Tooth loss – How Emotional it is for the Elderly in India?

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Abstract

Background: Tooth loss can be distressing and sometimes devastating as it can lead to the serious psychosocial consequences which can affect the person's quality of life. The purpose of this study is to explore and investigate the emotional effect of tooth loss and its relationship with the person's wellbeing. The aim also extends to learn and understand the psychological status of elderly and to alleviate the management process by keeping it as a guide.

Methods: A total of 212 (69 completely and 143 partially) edentulous patients were investigated for the effects of tooth loss before the replacement of teeth. The demographic variables such as age, gender and socioeconomic status were used to collect the data. Post treatment change in the emotional level was assessed by using a seven point 'Terrible-Delighted' Scale.

Results: The tooth loss acceptance in completely edentulous category was 52% in the first year of loss, which increased to 80% after three years; while in partially edentulous patients it increased from 14.3% to 38.1%. The emotional effects of tooth loss varied from person to person with significant differences between the two groups. *P*-values were obtained using Chi-Square test, p-value <0.05 is considered to be statistically significant.

Conclusions: It is important to understand the problems associated with tooth loss, its emotional effects and the attitude of the elderly towards it. It has a profound impact on the lives of some people, especially when the tooth loss is taken as a serious life event.

Key Words: Complete denture, Dentition, Edentulousness, Emotional effects, Partial denture, Tooth loss

Introduction

Loss of any part of the body gives one the feeling of being handicapped. When a person confronts any such situation where there is a loss of ability and confidence to perform a certain function, he feels disabled and helpless. This feeling certainly is an emotional issue which can accomplish the tooth loss. Tooth loss is commonly associated with the aesthetic, functional, psychological, and social impacts on the lives of people. Visible and invisible disfigurements are recognized as having profound effect on the individuals [1].

Teeth play various functional and aesthetic roles. Absence of one or more natural teeth often results in disability as essential daily activities such as speaking and eating are impaired along with decreased social interaction [2]. Tooth loss can also have a negative impact on emotions and oral health related quality of life [3,4].

Many studies have been conducted exhibiting the adverse effects of tooth loss on function and aesthetics while, it has been seen that comparatively there are fewer studies documenting the psychological effects of tooth loss on a person's wellbeing. Studies on the emotional effects of tooth loss in the UK report that many people have difficulty coming to the terms with tooth loss and often feel less confident, restricting the social activities, and personal relationships [3,5].

At times, tooth loss is considered as a part of a natural process which accompanies aging. Aging leads to the physiologic loss; and dentition is not an exception, moreover it is demonstrated that tooth loss is increased by ageing [6]. However, hypothetically, the loss of teeth at a younger age can be more distressing; at the same time, complete loss can be more devastating than partial loss.

Apart from the negative emotions of normal aging, the loss of teeth adds to the emotional imbalance of the elderly [7]. Tooth loss can range from mild loss to the severe psychologic catastrophic feeling. Besides the emotional effects, tooth loss enroots the functional inabilities leading to a more embarrassing and serious health situations. A person with total tooth loss experiences a deficient or non-existent masticatory function, entailing serious nutritional problems [8].

The removal of a tooth is always accompanied with a feeling of loss, though a few feel strong and prepared, it is a paradoxical issue. Sometimes the person realizes its value after losing the tooth, which might bring him to feel vulnerable and the effects can be wide-ranging. Though the decision to remove the tooth/teeth should be based purely on the pathological grounds, a few still undergo extraction due to other reasons such as, lack of awareness, low socioeconomic status and mental acceptance to the tooth loss. Sometimes it is even related to a misconception where they think that they have many teeth and losing a few will not make a difference. This attitude, leads to the edentulousness, regardless of the consequences, which needs to be changed. Kay and Blinkhorn [9] in 1996 noticed that the decisions about treatment options were not always based on the pathology present but were

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also influenced by the values expressed by the patient and the way they influenced the values held by the dentist. Thus, the factors such as attitude, behavior, dental attendance and characteristics of the health care system, and socio-economic factors, play an important role regarding the probability of becoming edentulous [10]. Studies on self-perception have demonstrated that tooth loss is associated with aesthetic, functional, psychological and social impacts for individuals [11].

It has been advocated that having 20 well distributed teeth is necessary to satisfy biting and chewing ability [12]. The tooth loss to an extent where there is no sufficient contact available to manage the function poses more critical situation for the person. Therefore, retention of >20 natural teeth has been linked to a reasonable level of oral health [13]. It has been seen that the elderly take it for granted that edentulousness is accompanied with age and so develop the acceptance [14].

The purpose of this study is to investigate the relationship between the tooth loss and its emotional impact on the person's wellbeing, at the same time to explore the emotional effects of tooth loss in partially and completely edentulous patients depending upon their demographic variables; also there is an attempt at pinpointing the causes behind edentulousness.

Methods

Sampling and data sources

A total of 212 patients were interviewed in the Department of Prosthodontics, SMBT (Sau Mathurabai Bhausaheb Thorat) Dental College and Hospital. Ethical approval for this research was obtained from the institutional ethical board.

The study was conducted and performed at SMBT Dental Hospital and was carried out for six months from May to October 2012. Data was collected by interviewing the patients before the prosthodontic rehabilitation of their missing teeth. They were briefed about the need and importance of the study.

Questionnaires and scales

The first part of the questionnaire gathered the information regarding gender, age, marital status, socioeconomic status, education, and occupation while the second part comprised the dichotomous questionnaire for interview, estimating the effects of tooth loss on the person's wellbeing.

The patients were given a seven point 'Terrible-Delighted scale' [15] for scoring the emotional level estimating the extent they could cope with the 'tooth loss related distress', after the replacement of lost teeth (*Figure 1*). This scale comes in two forms, a 'visual analogue' scale with verbal descriptors, and a visual 'faces' scale, consisting of seven faces moving from a large smile to the downturned mouth, called 'Visual Analogue Scale Of Faces'(VASOF).

Participants

The participants were selected from the daily Outpatient Department (OPD), aged between 40-84 years. Informed consent was obtained from all the participants. Selection criterion was restricted to the patients who were advised removable partial (presence of <20 teeth) / complete dentures.

Sample determination was done by taking the OPD patients from the undergraduate section of the Prosthodontic department. We decided to restrict the sample size by taking the patients from one quarter of the year. In these four months, the OPD reported 87 patients needing the complete dentures (18-27 per month); while there were a total of 153 patients who needed partial dentures (17-52 patients per month). After a thorough examination, there was a dropout of 18 completely and 10 partially edentulous patients on the grounds of presence of unfavourable oral conditions (Carious/ exposed teeth needing endodontic care, inflamed/enlarged gingival/periodontal conditions, sharp, spiny, irregular ridges, over retained root pieces, and pathological conditions needing surgical interventions) who were further referred to the other departments for the mouth preparation procedures. Thus only 69 fully and 143 partially edentulous patients were considered for the study. All the patients were divided into two categories based on the edentulous conditions, as Complete Denture (CD) and Partial Denture (PD) patients with the younger (40-49 years), middle or elderly (50-65 years) and the frail or geriatric (65 above) groups; with higher and lower socioeconomic status.

All the selected patients were attended by the specialists in the department who interviewed and helped them in providing the right information about their emotional and functional wellbeing. Treatment sessions were scheduled after the completion of the interviews.

At the end of the treatment, the follow up sessions were carried out where the patients were attended for their post treatment adjustments. Feedback and post treatment assessment was done by using seven point scale.

Statistical Analysis

The entire statistical analyses were performed using statistical package for social sciences (SPSS Inc., Chicago). The data were subjected to the calculation of frequency distributions across the groups (CD and PD). Bivariate statistical analysis was conducted using Pearson's Chi-Square test for testing the distribution of several qualitative characteristics across the groups. The values on qualitative characteristics have been shown as n (% of respondents). P-values less than 0.05 are considered to be statistically significant.

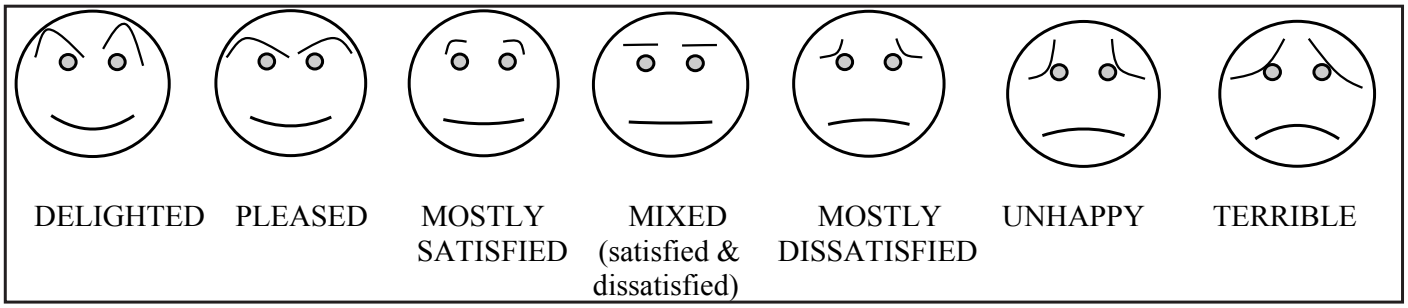

Figure 1. *The terrible to delighted scale used for patients after replacement of teeth to assess the change in emotional level.*

Table 1. *Emotional level based on the time span of edentulism and reason for tooth loss.*

Question	Time span	CD (n=69)	PD (n=143)	P-value (CD v/s PD)
Acceptance of tooth loss	< 1 year	13 (52.0)	8 (14.3)	0.005
	1 – 3 years	16 (55.2)	24 (36.4)	0.264
	>3 years	12 (80.0)	8 (38.1)	0.006
Reason for tooth loss				
Periodontal problems	< 1 year	61 (88.4)	47 (32.9)	0.001
Caries	1 – 3 years	37 (53.6)	92 (64.3)	0.134
Worn teeth /Accidental	>3 years	15 (21.7)	24 (16.8)	0.383

Values are n (%) who said 'yes'. P-values are obtained using Chi-Square test, p-value < 0.05 is considered to be statistically significant.

Table 2. *Emotional level of tooth loss based on age.*

Statement	CD (n=69)			PD (n=143)			P-value (CD v/s PD)		
	40 – 49 (n=3)	50-65 (n=14)	65 above (n=52)	40 – 49 (n=68)	50-65 (n=53)	65 above (n=22)	40 – 49	50-65	65 above
1. Due to tooth loss I feel low confidence	3 (100.0)	12 (85.7)	13 (25.0)	46 (67.7)	33 (62.3)	11 (50.0)	0.999	0.120	0.036
2. Tooth loss has affected my looks	3 (100.0)	8 (57.1)	25 (48.1)	63 (92.7)	41 (77.4)	8 (36.4)	0.999	0.176	0.354
3. Tooth loss has affected my eating efficiency	3 (100.0)	12 (85.7)	31 (59.6)	61 (89.7)	41 (77.4)	10 (45.5)	0.999	0.716	0.263
4. I feel embarrassed discussing my tooth loss with friends	2 (66.7)	5 (35.7)	9 (17.3)	52 (76.5)	23 (43.4)	3 (13.6)	0.566	0.763	0.999
5. My spouse/ family shows concern about my dental status	2 (66.7)	8 (57.1)	23 (44.2)	55 (80.9)	34 (64.1)	12 (54.6)	0.488	0.630	0.417

(Values are n (% of respondents) who mean 'Yes' for the respective question). P-values are obtained using Chi-Square test, p-value < 0.05 is considered to be statistically significant.

Results

The results showed that the tooth loss acceptance in completely edentulous patients was increased with time i.e. in patients who were edentulous since less than a year showed 52.0% acceptance which was comparatively less than those who were edentulous since three years which was 80.0%; while in partially edentulous patients it increased from 14.3% to 38.1%. A total of 59.4% of completely edentulous and 27.9% of partially edentulous patients showed acceptance to the tooth loss.

Age based results of emotional effects of tooth loss exhibited higher response to statement 1 in younger group (83.85 ± 22.84) than the elderly (74 ± 16.54) and the geriatric groups (37.5 ± 17.68), in both the categories. In response to statement 2, the younger group responded comparatively higher (96.35 ± 5.16) than the other two groups (96.35 ± 5.16 and 42.25 ± 8.27 respectively). In agreement to statement 3, younger group scored as 94.85 ± 7.28 whereas the elderly and geriatric groups scored it as 74 ± 16.54 and 52.55 ± 9.97 respectively. When the participants were asked if they felt embarrassed discussing tooth loss with others (statement 4), younger group quoted higher (71.6 ± 6.93) than the elderly (39.55 ± 5.44) and the geriatric (15.45 ± 2.62) groups. In response to statement 5, the younger group responded as 60.6 ± 4.95 which was again higher than the elderly (74 ± 16.55) and the geriatric (49.4 ± 7.35) groups (*Table 2*).

The comparative analysis based on gender presented more positive results in the female group in both the categories to all the statements except statement 3. In response to statement 1, the female group responded as 86.45 ± 1.77, while in response to statement 2, it was quoted as 81.95 ± 5.87. In response to statement 4 it was 72.6 ± 8.34 while for statement 5 it was 80.1 ± 8.48. In statement 3 the male patients responded more positively (76.35 ± 6.43) than their counterparts in both the categories (*Table 3*). The emotional levels did not differ significantly between female patients in both the groups.

Based on socioeconomic status, the emotional effects of tooth loss varied in all three groups. In response to statement 1, CD group appeared to be affected more (63.13 ± 34.27) as compared to the PD group (47 ± 24.24); and the group of higher socioeconomic status was seen to be affected more in both the categories 80.0% and 62.0% respectively. In response to statement 2, the PD group was seen to be affected more (70.87 ± 19.53) than the CD group (67.46 ± 19.53) though the higher socioeconomic group responded more positively in both the categories as 90.0% and 95.8% respectively. More positive response to statement 3 was reported by CD group (87.53 ± 6.57) than the other group (65 ± 21.56). When asked if they felt embarrassed discussing their tooth loss with friends and relatives, partially edentulous responded more strongly (70 ± 31.49) than their counterparts (66.47 ± 32.95) with comparatively lesser concern in lower socioeconomic groups. In response to statement 5, the CD patients stated that they received comparatively lower concern (56.76 ± 24.14) for their tooth loss from the family than the PD patients (73.03 ± 21.19) (*Table 4*). Significantly higher proportion of low income group of CD patients than the middle and higher groups admitted that the tooth loss affected their eating efficiency compared to PD patients.

Periodontal problems proved to be the main reason of tooth loss in CD patients (88.4%) while it was seen to be the cause of tooth loss in only 32.9% partially edentulous

Table 3. *Emotional level of patients based on gender.*

Statement	CD (n=69)		PD (n=143)		P-value (CD v/s PD)	
	Male (n=42)	Female (n=27)	Male (n=78)	Female (n=65)	Male	Female
1. Due to tooth loss I feel low confidence	33 (78.6)	23 (85.2)	51 (65.4)	56 (87.7)	0.133	0.903
2. Tooth loss has affected my looks	24 (57.1)	21 (77.8)	44 (56.4)	56 (86.1)	0.938	0.322
3. Tooth loss has affected my eating efficiency	34 (80.9)	19 (70.4)	56 (71.8)	46 (70.8)	0.269	0.969
4. I feel embarrassed discussing my tooth loss with friends	23 (54.8)	18 (66.7)	45 (57.7)	51 (78.5)	0.757	0.234
5. My spouse/ family show concern about my dental status?	13 (30.9)	20 (74.1)	55 (70.5)	56 (86.1)	0.001	0.164

(Values are n (% of respondents) who mean 'Yes' for the respective question). P-values are obtained using Chi-Square test, p-value <0.05 is considered to be statistically significant.

Table 4. *Emotional level of patients based on socio-economic status.*

Statement	CD (n=69)			PD (n=143)			P-value (CD v/s PD)		
	Low (n=38)	Middle (n=21)	High (n=10)	Low (n=66)	Middle (n=53)	High (n=24)	Low	Middle	High
1. Due to tooth loss I feel low confidence	9 (23.7)	18 (85.7)	8 (80.0)	11 (16.7)	33 (62.3)	15 (62.0)	0.382	0.057	0.437
2. Tooth loss has affected my looks	21 (55.3)	12 (57.1)	9 (90.0)	26 (39.4)	41 (77.4)	23 (95.8)	0.117	0.082	0.508
3. Tooth loss affected eating efficiency	35 (92.1)	19 (90.5)	8 (80.0)	29 (43.9)	34 (64.1)	21 (87.0)	0.001	0.025	0.618
4. I feel embarrassed discussing tooth loss	11 (28.9)	19 (90.5)	8 (80.0)	23 (34.9)	42 (79.3)	23 (95.8)	0.537	0.326	0.201
5. My spouse/ family show concern about my dental status?	11 (28.9)	15 (71.4)	7 (70.0)	33 (50.0)	41 (77.4)	22 (91.7)	0.036	0.592	0.138

(Values are n (% of respondents) who mean 'Yes' for the respective question). P-values are obtained using Chi-Square test, p-value < 0.05 is considered to be statistically significant.

patients. Caries was found to be the main reason of tooth loss in PD group (64.3%), while it was found to be the reason of tooth loss for 53.6% of completely edentulous patients. Tooth loss due to the wearing diseases or accidental fall was noted in 21.7% completely edentulous and 16.8% partially edentulous patients (*Table 1*). The periodontal problems being a reason for tooth loss differed significantly between the groups with less than 1 year of time span of edentulousness while the distribution of other problems (caries and worn teeth/ accidental) did not differ significantly with 1 to 3 years and more than 3 years of time span.

The VASOF scale results revealed that the total of 42.1% CD patients were pleased with the replacement of their lost teeth, 26.1% of them were delighted while 28.9% were undecided and showed mixed reaction (considered to be no change in the emotional level of tooth loss). In PD patients, only 18.2 felt delighted after replacement of their lost teeth and felt more stable emotionally while 33.6 were pleased. A total of 34.3% patients were having mixed emotion and were undecided, while rest 13.9 were mostly unsatisfied and unhappy without any marked change in their emotional level (*Figure 1*).

The present study has also estimated that the higher proportion of CD patients have the age above 65 years while the distribution of gender did not differ significantly between CD and PD patients (*Table 5*).

Discussion

Loss of 1-2 teeth may not be that taxing, but loss of a more number of teeth has a considerable functional and emotional impact on the person's life. Tooth loss is a taboo subject and always preferred to be kept a secret. It has been seen that, the higher the number of missing teeth the lower the levels of satisfaction with the dentition and daily living [16]. With coming days, the perception of tooth loss is changing, making it a more serious issue. It is seen that the negligence and awareness depends on the various emotional and demographic factors.

As per the results, the tooth loss acceptance in completely edentulous category was low (52%) in the first year of loss, which increased to 80% after three years of loss; while in partially edentulous patients it increased from 14.3% to 38.1%. This shows that with time the acceptance of tooth loss was achieved while a few still posed a difficulty in accepting the edentulousness. The similar results were drawn by a study where the immediate acceptance of tooth loss was noted in 69.3% cases, but 47% accepted the loss only after 1 year [17]. A study by Davis et al. stated nearly half of their sample had difficulties in accepting their edentulousness [5], and the majority of patients who found it difficult to accept their tooth loss never accepted their edentulous state and remained low-spirited with little self-confidence. In contrast to this, a study on north Indians found that, 23% of the subjects had difficulty accepting tooth loss, 64% had no difficulty accepting tooth loss, and 13% were uncertain [18].

As per the present study, completely edentulous elderly (CD group) showed comparatively more (72.46%) acceptance to the tooth loss than the partially edentulous subjects (PD group), which was quoted as 27.27% only. The confidence was affected in 40.58% subjects in CD group while it was affected in 62.94% of them in PD group. Similar results have been found where the confidence was affected in edentulous and partially edentulous patients which was less in edentulous

people (28%) than in partially dentate (40%) [3,17]. These results are ensured by a study where the partially edentulous subjects were affected more than their counterparts and they experienced difficulties in accepting their tooth loss [5].

The emotional effects of tooth loss varied from person to person, ranging from mild to severe. In agreement to our study, many have found that the patients, regardless of sex and age, postulated loss of teeth having a negative impact on a patient's psychological wellbeing [5,17-19]. On the other hand, a study by Naik et al. found that tooth loss did not have a marked impact on emotions of the people [20] but affected their daily social activities; however there was negligible difference between complete and partial tooth loss subjects.

The present study reported that the female participants were more reluctant to extract the teeth except in situations when they found the teeth to be anaesthetic or unbearably painful. The partially edentulous female patients were less likely to accept the tooth loss as they thought they were not looking attractive enough. A larger number of female respondents felt less confident and found to be more concerned for appearance than their counterparts in both the groups. This shows more profound impact of tooth loss in females than in males. A study reported the similar results which stated that the impacts of tooth loss were perceived more frequently in women than in men [21].

It was found that edentulousness was more prevalent in the lower socioeconomic groups and it was accepted mostly due to the unaffordable cost factor associated with the dental treatment. As per the present study, the varying effects of tooth loss are reported as per the person's socioeconomic conditions; though tooth loss affected the person's wellbeing in all the groups. Quality of life in terms of their psychological health and social well-being had been affected by the loss of their teeth [5]. A study concluded that the women in spite of having better periodontal health had been noticed to be having fewer teeth compared with men; this might be related to an increased bone turnover rate and socioeconomic conditions such as low education and low social status [22].

The present study reported various reasons for tooth loss but more prevalently the cause for tooth loss was periodontal disease in completely edentulous patients (88.4%) and the dental caries (64.3%) in partially edentulous patients. Studies have shown that periodontitis is the most common cause of extraction irrespective of the age of population whereas, in contrary to this, studies have reported caries as a main reason for the tooth loss [23-26].

Results of the present study showed that partially edentulous subjects felt more embarrassed to discuss about their tooth loss with their family and friends while a study by Fiske et al. reported that the elderly people discussed tooth loss with family members and showed little sign of embarrassment [19], showing the society's acceptance of tooth loss as normal aging procedure as compared to the western countries.

Tooth loss is always predictable, but certain communities consider it as an act of God. A recent study from Saudi Arabia reported unqualified acceptance of tooth loss with old age, a pragmatism possibly influenced by religion in Saudi society In China, there are strong cultural beliefs, such as having teeth in old age will "eat away one's children's fortune" and bring bad luck to the family [27,28]. In India, though the loss of tooth/teeth is considered a big loss, the elderly seemed to have accepted it as a natural and unavoidable process related to the aging. Similarly, social concerns about the tooth loss are uncommon among Chinese people, it appeared to be accepted as a natural part of aging [28,29]. Sarita et al. studied chewing difficulties in different age groups and reported that there were no significant differences in chewing ability among different age groups indicating a possibility that elderly people in developing countries might consider chewing difficulties as problems accepted as part of aging [14]. Not much information was available about the superstitious thinking or religious concerns regarding tooth loss in our study population.

Though it was not surprising that Indians visited the dentist only when in pain, it was more distressing to know that they wanted the teeth to be removed to get relieved of pain. The reasons for this might be expected to be poor awareness, inaccessible or unavailable dental service and negligence, and lower socio-economic conditions. Similar observation is done by researchers where the elderly people tend to consult a dentist only when they are in trouble [29,30].

Tooth loss can be a mundane affair for a few, but many feel disastrous after losing their teeth. The effects vary from person to person but are always subtle on the lives of some people, even those who are apparently happy with their dentures. Further research is required to understand the problems associated with tooth loss, its emotional effects and the attitude of the elderly towards it. We consider there is a serious need of an extensive research to be done on this subject investigating the effects of tooth loss and its consequences, which can create the dental awareness among the people. At the same time it is the responsibility of the dental professionals to guide and convince their patients to retaining their natural teeth, if not, it is the salient responsibility of the profession to extend the efforts in preparing the people for the effects of tooth loss.

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