

## Awareness of Denture Cleansers and its Recognition among Dental Professionals

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### ABSTRACT:

**Objective:** To assess the awareness of denture cleansers and its recognition among dental professionals in Karachi, Pakistan.

**Study Design and Setting:** Cross-sectional study conducted at various institutes and hospitals of Karachi, over a period of 06 months from March to August' 2019.

**Methodology:** Total 200 dental practitioners were included in this study using nonprobability convenience sampling technique and according to the inclusion criteria. Those dental practitioners who were currently in practice; either at a hospital or clinic setting were included; others who were not in practice or only working as an academician were excluded. This study was conducted by administering a well-structured questionnaire, comprising of 12 close ended questions divided into two sections including demography and responses concerning the knowledge and attitude of dental practitioners regarding denture cleansers. The data was entered in SPSS version 25 for descriptive statistics for qualitative variables.

**Results:** The study showed that 86.5% dentists were aware of denture cleansers and 89% prescribe them. However, 58.5% were not aware of the adverse effects.

**Conclusion:** Our analysis has shown that the dental professionals reinforce oral hygiene instructions in their dental practice and prescribe denture cleansers according to need. However, the knowledge regarding adverse effects among the subjects should be addressed.

**Key Words:** Awareness, Denture Cleansers, Dental Professionals

### How to cite this Article:

Abbasi MS, Ishfaq M, Ahmed N, Rahman MA, Kanwal Y, Ahmed N, Irfan AB. Awareness of Denture Cleansers and its Recognition among Dental Professionals. J Bahria Uni Med Dent Coll. 2020;10(3): 211-4

### INTRODUCTION:

Edentulism leads to a detrimental effect on one's healthy life, causing impairment of speech, aesthetics and mastication which in turn has adverse effect on the quality of life<sup>1,2</sup>. The loss of dentition is caused by a loss of periodontal support,

dento-alveolar trauma and lack of dental care. The incidence of complete tooth loss occurs more with advancing age<sup>3</sup>. In order to overcome this helpless edentulous state and enable one with better nutrition and diet, denture provision is one of the most common treatments.

Bacteria, plaque, and tartar deposition occurs on denture surface just as in our natural dentition. Accumulation of plaque and microorganisms increases the risk of oral diseases such as, dental caries, periodontal diseases and systemic diseases<sup>1,2,4-7</sup>. Therefore, it is important to emphasize on denture hygiene particularly in elderly population as they are more prone to immunity declines. Rehabilitative treatment can only achieve its desired aim if the denture wearer maintains high standards of both oral and denture hygiene by following dentist instructions<sup>3</sup>. Majority of the patients lack basic knowledge of denture maintenance due to dentist's failure, to thoroughly, instruct the patients<sup>8</sup>.

Various means can be used to clean dentures, denture cleansers being one of the most common one. Owing to their strong chemical nature, it effectively removes the collection of microorganisms on the denture surfaces<sup>9-12</sup>. An ideal denture cleanser from a patient's perspective should not only effectively remove deposits and stains from the denture surface, it should also be inexpensive and easily manageable<sup>13</sup>.

The dental professionals should be aware of denture cleansers, their chemical contents, adverse effects, the brands available

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Received: 10-Feb-2020

Accepted: 17-Jun-2020

as well as its compatibility amongst available materials<sup>13-17</sup>. Literature shows that studies which have been conducted previously to evaluate knowledge of the dental professionals regarding the composition and adverse effects of denture cleansers showed inconsistent results<sup>2,18</sup>. In addition to that, how often the dentists prescribe it and what methods of denture cleansing they consider to be the best, were also evaluated. The rationale of this study was to assess the knowledge regarding denture cleansers; this will have a positive impact on the treatment outcome. Therefore, the purpose of this study was to re assess the level of knowledge and attitude of dental practitioners regarding the use of denture cleansers in our population.

#### **METHODOLOGY:**

This cross-sectional study was conducted at various institutes and hospitals of Karachi, over a period of 06 months from March to August' 2019. The ethics and review committee of Altamash Institute of Dental Medicine (AIDM) (EC/06/2019/09) reviewed and approved the project. Open-epi epidemiological calculator was used to analyze the sample size of this study considering the least mean value of 87%<sup>2</sup> Dental professional awareness level and keeping 95% confidence interval with 80% power of test. The total sample size calculated was 200 participants. Initially 250 participants were included, 50 were excluded as they were not fulfilling the inclusion criteria or the forms were partially filled. Therefore, 200 dental practitioners were included in this study using nonprobability convenience sampling technique; Only those dental practitioners who were currently in practice; either at a hospital or clinic setting were included; others who were not in practice or only working as an academicians were excluded. A consent statement for voluntary participations was included in the questionnaire for all subjects to understand prior to their agreement. A modified form of a previously validated and reliable questionnaire<sup>19</sup> consisting of 12 close ended questions regarding denture cleansers knowledge and recognition was used as an instrument for data collection. The study questionnaire was divided into two sections. The first section of the questionnaire enquired about the respondent's demographic features along with work setup. The second section comprised of 12 close ended questions, concerning to respondent's knowledge and attitude; including awareness of denture cleansers and its adverse effects, its knowledge related to the composition, compatibility with denture base materials, methods for denture cleaning and brands available in the market. Also, questions regarding the recall for maintenance of dentures, recommendation about the use, form of denture cleansers and special brushes for denture cleaning were included. The data was finally entered into SPSS version- 25 for descriptive statistics of different variables.

#### **RESULTS:**

Out of 200 respondents, the majority 47% were aged between 20-25 years, 35.5% were between 25-30yrs, 12.5% between

30-35yrs, 4.5% were 35-40yrs and 0.5% were above 40 yrs. Males constituted 45% whereas females 55% of the sample. Out of the total respondents, 74.5% were graduates, 21.5% postgraduate trainees and 4% consultants. Regarding the recall of patients to check the maintenance of dentures 69.5% had recalled their patients. As shown in figure 1(a) and 1(b) respectively, 86.5% were aware of denture cleansers but only 41.5% were aware of the adverse effects. 61.5% of responses related to form of denture cleanser showed a preference of the tablet form, as shown in figure 2. 60.5% advocated the combination method for denture cleansing. A good 54% knew less than three brands and only 34.5% were aware of the composition. As presented in figure 3, 69% responded that denture cleansers should be compatible with the denture base material. However, 48.5% had recommended denture brushes. 42% recommended using denture cleansers once daily. 51.5% agreed that adequate knowledge was imparted during undergraduate levels. Furthermore 96.5% of the respondents stated the need to update their knowledge on denture cleansers.

#### **DISCUSSION:**

The use of dentures necessitates the establishment of a greater oral hygiene by the patients to avoid the development and accumulation of bacteria, plaque and stains on the denture which would otherwise lead to halitosis and further exacerbation of poor oral hygiene. This in turn results in a vicious cycle. This mandates the use of denture cleansers. This study was conducted to investigate the awareness of denture cleansers. In order to analyze this, a questionnaire was used, to focus on 3 main approaches: methods of denture cleansing, awareness and the need for upgrading knowledge regarding denture cleansers.

Regarding the question as to which method of denture cleaning is considered best, 12.5% of the dental practitioners considered using the chemical method, 22% mechanical, a significant 60.5% advocated the combination method and 5% did not know. This was in accordance with an analysis by Dikbas et al which reported 78.2% of the dentists recommended combination of brushing and soaking in cleansing solutions, 4.6% only recommended soaking in cleansing solutions and 11.1% recommended brushing method<sup>20</sup>. There are brushes available in the market specifically made for denture cleaning and this study found that 48.5% of the respondents had recommended these specific brushes. This was in accordance with a study done by Pasricha et al. which revealed that 72.5% of the dentists had recommended a special denture brush<sup>18</sup>.

The participants in our research were well aware of denture cleansers, our research showed that 86.5% of the dentists were aware of denture cleansers as seen in Figure (1a). This is in contrast to Hong et al.who reported that more than 59% of Chinese students and more than 86% of Indonesian students had heard only a little about denture cleansers<sup>20</sup>. This difference could be owing to the lack of presence of

Figure 1: (A) Awareness of denture cleansers and (B) Awareness of disadvantages/adverse effects of denture cleansers respectively

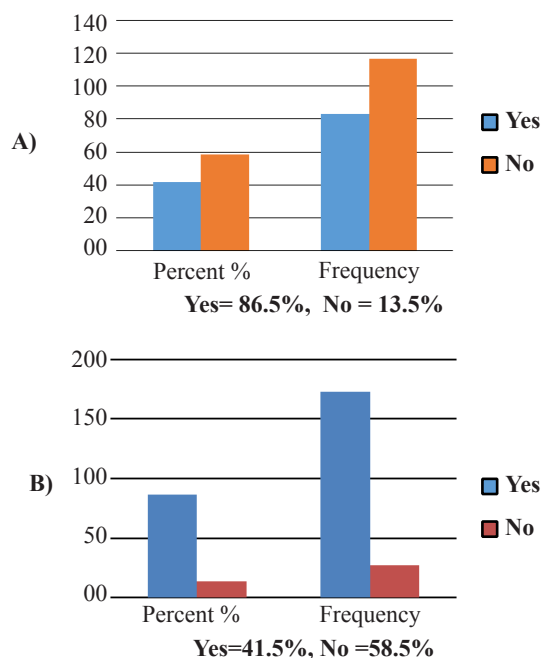
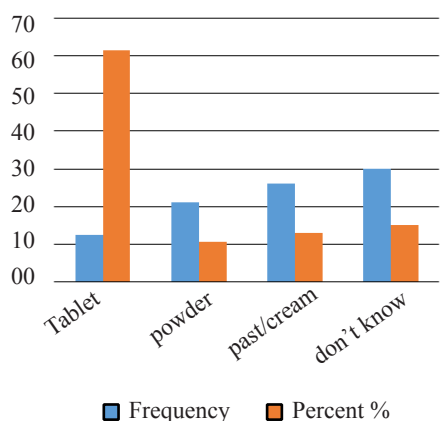
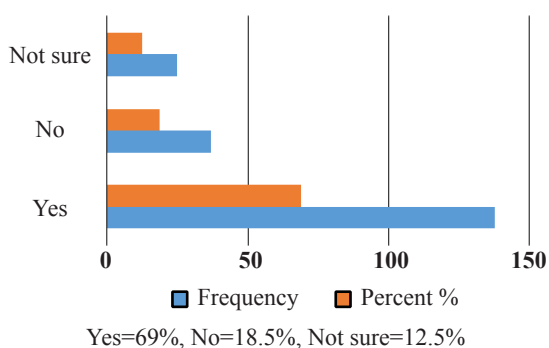


Figure 2 Recommendation of forms of denture cleansers



a) Tablet = 61.5%, b) Powder = 10.5%,  
c) Paste/cream = 13%, d) Don't know = 15%

Figure 3 Compatibility of cleansers with denture base material



denture cleansers in the curriculum of dental schools. Furthermore, our study has revealed that a significant percentage 54% of the respondents knew less than three brands, 13.5% knew more than three brands and 32.5% didn't know any brands available in the market which is in accordance with Hong et al. who reported that 74.5% of the Japanese students knew less than three brands, and 76.5% and 96.6% of the Chinese and Indonesian students answered none, respectively<sup>20</sup>.

For every dentist, it is crucial for them to have the knowledge of the composition of every medicine or paste/ cream they prescribe. This knowledge is important as patients may respond differently to certain elements. Certain patients may be allergic to certain components present in the denture cleansers thus mandating the dentists to have sound knowledge of the composition. Regarding the question on the awareness of the composition and the recommendation of the form of denture cleansers, 34.5% of the dentists were aware of the composition. In addition, denture adhesives have been introduced in various forms i.e. tablet, powder and cream forms. The various forms differ in terms of handling, effectiveness and availability. The tablet form is considered to be the most convenient in terms of handling and usage, which involves a one-step procedure compared to the latter two which involve a two-step procedure. The effectiveness is comparable, however, for the powder and paste form, it becomes dependent on the extent of accuracy of directions followed. This ease in use is further reflected by the response of the participants. As presented in figure (2) 61.5% of the dentists prefer the tablet form, 10.5% powder, 13% paste/cream. The analysis conducted by Chaturvedi et al. showed that 17% were aware of the composition. 88% recommended tablet form of denture cleansers, 8% powder and 4% paste<sup>2</sup>. Both studies revealed that the tablet form is most commonly employed, probably due its ease of use.

On analyzing the frequency of recommendation, it was found that 18% of the dentists had recommended the usage of denture cleansers twice daily, 42% once daily, 19% after every meal, 10% weekly. The application and interaction of denture cleansers with dentures can affect the durability of the dentures. Thus, the compatibility of the two is essential. As shown in figure (3) our analysis has also revealed that a striking 69% were of the view that denture cleansers are supposed to be compatible with the denture base material. Denture cleansers promote and enhance denture cleanliness. However, they can result in adverse effects due to poor instructions or misuse, such as burns, vomiting etc. as well as rashes or breathing problems due to allergic reactions. Regarding the question, on the awareness of the adverse effects of denture cleansers, 41.5% were aware while 58.5% were not (figure 1(b)). In a similar study by Saurabh Chaturvedi et al. it was found that 75% of the dentists knew about the adverse effects<sup>2</sup>. Although, denture cleansers can

result in adverse effects, properly followed directions and correct use help outweighing the advantage of improved and maintained denture hygiene.

The results have revealed that 51.5% were of the view that sufficient knowledge is imparted during undergraduate levels.

In addition, a striking 96.5% were of the view that they needed to enhance their knowledge about denture cleansers. Alqarni et al reported that 80% of the respondents felt the need to update their knowledge<sup>21</sup>. A greater in-depth knowledge of denture cleansers needs to be provided for continuing dental education, so that the dentists will be able to provide better treatment for their patients. By including graduates, post-graduates and consultants in the study, we were able to extract awareness, knowledge and practices of dentists from different educational levels. However, the study was confined to a specific demographic region and had a small sample size. A greater area coverage and larger sample needs to be considered to generalize the results.

#### CONCLUSION:

This study concluded that the dental professionals are aware of denture cleansers and also reinforce oral hygiene instructions in their dental practice. However, the knowledge regarding adverse effects among the subjects should be addressed.

#### Author Contribution:

Maria Shakoor Abassi: Conception and design  
Maleeha Ishfaq: Manuscript writing  
Naseer Ahmed: Manuscript writing  
Maryam Abdul Rahman: Data Analysis, final review  
Yusra Kanwal: Data collection  
Naseer Ahmed: Data analysis and data collection  
Adil Bin Irfan: Critical review

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