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Research Article

RELATIONSHIP BETWEEN DENTURE SATISFACTION AND CLINICAL ORAL DRYNESS SCORE AMONG PATIENTS IN A TERTIARY CARE HOSPITAL, KASHMIR, J&K

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ABSTRACT

Saliva is necessary for the proper functioning of the intra oral prosthesis especially the removable ones. This is because of the fact that salivary film is must to create adhesion, cohesion, and surface tension that ultimately leads to the increased retention of the denture and improved satisfaction towards the prosthesis. Elderly patients are more susceptible to xerostomia due to increased use of certain medications. Due to the loss of lubricating property of saliva intra oral tissues tend to stick leading to dry, freckled, ulcerated and sore mucosa which is of major concern to the complete denture wearing patient. The aim of this study was to assess the relation between oral dryness score and denture satisfaction among elderly patients. The present study was conducted in Prosthodontics Department of Govt Dental College Srinagar, Kashmir, J&K. Patients wearing dentures for at least six months were invited to participate in study. Visual Analogue Scale (VAS) with scores ranging from 0-100 was used to assess patient's satisfaction and clinical oral dryness score was assessed using the criteria described by Osailan SM *et al.*, with scores ranging from 0-10. Data was analysed with SPSS software (version-20) and Kendall's tau-b correlation was used to determine the relationship between mean denture satisfactions and mean clinical oral dryness scores. A total of 200 participants were included in the study based on inclusion criteria. The mean score for aesthetics was 87.12 ± 21.20 , for chewing ability the mean score was 62.5 ± 19.74 and for phonetics it was 61.25 ± 20.61 . When clinical dryness scores were recorded, 27% of the participants has no signs of dryness, 23% of them had dryness score one, 21% had score two, 13% of them had score three and so on. Strong negative correlation between VAS-scores and oral dryness scores was observed which signifies the importance of thorough intraoral assessment before prosthesis fabrication and patient education regarding the severity of this condition.

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INTRODUCTION

It is a well established fact that saliva is critical for the maintenance and proper functioning of all the tissues in the mouth. It protects the integrity of soft and hard oral tissues and supports important oral functions. Conditions that disturb salivary production or its composition have broad negative sequelae in the mouth and may result in systemic complications¹. Indeed, the presence of a thin salivary film layer is essential to the comfort of the mucosa beneath a denture base and to denture retention². However, xerostomia is one among the top most common problems affecting elderly population; the other being edentulism³. It has been reported that in india, mode of rehabilitation for edentulism in majority of the patients is complete denture⁴ & that such patients with xerostomia have more intense sore spots than patients with

normal salivary flow⁵. The term "xerostomia" is preferred to identify those patients who present with subjective complaint of oral dryness⁶. Since it is a subjective feeling of oral dryness, traditional methods like measuring salivary flow rate may not really depict degree of oral dryness; to bridge this gap, Osailan SM *et al.*⁶, developed new index known as Clinical Oral Dryness Score (CODS) with acceptable validity and reproducibility in assessment of severity of oral dryness clinically. It has been reported that xerostomia is more prevalent in the elderly population, primarily due to increased use of drugs because of their increased susceptibility to disease⁵ & a common side effect of many such popular prescription medications is impaired saliva production, or xerostomia⁷⁻¹⁰. There are hundreds of medications that list xerostomia as a possible side effect¹¹ including: anorexiant, anti-asthmatics, anti-cholinergics, anti-depressants, anti-

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histamines, anti-hypertensives, anti-inflammatories, anxiolytics, anti-parkinsonians, anti-psychotics, decongestants, anti-nauseants, bronchodilators, muscle relaxants, diuretics, and sedatives^{12,13}. Patients suffering from xerostomia exhibit not only dry mouth but also difficulty in speaking and swallowing and increased susceptibility to dental caries and oral infections¹⁴. Oral mucosa becomes dry and tends to crack and ulcerate, which makes wearing removable prostheses uncomfortable. Problems associated with removable dental prostheses include frequent ulcerations, poor retention, difficulty in speaking and swallowing, frequent infections and overall dissatisfaction with their prosthesis. However, some studies have shown that low salivary flow rates were not closely related to reduced masticatory performance or retention and stability in elderly complete denture wearers⁵.

Hence, the aim of the study was to assess the relation between oral dryness score and denture satisfaction among elderly patients visiting Govt dental college and hospital Srinagar Kashmir, J&K.. The research hypothesis tested was that “there is no relation between clinical oral dryness score and denture satisfaction among elderly complete denture wearers”.

MATERIALS AND METHODS

In the present cross-sectional study, completely edentulous patients who got complete dentures made at the prosthodontic department of the Govt Dental college Srinagar Kashmir J&K, India, during January 2016 to July 2016 were invited to participate in this study. An invitation letter was sent to all eligible patients who met inclusion criteria of the study and those patients who agreed to participate were included in this study. A total of 200 patients including 94 females and 106 males participated in the study. Study protocol was approved by the ethical committee of the institution. Inclusion Criteria for the study included edentulous subjects, wearing complete dentures for at least six months and who gave written and voluntary consent to participate in this study. Patients having any complications like broken dentures, denture stomatitis, epulis fissuratum, poor retention and stability, over/under extended borders, centric/vertical relation problems, irregular in using dentures, etc., and medically compromised/who were under any medication which affects salivary flow rate were excluded from the study. After obtaining informed consent, patients were examined to assess status of oral cavity regarding oral dryness score.

Clinical Oral Dryness Score (CODS)

As described by the Osailan SM *et al*⁶, the CODS used in the present study consisted of a 10-point scale, each point representing a feature of dryness in the mouth [Table 1]. Although the scoring system reflects an approximate severity scale, each feature scores one point and the total is determined. A high total score indicates increased severity of oral dryness and individual score ranges from 0-10.

Table 1 Clinical Oral Dryness Scoring Criteria By Osailan SM⁶

Score	Criteria
1	Mirror sticks to buccal mucosa
2	Mirror sticks to tongue.
3	Frothy saliva.
4	No saliva pooling in floor of mouth.
5	Tongue shows loss of papillae
6	Altered/smooth gingival architecture.

7	Glassy appearance of other oral mucosa, especially palate
8	Tongue lobulated/fissured
9	Active or recently restored (last 6 months) cervical caries (2 teeth).
10	Debris on palate (excluding under dentures).

Assessment of Denture Satisfaction

Each patient used a VAS to express satisfaction with aesthetics, chewing ability and phonetics with the prosthesis. Considering each aspect, patients were asked to score on a 100-point scale with scores ranging from 0-100. For example, patient were asked three questions like how you rate your satisfaction on your chewing ability with your present dentures on a 100-point scale, score zero for dissatisfaction and score hundred for complete satisfaction and similar questions on aesthetics and phonetics¹⁵.

Intra oral findings and denture satisfaction scores were correlated and subjected to statistical analysis. Data were analyzed using SPSS version 21. Kendall’s tau-b correlation was used to determine the relationship between mean denture satisfactions and mean clinical oral dryness scores. P value <0.05 was taken as significant.

RESULTS

Out of 200 study participants, 16 (8%) were aged less than 50 years and rest 184 (92%) were more than 50 years old. Mean age was 62.1 ± 4.56 years. There were 106 males (53%) and 94 females (47%). Among the VAS-scores for denture satisfaction, the mean score for aesthetics was 87.12±21.20, for chewing ability the mean score was 62.5±19.74 and for phonetics it was 61.25±20.61 [Table 2]. When clinical dryness scores were recorded, 27% of the participants has no signs of dryness, 23% of them had dryness score one, 21% had score two, 13% of them had score three and so on. [Table 3]

Table 2 Participants Denture Satisfaction Scores

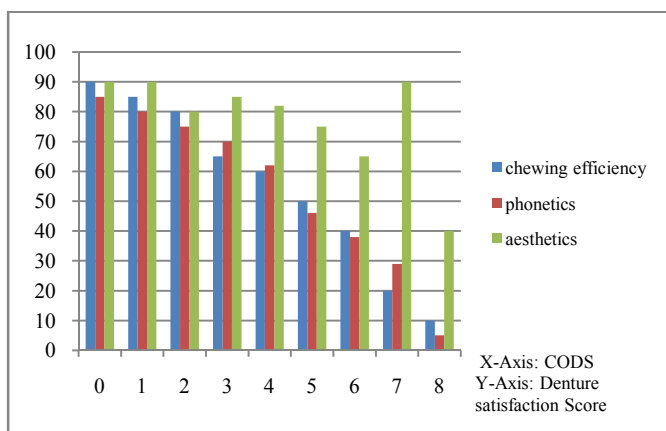
Patient Satisfaction Score (VAS)	Range	Mean ±SD	Median
Aesthetics	0-100	87.12±21.20	74
Chewing ability	0-100	62.5±19.74	56
Phonetics	0-100	61.25±20.61	55

Table 3 Frequency Distribution of Clinical Oral Dryness Scores

Clinical Oral Dryness Score	Frequency	Percentage
0	54	27%
1	46	23%
2	42	21%
3	26	13%
4	14	7%
5	9	4.5%
6	5	2.5%
7	3	1.5%
8	1	0.5%
9	0	0
10	0	0
TOTAL	200	100%

When clinical oral dryness score was correlated with various aspects denture satisfaction, there was strong negative correlation between the Clinical Oral dryness scores and Patients satisfaction (VAS scores) for chewing ability which was statistically significant (τb = -0.624, p= 0.001) [Graph 1]

and similarly typical negative correlation was identified between CODS scores and patients satisfaction with Phonetics ($r = -0.542$, $p = 0.001$) [Graph 1] There is no statistically significant correlation between patient satisfaction (VAS) scores for Aesthetics and Clinical Oral dryness scores ($r = -0.250$, $p = 0.611$) [Graph 1].



Graph 1 Correlation between Clinical Oral Dryness Score and Various Aspects of Denture Satisfaction

DISCUSSION

The quality and quantity of saliva have been shown to play a significant role in the success of otherwise adequately constructed dentures. It is apparent that saliva of suboptimal quality or quantity may adversely influence denture retention and in turn the overall satisfaction of patient with the prosthesis^{16,17}. Hence, it is very important for a dentist to assess an edentulous patient before fabrication of prosthesis so that necessary measures can be done before hand for smooth functioning of the prosthesis as well as to improve the overall compliance of the patient. Traditionally, decreased salivary rate has been measured in terms of Unstimulated Salivary Flow Rate (USSR) and stimulated Salivary Flow Rate (SSR), since xerostomia is a subjective feeling of a patient, relatively new index has been used to measure the degree of xerostomia closely to subjective feeling of a patient, known as CODS proposed by Osailan SM *et al.*, which has good reproducibility of 0.89-0.96⁶. In the present study it was aimed that whether any correlation exists between CODS and denture satisfaction of the patient and which aspects of denture satisfaction are most affected by xerostomia and which the least.

The results of the present investigation revealed a significant impact of subjective dry mouth on oral functions in complete denture wearers. The participants who were involved in this study were the patients who were using complete dentures for at least six months; this was done to avoid problems of new denture confounding with study outcome. In the present study, VAS-scale has been used to determine the patient's denture satisfaction, the mean VAS- score for aesthetics, chewing ability and phonetics were similar to study conducted by Radhika *et al*³ in India in which the mean VAS-score for aesthetics was 74.32 ± 21.20 , for chewing ability the mean score was 62.31 ± 19.64 and for phonetics it was 67.82 ± 30.60 . Similar results for VAS score were reported by Bilhan H *et al*¹⁵ in Turkey. In the present study, there was a strong negative correlation between the clinical oral dryness scores and VAS scores for patients chewing ability and phonetics, no significant

correlation between VAS scores for aesthetics and oral dryness scores. Similar results were reported by radhika *et al*³. Absence of significant correlation between aesthetics and CODS score could be due the fact that xerostomia mostly affects the functional aspects of denture.

Hence, educating xerostomic patients regarding the importance of their condition is essential.

CONCLUSION

Xerostomia is a debilitating condition and is even more painful for a patient wearing complete dentures. Early diagnosis with a thorough assessment of the underlying medical problems and medications as well as an assessment of the denture and the denture-bearing mucosal surfaces is mandatory.

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