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Common Oral Health Problems Among the Elderly Bhutanese People Living in Thimphu Observed During a Weeklong Health Screening Camp - A Retrospective Study

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A B S T R A C T

Objective: The aim of the study is to find the prevalence of common oral health problems and to assess the status of oral health among the elderly Bhutanese population.

Methods: This is a descriptive retrospective study where the data was extracted from the patient record register maintained with the dental department of JDWNRH, Thimphu. The participants for the study were all the elderly people who were screened during the health camp. The elderly people who visited the health camp went through proper screening. A proper oral examination was done using a wooden spatula and a torch light. Number of teeth, dental caries, root stumps, loose teeth, missing teeth, gingivitis, periodontitis, dentures, crown, bridge, implants, betel stains, oral ulcerations, lichen planus/lichenoid lesions, swellings or lumps, pre-cancer and cancer, xerostomia/ dry mouth were examined and recorded in the patient register. All the elderly patients who were screened and fulfilled the inclusion criteria were included in the study. Data was extracted from medical records using a standard questionnaire. Administrative approval was sought from the medical superintendent of the hospital and ethical clearance was obtained from REBH, Ministry of Health, Thimphu, Bhutan.

Results: Over half (54.7%) of the participants in the age group 60-69 years and 56.5% of them were female. Around 13% of the participants were completely edentulous while 68 % were partially edentulous. In total over 80% of our elderly people were either partially or completely edentulous. From these some 10% did not want any type of denture(s). Root stumps was the most common problem (46%), followed by dental caries (41.8%). Neuralgic pain and trauma were also present at 2.9% and 2.1% respectively. Significant statistical association was found between partially edentulous, completely edentulous, betel stain in mouth, want for denture, root stumps and tooth sensitivity with $p < 0.05$.

Conclusion: From this study we can see that our elderly people had problems like missing teeth, want of denture, had betel stains indicating they were betel chewers. Many had root stumps and teeth sensitivity which affected their oral health and general health ultimately. Such a finding merits a proper further research to reduce these problems and to come up with way forward to these issues among the elderly population of the country.

Keywords: Oral Health, Elderly, Population, Risk Factors, Bhutanese.

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1. Introduction

Oral health is an integral part of general health and with aging there are barriers that prevent achieving good oral health(1). At present oral diseases are among the most widespread diseases all over the world. It does not pose major mortality threat but it influences the general health of the people(2) .The mouth is the only gateway to the body and everything we eat or drink has to pass through it(3). Oral disease is highly influenced by individual's belief, attitude, knowledge, skills, dietary habits and living practices(4) .Older people are at high risks of getting oral diseases such as dental caries, tooth abscess, gingival infections, periodontitis, tooth loss, fungal infections (candidiasis) of the oral cavity and lips, different types of oral sores and ulcers, tongue lesions, lichenoid lesions, denture stomatitis, xerostomia (dry mouth) and pre-cancers and cancers(5, 6). It is challenging to maintain proper oral health in the elderly and the needs are different (7). Elderly people often have physical challenges such as weakness of joints and body that makes brushing and other activities difficult (5, 7). The oral diseases can cause or worsen many systemic diseases like heart disease, stroke, pneumonia, diabetes, infective endocarditis and oral cancers (6, 8, 9).

Due to advances in technology, medicine and easy accessibility the proportion of older people will continue to rise globally(2). According to the World Health Organization (WHO), the global population is increasing annually by 1.7% while that of elderly over 60 years is alarmingly rising at 2.5% and is at 12% as of now which, by 2050 is estimated to almost double reaching 22%(10). Elderly population is also growing much faster in most countries and the United Nation (UN) estimates it to make 20% of the world's total population(11). In India, people over 60 years of age comprise 7.6% of the total population(12). As per WHO, both the developed and developing countries are expected to see significant shifts in age distribution by 2050 due to the increasing number of elderly population (10). Unlike in the past, now both the developing and developed nations have experienced reduction in both the birth and mortality rates and an increase in life expectancy resulting in a change in the demographic profile of the country's population(13, 14). Accordingly, going by the data from Life Expectancy in Bhutan 1950-2020, Macro Trends, UN projections and Ministry of Health, country office, WHO Bhutan, the total life expectancy is 71.88 years in 2020(13, 14) while, in the year 2000, the total life expectancy in Bhutan was 60.20 years(13). Thus, over a period of two decades average life expectancy growth is almost 12 years which indicates an increasing elderly population in Bhutan too.

Oral hygiene is not perceived as an important procedure in most parts of the world and it is made worst by the inability of the elderly to carry out normal daily procedures such as performing proper oral hygiene practices like tooth brushing and use of dental floss(15). Even if they perform these procedures normally, they still have higher chances of having poor oral health due to hypo functioning of salivary glands resulting in decrease of salivary flow(15). When the salivary flow is reduced, there is more dental caries(15). It is also associated with dysphagia and halitosis(16).Various non-carious lesions like abrasion, abfraction, erosion and attrition are also seen in the elderly and it is due to chemicals or acid present in food and drinks, bruxism, eating disorders, gastro-esophageal reflux disease, vomiting, regurgitation and abnormal occlusal loads or chewing on one side of the mouth(17).

Tooth loss is inevitable in the elderly. Tooth loss may be due to age related changes, as a sequel of systemic disease like diabetes or due to infection(15). With the loss of teeth and supporting oral structures, one cannot chew food properly. They tend to avoid hard foods including meat, fruits, vegetables and bread which ultimately affects the general health of the person resulting in loss of taste, nutritional deficiencies, malnutrition, weakness and anemia(18). Therefore, to replace the lost tooth structure, the elderly have to go for prosthesis like removable or complete dentures or dental implants(18). Denture stomatitis and angular cheilitis are common due to wearing of dentures, loss of vertical height and decreased immunity(5). Xerostomia and lichenoid lesions are frequent in the elderly people. It is due to use of multiple drugs for their underlying medical conditions such as diabetes, hypertension, dyslipidemia, arthritis or other problems (5, 19) and use of artificial prosthesis in the mouth(20). Xerostomia and decreased salivary flow is much higher in older individuals than in younger (16). Oral ulcers, precancers and cancers are often seen in the elderly due to certain medications, chronic trauma from the broken tooth/ teeth or roots, and neglected oral hygiene(19). Elderly with advanced age with history of smoking and drinking can put them at greater risks of developing oral cancers (8).

Thus from the literature, the common oral problems in the elderly people are loss of tooth/teeth (edentulism)(21), xerostomia, presence of sharp teeth/ tooth roots, oral ulcerations, denture stomatitis, lichenoid lesions, oral precancers and cancers(20, 22). In a study by Andrade et al. in 2012 in elderly individuals of Sao-Paulo, Brazil, 97.7% of the elderly people had missing tooth/ teeth and needed oral prosthesis(20). Xerostomia was seen in 90% of hospice cancer patients (19). Loss of taste sensation, poor appetite, weight loss, atrophic tongue, glossitis, gum diseases, caries and malnutrition were also common in elderly people(22). Certain mucosal lesions and clinical pathologies present were leukoplakia (10.5%), candidiasis (5.82%) and oral lichen planus (OLP)/oral lichenoid lesions (OLL) (2.2%)(23).The aim of the study is to find the prevalence of common oral health problems and to assess the status of oral health among the elderly Bhutanese population.

2. Methods

This is a descriptive retrospective study where the data was extracted from the patient record register maintained with the dental department of JDWNRH, Thimphu.The participants for the study were all the elderly people who were screened during the health camp at the Jigme Dorji Wangchuck National Memorial Chorten from 13.05.2019 to 18.05.2019. This Chorten is adjacent to JDWNR Hospital. The sample size for this study is 771 (all the elderly people who visited and screened during the health camp).The Dental Department of JDWNRH has maintained a register of all the elderly participants who were screened during the health camp from 13.05.2019 to 18.05.2019. These participants whose information are properly recorded are considered for this study.The elderly people who visited the health camp went through proper screening. A proper oral examination was done using a wooden spatula and a torch light. Number of teeth, dental caries, root stumps, loose teeth, missing teeth, gingivitis, periodontitis, dentures, crown, bridge, implants, betel stains, oral ulcerations, lichen planus/lichenoid lesions, swellings or lumps, pre-cancer and cancer, xerostomia/ dry mouth were examined and recorded in the patient register.All the elderly patients who were screened and fulfilled the inclusion criteria. Data was extracted from medical records using a standard questionnaire. Administrative approval was sought from the medical superintendent of the hospital and ethical clearance was obtained from REBH, Ministry of Health, Thimphu, Bhutan. Since this is a retrospective study, there was no direct contact with people therefore written informed consent was sought from the Ethical committee.

3. Data Management and Analysis

Data was double entered and validated using Epi-Data version 3.1 for entry and version 2.2.2.183 for analysis (EpiData Association, Odense, Denmark). The characteristics of the participants are described as frequencies (percentages). Mean and standard deviations are presented wherever applicable. The data is presented in the form of tabulation wherever required. The association between patients age and gender is seen with chi square test (x^2).values are considered significant with $p< 0.05$.

4. Results

Descriptive variables are presented in Table 1. Over half (54.7%) of the participants in the age group 60-69 years and 56.5% of them were female. Around 13% of the participants were completely edentulous while 68 % were partially edentulous. In total over 80% of our elderly people were either partially or completely edentulous. From these some 10% did not want any type of denture(s).

Table 1. Descriptive (n=771)

Variables	Category	Frequency	Percent
Age	60-69	422	54.7
	70-79	252	32.7
	80 and above	97	12.6
Sex	Female	436	56.5
	Male	335	43.5
	Mean 70; SD 7.15; Min 60; Max 94		
Partially Edentulous	Yes	522	67.7
	No	249	32.3
Completely Edentulous	Yes	101	13.1
	No	670	86.9
Want Denture	Yes	694	90.0
	No	77	10.0

Table 2. Shows the common oral health problems among elderly in a declining prevalence. Root stumps was the most common problem (46%), followed by dental caries (41.8%). Neuralgic pain and trauma were also present at 2.9% and 2.1% respectively.

Table 2: Prevalence of common oral health problems(n=771)

Variables	Category	Frequency	Percent
Root stumps	Yes	355	46.0
	No	416	54.0
Dental Caries	Yes	322	41.8
	No	449	58.2
Betel Stains	Yes	247	32.0
	No	524	68.0
Gingivitis and Periodontitis	Yes	135	17.5
	No	636	82.5
Oral Ulcer	Yes	113	14.7
	No	658	85.3
Tooth Sensitivity	Yes	90	11.7
	No	681	88.3
Complete Denture	Yes	57	7.4
	No	714	92.6
Partial Denture	Yes	52	6.7
	No	719	93.3
Oral Submucous Fibrosis	Yes	23	3.0
	No	748	97.0
Neuralgic Pain	Yes	22	2.9
	No	749	97.1
Trauma	Yes	16	2.1
	No	755	97.9

Table 3. Presents the association of gender with different variables. Significant statistical association was detected between males and females who wanted and did not want the dentures.

Table 3: Association of gender with different variables (n=771)

Variable		Total	Female		Male		p-value
			n	%	n	%	
Partially Edentulous							
	Yes	522	300	57.5	222	42.5	0.455
	No	249	136	54.6	113	45.4	
Completely Edentulous							
	Yes	101	61	60.4	40	39.6	0.403
	No	670	375	56.0	295	44	
Betel stain							
	Yes	247	149	60.3	98	39.7	0.147
	No	524	287	54.8	237	45.2	
Want Denture							
	Yes	694	380	54.8	314	45.2	0.003*
	No	77	56	72.7	21	27.3	
Oral Submucous Fibrosis							
	Yes	23	15	65.2	8	34.8	0.395
	No	748	421	56.3	327	43.7	
Oral Ulcer							
	Yes	113	69	61.1	44	38.9	0.295
	No	658	367	55.8	291	44.2	
Gingivitis and Periodontitis							
	Yes	135	79	58.5	56	41.5	0.611
	No	636	357	56.1	279	43.9	
Dental Caries							
	Yes	322	182	56.5	140	43.5	0.989
	No	449	242	56.6	195	43.4	
Root Stumps							
	Yes	355	193	54.4	162	45.6	0.258
	No	416	243	58.4	173	41.6	
Tooth Sensitivity							
	Yes	90	44	48.9	46	51.1	0.119
	No	681	392	57.6	289	42.4	
Trauma							
	Yes	16	7	43.8	9	56.3	0.297
	No	755	429	56.8	326	43.2	
Neuralgic Pain							
	Yes	22	12	54.5	10	45.5	0.847
	No	749	424	56.6	325	43.4	

**Significant at p-value 0.05*

Association between age group ≤ 70 years and ≥ 71 years is presented in table 4. Significant statistical association was detected between partially edentulous, completely edentulous, betel stain in mouth, want for denture, root stumps and tooth sensitivity.

Table 4: Association of different age group with variables (n=771)

Variable		Total	≤ 70 years		≥ 71 years		p-value
			n	%	n	%	
Sex							
	Female	436	274	62.8	162	37.2	0.141
	Male	335	193	57.6	142	42.4	
Partially Edentulous							
	Yes	522	293	56.1	229	43.9	0.000*
	No	249	174	69.9	75	30.1	
Completely Edentulous							
	Yes	101	45	44.6	56	55.4	0.000*
	No	670	422	63.0	248	37	
Betel Stain							
	Yes	247	167	67.6	80	32.4	0.006*
	No	524	300	57.3	224	42.7	
Want Denture							
	Yes	694	437	63.0	257	37.0	0.000*
	No	77	30	39.0	47	61.0	
Oral Submucous Fibrosis							
	Yes	23	16	69.6	7	30.4	0.370
	No	748	451	60.3	297	39.7	
Oral Ulcer							
	Yes	113	70	61.9	43	38.1	0.746
	No	658	397	60.3	261	39.7	
Gingivitis and Periodontitis							
	Yes	135	82	60.7	53	39.3	0.964
	No	636	385	60.5	251	39.5	
Dental Caries							
	Yes	322	183	56.8	139	43.2	0.072
	No	449	284	63.3	165	36.7	
Root Stumps							
	Yes	355	198	55.8	157	44.2	0.012*
	No	416	269	64.7	147	35.3	
Tooth Sensitivity							
	Yes	90	67	74.4	23	25.6	0.004*
	No	681	400	58.7	281	41.3	
Trauma							
	Yes	16	10	62.5	6	37.5	0.873
	No	755	457	60.5	298	39.5	
Neuralgic Pain							
	Yes	22	16	72.7	6	27.3	0.237
	No	749	451	60.2	298	39.8	

**Significant at p-value 0.05*

5. Discussion

In this study, we described different problems among the elderly population of our country.Oral hygiene is not perceived as an important procedure in most parts of the world including Bhutan and it is made worst by the inability of the elderly to carry out normal daily procedures such as performing proper oral hygiene practices like tooth brushing and use of dental floss(15). Even if they perform these procedures normally, they still have higher chances of having poor oral health due to hypo-functioning of salivary glands resulting in decrease of salivary flow(15). Aging is a natural process and should be considered as a normal biological phenomenon(4). When the salivary flow is reduced, there is more dental caries(15). In our study also, we have seen some 43.5% have dental caries, 45.6% presence of root stumps and most interestingly over 80% of our elderly have at least one missing tooth and 10 % of them do not want any sort of dentures despite being so cheap and easily available. The presence of dental caries could be suggestive of decreased salivary flow due to use of medicines for chronic illnesses like hypertension, diabetes, rheumatic arthritis, bronchial asthma or Chronic obstructive pulmonary diseases, gastritis(2, 24) etc. The presence of root stumps in the mouth is a concern. These root stumps cause chronic irritation and may cause mouth cancer in the long run(25). Dental caries and periodontitis burden is still very high among elderly people(24).Therefore,It is time now, we need to educate our people on all these issues.

Implications for policy and practice*:* The findings of the study could be used as local evidences to address the oral health problems in our elderly population. The findings could also be used to make mandatory oral health screening as part of the elderly screening program across the country.

Conflict of interest: There is no conflict of interest among authors

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Conclusion: From this study we can see that our elderly people had problems like missing teeth, want of denture, had betel stains indicating they were betel chewers. Many had root stumps and teeth sensitivity which affected their oral health and general health ultimately. Such a finding merits a proper further research to reduce these problems and to come up with way forward to these issues among the elderly population of the country.

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