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Review Article

Oral Health Related Quality of Life in Terms of Number and Position of Lost Teeth

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Abstract

In order to evaluate the health status of a community, influence of ailment on quality of life must be taken into account. It seems that oral health related quality of life (OHRQOL) is influenced by tooth mortality. The objective was to review the available literature, correlating tooth loss with OHRQOL with special reference to number & position of missing teeth. Research papers published in English from 1990-2020 were searched. Case reports, reviews, studies on non-human subjects & medically marginalized patients were excluded. The number (greater than 12) & position (anterior) of missing teeth had considerably negative impact on OHRQOL. Furthermore, tooth mortality is associated with deteriorating physical, functional & psychosocial performance among the suffering subjects. Within the limitation of this project, it can be deduced that OHRQOL is negatively influenced by tooth mortality in terms of number & position of lost teeth. Thus, prevention of dental disease & preservation of natural dentition must be given due importance while formulation of dental health policy.
Key words: Oral health, quality of life, number, position, lost teeth.

Introduction

The corporal, cerebral & convivial well-being of an individual is labelled under the banner of term "health" by the World Health Organization (WHO), thus rejecting the concept of mere absence of disease & infirmity.[1] This statement implies that an individual, in order to be considered healthy is expected to live a life with quality.[2] Quality of life (QOL) is defined by WHO as "the individuals' perception of their position in life in the context of culture & some values in which they live in relation to their goals, expectations, living standards & concerns".[3]

The concept of oral health (OH) can be visualized as a group of consanguineous & intellectual conditions that enable an individual to carry out actions of mastication, swallowing & articulation. Failure to bring about one or more of these actions culminates in momentary or indelible oral disability whose standing & severity varies from person to person depending on time, clinical scenario, remedial modalities & convivial inclusions.[4]

OH is considered to play a pivotal role in general health of an individual, so improved dental status of an individual doesn't only contribute to oral well-being but general QOL too.[5] Several outlays have been put forward to appraise the terms of OH & Oral Health related quality of life (OHRQOL).[6-11] OHIP-49 (Oral health Impact Profile), its abridged version OHIP-14, the OIDP (Oral Impact on Daily Performance) & the GOHAI (Geriatric Oral Health Assessment Index) are few of the commonly used indices for evaluation of OHRQOL.[12]

The most common & conveniently used index to guesstimate the OHRQOL is OHIP-14 which is the modified version of original OHIP-49 questionnaire; evaluating physical, psychological & social domains of OHRQOL.[13] One of the most negatively impacting indicator, influencing OHRQOL is tooth loss, whose association with aging might be considered. Therefore, tooth loss & age of population under analysis should be taken as an important variable. It is of prime importance to determine the extent to which OHRQOL is affected by tooth mortality besides using it as a measure to guesstimate remedial outcomes.[14]

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Authors Contribution

BA conceptualized the project. NN & AZ did the data collection. TA did the data collection. AZ also did the literature search. Drafting, revision & writing of manuscript were done by NN.

Upshots of different projects revealed varying correlation between tooth loss & OHRQOL. Ekanayake & Perera found a feeble correlation between tooth loss & oral effects; implying that age, sex & artistic background of population contributes to concept of health.[15-16] On the other hand, a significant correlation was found between OHRQOL & number of lost/missing teeth.[17]

The study was designed to review the available literature & to guesstimate the correlation of missing teeth in relation to their number & position & oral health related quality of life with anticipation that OHRQOL is negatively affected by tooth loss with special reference to number & position of missing teeth.

An online search was performed on databases (PubMed) to retrieve the relevant articles published between 1990- 2020 with strict adherence to human articles. Key words used were oral health, quality of life, tooth loss, edentulism, number & position of teeth. Team members/investigators scrutinized the data retrieved for its relevance to the subject selected. Those studies were included in this review which used OHIP 14 & OHIP 49 questionnaire (taking in account physical pain, psychological discomfort, physical & social disability associated with edentulism). English language articles, randomized controlled studies& prospective projects only were short listed for the present literature review. Exclusion criteria chosen was duplicate articles, case reports, reviews, non-human researches & medically marginalized subjects. 250 articles were retrieved after using the key words specified above. After going through titles & abstracts of retrieved articles & application of inclusion & exclusion criteria, 68 articles were shortlisted for review.

Tooth loss or edentulism is an enervating & irredeemable infirmity & can be labelled as disease obligation for oral health.[18] Albeit, the frequency of tooth mortality has abated over the past few years, but still it is considered a debilitating disease among older population worldwide.[19] Howbeit, due to literacy level, fiscal conditions & lifestyle norms, attitude & behavior towards oral/dental care, there is marked variation in occurrence of tooth mortality among different countries.[20] Figure shows the prevalence of edentulism among older adults of age less than 50 years & greater than 50 years of different countries.[21-24]

Previous studies signify that tooth mortality is seen more frequently in females & fiscally compromised populations.[25] Educational background, age, dental care access, insurance coverage policies are some of the other factors, impacting tooth mortality.[26-27] Edentulism can culminate into functional limitation, corporal, cerebral & convivial disability & ultimately handicap.[28]

Impact of Tooth Loss on Oral Health Related Quality of Life

Different projects have expounded the effect of tooth mortality on OHRQOL.[29-32] Furthermore, number & position of missing teeth also affects OHRQOL. Patients who had lost up to 12 teeth (including more than 1 anterior tooth); those with 13-31 missing teeth & completely edentulous patients compared with subjects carrying completely sound dentition, showed marked severity in OHIP scores.[29,33,34] While the other side of picture demonstrates that there is no clear-cut association between number of teeth lost & OHIP.[35-36] Some other studies also confirmed the results of latter approach, but significant correlation was observed between OHRQOL impairment & decreased number of anterior teeth.[37-38]

Domain of Physical Impairment

One of the important determinants of oral well-being & oral performance is the number of sound teeth present in oral cavity.[39-40] Previous studies have expounded that number of sound teeth play a key role in determining efficiency of mastication.[41-42] As per another study, deranged masticatory function & capability (self-perceived chewing ability) is associated with less than 20 teeth with contacting units falling in range of 9-10 pairs.[39]

Some studies reported that impaired oral performance among adults is attributed to muscular dysfunction; masticatory performance is affected minimally by process of ageing alone.[43] Biting force & strength of denture wearers declines to 1/5th to 1/4th of dentate patients according to most studies.[44] Additionally, as compared to natural set of dentitions, seven times more chewing/biting strokes are exerted by complete denture users to reduce the food to half of its original dimensions.[45]

The difficulty faced by denture users to chew hard food items, may be partially explained by the fact that reduction in thickness of masseter (muscle of mastication) has been observed in edentulous individuals.[46] This impairment ultimately impacts the ability of chewing, biting & swallowing, thus culminating in diet modification.[47-48] These facts demonstrate that tooth mortality, negatively impacts physical domain of OHRQOL.[49]

Domain of Functional Impairment

Loss of natural dentition often influences important routine chores such as speaking. Tooth mortality has therefore been found to be associated

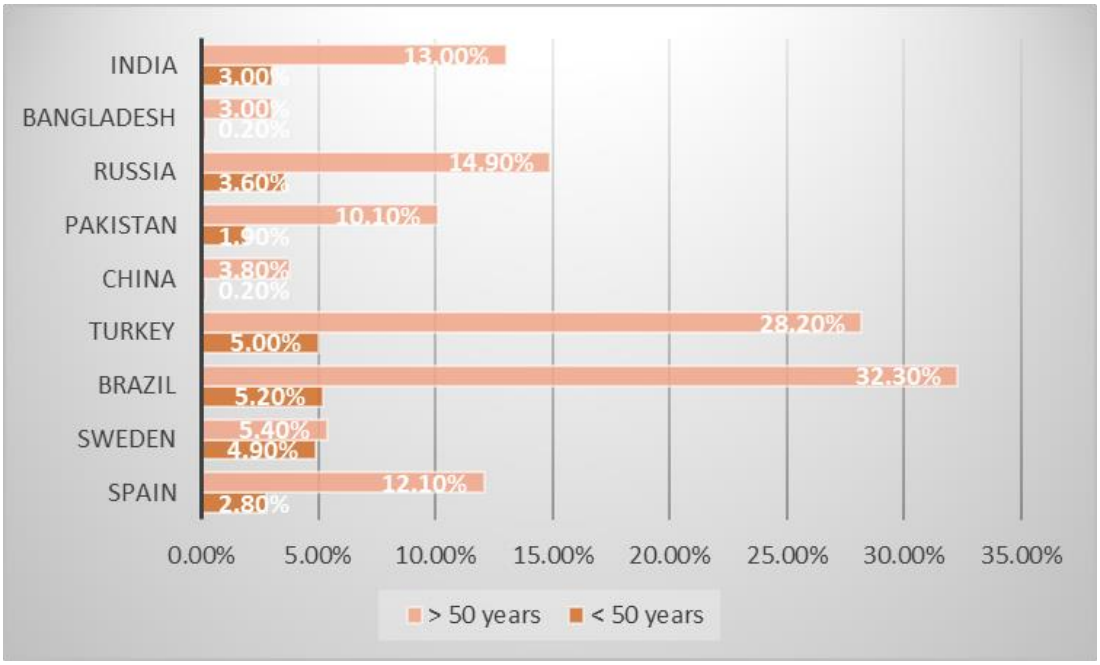

Figure: Inter-country comparison of edentulism between age groups of <50 years &>50 years.

*Population size: Spain = 6373 Sweden = 1000 Brazil = 5000 Turkey = 11481 China = 3994 Pakistan = 6501 Russia = 4427 Bangladesh = 5942 India = 10687

with impaired ability of speech.[50-51] Similarly, deranged sensation of taste has been reported among patient suffering from edentulism; attributed mainly to delayed tissue recovery & glossitis caused by inadequate nutrition.[52]

On the other hand, OHIP is significantly improved with use of dentures while taking in consideration, the domains of speech & taste sensation. Disturbance in taste sensation is largely attributed to taste buds' atrophy, local & systemic disturbances & use of different medicines. Dentures improve the masticatory performance, thus leading to improved sensation of taste.[53-55]

Domain of Psychological Impairment

Health care upshots & well-being of patients can be guesstimated more accurately by giving due importance to perception of patients regarding their oral health[56].The perceived needs, performance & oral health conditions of aged & edentulous patients are not appropriately reflected on by different clinical measures since psychological aspects of health are not given due importance by the said methodologies.[57-58]

Dentition plays a pivotal role in chewing, esthetics & speaking. Tooth mortality leads to inefficient chewing, denture associated trauma, esthetic issues & negative perception of self-appearance; negatively impacting OHRQOL.[59-60] This further influences the convivial life & daily chores of an edentulous individual.[61] Limited oral/dental performance is associated with compromised self-esteem in addition to declined cerebral & convivial well-being.[62]

Embarrassment to eat, smile or speak before others, may pledge edentate individuals to abstain from convivial activities, ultimately resulting in their social isolation.[63] Many individuals adapt to dentures but some people are unable to do so. Few studies expound that people using denture, experience compromised confidence, early ageing & modified attitude towards convivial relationships. In contrary, other studies imply that dentures improve the esthetics & social interactions of the patients which might raise the self-esteem & ultimately the psychological wellbeing.[64-68] Howbeit, demographic variations such as gender, age, marital status can influence the correlation of OHRQOL & tooth mortality.[66]

Conclusion

Tooth mortality has range of nocuous bearings on oral health related quality of life; irrespective of the instrument used for the evaluation of OHRQOL & demography but its intensity can be influenced by demographic characters. This study also implies that number as

well as position of lost teeth, negatively influences OHRQOL. It is suggested to give pivotal importance to measures of ailment prevention while formulating dental health policy & provision of elated dental/oral health care with ultimate aim to maintain the subsistence of natural functional dentition; a commitment to better OHRQOL.

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