International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2015): 78.96 | Impact Factor (2015): 6.391

Evaluation of Awareness and Attitude about Denture Cleansers among Dental Graduates and Practitioners

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Abstract: ***Objective: To assess the attitude and awareness about denture cleansers among dental graduates and practitioners in Aseer Province of Saudi Arabia. Method: Questionnaire with 13 questions was used to reveal the views of 307 dental students, interns, graduates, general practitioners and specialists towards denture cleansers and to document the literature. The substance produced through this study was used in prospectus of undergraduate and postgraduate courses. Questionnaire set consists of three sections. 1- Determines participant's professional level; 2- attitude and 3- determine the awareness about denture cleansers. Statistical analyses were adopted to draw logical and scientific inferences. The chi square test was used to test the independence of various attributes. Results: The total response rate was 95%. 267 of 291 dentists who instruct their patient for denture hygiene recommended tablet form (88%) of denture cleansers. 87% of dentists felt that combination of denture brush and denture cleansers was best for maintaining hygiene. Almost 83% of the participants don't know exact composition, 25% were unaware of adverse effect but practically 81% were knowing that different denture cleansers are available for acrylic and cast partial dentures. 51% of the dentists conveyed insufficient knowledge was delivered to them during undergraduate course 94% respondents felt the need to enhance their knowledge. Conclusion: There is need to improve and enhance teaching and training about denture cleansers during the undergraduate education and further in continuing education and training to practitioners, so as to enable them to impart adequate guidance to their patients for denture hygiene.***

Keywords: survey, questionnaire, denture cleansing, Denture cleanser, Denture hygiene

1. Introduction

For living healthy life hygiene is of utmost importance. The health of oral tissues also depends on proper hygiene. This becomes more critical in edentulous patient as oral health of the completely edentulous patients is a crucial factor associated with not only to dentures in oral cavity but also to the general systemic health. The quality of life, nutrition, social interactions all the related factors of denture wearing patients may get ill-effected if proper denture cleaning is not maintained [1-5]. As our natural dentition, denture also require proper cleanness because it also accumulate plaque, stain and calculus and if it is not properly cleaned the tenacious biofilm adhered to the dentures may result in various oral tissue diseases as well as serious systemic ailments [6-8].Microbial plaque on the tissue surface of dentures is a significant cofactor in the pathogenesis of denture stomatitis. As shown by light and electron microscopic studies of denture sections, this plaque has the same basic structure as plaque on natural teeth.The adherence of Candida albicans to the acrylic surfaces of dentures is implicated as the first step in the pathogenesis of associated stomatitis. [9-11]. It is the basic responsibility of the dental professionals to educated, motivate and instruct their patients regarding denture hygiene. Budtz-Jorgensen [12] reported that in Denmark 65 % of denture wearers have signs of denture stomatitis. Jagger and Harrison [13] reported that 35 % of denture wearers used, or had used, denture cleansers daily. Denture cleansers have been widely used in prosthodontics to prevent colonization of Candida albicans and related candid a species and formation of denture plaque [14-18]. Gornitsky et al. [19] reported that use of denture cleansers significantly reduced the number of micro-organisms on dentures in a hospitalized geriatric population. However, daily use of denture cleansers can affect the physical and mechanical properties of denture base material [20-22]. Murdoch-Kinch et al. [23] noted occurrence of oral mucosal injury caused by denture cleansers.

Completely edentulous patients using dentures would be highly profited if the dentist provides the correct information and guide them regarding the use of denture cleansers and denture hygiene. This only possible if the dentists itself have sufficient knowledge and awareness about denture cleansers. However, incomplete or little knowledge about denture cleaners among dental graduates or even practitioners results in poor oral health and improper maintenance of dentures. This is proved by the fact that little is known about dentists' knowledge, awareness[24] and experience of denture cleansers in Saudi Arabia especially in Aseer Province. The literature available for the present investigation was very scanty and especially in this region of the world not much work has been reported.

So, this systemic study was planned with the objectives of assessing the attitude and awareness about denture cleansers among dental graduates and practitioners in Aseer Provinceof Saudi Arabia and to document the literature and substance produced through this study for the prospectus in undergraduate and postgraduate courses.

2. Materials and Methods

The current research was an observational cross sectional type of study where the data was collected from the representative population at a specific time interval of 5 months. It was undertaken to determine attitude and

awareness of denture cleansers among dentists. A quota sampling (nonprobability sampling) technique was used with a sample size of 307participants. Theses respondents were undergraduate, postgraduate dental students of King Khalid University, Abha, Saudi Arabia, general practitioners, specialist in dental field in and around Aseer Province, Saudi Arabia.

3. Ethical Considerations

This study was conducted in compliance with the protocol; written ethical approval was taken from the ethical committee of the King Khalid University - College of Dentistry. The subjects participating in the present study provided their informed consent. Participation was on a voluntary basis and there were no incentives. Data protection and anonymity were guaranteed.

For this study, a set of 13 questions was prepared and was given personally or emailed to the participants. Each participant's communication data will be collected and coded. At an interval of every 1 week two times all participants were reminded regarding returning of the questionnaire forms with response. Wherever essential detailed conversation was apprehended with respondents and clarification was provided regarding study and its use.

Questionnaire set basically consists of three sections. First section determines participant's professional level; second section help in evaluating attitude and third section determine the awareness about denture cleansers among participants.

In order to achieve the outlined objectives the data so obtained was tabulated and statistically analyzed (mostly chi square test). The inferences so obtained were used to prepare the guideline for the program of study needed to increase the knowledge about denture cleansers among dental graduates.

4. Results and Discussion

The data obtained as per questionnaire were subjected to further tabulation and analysis and the results are summarized below. A principal investigator analyzed all returned questionnaires.Average significance was determined to identify the frequency, pattern, and significance of the response variables identified. Using the Statistical Package for Social Sciences (SPSS) version 17 (Chicago, Illinois, USA), Chi-square tests were used to compare the responses of participants for each question in regard to the response options. A p-value less than 0.05 was considered statistically significant. In 307 questionnaires that were distributed, 95% was response rate.

Participants' professional Profile

Among the total 307 samples, 6 participants' responded partially less than 7 questions, noteworthy to describe that there were 4 non-response and 6 participants marked multiple answers to most questions. Thus to avoid ambiguity these responses were discarded and only properly filled forms were selected so total 291 forms were analyzed. A total of 56% students and 44% practitioners were respondents in which the GPs were 22% and specialists were 22%. The distribution of the respondents shows that availability of the dentists in the present area is good to serve the society.

Assessment of the attitude of the participants towards denture cleansers-

In this section of the Questionnaire the attitude of the participants were assessed for denture hygiene and denture cleansers. The mostly (92%) dentists instruct the patient for cleaning of the dentures the time of denture delivery but conversely only 61 % of the dentist constantly recalled their patients for inspection of the dentures and assessment of denture hygiene and only 31 % recallpatients sometimes and the rest 8 % never called their patients again.It is noteworthy to mention that 67% of the dentists tell patients to clean dentures twice daily, 10% after every meal and only 23% once daily, which is wrong as dentures should be cleaned after every mealbecause biofilm is formed after every meal and may result in microbial growth, this observation is in correlation to the previous study by Idil dikbas et al in 2006 [30] who assessed the attitudes of dental practitioners in turkey population. This association may be due to indecorous attitude towards denture hygiene by the dentist or more accurately preconception of dentist towards patient that he/she would not feel comfortable to clean dentures after every meal.

The question about the method of recommendation the 87% of the dentist recommended denture cleanser and denture brush combination for cleaning. 10% suggested different brushes with water or soap but astonishingly3% suggested only denture cleansers. Basically the methods of denture cleaning can categorized in three sections chemical, mechanical and combination of both. As described in the literature also the combination of both the methods is most effective [2,11,13,31] in maintaining the hygiene of the dentures, similar results were showed in our study.Also in the studies performed on denture wearers by Hoad-Reddick et al. [3] and Neill [32], the most preferred cleansing method was the combination method, with results of 40.2% and 62.0% respectively. Even these data showed the recommendation of the dentists about combined method of cleaning.

Regarding the knowledge about denture cleansers 73% of the participants were fully aware of it and 21% know little and very few 6% had no information about denture cleansers. This is in association with the study by Idil dikbas et al in 2006 [30] but in contrast to Hong et al. [25] who reported that more than 76 % of Chinese dentists and more than 62 % of Indonesian dentists had heard only a little about denture cleansers. The tablet form of denture cleanser almost 88% was most preferred choice of denture cleansers and frequently recommended by the dentists in this area, followed by powder 8% and paste 4%.

Assessment of the awareness of the participants towards denture cleansers- The questions related to the awareness towards denture cleansers reveled existing actual problem in the profession. Regarding the brands of denture cleansers 87% of dentists know less than three brands available in market. This is the distressed situation of the present dental

curriculum where knowledge about the brands is least stressed. Merely instructing the patient to clean the denture with denture cleanser would not be effective unless its commercial form available in the market is not mentioned and options in brands is not provided. Moreover different brands make different types of denture cleansers with different combinations and for different prostheses, if all these explanations are not detailed to the students or even GPs, specialists, the patients would not be benefited. The above depiction was justified by the response of the question about composition of the denture cleansers, 83% dentist don't know about composition and 12% know little and only remaining 5% know it appropriately. Hong et al. reported that 67.4 % of Japanese,88.5 % of Chinese and 68.3 % of Indonesian dentists did not know about any imported brand of denture cleansers. However, 83.7 % of Japanese dentists knew ''three or more'' or ''less than three'' domestic brands whereas 96 %of Chinese dentists and 91.3 % of Indonesian dentists hadno knowledge about any domestic brand [25].On awareness about adverse effects of denture cleansers and different type for acrylic and cast metal dentures 21 % stated that they are very much aware about it. On the other hand 54 % reported that they have little knowledge and scrupulous25 % acknowledged that they have no knowledge on adverse effects of denture cleansers, while about 81% were aware of different types of denture cleansers for acrylic and metal dentures, 12% didn't know about it and 7% don't had any idea in regarding this. Ina study done by Hong et al. [25] more than 76 % of dentistsin China and more than 61 % of Indonesian dentists did notknow of any disadvantages of denture cleansers. Amanda Peracini et al [22] reported in their study that colour changes after the immersion in denture Cleansers even though clinically insignificant but diminished flexural strength, and surface roughness were challenging factors. Budtz-Jorgensen E [26], Abelson DC [27], Backenstose WM [28], Kastner C [29] and Idil Dikbas [30] mentioned that usage of hypochlorite containing solutions in cleansing of dentures with metal component causes corrosion or tarnish of the metal and recommended that hypochlorite must not be used with metal components. The complete and detailed understanding about the adverse effect of denture cleansers to dentists is important as they are the only link between effective denture maintenance and patients.

The questions for better understanding the dental curriculum and teaching related to denture cleansers to Graduate and Post-Graduates decrypted present scenario among dental professionals. A significant percentage (31%) of respondents reported that in their curriculum very little knowledge was imparted about denture cleansers. Just 16% mentioned good detailed knowledge was obtained during their education. Rest 51 % were of the view that minor details were comprehended during the course. 94% of the participants responded with the view that there is a need to upgrade and enhance the knowledge in in the curriculum and specifically at internship (56%) and dental practice (37%) level. On analyzing the previous literature it was determined that researchers, academicians and clinicians are always of the opinion that ample importance should be given to this topic in the dental curriculum so that the treating dentist have detailed knowledge and patients would be benefited with effective information. These opinions of the dentist substantiated the importance of continuous dental education programs on various topics as these are only source to revive and upgrade the knowledge.

5. Statistical Analysis

In order to scrutinize additional information and relating it with the various parameters in the present study, statistical analysis was carried out to test for the independence of traits as per questionnaire used.

Participants' professional Profile verses Attitude - verses Awareness of Denture Cleansers

In Table 1describes the elements of attitude with educational level. It could be derived that post graduate and specialist (MDS) had promising attitude towards patient instructions and recall compared to the respondents of level 12, internship and graduation (BDS degree). The calculated value of $x^2 = 3.358$ for 2degrees of freedom (df) at 5 % level of significance is found to be non-significant (p-value 0.186518). Hence the hypothesis of independence of two attributes is being accepted. Educational level with frequency and Method of Denture Cleaning Table 1showed that majority of graduates are using a 'combination of both chemical and mechanical method'. Here also $x^2 = 31.117$ and 6.979 with p-value 0.186518127 and 0.030511 respectively gives an indication of independence of two attributes.

6. Method with Form of Denture Cleanser

The distribution of respondents in a two way frequency table (Table 1) gives that highest number of respondents are using 'tablet' form of denture cleanser with a 'combination of chemical and mechanical method' of cleaning. It is interesting to note that 'chemical method' in 'any form of cleanser' is not found to be so popular. The two attributes were tested for their independence by Chi square test and it was observed that $x^2 = 6.979$for 2 df is again found to be non-significant at 5 % level of significance. Hence like above these two attributes are also not associated to each other.

7. Recommendations

By the results of the present survey it can be recommended that there is need to improve teaching and training about denture cleansers during the undergraduate education and dental professionals must update their knowledge of denture cleansers and denture cleansing strategies continuously in order to maximize the service offer to denture patients and must not avoid spending time for recalling instructing them.

8. Conclusion

The present study had highlighted the gap prevailing in the dental profession about the attitude and awareness for denture cleansers and documented the level of knowledge about the denture cleansers in the targeted population. In this study set of questionnaires were used to analyze the understanding about denture cleansers. The results of this

study would be of great importance at Institute, University and national level as participants emphasized that there is need for through understanding about denture cleansers so that the incidence of denture stomatitis and candida infections due to denture plaque and deterioration of physical and mechanical properties of denture base materials and oral mucosal injury due to improper use of denture cleansers can be prevented.

9. Limitation

Since this study was confined to A seer province only. A more in depth study, considering larger area with specific parameters in its totality, is suggested to generalize the results.

10. Conflict of interest

The authors have no conflicts of interest to declare.

11. Acknowledgments

We all authors are thankful to Dean, HOD Prosthetic Dentistry, Research Committee and Dr Shreyas T. (for statistical analysis).

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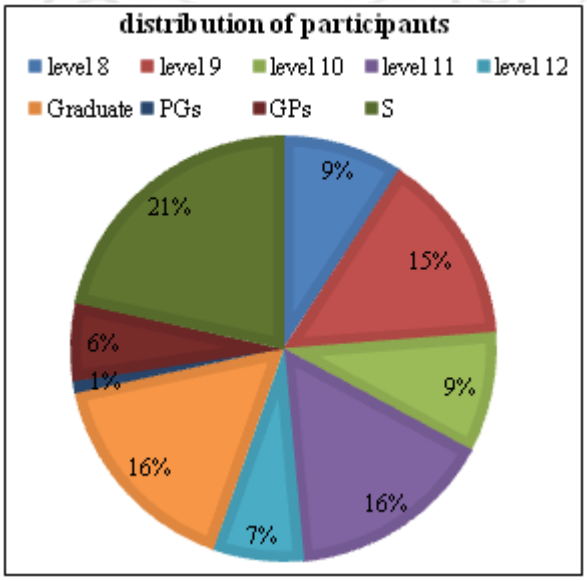
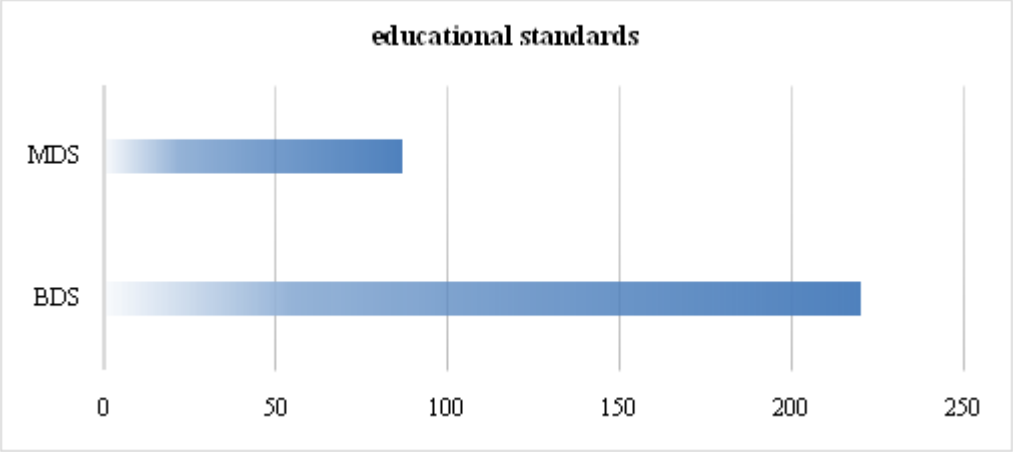
Tables

Table 1: Association of educational standard with Attitude of participants towards denture cleansers

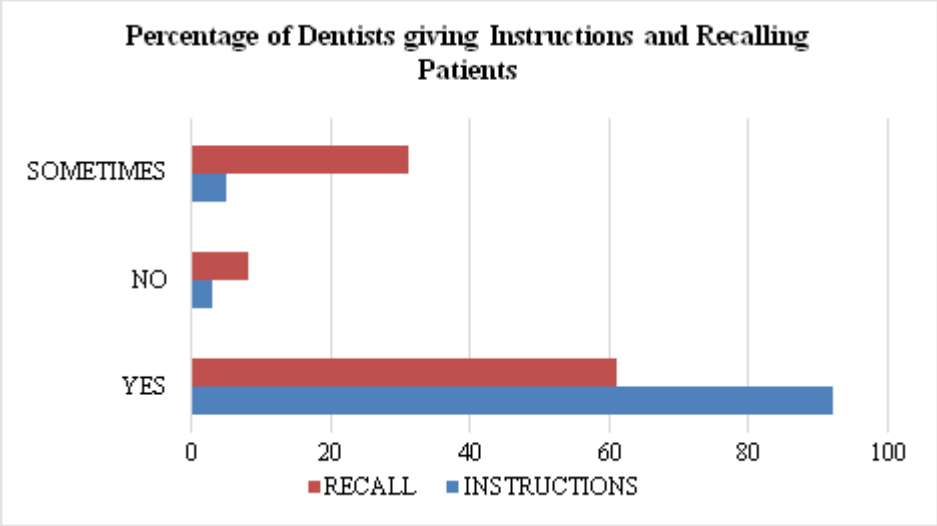
			Educational Level	
			BDS (210)	MDS (81)
ATTITUDE				
Instruction				
Yes	267		188	79
No	8		8	0
Sometime	16		11	5
			x^2	3.358
			df	2
			P-value	0.186518
Recall				
Yes	177		129	48
No	23		14	9
Sometime	91		67	24
			x^2	1.603
			df	2
			P-value	0.186518
Frequency				
Once	67		62	5
Twice	195		137	58
After Every M	29		11	18
			x^2	31.117
			df	2
			P-value	0.186518127
Method Of Cleaning				
Brush With Water/ Soap	29		15	14
Denture Brush With Denture Cleansers	253		189	64
Only Denture Cleansers	9		6	3
			x^2	6.979
			df	2
			P-value	0.030511



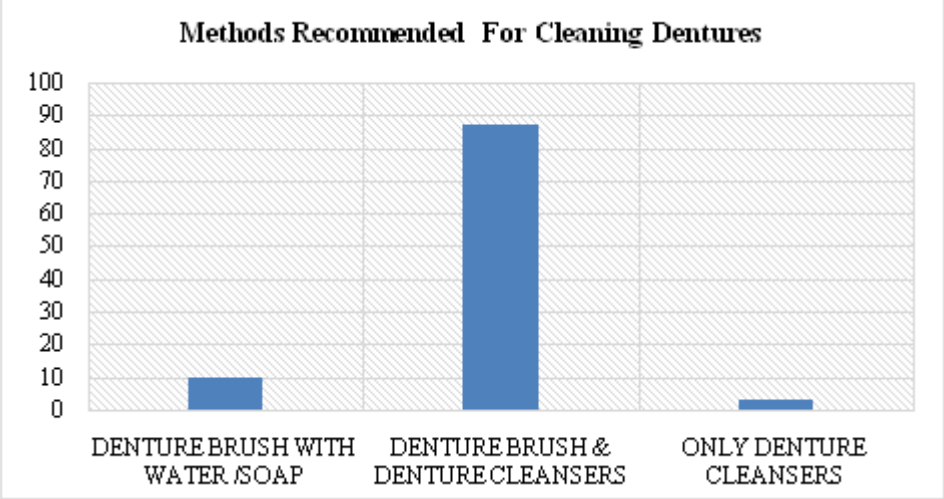
Graph 1: Distribution of participants



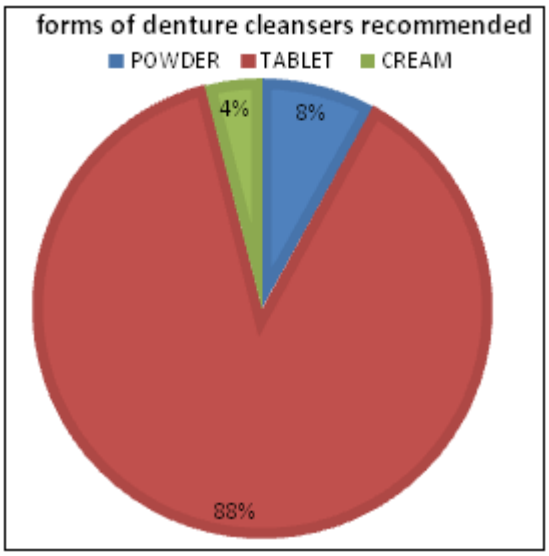
Graph 2: Educational standards



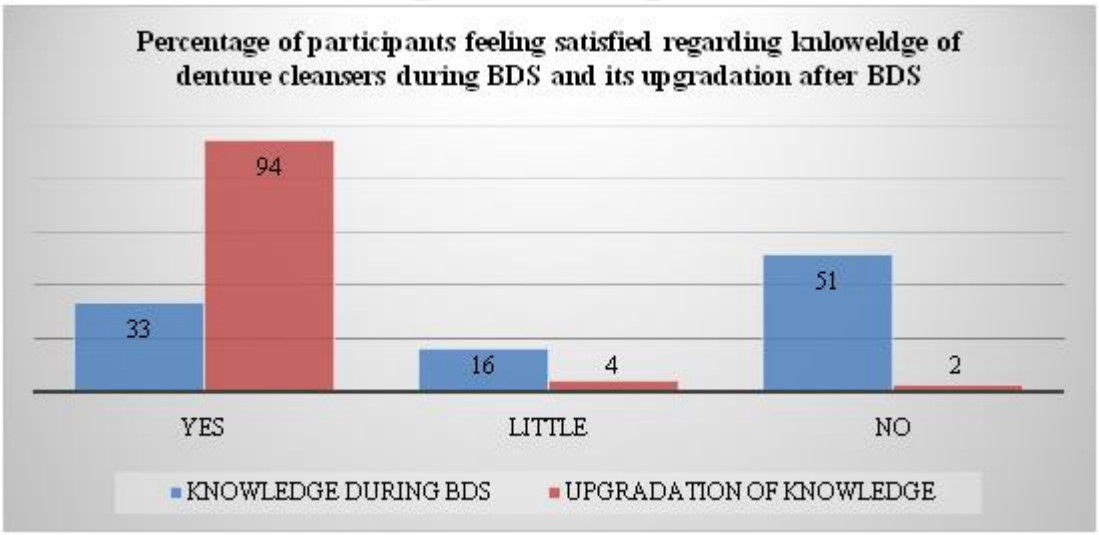
Graph 3: Percentage of Dentists giving Instructions and Recalling Patients



Graph 4: Methods recommended for cleaning dentures



Graph 5: Forms of denture cleansers recommended



Graph 6: Percentage of participants feeling satisfied regarding knowledge of denture cleansers during BDS and its upgradation after BDS