

**Knowledge, Attitudes, and Practices towards Education of Patient on Denture Care among Dental Undergraduate Student in a College in Ballari District, Karnataka, India.**

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Abstract

Aims and Objectives: The aim of the present study is to explore the knowledge, attitude and practice towards education of patient in denture care among dental undergraduate student.

Materials and Methods: The present study is descriptive cross sectional questionnaire study. The study was conducted in June 2017 among Dental undergraduate students from Government dental college in Ballari district, Karnataka. Study participants include students from final year under graduation and internship students were included in study. The close ended questionnaire was designed to improve response rate.

Results: 53% of study participants had the knowledge of health problem associated with formation of biofilm on denture. 74 % of study participants knew that Denture-induced stomatitis is the main Oral health problem

associated due to formation of biofilm on denture. According to 73% of study participants Combination of chemical and Mechanical method of denture cleaning is the best method. About 147 (80%) of study participants disagree with the statement that no special education are needed for Denture care besides cleaning the denture with brush. Of all study participants 50 % of study participants provides detail education on denture care to every patient I treat while 50% who does not.

Conclusion: It has been concluded that towards education of patient on denture care among dental undergraduate student was good but the practice was not good regarding the education.

Keywords: Denture hygiene, Dental students, dental college, Knowledge.

Introduction

As the age advances tooth loss in adult population increases which are further complimented by the additive factors leading to rapid increase over time. For this reason, the rates of complete tooth loss are routinely highest in the oldest age groups. Regardless of several efforts by dentists aimed at conservation of teeth, a sizeable number of patients still lose their teeth to oral diseases like dental caries, periodontal diseases, tooth wear, trauma, and tumors of the jaws¹. The number of individuals requiring dentures has increased considerably with the aging population.²⁻⁴

Dentures enhance a person's appearance and oral health related quality of life. They provide patients the ability to eat, phonetics and smile with confidence, hence denture care is essential for maintaining a healthy mouth and prolonging the life of the dentures. It is of paramount importance to have dentures checked on a regular basis by the dental professional to make sure they fit and function appropriately. Proper care of dentures can extend their usable life and contribute to a healthy mouth. It has been shown by the literature that with proper maintenance, the average life span of dentures is five to seven years. It has also been proved that dentures may need adjustment or it has to be replaced as oral cavity changes with increasing age.⁵ Impaired oral function and disturbed overall well-being of the edentulous persons makes them to seek replacement of their lost teeth. The most common treatment of edentulism in older patients is by means of removable complete denture or (implant-supported) removable complete denture. Evidence from the literature suggests that that denture use has indeed a positive association with nutrition, cognitive and physical function, general well-being, and even long term survival⁶⁻⁸. Nevertheless, several studies indicate that denture cleanliness and oral hygiene of denture wearers is

generally poor^{9, 10}, thereby facilitating the formation and accumulation of an oral biofilm. This biofilm holds a risk for oral infection, discomfort¹¹⁻¹³, and general health problems such as aspiration pneumonia.¹⁴⁻¹⁵ A recent study¹⁶ indicates that the risk for aspiration pneumonia in very old denture wearers (85 years) even doubles in case they wear their dentures during sleeping; this is attributed to increased microbial load. Denture stomatitis is an oral inflammation related to denture wearing and poor oral hygiene, which occurs in 15 up to 70% of the denture wearers^{17-19, 11}. Patient-dependent factors, such as specific salivary proteins²⁰ and host immunity²¹ affect the disease.

Dental Under graduate students should realize that microbial plaque on dentures may be harmful to both the oral mucosa and the general health of the patient. Hence, it is the responsibility of the patient to maintain oral hygiene through daily home care routine. However, denture wearers in comparison to the dentate, pay less attention toward the importance of plaque control²². It is the obligation of the dentist to motivate and instruct the denture wearers and provide the means and methods for plaque control.²³ Dental professionals must have a current knowledge of denture cleansing strategies to maximize the services offered to their denture patients.

Up till now most of the studies^{24, 25} conducted to test knowledge, attitude and practice of denture care among patients wearing complete dentures or partial dentures and dental graduates, and specialists. But it is important to explore the knowledge, attitude and practice of denture care among undergraduate students because at undergraduate level if the dental student has good knowledge, positive attitude and practice of denture care than it will result into better practice and helps educating better motivation of the patient for denture cleanliness in future. Therefore the aim of the present study was to explore knowledge, attitude and practice towards

education of patient in denture care among dental undergraduate student.

Materials and Methods

The present study was a descriptive cross sectional questionnaire study conducted to explore knowledge, attitude and practice towards education of patient in denture care among dental undergraduate student.

The study was conducted in June 2017 among Dental undergraduate students from Government dental college in Ballari district, Karnataka. Ethical clearance was obtained from Institutional Review Committee.

Study participants include students from final year under graduation and internship students were included in study.

Informed consent was obtained from the students prior to the study. The sampling method used was convenience sampling in which those students who were present on the day of survey and given their informed consent were included in the survey. The survey was conducted by single investigator. A total of 183 (93 final year students and 90 internship students) study participants were included in the study.

The purpose of study was explained to the participants and the close ended questionnaire was administered to them. Prior to main survey a pilot survey was conducted on 20 % of study participants to test the validity and reliability of questionnaire. Reliability of the Questionnaire was determined by using Test-Retest and the values of measured Kappa (k) = 0.91 Weighted Kappa (k_w) = 0.8. Internal consistency of questionnaires was measured by applying Chronbachs-Alpha (α) and the value of α = 0.79 was measured.

The close ended questionnaire was designed to improve response rate. The questionnaire consists of four domains. The first part consists of demographic details of study participants which include age, gender, and year of study. Second part consists of questions regarding knowledge of

education of patient in denture care. Third part consists of attitude of study participants towards education of patient in denture care. Fourth part consists of practice of study participants towards education of patient in denture care.

Statistical analysis

The data were entered into a Microsoft Excel spreadsheet version 12.0 (Microsoft, Redmond, Washington USA); Statistical Package for the Social Sciences version 16.0 (IBM, Armonk, New York, USA) was used for statistical analysis. Descriptive analysis was applied; numbers and percentages were presented in tables.

Results

Among 183 study participants, 101 (55%) of study participants belonged to age group more than 23 years. Among all study participants 61% of study participants were male. 51% of study participants were studying in final year and 49% were from Internship. 53% of study participants had the knowledge of health problem associated with formation of biofilm on denture. 74 % of study participants knew that Denture-induced stomatitis is the main Oral health problem associated due to formation of biofilm on denture. 51% of study participants reported that recurrence rate of Denture-induced stomatitis is very high. Among all study participants 73% of study participants states that *Candida albicans* is the microorganism frequently present in patient with Denture stomatitis. According to 73% of study participants Combination of chemical and Mechanical method of denture cleaning is the best method. According to 41% of study participants cleaning the tissue surface of denture does not decreases the retention. 81% of study participants knew various mechanical methods of cleaning dentures and 67% knows various chemical methods of cleaning dentures. About 147 (80%) of study participants disagree with the statement that no special education are needed for Denture care besides cleaning the denture with brush.

According to 115 (63%) of study participants, education of patient in denture care is very important for oral mucosal health. About 94 (52%) of study participants disagree with the statement that education on Denture care to patient should be given in short to save time. Of all the study participants, 100 (55%) of study participants reported that proper education on denture should be given to every patient irrespective of their behavior. According to 149 (81%) study participants disagree with the statement that education on denture care is not important to complete denture patients as there is no risk of plaque induced dental caries or Periodontal diseases. Of all study participants 50 % of study participants provides detail education on denture care to every patient I treat while 50% who does not. About 118(64%) does not update their knowledge about the techniques involved in denture care. 86% of study participants do not provide details of various systemic and oral diseases occur due to improper denture care. About 69% of study participants provide education on denture care based on ability, and behavior of patients. 97% of study participants do not recall their patients to determine the impact of Denture care Education.

Table 1 Demographic detail of study participants.

DEMOGRAPHIC DETAILS		NUMBER (%)
AGE	Less than 23 years	82 (45%)
	More than 23 years	101 (55%)
	Total	183 (100%)
GENDER	Male	112(61%)
	Female	71 (39%)
	Total	183 (100%)
YEAR OF STUDY	Final year	93 (51%)
	Internship	90 (49%)
	Total	183 (100%)

Table 2: Knowledge regarding education of patient in denture care among under graduate students.

Knowledge Regarding Education Of Patient In Denture Care		Final Year Number (%)	Internship Number (%)	Total Number (%)
Q1. Health problem associated with formation of biofilm on denture	Bacterial endocarditis	12 (13%)	07 (8%)	19 (10%)
	Aspiration pneumonia	23 (25%)	20 (22%)	43 (24%)
	Chronic obstructive pulmonary diseases	11 (12%)	12 (13%)	23 (13%)
	All the above	47 (50%)	51 (57%)	98 (53%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q2. Oral health problem associated due to formation of biofilm on denture	Traumatic ulcer	28 (30%)	07 (8%)	35 (19%)
	Denture-induced stomatitis	56 (60%)	79 (87%)	135 (74%)
	Angular- chelitis	09 (10%)	04 (5%)	13 (7%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q3. Recurrence rate Denture-induced stomatitis?	Very High	43(46%)	56 (62%)	99 (51%)
	High	45 (48%)	32 (36%)	77(42%)
	Low	05 (6%)	02 (2%)	07 (7%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q3. Which type of Microorganism frequently present in patient with Denture stomatitis?	Candida albicans	61 (66%)	72 (80%)	133 (73%)
	Streptococcus mutants	22 (24%)	10 (11%)	32 (17%)
	Staphylococcus Aureus	10 (10%)	08 (9%)	18 (10%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q4. Which is the best method of cleaning denture?	Mechanical Method	21 (23%)	11 (12%)	32 (17%)
	Chemical Method	10 (11%)	09 (10%)	19 (10%)
	Combination of both method	62 (67%)	70 (78%)	132 (73%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q5. Does cleaning the tissue surface of Denture decreases the retention?	Yes	38 (41%)	22 (24%)	60 (33%)
	No	32 (34%)	43 (48%)	75 (41%)

	Don't know	23 (25%)	25 (28%)	48 (26%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q6. What are the various mechanical methods of cleaning dentures?	Cleaning by brush	12 (13%)	06 (6%)	18 (10%)
	Ultra sonic cleaning	11 (12%)	02 (2%)	13 (7%)
	Microwave-associated radiation	02 (2%)	02 (2%)	04 (2%)
	All the above	68 (73%)	80 (90%)	148 (81%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q7. What are the various Chemical methods of cleaning dentures?	Immersion in water	05 (5%)	01 (1%)	06 (3%)
	Immersion in water with an alkaline peroxide effervescent tablet	22 (24%)	32 (36%)	54 (30%)
	All the above	66 (71%)	57 (63%)	123 (67%)
	Total	93 (100%)	90 (100%)	183 (100%)

Table 3 Attitude regarding education of patient on denture care among study participants.

Attitude Regarding Education Of Patient In Denture Care		Final Year Number (%)	Internship Number (%)	Total Number (%)
Q1. No special education is needed for Denture care besides cleaning the denture with brush.	Strongly agree	01 (1%)	00 (0%)	01 (1%)
	Agree	23 (25%)	12 (13%)	35 (19%)
	Disagree	69 (74%)	78 (87%)	147 (80%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q2. Education of patient in denture care is very important for oral mucosal health.	Strongly agree	54 (58%)	61 (68%)	115 (63%)
	Agree	32 (34%)	23 (26%)	55 (30%)
	Disagree	07 (8%)	06 (6%)	13 (7%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q3. Education on Denture care to patient should be given in short to save time.	Strongly agree	34 (37%)	23 (26%)	57 (31%)
	Agree	21 (23%)	11 (12%)	32 (17%)
	Disagree	38 (40%)	56 (62%)	94 (52%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q4. Education on Denture care to an Indifferent patient should not be given as will not follow?	Strongly agree	31 (33%)	20 (22%)	51 (28%)
	Agree	21 (23%)	11 (12%)	32 (17%)
	Disagree	41 (44%)	59 (66%)	100 (55%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q5. Education on Denture care is not important to complete denture patients as there is no risk of plaque induced dental caries or Periodontal	Strongly agree	12 (13%)	06 (7%)	18 (10%)
	Agree	11 (12%)	05 (6%)	16 (9%)
	Disagree	70 (75%)	79 (87%)	149 (81%)
	Total	93 (100%)	90 (100%)	183 (100%)

diseases.				
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Table 4: Practice regarding education of patient in denture care among study participants.

Practice Regarding Education Of Patient In Denture Care		Final Year Number (%)	Internship Number (%)	Total Number (%)
Q1. I provide detail education on denture care to every patient I treat.	Agree	41 (44%)	51 (57%)	92 (50%)
	Disagree	52 (56%)	39 (43%)	91 (50%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q2. Every time I update my knowledge about the techniques involved in denture care.	Agree	32 (34%)	33 (37%)	65 (36%)
	Disagree	61 (66%)	57 (63%)	118 (64%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q3. I provide details of various systemic and oral diseases occur due to improper Denture care.	Agree	12 (13%)	14 (16%)	26 (14%)
	Disagree	81 (87%)	76 (84%)	157 (86%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q4. I provide Education on denture care based on ability, and behavior of patients.	Agree	71 (39%)	55 (61%)	126 (69%)
	Disagree	22 (61%)	35 (39%)	57 (31%)
	Total	93 (100%)	90 (100%)	183 (100%)
Q5. I recall patients again to determine the impact of Denture care Education.	Agree	02 (2%)	04 (4%)	06 (03%)
	Disagree	91 (98%)	86 (96%)	177 (97%)
	Total	93 (100%)	90 (100%)	183 (100%)

Discussion

The problem of poor denture hygiene is very common among both geriatric and young patients with removable partial denture.²⁶ Patients with physical abnormalities are not able to take care of dentures properly.²⁷⁻²⁹ A healthy denture wearer also many times does not able to take care of their dentures due to lack of knowledge about various techniques of denture care.³⁰ It is the duty of dentists to provide every patient detailed education about denture care irrespective of behavior and age and physical inability of patient. The education for denture care should be stressed in under graduation so that they realize the importance of denture care and continue in their future. In various studies³¹⁻³³; it has been shown that lack of attention by patients to hear instructions and insufficient knowledge provided by dentists regarding denture care leads to denture stomatitis. In the present study 73% of undergraduate students reported that combination of both Chemical and Mechanical method of denture cleaning as most preferred method. Same results were shown by Suresan V.²⁴ In study by Namrata M³⁴ only 35% students recommended the combination of Chemical and Mechanical method of denture cleaning. In various other studies⁰ combination of both methods recommended as best methods. In the present study only 10% of study subjects recommended chemical method of denture cleaning. Same results were shown in study by Suresan V et al²⁴ in which only 5% of study participants recommended chemical method of denture cleaning. The reason may be due to corrosive effect of chemical agent on denture.³⁵⁻³⁷ In the present study 41% of study subjects reported that cleaning the tissue surface of Denture does not affect the retention of denture. Same results were shown in study by Suresan V et al.²⁴

In the present study it was reported that 93% of study participants know the importance of education of patient

in denture care for oral mucosal health. Same results were shown in study by Namrata M³⁴ and Suresan V et al²⁴ in which 78% and 88% of study participants respectively know the importance of education of patient in denture care. In the present study 52 % of study participants disagree with the statement that education on Denture care to patient should be given in short to save time. In a study by Suresan V et al²⁴ 48% of study participants reported that Explaining denture hygiene instructions to old patients can be very time consuming while 48% of study participants disagree with this statement.

In the present study 50 % of study participants provide detail education on denture care to every patient they treat. While in study by Namrata M³⁴ and Suresan V et al²⁴ in which 98% and 96% of study participants respectively provide education on denture care to every patient they treat. In the present study 36% of study participants were updated with the new knowledge about denture care from time to time while in study by Namrata M³⁴ on undergraduate students only 2 % of study participants knew about new denture care techniques.

In the present study 86 % of study participants do not provide details of various systemic and oral diseases occur due to improper Denture care. While in study by Suresan V et al³⁴ 97% of study participants provide details of various systemic and oral diseases occur due to improper Denture care. Every cross-sectional questionnaire studies have inbuilt limitations, and this study is no exception. Findings from one dental college may not be fully generalizable. In questionnaire-based studies, there is possibility of social desirability of faking good bias, and/or deviation or negative bias.

Conclusion

From above it has been concluded that towards education of patient on denture care among dental undergraduate

student was good but the practice was not good regarding the education. The undergraduate students should frequently educate their patients regarding the proper denture care in detail. More studies in future should be conducted to explore the reasons of not educating the patients by undergraduate students.

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