caries, School Children, OHRQoL, Rural, Urban.

INTRODUCTION

A person's quality of life is greatly influenced by their oral health, which is a crucial aspect of their overall health and well-being. Health is now regarded as the achievement or maintenance of optimal functioning as well as social and psychological well-being rather than merely the absence of disease. [1,2,3] Poor oral health has a significant impact on overall health, and several oral diseases are associated with chronic diseases. Pain, difficulties eating, chewing, smiling, and communicating as a result of missing, discolored, or damaged teeth have a significant impact on people's daily lives and well-being. Oral diseases also limit activities at school, work, and home, resulting in millions of lost school and work hours worldwide each year. [1]

The most significant global oral health burdens have historically been regarded as dental caries and periodontal diseases. Dental caries is a multifactorial infectious microbial disease in which the host, diet, and microbial flora interact over time in a way that promotes demineralization of the tooth enamel and the development of caries.[2] Since caries has a very high morbidity potential and is a by-product of man's progress toward civilization, it has attracted the attention of humanity. Given

that it affects 60–90% of school-aged children and the vast majority of adults, dental caries is a serious health issue in the majority of industrialized nations. Prior to recent years, dental caries prevalence rates were generally low in developing nations, but they are now steadily rising. This is primarily caused by rising sugar consumption and insufficient fluoride exposure. [1]

The terms 'quality of life' and 'oral health-related quality of life' have gained widespread acceptance in recent years as a result of a paradigm shift away from traditional clinical dental criteria such as caries or malocclusion and toward a more patient-centered oral health care delivery system that focuses on a person's social, emotional, and physical experience (Sischo & Broder,2011). [3] There is a growing recognition that more subjective, patient-based outcomes, such as quality of life, should be used to assess the impact of an individual's oral health status, as oral disorders can have a significant impact on one's physical, social, and psychological well-being (Locker,2004; Fernandes et al,2006; Oliviera and Sheiham,2004). [4,5] Of all the issues threatening the oral health of young patients, tooth decay is the one that affects a child's quality of life the most frequently by causing aesthetic and functional issues in daily clinical life. Additionally, it has been found that the impact on a patient's quality of life is negatively correlated with the number of teeth affected or lost. [4,5] Caries has a negative effect on children's lives in a number of ways, including symptoms and functional changes like chewing and speech impairment, school-related issues like preschool absenteeism, psychological problems like trouble sleeping, and irritability, as well as other aspects of social interaction like smiling and refraining from speaking. There may be a decline in academic performance. [6,7,8,9,10] A growing number of people are interested in determining how oral conditions affect people's quality of life. It is recommended that oral health surveys should include the measurement of Oral Health-Related Quality of Life (OHRQoL). Determining the relationship between dental caries and OHRQoL in secondary school children of Modinagar City was the purpose of the current study.

MATERIALS AND METHOD

A cross-sectional survey was conducted to assess relationship between dental caries and OHRQoL in Secondary school children of Modinagar City. A total 600 study participants are included in the study in which only 560 responded.

Inclusion criteria

1. All secondary school going children urban and rural are included in the study.
2. Schools which gave ethical approval to assess survey.

Exclusion criteria

1. Students who were special and differently abled.
2. Students who were under any medical, dental treatment that would hamper the course of examination.

Ethical clearance and Official Permission:

Before scheduling the survey, the Institutional Review Board of Divya Jyoti College of Dental Science and Research, Modinagar, obtained official permission and ethical clearance.

Informed Consent

After fully explaining the purpose and methodology of the study, all study subjects' parents provided written informed consent. The participants who have agreed are only included in study.

Data Collection

The current study collected data using a structured prevalidated performa. The information gathered was divided into two categories: Assessment of sociodemographic information and dental caries experience of study subjects based on clinical examination procedures outlined in the WHO Basic Oral Health Survey 2013 proforma. The Child OIDP index was used to assess the oral health-related quality of life of schoolchildren.

Statistical Analysis

The data was analyzed using SPSS v20.0 software package. Descriptive statistics such as mean, standard deviation, and percentage age were used. Independent sample t- test was used to measure the association between mean of C-OIDP dimensions and prevalence of dental caries. Any p-value less than 0.05 were considered as significant.

RESULTS

TABLE – 1 Demographic details of study participants

	Urban		Rural	
	Number	**Percentage (%)**	**Number**	**Percentage (%)**
Male	179	63.93	167	59.64
Female	101	36.07	113	40.36
Dental Visit/year YES	69	24.64	64	22.86
NO	211	75.36	216	77.14
Vegetarian	161	57.5	175	62.5
Mixed	119	42.5	105	37.5
Less than 5	183	65.36	183	65.36
Score 10	59	21.07	56	20.00
Score 15 and more	38	13.57	41	14.64
Toothbrush and toothpaste	265	94.64	263	93.92
Toothbrush and toothpowder	15	5.36	17	6.08
Once	274	97.86	276	98.58
Twice	6	2.14	4	1.42
Decayed (D)	172	61.4	186	66.43
Filled	25	8.90	21	7.50
Missing	24	8.60	28	10.00

Table 1 shows that of the 280 urban school children, 179 (63.93%) were males and 101 (36.07%) were females, while of the 280 rural school students, 167 (59.64%) were males and the remaining 113 (40.36%) were females. Among the 280 students at Urban School, it was discovered that 211 (75.36%) had no previous dental visits, while only 69 (24.64 %) had dental visits. Among the 280 rural school students, 216 (77.14%) had no previous dental visit, while 64 (22.86 %) visited the dentist once a year. The majority of the subjects (161(57.5 %) of the 280 students of Urban school children) were vegetarians, while the remaining 119(42.5 %) consumed a mixed diet. Among the 280 rural schoolchildren studied, 175 (62.5 %) were vegetarians, while only 105 (37.5 %) consumed a mixed diet. Among the 280 urban school students, 183 (65.36 %) had a sugar score of five or less, 59 (21.07 %) had a score of ten, and 38 (13.57 %) had a score of fifteen or higher. Of the 280 rural school students, 183 (65.36 %) had a sugar score of 10, 56 (20.00 %) had a sugar score of less than or equal to five, and 41 (14.64 %) had a sugar score of fifteen or higher. It was discovered that 265 (94.64 %) of the 280 urban school study subjects used a toothbrush with toothpaste to clean their teeth, while 15 (5.36 %) used a finger and toothpowder. 263 (93.92 %) of rural school students used a toothbrush and toothpaste to clean their teeth, while 17 (6.08 %) used a finger and toothpowder.

TABLE 2-Mean OIDP Scores Among Rural and Urban School Children

	Urban	**Rural**	**T Value**	**P value**
Eating	3.35±4.07	2.87±3.97	1.398	0.163
Speaking	1.07±3.89	1.39±4.55	0.908	0.364
Cleaning	2.86±4.26	2.66±4.68	0.519	0.604
Sleeping	0.72±2.85	0.52±1.92	0.991	0.322

Smiling	2.62±4.62	1.95±3.72	1.894	0.059
Emotion	3.08±3.67	3.10±3.53	0.082	0.935
Work	0.41±1.97	0.42±1.56	0.095	0.924
Social Contact	0.71±2.08	0.90±2.74	0.955	0.340
Overall	14.83±14.18	13.85±15.45	0.787	0.432

**** Significant (p≤0.05)**

Table 2 shows that, the mean OIDP score for all dimensions (except eating) was higher in subjects with caries than in subjects without caries. Except for eating and cleaning, the difference in OIDP scores between subjects with and without caries was statistically significant for all dimensions (independent t-test).

TABLES. 3: Association Between Caries and OIDP among Urban School Childen

OIDP Variables	Caries Absent	Caries Present	P Value
Eating	3.35±3.488	3.35±4.35	0.999
Speaking	0.75±3.626	1.24±4.027	0.304
Cleaning	2.64±3.554	2.98±4.602	0.488
Sleeping	0.09±.647	1.06±3.452	0.001**
Smiling	0.72±0.2.281	3.63±5.198	0.001**
Emotion	2.25±3.195	3.52±3.834	0.003**
Work	0.19±1.130	0.53±2.291	0.093
Social Contact	0.31±1.409	0.92±2.336	0.007**
Overall	10.30±8.122	17.24±16.023	0.001**

Independent Sample T- test Significant (p≤0.05)**

TABLE 4 : Association Between Caries and OIDP among Rural School Childen

OIDP Variables	Caries Absent	Caries Present	P Value
Eating	3.02±3.867	2.81±4.028	0.676
Speaking	0.55±1.899	1.76±5.274	0.005**
Cleaning	2.65±4.082	2.68±4.934	0.958
Sleeping	0.05±.434	.73±2.257	0.001**
Smiling	0.61±2.541	2.53±4.002	0.001**
Emotion	2.53±3.279	3.36±3.610	0.061
Work	0.18±1.071	.53±1.718	0.036**
Social Contact	0.47±1.783	1.10±3.050	0.033**
Overall	10.06±10.787	15.50±16.841	0.001**

Independent Sample T- test Significant (p≤0.05)**

Tables 3 and 4, mean OIDP score for all dimensions (except eating) was higher in subjects with caries than in subjects without caries among rural schoolchildren. With the exception of eating, speaking, cleaning, working, and emotion, there was a statistically significant difference in OIDP scores between subjects with and without caries. (T-test independent)

TABLES 5. Correlation Between DMFT and Mean OIDP Scores among School Children

OIDP Variables	Urban	Rural	Total
Eating	0.048	0.013	0.034
Speaking	0.017	0.004	0.012
Cleaning	0.006	0.001	0.001
Sleeping	0.139*	0.100	0.118**
Smiling	0.219**	0.167**	0.188**
Emotion	0.106	0.130*	0.118**
Work	0.086	0.043	0.066
Social Contact	0.093	0.076	0.085*
Overall	0.145*	0.098	0.118**

Pearson's correlation coefficient test ** Significant ($p \leq 0.05$)

In Table 5, it was discovered that there was a significant correlation between the mean DMFT and OIDP variables like sleeping, smiling, emotion, social contact, and overall score for urban schoolchildren as well as a positive correlation between the mean DMFT and smiling and emotion OIDP scores for rural school children.

DISCUSSION

Oral diseases are among the most serious of human diseases, owing to their high frequency of occurrence. The oral cavity has a multitude of functions in relation to daily life such as food intake, speech, social contact and appearance. Poor oral health has thus the potential of hampering the quality of life.[17,18] Decreased food intake because of oral pain or poor dental status can cause low growth in children and may worsen the nutritional status.[19] Pain might also have a negative impact on nutritional status and the ability to engage in social relations and children might not get the full benefit of their education if suffering from pain and discomfort. While poor dental status among children has a negative effect on speech development, it may also have a socially stigmatizing effect in adolescent affecting social appearance.[20] Dental caries affects people of all ages and from all over the world. Because of the complex interplay of social, behavioural, collateral, dietary, and biological risk factors associated with their initiation and progression, these diseases may never be eradicated. Because there is no relevant published literature pertaining to the dental caries experience and its impact on oral health related quality of life among secondary school children in Modinagar city, this study evaluates the dental caries experience and its impact on oral health related quality of life among Urban and Rural school children.

According to the current study, there are more male students (65.33%) in urban than rural schools (59.64%). The findings of a study by Pandita R (2015) in Haryana, India, which noted that higher enrollment of boys than girls in schools may be due to social stigma and the employment of girl child into households at an early age, support this finding of gender inequality in schools. [11] Regarding past dental visits, it was observed that more urban subjects (24.64%) were older than rural children and had previously visited the dentist (22.86 %). The difference in dental visits between urban and rural schoolchildren may be due to a number of things, including fear, parental ignorance of dental care, family income, a lack of facilities and infrastructure, misunderstandings about dental care caused by illiteracy, a lack of awareness, accessibility to dental care, and economic disparities. The results are consistent with research done in Puducherry by Sogi GM et al. (2002) and Saravanan S et al. (2003). [12,13]

According to the sugar sweet score, 14.64 % of rural areas and 13.57 % of urban schoolchildren were in the watch out zone for dental caries (Sweet Score>15). The results are in line with research done in Mathura, India by Prahlad G et al, who discovered that the frequency of sugar consumption has a significant impact on dental caries. [14] The parents' educational background might act as a motivating factor to restrict their children's consumption of sugar-added foods.

While 93.92 % of students in rural areas used toothpaste and brushes to maintain oral hygiene, 94.64 % of students in urban schools did so. In terms of maintaining oral hygiene, 2.14 of the urban schoolchildren and 1.24 of the rural schoolchildren brush their teeth twice daily. The results of the current study concurred with those of the 2010 study by Avinash J et al. [15] Based on the DMFT index, the caries experience of the study subjects was calculated to be 61.4 percent in urban schools and 66.43 percent in rural schools in the current study. These findings are consistent with the findings of a 2009 study by Krisdapong S et al. [16] In the current study, rural schoolchildren with caries had a higher mean OIDP score across all dimensions (except eating) than subjects without caries. Except for eating, speaking, cleaning, work, and emotion, the difference in OIDP scores between subjects with and without caries was statistically significant. (T-test, independent.) Thereis also a positive correlation found between the mean DMFT and sleeping, smiling, and overall OIDP scores in rural school children, whereas the significant correlation was found between OIDP variables such as sleeping, smiling, emotion, social contact, and overall score with DMFT. However, the majority of the impacts were mild and only affected 1-2 daily activities, primarily eating, emotional stability, and tooth cleaning. We found that oral impacts were significantly positively associated with the number of decayed teeth using the OHRQoL measure. Oral influences on Modinagar children and adolescents' daily lives were prevalent but not intense. Eating, brushing teeth, and maintaining a normal emotional state were the most commonly affected activities for both age groups. Furthermore, a more sensitive index to help identify missed school days due to oral problems is required. Longitudinal longer follow-up study initiatives to investigate the impact of various factors on schoolchildren's academic performance should be undertaken. Further research involving children of various ages, particularly in rural areas, as well as assessing missed school days in children due to oral problems and analysing their impact on academic performance, should be initiated.

CONCLUSION

The current study shows that social determinants of health and oral health have an impact on children's academic performance. In light scarce health resources and the current pattern of oral disease in Modinagar city, health policies emphasize oral health promotion and prevention would seem more advantageous than traditional curative care. Affordable fluoridated toothpaste is highly recommended in order that the population may become approximately exposed to fluoride and development of self-care capacity in oral health may be encouraged through establishment of community based oral health education. It seems apparent that the oral health problems cannot be resolved if the delivery of health care is provided by dentists alone. Thus, the effective inclusion of primary health workers would play important role in the delivery of preventive services. The health authorities of the country have given priority to improved oral health of children and several community demonstration projects are implemented. By strengthening health-promoting school strategies and putting in place measures for training teachers and parents to detect oral lesions at the early stage, it can persuade curriculum developers and policy makers to acknowledge the importance of oral health integration into existing curricula, focusing on oral health promotion. Interviewing the child about the effects of dental conditions on their daily activities—activities that may not be as simple for children as they are for adults—is the only way to properly understand OHRQoL. Therefore, it is important to encourage the use of OHRQoL measures in children to learn more about dental health and how it affects kids' overall health.

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