# **Emotional Effects of Tooth Loss in Community-Dwelling Elderly People in Hong Kong**

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Purpose: This study investigated the emotional effects of tooth loss among community-dwelling elderly people in Hong Kong and compared the effects among edentulous and partially dentate elderly. Materials and Methods: A questionnaire study involved 233 southern Chinese elderly who were recruited and interviewed at social centers for elderly people throughout Hong Kong. Data were analyzed using chi-square or chi-square exact tests. Results: Twenty-two percent of the participants reported difficulty accepting tooth loss, with no difference between the edentulous and partially dentate. However, 95% stated that their confidence was unaffected. For more than half of elderly people, tooth loss had a negative effect on food choice and enjoyment of food, with removable denture wearers having greater restrictions. Avoiding going out, eating in public, and forming close relationships were lesscommon problems. Twenty-two percent felt unprepared for the effects of tooth loss, and more than half said that better communication with the dentist would have helped. Conclusion: The emotional effects of tooth loss were not marked among elderly people, and there were no differences between edentulous and partially dentate individuals. However, significant disability was experienced because of restrictions in daily living activities. Restrictions were more severe in people who had lost enough teeth to necessitate denture wearing. Int J Prosthodont 2004;17:172-176.

**C**ommon oral conditions have been shown to have a substantial effect on well-being and quality of life.<sup>1-3</sup> The loss of one or more natural teeth often results in disability, as essential daily living activities such as speaking and eating are impaired, and also in handicap, for example, by decreased social interaction because of embarrassment associated with denture wearing.<sup>4-6</sup> A study on self-perceived oral health in the elderly observed that tooth loss is the prime clinical indicator associated with changing perceptions of oral health.<sup>7</sup>

Qualitative and quantitative studies on the emotional effects of tooth loss in the UK note that many people have difficulty coming to terms with tooth loss and often feel less confident, restrict their social activities, and avoid forming close personal relationships.<sup>8,9</sup> Transcultural aspects have also been explored in a pilot study, using small convenience samples in a hospital environment in Hong Kong and the UK.<sup>10,11</sup> Partially dentate and edentulous Hong Kong Chinese elderly people were found to be more compromised in their diet, enjoyed food less, and were more likely to avoid going out in public than their UK counterparts. Culture and lifestyle appear to have a major influence on attitude toward oral and general health. The observed differences in the Hong Kong people are thought to be related to deeply rooted cultural beliefs about traditional Chinese medicine despite the present-day pervasive influence of Western medicine.<sup>12</sup> The 2001 Hong Kong Oral Health Survey revealed that the practice of only consulting a dentist when in trouble is still very prevalent, especially among elderly people.<sup>13</sup> This problem-based approach

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	Edentulous (n = 65)	Partially dentate with denture(s) (n = 95)	Partially dentate without denture ( $n = 73$ )	Р
Age (y)				< .001
60-69	8	25	44	
70+	92	75	56	
Gender				.047
Male	17	27	36	
Female	83	73	64	

 Table 1
 Distribution of Participants (%) According to Dentition with Respect to Age and Gender

to dental care conflicts with Hong Kong Chinese people's strong desire to retain their natural teeth.<sup>14</sup> However, social concerns about tooth loss are uncommon among Chinese people, as tooth loss still appears to be accepted as a natural part of aging.<sup>13,15</sup>

The aims of the present study were to investigate the emotional effects of tooth loss among communitydwelling elderly people in Hong Kong and to compare the effects among edentulous and partially dentate individuals. The hypothesis that the emotional effect would be greater among the edentulous than the partially dentate elderly was tested.

#### Method

The study involved community-dwelling elderly people aged 60 to 80 years. Participants were recruited at day-time social centers for the elderly located throughout Hong Kong. Elderly people with communication difficulties or those suffering from any psychiatric disease, including dementia, were excluded from the study.

A questionnaire developed from the findings of previous qualitative research was used to investigate the emotional effects of tooth loss.<sup>8,9</sup> It included 24 statements, with space provided for any comments that participants wished to add about their experience of tooth loss. The questionnaire comprised questions about the timing of acceptance of tooth loss, effects of tooth loss on self-confidence and various aspects of daily living activities, and how participants felt about their dentures.

The questionnaire had been translated into colloquial Cantonese previously.<sup>11</sup> It was administered in the form of a structured interview by one trained interviewer because some of the participants were illiterate. The interview took place in a quiet room in the elderly social center. Sociodemographic background information was collected. Participants were also asked questions about tooth number and denture wearing using a self-assessment tooth-counting protocol described by Jepson et al.<sup>16</sup> This involved the self-assessment of natural tooth number for all participants. Those who wore dentures were also asked to describe characteristics including denture type and number and distribution of prosthetic teeth.

#### Data Analysis

Comparisons were made between three groups of subjects: edentulous elderly, partially dentate elderly with removable denture(s), and partially dentate elderly without a removable denture. Independent chi-square tests or chi-square exact tests were used to compare the distributions of different categoric variables among the three groups, including sociodemographic background, acceptance of tooth loss, feelings associated with tooth loss, effects of tooth loss on self-confidence, restriction in activities because of tooth loss. The level of significance of the above tests was set at .05.

#### Results

A total of 233 elderly people aged 60 to 80 years were interviewed at 13 elderly social centers. There were no statistically significant differences between the three dentition groups in the social and educational backgrounds of the participants (Table 1). Eight percent of the edentulous elderly had attended a dentist within the previous year, compared with a third of the partially dentate people (P < .001).

Sixty-five (28%) were edentulous, and all wore conventional complete dentures. Ninety-five (41%) were partially dentate and wore removable dentures (partial and/or complete); they had a mean number of natural teeth of 11.0 (standard deviation [SD] 7.6, range 1 to 28). Seventy-three (31%) were partially dentate without removable dentures and had 22.2 mean natural teeth (SD 6.0, range 1 to 31). Distribution of missing teeth in the partially dentate groups is shown in Table 2.

# Acceptance of Tooth Loss

Twenty-two percent had difficulty accepting tooth loss, 67% had no difficulty, and 11% were uncertain. There

	With removable		Without removable		
	denture(s) (n $=$ 95)		denture (n $=$ 73)		
Area	Maxillary teeth	Mandibular teeth	Maxillary teeth	Mandibular teeth	
All	25	14	1	1	
Anterior	1	2	3	6	
Posterior	24	42	60	71	
Anterior + posterior	48	40	25	14	
None	2	2	11	8	

**Table 2** Distribution (%) of Missing Teeth in the Partially Dentate Elderly

Table 3	Feelings A	Associated	with	Tooth	Loss	(%)
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Feeling	Edentulous (n = 65)	Partially dentate with denture(s) (n = 95)	Partially dentate without denture ( $n = 73$ )	Р
Dismayed	11	21	23	.135
Gloomy/sad/ depressed	0	0	1	.592
Angry	2	1	3	.823
Relieved	28	30	29	.971
Resigned	5	10	10	.470
Old	0	4	4	.309
This isn't happening to me	0	0	1	.592
I had lost part of myself	2	2	4	.668
Unconcerned	63	37	52	.004
Scared	15	34	15	.004

#### **Table 4**Restrictions in Activities (%)

Restriction	Edentulous (n = 65)	Partially dentate with denture(s) ( $n = 95$ )	Partially dentate without denture $(n = 73)$	Р
Restricted food choice	60	64	45	.041
Avoided going out	5	12	2	.020
Avoided eating out	5	14	12	.165
Enjoyed food less	54	62	32	< .001
Avoided laughing	5	12	11	.290
Avoided forming close relationships	3	8	6	.391

were no differences in responses between the three groups (P = .423). Thirty-four percent accepted their tooth loss immediately, 54% accepted it within 6 months, 6% accepted it within 1 year, 4% required more than 1 year, and 2% had still not accepted the loss. There was no difference in the time taken to accept tooth loss between groups (P = .515).

### Feelings About Tooth Loss

Half of the participants were unconcerned about tooth loss, and 29% felt relieved (Table 3). The partially dentate with removable dentures group was more concerned (P=.004) and frightened about tooth loss than the other two groups. There were no differences in other feelings about tooth loss between the three groups (P=.135 to .971).

#### **Confidence**

Most respondents (95%) did not feel that their confidence was affected. Only 2% felt less confident, 1% felt more confident, and 2% were uncertain. No difference was found between the three groups (P = .191).

### **Restriction in Activities**

More than half the respondents felt restricted in their food choice and enjoyment of food (P=.041), with the edentulous and partially dentate with denture groups feeling more restricted (P < .001; Table 4). Avoiding going out, eating in public, laughing, and forming close relationships were not common problems. More people in the partially dentate with removable dentures group avoided going out (P < .020).

## **Discussing Tooth Loss**

Thirty-four percent talked about tooth loss with others. Among these respondents, 88% talked to their dentists, 69% talked to their friends, 34% talked to their partners, and 69% talked to their close family. There were no differences in responses between groups (P = .121 to .802).

### **Denture Wearing**

One hundred sixty (69%) of the elderly people wore removable dentures. Among them, 16% avoided looking at themselves without dentures, 5% (3 of 56 with spouses) avoided letting their spouse see them, and 32% avoided letting others see them. There were no significant differences between the three groups (P= .066 to .784). Only 9% of them felt upset without dentures when seeing the dentist, with no significant between-group difference (P=.933).

More of the partially dentate elderly people (79%) considered the dentures they were wearing as part of themselves, compared with 62% of the edentulous elderly people (P=.012). Nineteen percent of the edentulous group and 16% of the denture-wearing partially dentate considered their dentures to be a foreign body. When asked whether they would accept the advice of not wearing dentures at night, 87% accepted the advice, 3% were not bothered, and 11% found it unacceptable. No significant difference was found between the three groups (P=.054).

# **Preparation for Tooth Loss**

Twenty-two percent of all respondents felt that they were not prepared for the effects of tooth loss, 73% felt prepared, and 5% did not know. For those who felt unprepared, about half responded that an explanation from the dentist would have helped, and about a third felt that information from a video and leaflet or talking to someone who had experienced tooth loss could have helped them better prepare.

#### Discussion

The present study follows from previous work in Hong Kong involving small convenience samples in a dental hospital setting.<sup>10,11</sup> Elderly people living independently in the community were considered to be more representative of the elderly population of Hong Kong.

Dental service utilization is generally low among elderly people in Hong Kong and other countries.<sup>13,17,18</sup> In addition, Hong Kong elderly people tend to only consult a dentist when in trouble.<sup>13,19</sup> Thus, it was anticipated that the emotional effect of tooth loss would be less in community-dwelling elderly people than in those actively seeking care at a dental hospital. The majority had no difficulty accepting tooth loss and were mainly unconcerned or relieved. Fewer people (22%) had difficulty coming to terms with the loss, compared with 44% of the edentulous people and 60% of the partially dentate in the previous hospital-based pilot studies in Hong Kong.<sup>10,11</sup> For almost all participants, confidence was unaffected, compared with 28% of the edentulous people and 40% of the partially dentate in the pilot studies.<sup>10,11</sup>

Tooth loss had a significant effect on a number of key daily living activities. Food choice was restricted and the enjoyment of food was less in all groups, especially the edentulous and partially dentate denture-wearing groups. These observations mirror the findings of pilot studies.<sup>10,11</sup> However, it is notable that the present study also revealed that the effect was greater in denture wearers and thus was related to the number of natural teeth remaining. Food choice and the eating experience are very important to Chinese people, as many social gatherings are dining oriented.<sup>14</sup> The texture of food is critical, with an emphasis on fibrous and crisp foods that require considerable chewing ability. Thus, tooth loss appeared to impair food selection and enjoyment of eating among the elderly people in general. Avoiding going out, eating out, and forming close relationships were not particularly common problems in the community-dwelling elderly, and their prevalence was less than that revealed in the pilot studies.<sup>10,11</sup> Tooth loss had a deleterious effect on the quality of life of elderly people, although the psychosocial effect appeared lower than in the previous hospital-based study. This may be explained, at least in part, by the community-dwelling elderly being relatively satisfied with their dental condition, as they were not presently seeking dental care. Also, elderly Hong Kong Chinese expectations of oral health are low.<sup>18</sup>

A similar number of elderly people discussed tooth loss with family members and showed little sign of embarrassment compared with data from pilot studies in Hong Kong elderly.<sup>10,11</sup> For Chinese people, tooth loss is still considered a normal part of aging, with no stigma attached, in contradistinction to Western cultures.<sup>10,11</sup> A recent study from Saudi Arabia reports unqualified acceptance of tooth loss with old age, a pragmatism possibly influenced by religion in Saudi society.<sup>20</sup> In China, there are also 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.<sup>21</sup>

Sixty-nine percent of elderly people wore removable dentures, and all edentulous people wore complete dentures. In keeping with pilot data, the majority of the denture wearers considered dentures to be part of themselves, although fewer edentulous elderly people (62%) had this view compared with people wearing partial dentures (79%). Only a small number avoided looking at themselves, and a third did not allow others to see them without dentures. More people appeared prepared for tooth loss (73%) compared with pilot data (48%). A likely reason for this difference is that the community-dwelling elderly people had dentures to replace missing teeth, whereas many of those seeking treatment did not.

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Literature Abstract-

# Enhanced bone-to-implant contact by platelet-released growth factors in mandibular cortical bone: A histomorphometric study in minipigs.

Platelet-released growth factors were obtained from the supernatant after centrifugation of allogeneic platelet-rich plasma cells from minipigs; eight adult minipigs were involved. In each animal, two implants were placed in the mandibular facial cortical plate. One implant in each minipig was placed with platelet-released growth factors, and the other was placed without them. Four minipigs were sacrificed at 4 weeks for histomorphometric study of bone-implant contact; the rest were sacrificed at 8 weeks. Ground specimens were stained, and bone-implant contact percentage was recorded. At 4 weeks, 44.2% and 29.6% bone-implant contact was noted in the experimental and control groups, respectively; at 8 weeks, 70.4% and 48.2% bone-implant contact was noted in the experimental and control groups, respectively. Although the authors concluded that the growth factors could enhance implant anchorage in cortical bone, it is of more importance that the bone-implant contact be documented on a longer-term basis since osseointegration is a time-dependent phenomenon. In addition, the longevity of this improved bone-implant contact and its long-term response to functional stress remain unclear.

Fuerst G, Gruber R, Tangi S, Sanroman F, Watzek G. Int J Oral Maxillofac Implants 2003;18:685–690. References: 29. Reprints: Dr Gabor Fuerst, Department of Oral Surgery, Dental School, University of Vienna, Wahringerstrasse 25a, A-1090 Vienna, Austria. Fax: + 43-1-4277-67019. e-mail: gabor.fuerstunivie.ac.at— Ansgar C. Cheng, Toronto Copyright of International Journal of Prosthodontics is the property of Quintessence Publishing Company Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.