

Assessing the Prevalence of Oral Health Problems among Elderly

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ABSTRACT

Background and Aim: Oral health issues among elderly represent a significant concern, impacting both the physical and psychological well-being. As individuals age, they experience various changes in the oral cavity, including tooth loss, gum disease, dry mouth, and dental decay, which can lead to functional difficulties such as problems with eating and speaking. This study aimed to assess the prevalence of oral health problems among elderly.

Material and Methods: A descriptive study was conducted among a sample of 200 participants selected using a convenient sampling technique. Data collection comprised two components: (1) socio-demographic variables (2) oral health assessment tool.

Results: The results showed that the 03% elderly having no oral problems, 95% elderly having minor oral health problems, 02% elderly having major oral health problems. There was significant association with age, educational status, occupation, objects used to clean teeth, last visit to dentist, self-perceive oral problems, having teeth/no teeth/dentures.

Conclusion: The study concluded that the majority of the population demonstrate relatively good oral health however age-related oral health issues such as missing teeth and tooth pain become increasingly prevalent among the elderly.

Keywords: Prevalence, Oral health problems, Elderly.

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INTRODUCTION

Aging is an inevitable, physiological process that occurs in every individual's life. It's a complex, multifaceted phenomenon influenced by genetic, environmental, and lifestyle factors.¹ India's vast population of 1.36 billion includes approximately 9% of individuals aged 60 and above which translates to a significant number. Projections indicate this demographic will surge to 324 million by 2050.² The World Health Organization (WHO) has emphasized the significant decline in oral health across the globe. Oral diseases are now recognized as some of the most common noncommunicable diseases (NCDs) worldwide, with an estimated global prevalence of 45%, impacting approximately 3.5 billion individuals.³ The 2021 Global Burden of Disease study identified oral disorders as the 11th leading cause of disability at Level 3 globally. These conditions affect approximately 3.69 billion people (with a range of 3.4 to 4.0 billion) in terms of prevalence, and there are around 3.74 billion new cases (ranging from 3.31 to 4.22 billion) reported worldwide. Collectively, oral disorders account for about 23.2 million Years Lived with

Disability (YLDs), with a 95% uncertainty interval between 13.8 and 35.0 million.⁴ The growing number of elderly individuals emphasizes the importance of addressing oral health issues in this age group.⁵ Oral health problems include a range of conditions that affect the mouth including the teeth, gums, lips, tongue and surrounding tissues. It can vary from mild concerns, such as bad breath, to more serious conditions like cavities, gum disease, infections, and oral cancer.⁶ Maintaining good oral health is crucial for many fundamental activities, such as eating, speaking, chewing, and swallowing. Additionally, oral health has a significant impact on psychological, social, and emotional well-being.⁷ Older adults are especially vulnerable to oral health problems, including dental decay, gum disease, and tooth loss.⁸ These issues not only diminish quality of life but also raise the likelihood of infections like respiratory tract infections (RTIs) and contribute to systemic conditions such as diabetes, heart disease, and cognitive decline.⁹ One study was conducted by **Varghese CM et.al** to assess the prevalence of dental problems and the oral health seeking behavior of an urban south Indian population aged >14

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years revealed that high burden of oral health issues, with dental caries affecting approximately 78.75% of the population while periodontal problems and tooth wear were prevalent in 74.7% and 72.3% of the participants respectively.¹⁰ Another study was conducted by **Srinivasan SB et.al.** to identify the common oral health problems for the elderly attending a tertiary care hospital in Western Tamil Nadu, India. The study found a high prevalence of oral health issues, including periodontal disease (61.4%), dental caries (65%), oral mucosal lesions (13.8%), tooth sensitivity (55.5%), dry mouth (13.3%), and tooth loss (48.6%).¹¹ Another survey conducted by **Shah N et.al.** in a rural area of Faridabad District, Haryana, India, revealed a high prevalence of periodontal disease, particularly among individuals aged 65-74 years, where approximately 90.4% were affected.¹² The prevalence of oral health problems among the elderly in rural communities is a significant concern, with studies indicating high rates of dental caries, periodontal disease, and tooth loss due to time constraints, limited resources, difficult patient behaviors and knowledge gaps which can compromise the oral health of seniors. Nursing students and nurses play a vital role in promoting oral health among the elderly in rural communities. To address these challenges, innovative approaches are needed. By conducting research, they can help identify the prevalence of oral health problems, inform evidence-based practice, and guide the development of targeted interventions. Through this research, nursing students and nurses can gain a deeper understanding of the challenges and barriers to oral care faced by elderly individuals in rural areas, ultimately enhancing their ability to provide high-quality care and improve health outcomes for this vulnerable population. Thus, this study was carried out to assess the prevalence of oral health problems among elderly.

MATERIAL AND METHODS

A Quantitative approach (Descriptive survey design) was used to collect the data from 200 elderly residing in rural community of Ambala, Haryana, utilizing a questionnaire via observation and interview technique. The study targeted elderly residing in Village Holi, Ambala, Haryana selected by convenient sampling technique. Elderly who were available at the time of data collection and willing to participate were included. Those who had undergone oral surgical procedures were excluded. The study's purpose and details were provided and participants confirmed their understanding and consent before proceeding.

The instruments used to collect the data were **Socio Demographic Variables and Oral Health Assessment tool.**

Socio Demographic Variables comprised of twelve (12) items such as Age, Gender, Educational status, Occupation, Marital status, Family income, Tobacco used, Alcohol used, Objects used to clean teeth, Last visit to dentist, Self-perceived oral problems, Having teeth/no teeth/dentures. **Oral Health Assessment Tool** consisted of eight (08) items, each rated on a 3-point scale: **healthy (0), changes (1), and unhealthy (2).** This tool was designed and utilized

to assess oral health problems among the elderly. The total score ranged from **0 to 16** and oral health status was categorized into three levels (00) No problem, (01-08), Minor problems (09-16) Major problems.

Ethical approval was obtained (**Project No: IEC 3049**) and data was collected from 28th November to 30th November, 2024. SPSS 20.00 was used for analysis. Descriptive and Inferential statistics was used to analyze the data. Hypotheses were tested at a 0.05 level of significance

RESULTS

3.1 Participant Characteristics

Table 1

Socio Demographic Variables of Elderly

N=200

Sr. No	Selected variables	Frequency(f)	Percentage (%)
1.0	Age in Years		
1.1	60-64	57	28.50
1.2	65-69	54	27.00
1.3	70-74	54	27.00
1.4	≥75	35	17.50
2.0	Gender		
2.1	Male	119	59.50
2.2	Female	81	40.50
3.0	Educational status		
3.1	Illiterate	111	55.50
3.2	Primary	57	28.50
3.3	Secondary	32	16.00
4.0	Occupation		
4.1	Service	02	01.00
4.2	Unemployed	81	40.50
4.3	Self employed	113	56.50
4.4	Labor	04	02.00
5.0	Marital Status		
5.1	Married	158	79.00
5.2	Unmarried	36	18.00
5.3	Divorced	06	03.00
6.0	Family income (Kuppuswami Scale)		
6.1	Rs. 62,875-1,25,752	01	00.50
6.2	Rs. 18,859-31,435	06	03.00
6.3	Rs. 6294-18,858	157	78.50
6.4	Rs. 6293 or less	36	18.00
7.0	Tobacco used		
7.1	Never used	140	70.00
7.2	Smokeless tobacco	15	07.50
7.3	Smoking	39	19.50
7.4	Dual	06	03.00
8.0	Alcohol used		
8.1	Yes	46	23.00
8.2	No	154	77.00
9.0	Objects used to clean teeth		
9.1	Toothbrush	151	75.50
9.2	Dental floss	01	00.50
9.3	Neem stick	48	24.00
10.0	Last visit to a dentist (years)		
10.1	Less than 1 year	19	09.50
10.2	1or 2 years ago	39	19.50
10.3	3 or 4 years ago	54	27.00
10.4	5 years or more	39	19.50
10.5	Does not visit dentist/Don't remember	49	24.50
11.0	Self-perceived oral health problems No		
11.1	problem	21	10.50
11.2	Dry mouth	06	03.00
11.3	Tooth pain	42	21.00
11.4	Bad breath	09	04.50
11.5	Bleeding gums	13	06.50
11.6	Dental plaque	13	06.50
11.7	Missing teeth	96	48.00
12.0	Having teeth/no teeth/dentures		
12.1	Teeth	143	71.50
12.2	Dentures	37	18.50
12.3	No teeth/dentures	17	08.50
12.4	Implants	03	01.50

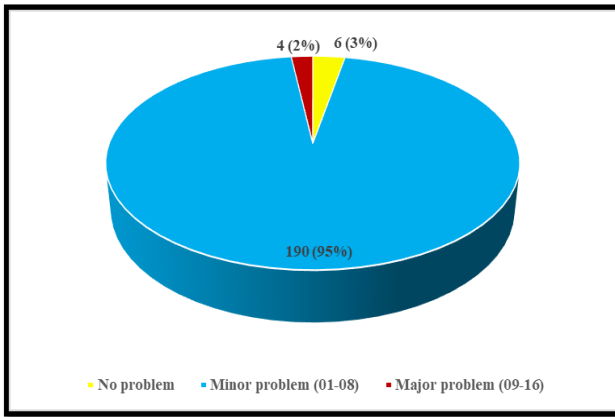


Figure 1: Pie chart showing Level of Oral health Problems among Elderly

Table 2
t test/One-way Anova showing Association of Oral Health Problems among Elderly with their Socio Demographic Variables

Sr. No	Selected variables	Frequency(f)	Mean	df	t/F value	P value
1.0	Age in Years					
1.1	60-64	57	2.72	17.74	199 ^f	0.00*
1.2	65-69	54	4.26			
1.3	70-74	54	4.96			
1.4	≥75	35	5.51			
2.0	Gender					
2.1	Male	119	4.29	0.48	198	0.13 ^{NS}
2.2	Female	81	4.14			
3.0	Educational status					
3.1	Illiterate	111	4.77	8.26	199 ^f	0.00*
3.2	Primary	57	3.77			
3.3	Secondary	32	3.19			
4.0	Occupation					
4.1	Service	02	0.50	2.74	199 ^f	0.04*
4.2	Unemployed	07	1.34			
4.3	Self employed	113	2.14			
4.4	Labor	04	2.38			
4.5	Home maker	74	2.94			
5.0	Marital Status					
5.1	Married	158	4.08	0.68	199	0.56 ^{NS}
5.2	Unmarried	36	5.00			
5.3	Divorced	06	3.50			
6.0	Family income (Kuppaswami Scale)					
6.1	Rs. 62,875-1,25,752	01	5.00	0.68	199	0.56 ^{NS}
6.2	Rs. 18,859-31,435	06	3.33			
6.3	Rs. 6294-18,858	157	4.33			
6.4	Rs. 6293 or less	36	3.92			
7.0	Tobacco used					
7.1	Never used	140	3.99	2.47	199	0.06 ^{NS}
7.2	Smokeless tobacco	15	4.40			
7.3	Smoking	39	5.08			
7.4	Dual	06	4.00			
8.0	Alcohol used					
8.1	Yes	46	4.01	2.45	198	0.81 ^{NS}
8.2	No	154	4.93			
9.0	Objects used to clean teeth					
9.1	Toothbrush	151	4.02	3.58	199	0.03*
9.2	Dental floss	01	2.00			
9.3	Neem stick	48	4.94			
10.0	Last visit to a dentist (years)					
10.1	Less than 1 year	19	3.05	12.53	199	0.00*
10.2	1 or 2 years ago	39	2.51			
10.3	3 or 4 years ago	54	4.63			
10.4	5 years or more	39	5.28			
10.5	Does not visit dentist/Don't remember	49	4.78			
11.0	Self-perceived oral health problems					
11.1	No problem	21	1.90	13.87	199	0.00*
11.2	Dry mouth	06	7.33			
11.3	Tooth pain	42	3.07			
11.4	Bad breath	09	3.56			
11.5	Bleeding gums	13	5.85			
11.6	Dental plaque	13	4.38			
11.7	Missing teeth	96	4.88			
12.0	Having teeth/no teeth/dentures					
12.1	Teeth	143	3.68	12.65	199	0.00*
12.2	Dentures	37	5.95			
12.3	No teeth/dentures	17	4.94			
12.4	Implants	03	5.33			

*Significant

(p<0.05)

NS Not Significant (p>0.05)

Table 2 shows the association of elderly on oral health problems score with their socio demographic variables through Independent “t” test or One-way ANOVA test. The

association of elderly with their gender, marital status, family income, tobacco used, alcohol used, objects used to clean teeth, last visit to dentist, self-perceived oral problems, having teeth/no teeth/dentures was found to be statistically non-significant at 0.05 level of significance except age, educational status, occupation, objects used to clean teeth, last visit to dentist, self-perceived oral problems, having teeth/no teeth/dentures. Thus, oral health problems of elderly were partially dependent of socio-demographic variables.

DISCUSSION

The study's demographic profile showed that the majority of the elderly participants were between 60-64 years old (28.50%) with males predominating (59.50%). More than half were illiterate (55.50%) and self-employed (56.50%) while most were married (79.00%). The majority had a monthly income between Rs. 6294-18,858 (78.50%) and reported never using tobacco (70.00%) or alcohol (77.00%). Toothbrushes were the primary oral hygiene tool for 75.50% of participants. However, dental visits were infrequent with only 27.70% having visited a dentist in the last 3-4 years and 48.00% reported missing teeth as a significant oral health concern.

These findings were consistent with the study conducted by Yin Y et al. (2024) which showed that majority of the participants (50.6%) were from 70-79 years old, 83.2% were married, and inconsistent with gender as they found a higher proportion of female participants (51.6%) and 70.0% had a monthly income below Rs 2000. Additionally, their study reported that most participants had completed primary school education (45.2%). These findings were also congruent with the study conducted by Ghosal S et al. (2022) which showed that only 2% of those with oral morbidity demonstrated a willingness to seek dental attention and loose teeth and missing teeth were the most prevalent dyad (6.12%), but were incongruent with gender, where females comprised 78.73% of the study population.¹⁴

These findings were also concordance with another study conducted by Lin Y et al. (2025) which revealed that tooth loss was prevalent among 80.54% of participants with 38.62% not wearing dentures in rural areas.¹⁵

CONCLUSION

The study concluded that that the majority of the population demonstrate relatively good oral health however age-related oral health issues such as missing teeth and tooth pain become increasingly prevalent among the elderly. The data emphasize the need for regular dental check-ups and early management strategies to prevent minor issues from progressing to more serious conditions. Study findings can inform nursing curricula, quality improvement initiatives, and research priorities to enhance elderly care. Nurses can educate elderly patients on oral hygiene techniques and encourage dental visits. This can improve care quality, reduce health problems and enhance overall well-being for elderly nursing home residents, ultimately informing better nursing practices.

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