Effect of Tooth Loss and Denture Status on Oral Health Related Quality of Life in Institutionalized Older Individuals in Sri Lanka

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Abstract

Objective: To determine the effect of tooth loss and denture status on oral health-related quality of life in institutionalized older individuals in Sri Lanka.

Methodology: The sample consisted of 408 institutionalized older individuals who were 60 years and above. An interviewer administered a validated Sinhala translation of the Oral Health Impact Profile-14 (OHIP-14) scale was used to assess the oral impacts experienced by the participants. A clinical oral examination was carried out following the interview. Those who were very sick, bed ridden, mentally disoriented or with hearing and speech impairments were excluded from the study.

Results: Of the participants 36.3% were completely edentulous. Only 31.7% of completely edentulous were wearing complete dentures. Of the sample, 63.7% were partially edentulous from which only 16.5% were wearing partial dentures. The most commonly reported impact items were pain, discomfort when eating and dissatisfaction with food. A weak association between the statuses of edentulousness and denture wearing (partial edentulism, complete edentulism, partial denture wearing and complete denture wearing) and the OHIP-14 was observed.

Conclusion: The impact of denture wearing on tasting food, comfort when eating, self consciousness, nervousness, satisfaction with food eaten and disturbance in eating food was significantly better than non-denture wearers. The impact factors of difficulty in eating, pain, not feeling relaxed, shyness and feeling angry did not show any significant difference between partially dentate and completely edentulous individuals irrespective of the status of denture wearing.

Running title: Oral health related quality of life in institutionalized individuals in Sri Lanka

Key words: OHIP-14, OHRQoL, elderly, institutionalized, denture wearing

Introduction

Socio economic factors in relation to continuously growing elderly population have been discussed for decades in multiple forums around the world. It has been estimated that the number
of persons aged 60 years and above is expected
to more than double by 2050 with the proportion
of Asian geriatric population transformed from
having 11% - 12% today to more than 25% by
2050.1 Ageing when associated with tooth loss
can lead to compromised quality of life as it af-
fects esthetics, masticatory function causing them
to alter their food choices, feeling of insecurity
and inferiority leading to psycho social issues.2,
3, 4 Therefore, the World Health Organization
(WHO) considers edentulism as a compromised
public health outcome which affects the oral
and general health of an individual leading to poor
quality of life.5

There is a growing interest in providing support
for this large population to live a healthy life in
all aspects inclusive of physical, psychological
and social facets of life. Oral health is considered
an integral component of the general health of
every individual. Therefore, models have been
developed to assess the impact of oral diseases
on oral health-related quality of life and measures
(OHRQoL).6 One such widely used measure is the
Oral Health Impact Profile (OHIP) which was
developed on the basis of the model adapted for
dentistry by Locker7 based on the WHO classifi-
cation of impairment, disability and handicap.8
Moreover, among available instruments of
OHRQoL, the Oral Health Impact Profile (OHIP-
14) has been validated firstly in elderly popula-
tions. They were initially developed in the USA
and Australia9 and then translated and validated
in several other countries including Sri Lanka.10,
11 Multiple studies have reported that there is a
weak association between clinical parameters
and oral impacts.11, 12 Some have identified
that the median OHIP score was significantly
higher in those wearing dentures than those who
were not wearing dentures.11 Some studies also
have investigated OHRQoL in institutionalized
elderly people and found that certain oral symp-
toms were strongly associated with the residents’
worse OHRQoL.13 while some identified a high
percentage has poor OHRQoL associated with
subjective and objective oral health conditions.14

Justification
Sri Lanka is experiencing one of the fastest grow-
ing ageing populations in the world with a pro-
portion of the oldest-old of 12% which is reported
as the highest in South Asia. The country report
on mid year estimates reveals an increase in sixty
years and older population from 12.4% to 12.5%
from 2012 to 2016.15 One of the parallel trends is
that the number of elderly homes is increasing
in the country. Although they were localized to urban
areas in the early stages, the institutionalization
of the elderly has now spread widely in the rural
areas as well. Therefore, it is important to assess
the impact of tooth loss and denture status of the
institutionalized elderly in the country as it has
become a requirement to improve the oral health
of these individuals. Although the effect of tooth loss
and denture status on oral health related quality
of life in older free living and institutionalized
individuals from Sri Lanka has been assessed
in 200411 there is no recent study that could be
traced in the literature which assessed the same
in the institutionalized elderly population.

Objectives
The main objective of the study was to assess
the effect of tooth loss and denture status on oral
health related quality of life of institutionalized
older totally edentulous and partially dentate
individuals in Sri Lanka.

Methods and materials
Our randomly selected sample consisted of 408
institutionalized elderly in the Central and the
North Western Province of Sri Lanka. They were
provided the written instructions regarding the
study and written informed consent was obtained.
This was a cross sectional study where the data were collected by means of an interviewer administered questionnaire and an oral examination. Elderly individuals 60 years and above of age with at least one missing tooth living permanently in the selected institutions for elderly were included in the study whereas individuals who were bed ridden, with speaking and hearing impairment, mentally disoriented and severely ill were excluded as the information may not be valid for the study.

The pretested and validated questionnaire consisted of two parts. A pilot study was carried out for the purpose of validation of the questionnaire. Part A was used to collect information on socio-demographic data, perceived oral health status, perceived need for dental care and details of dental visits. The second part contained the validated Sinhala translation of the Oral Health Impact Profile-14 scale (OHIP-14). This scale consists of 14 questions about impact the patients experienced as a result of problems in teeth, mouth or dentures. The respondents were asked to indicate how frequently they had experienced each impact due to problems of teeth, mouth or complete or partial dentures during the preceding 12 months. The responses were marked on a 5-point Likert type scale: 0, never; 1, hardly ever; 2, occasionally; 3, fairly often and 4, very often. All examinations were carried out by 2 examiners independently in order to ascertain the inter examiner variability. The median of both results were utilized as the final reading. Every tenth patient was re-examined to avoid the problem of intra examiner variability. The clinical parameters of number of missing teeth, whether individuals were completely edentulous or partially dentate and whether wearing complete or partial dentures were assessed. Patients’ satisfaction with denture use/without the denture was assessed separately.

Permission for the study was sought from the directors of the Social Service Department of both provinces and the concerned institutions. Data analysis was carried out using SPSS 17.0 software.

Results
The sample consisted of 408 individuals where 27.2% were males. Participants representing the Central Province and North Central Province were 53.9% and 46.1% respectively. Of 148 completely edentulous individuals, only 32% were denture wearers whereas 16.5% of the partially dentate were denture wearers. Peaking was not significant when compared with non denture wearers (p = 0.15). Out of 320 who responded that they never had a problem when enjoying the taste of food, 51 were denture wearers and 269 were non denture wearers. The denture wearers had better outcome in enjoying food (p = 0.000). The responses from denture wearers were significantly better when comfort in eating, self consciousness, nervousness and dissatisfaction with food were assessed (Table 1).

When the results were analyzed separately for completely edentulous and partially dentate individuals, it was revealed that nine out of fourteen impact factors had significantly better impact in the denture wearing group. Those factors were inability of tasting the food, difficulty in eating, self-consciousness, nervousness, dissatisfaction with the food eaten, they had to stop eating, disturbance of usual activities, not feeling good and their life being totally disturbed (Table 2).

The impact of denture wearing status on difficulty in eating and unsatisfied with food eaten was significantly better in the Central Province than in the North Western Province (Table 3). Other factors failed to show any significant difference between denture wearers and non denture wearers in both provinces.
Discussion
The dentate status of the sample was less than satisfactory. Thirty six point eight percent of the sample was completely edentulous. It was higher than the results of the recent National Oral Health Survey in 2002/3 (21.8%). The results highlight the fact that dental caries and periodontal disease prevention programmes have to be implemented widely in these institutions in order to reduce the burden of tooth loss. Only 32% of the completely edentulous and 15% of the partially dentate wear some form of prostheses to replace their missing teeth. The results were more than twice compared to a study carried out in India in 2016. It could be explained by the fact that support for the dental care and regular dental maintenance are not considered a major need at the government funded elderly homes and it makes very expensive to provide dental care as costs of transport, allocation of a caretaker and dental treatment are added to the final expenditure.

The OHIP -14 was assessed among the study subjects and the overall mean of 0.64 was found. Majority of the study subjects never had much impact due to oral health problems on the quality of life. Of all domains, feeling angry, disturbance of usual activities and life being totally disturbed were the most affected among all individuals irrespective of the prosthetic status. However, some research have highlighted that the physical pain was most affected by the non-usage of dentures and values of pain and discomfort were found to be evident due to the lack of dentures. Despite the important findings, several limitations of the study should be considered when interpreting the results such as individual socio economic background not being taken into consideration as all of them were residents of government funded elderly homes. However, their initial socioeconomic considerations may have influenced responses for the questionnaire. We also did not investigate patientsatisfaction with the design, retention and stability of the removable prostheses which would have changed our results as a study in Taiwan elderly population in 2015 has identified denture satisfaction as the strongest predictor of OHRQOL among the factors they analyzed.

The dentures are planned to improve oral function, restore esthetics and patient satisfaction. Therefore wearing dentures by completely edentulous or partially dentate subjects is thought to have a higher impact on quality of life. However, we did not identify such an amove in the results. Some previous studies have highlighted that edentulism showing negative effects on quality of life. Some studies discuss the negative association between the number of teeth and oral impact when assessed using OHIP-14. However, authors have suggested further research determining the number of occluding pairs of anterior and posterior teeth to identify what type of oral impact may be evident. We also believe it as an important factor for us to investigate further in the future. Although the institutions we assessed were belonged to the category of urban/suburban setting, all of them were public funded places. Therefore the fact of no difference of OHIP scores between two districts could be understood. All places were with limited resources, caretakers and funds to maintain the health of residents and showing less concern towards dental and oral health.

Conclusion
The impact factors of feeling taste of food, comfort in eating, self consciousness, nervousness, satisfaction with food eaten and disturbance in eating food was significantly better in denture wearers. There is no significant difference between partially dentate and completely edentulous individuals irrespective of the status of denture wearing on the aspects of difficulty in eating, pain, not feeling relaxed, shyness and
feeling angry. Overall it was elucidated that there is a weak impact of edentulism, partially dentate status or denture wearing status on oral health related quality of life in the institutionalized elderly in Sri Lanka. Further research is recommended on the assessment of quality of the complete and partial dentures and the number of occluding pairs in partially dentate individuals in relation to oral health related quality of life of institutionalized individuals.

References
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