

Knowledge, Attitude and Practice of Dentists in Edo State towards Denture Adhesives: A Cross-Sectional Survey.

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ABSTRACT

Background: Denture adhesives are recommended for patients with inadequate denture retention and stability, those with neuromuscular disorders, and individuals with dry mouth. Some believe that denture adhesives are a poor substitute for a proper fit, masking professional shortcomings, while others contend that they can aid clinical procedures and enhance patient satisfaction. Given these differing viewpoints, this study aims to evaluate the knowledge, attitudes, and practices of a group of Nigerian dentists towards the use of denture adhesives.

Materials and Method: This was a cross-sectional study of a group of Nigerian Dentists practicing in Edo state. Data was collected employing a self-administered questionnaire which was imputed online as Google form. Data collated was analysed using IBM SPSS Statistics version 26.0. Data was subjected to descriptive analysis. Chi-square was used to determine the association between selected variables with p set at 0.05.

Result: A total of 48 Dentists responded of which 25 were Male (52.1%) and 23 (47.9%) Female. The number of years in practice ranged from 1 to 20 years with a mean of 10.38 ± 4.271 . This study showed that respondents had good knowledge of denture adhesives. It was observed that respondents prescribed denture adhesives and for all categories of dentists, cream was the most prescribed form. **Conclusion:** The knowledge of denture adhesive was good among dentist in Edo state. However, the practice and attitude towards it was poor.

Keywords: Denture adhesive, Denture aftercare, Denture retention.

INTRODUCTION

Improving denture retention, support and stability has always been a major challenge in prosthodontics (Fegueiral et al., 2011), and these can be augmented by using denture adhesives. Denture adhesives are materials used to retain a denture to the oral mucosa. Due to increasing incidence of chronic residual ridge resorption and consequent increase in unstable dentures because of prolongation of human life period, denture adhesives may be an effective adjunct to denture treatment and denture aftercare (Adisma, 1989; Slaughter et al., 1999; Papadiochou et al., 2015). Denture adhesives are indicated for patients with inadequate denture retention and stability, patients with neuromuscular disorders such as Parkinson's disease, or in patients with xerostomia

(Taweel and Shehri, 2016). They also improved denture fit, comfort, chewing ability and confidence if used properly (Adisma, 1989; Coates, 1999; Grasso, 1996). Denture adhesives on absorbing saliva swell up and create a strong bond between the dentures and the underlying tissues.

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They are available in different types including powder, creams, liquid, or wafers (Coates, 1999) as over-the-counter products. Dental professionals and prosthodontic educators have been shown to be reluctant to endorse these products (Slaughter et., 1999).

Denture adhesives are contraindicated in patients with allergy to denture adhesive materials, severe inadequacies in function and retention of complete denture, excessive bone resorption, or in patients who are unable to maintain adequate oral hygiene (Kumar et al., 2015; Yadav & Yadav, 2005).

Edo state though endowed with tertiary healthcare services have few Prosthodontists and Restorative dentists trained to manage edentulism in its teeming population hence most of the rehabilitation cases are managed by Dentists in General practice clinics. Some schools of thought (traditional historical approach) consider denture adhesives to be a poor substitute for a proper fit that mask professional shortcomings (McKevitt, 1951), while others (advocate approach) believe that denture adhesives can assist in clinical procedures, alleviate patients' fears with respect to the fit of the final processed denture, increase patient satisfaction, and help during jaw relation establishment and the fitting of trial dentures (Adisma, 1989; Grasso, 1996).

Giving the different schools of thought, this study aimed to assess the knowledge, attitude and practice of a group of Nigerian dentists towards denture adhesives.

MATERIALS AND METHODS

This was a descriptive cross-sectional study of a group of Nigerian Dentists practicing in Edo state. Data was collected by means of a self-administered questionnaire which sought information on demographics, knowledge, attitude and practice with the use of denture adhesives. The survey questionnaire was imputed online as Google form and circulated on the social media handles of Dentists in Edo state about 4 times within a period of 4 months. For the survey, consent was implied when participants clicked on the shared link to fill the Google form after reading through the information about the survey provided before the link.

The questionnaire was originally developed by Shah et al (Shah et al., 2015). and modified to suit the objective of this study. The modified questionnaire was pre-tested on 10 dentists who were not part of the study. Pre-test was done to determine if the data collection instrument was adequate to collect the required data and assess the possible reactions to the data collection procedure by respondents.

The questionnaire consisted of 4 sections: socio-demographic characteristics of the respondents; 17 questions to assess knowledge, 8 questions assessing attitude and practice respectively. Each correct answer seeking to evaluate knowledge is scored 1 and incorrect response was awarded no

score. The highest score obtainable was 17 and lowest 0. For purpose of analysis the knowledge score was graded as follows: 0- 25% weak knowledge, 26- 50% moderate knowledge, 51- 75% good knowledge and 76- 100% excellent knowledge.

The first two questions seeking to assess attitude were graded as 5- strongly agree, 4- agree, 3- neutral, 2- disagree, 1- strongly disagree while the last two questions were graded as 1- strongly agree, 2- agree, 3- neutral, 4- disagree, 5- strongly disagree. The highest grade obtainable was 20 and the lowest 4. For the purpose of analysis, attitude was graded as follows: 4-8 poor attitude, 9- 12 moderate attitude, 13- 16 good attitude. 17- 20 excellent attitude.

Data collated was analysed using IBM SPSS Statistics version 26.0. Data was subjected to descriptive analysis involving use of frequency, mean, standard deviation and cross tabulation. Chi square was used to determine association between selected variables with p set at 0.05.

RESULTS

A total of 48 Dentists responded of which 25 were Male (52.1%) and 23 (47.9%) Female, giving a male: female ratio of 1.09:1. The mean age was 36.88 ± 4.902 years with 14.6% less than 30 years, 64.6% between 31 to 40 years and 20.8% greater than 40 years. The number of years in practice ranged from 1 to 20 years with a mean of 10.38 ± 4.271 . Respondents less than 5 years in practice constituted 8.3%, between 5- 10 years 39.6% and greater than 10 years made up 52.1%. The results showed that the respondents greater than 10 years in practice were more in number (Table 1).

Table 2 showed the association between gender, age range, number of years in practice and knowledge of denture adhesive. This revealed that 60% of the male respondents and 47.8% of the female respondents had good knowledge of denture adhesive, however, this was not found to be statistically significant ($p = 0.694$). Respondents less than 30 years had 28.6% of good knowledge, 31- 40 years had 58.1% while those greater than 40 years of age had 60% of good knowledge. However, this was not statistically significant ($p = 0.299$). In respondents with less than 5 years of practice, it was observed that 25% of them had good knowledge of denture adhesive, those between 5 to 10 years in practice and those greater than 10 years in practice had 52.6% and 60% respectively had good knowledge of denture adhesive and this was not statistically significant ($p = 0.264$).

The association between attitude to denture adhesive and gender, age range and number of

years of practice showed that 4.5% each of both genders had good attitude towards denture adhesive while 45.5% and 40.9% respectively of male and female respondents had poor attitude. There was no statistical significance ($p = 1.000$). It was observed that respondents less than 5 years, 5 to 10 years and those greater 10 years in practice

had 33.3%, 61.1% and 30.4% respectively had poor attitude. While respondents between 5 and 10 years and those greater than 10 years in practice were observed to have 5.6% and 4.3% respectively of good attitude. This was however not statistically significant ($p = 0.248$) (Table 3).

Table 1: Sociodemographic characteristics.

Variable	N (%)
Gender	
Male	25 (52.1)
Female	23 (47.9)
Age group	
< 30years	7 (14.6)
31- 40years	31 (64.6)
>40years	10 (20.8)
Years of Practice	
< 5years	4 (8.3)
5- 10years	19 (39.6)
>10years	25 (52.1)

Table 2: Association between gender, age year in practice and knowledge.

Characteristics	Weak knowledge n (%)	Moderate knowledge n (%)	Good knowledge n (%)	Excellent knowledge n (%)
Gender				p = 0.69
Male	1 (4.0)	7 (28.0)	15 (60.0)	2 (8.0)
Female	2 (8.7)	9 (39.1)	11 (47.8)	1 (4.3)
Age				p = 0.299
< 30	0 (0.0)	5 (71.4)	2 (28.6)	0 (0.0)
30 – 40	3 (9.7)	7 (22.6)	18 (58.1)	3 (9.7)
>40	0 (0.0)	4 (40.0)	6 (60.0)	0 (0.0)
Years in practice				p = 0.26
<5	0 (0.0)	3 (75.0)	1 (25.0)	0 (0.0)
5 – 10	1 (5.3)	8 (42.1)	10 (52.6)	0 (0.0)
>10	2 (8.0)	5 (20.0)	15 (60.0)	3 (12.0)

Table 3: Association between gender, age, year in practice and attitude,

Characteristics	Poor attitude n (%)	Moderate attitude n (%)	Good attitude n (%)	Excellent attitude n (%)
Gender				p = 0.1.00
Male	10 (45.5)	11 (50.0)	1 (4.5)	0 (0.0)
Female	9 (40.9)	12 (54.5)	1 (4.5)	0 (0.0)
Age				p = 0.198
< 30	4 (57.1)	3 (42.9)	0 (0.0)	0 (0.0)
30 – 40	9 (31.0)	18 (62.1)	2 (6.9)	0 (0.0)
>40	6 (75.0)	2 (25.0)	0 (0.0)	0 (0.0)
Years in practice				p = 0.248
<5	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)
5 – 10	11 (61.1)	6 (33.3)	1 (5.6)	0 (0.0)
>10	7 (30.4)	15 (65.2)	1 (4.3)	0 (0.0)

For association between years of practice and use of denture adhesive, it was observed that 25% of

respondents less than 5 years in practice use it sometimes, those between 5 to 10 years and those

above 10 years in practice 5.3% and 20% respectively rarely use it (Figure 1).

Association between the number of years in practice and the prescription of denture adhesives, it was observed that for respondents less than 5 years, 5 to 10 years and greater than 10 years, 25%, 26.3% and 28% respectively prescribe denture adhesive (Figure 2).

The association between the number of years in practice and the type of denture adhesive

prescribed, for respondents less than 5 years in practice, cream was the prescribed choice in 50% of them, respondents between 5 to 10 years, the prescribed forms included Powder- 5.3%, Cream- 52.6%, and Pad/ strip- 10.5%. For those greater than 10 years in practice it was Powder- 4%. Cream- 48%, Pad/ strip- 8% while 8% do not use any form of denture adhesives in their practice (Figure 3).

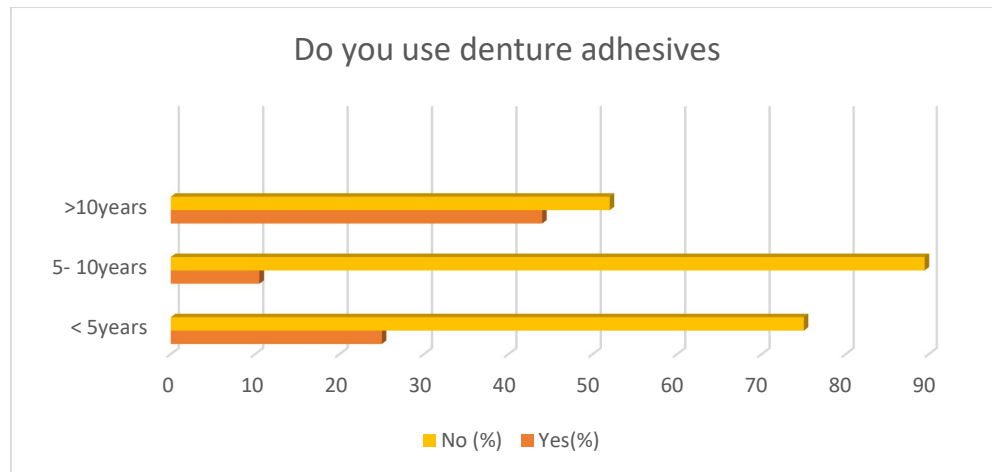


FIGURE 1: Do you use denture adhesives

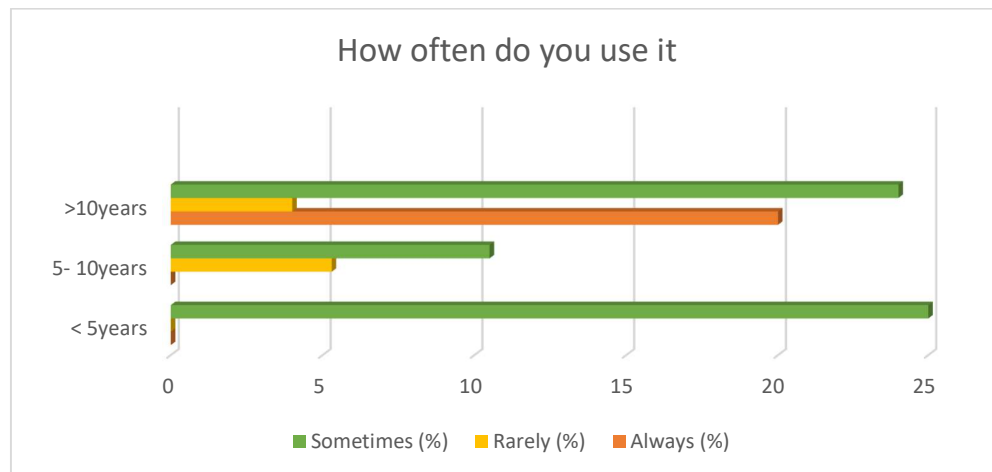


FIGURE 2: How often do you use it

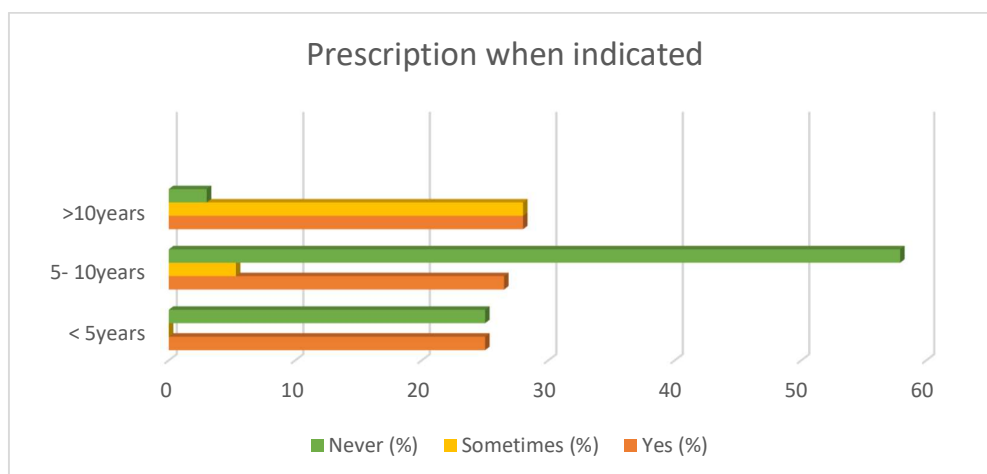


FIGURE 3: Prescription when indicated

DISCUSSION

Use of denture adhesives is common among denture wearers, and it's prescribed by dentists (Fegueiral et al., 2011; Kumar et al., 2015). They function by swelling in the presence of water to produce the sticky substance that fill up spaces between the prosthesis and the tissues (Adisma, 1989). Modern adhesives increase this stickiness by using materials that provide strong bio- adhesive and cohesive forces such as polymethyl vinyl ether-maleic anhydride and sodium carboxymethylcellulose (Fallahi et al., 2017).

This study has a male preponderance though not statistically significant lends support to the fact that dentistry is a male dominated profession (Enabulele et al., 2015). Respondents who have practiced for more than 10 years constituted more than half of the study participant.

Majority of the respondents have moderate to good knowledge of denture adhesives; this may be related to the knowledge acquired at undergraduate level of study where denture adhesive is taught as part of the curriculum. This observation corroborates with that of a study by Tawel and Shehri (2016) where the study participants had a good knowledge of denture adhesive, and this was also acquired from undergraduate curriculum (Taweel and Shehri, 2016). However, the male had better knowledge than the female participants, the reason for this could not be ascertained.

This study also revealed that respondents who were above 40 years of age and greater than 10years in practice had better knowledge than those less than 40 years of age and less than 10years in practice. The reason for this could be borne out of experience with practice and prescription of denture adhesive to their patients as this was reflected in the study.

A disturbing observation from this study showed that respondents had poor to moderate attitude towards the use of denture adhesive. This observation contrasts with that of a study by Bhochib hoyo et al., 2020. This may not be unrelated to the fact that the study was conducted among Prosthodontist who are specialist in the use of denture adhesives while our study was done among all categories of dentists who may not play much role in complete denture patient care and prescription of denture adhesives (Bhochhibhoya et al., 2020). Polyzois et al, assessing the attitude of Dentists in Greece towards denture adhesives showed that practitioners over 50-year-old of age, recommended denture use more compared to those less than 50 years of age (Polyzois et al., 2017). This study which compared the years in practice to the use and prescription of denture adhesive however, showed that those >10years in practice used and prescribed denture adhesives more than other categories.

The use of denture adhesives was observed to be low among respondents less than 5years and those 5- 10years in practice despite the good knowledge observed among this group. This may also suggest that they defer to the traditional historical approach which view denture adhesive as a material used to mask the failure of a dentist at fabricating a properly fitted prosthesis. This opinion had been countered with documented evidence in the literature on the benefit of appropriate use of denture adhesive (Papadiochou et al., 2015). About 44% of those greater than 10years in practice use denture adhesive suggesting that they defer to the advocate approach and may have treated more patients presenting with the need for a complete denture. Prescription of denture adhesives when indicated was low for all categories of years in practice. This

may be due to the unavailability of good quality denture adhesives in Edo state or the unaffordability of the material when they are available as patients pay for most dental services out-of-pocket. This may also be due to the fabrication of properly fitted prosthesis with less need for denture adhesive. Cream being the form mostly prescribed in this survey is similar to the study by Polyzois et al. (2017) carried out in Greece among Dentists and the study by Koksall et al. (2007) carried out among General dental practitioners in Turkey (Polyzois et al., 2017; Koksall et al., 2007) but different from the study by Bhochhibhoya et al. (2020) and Shah et al. (2015) which showed that the powder was the most prescribed form (Bhochhibhoya et al. 2020; Shah et al. 2015). Denture adhesives are available in various forms and can be purchased over the counter with cream being the most accessible form in Edo state. This may explain the reason for it being the most prescribed form among respondents.

Recruitment bias may have been unintentionally introduced as Dentists who were not on social media platforms of Edo state would not have access to the link for the study. Accessing a sample frame was a limitation for this study. A sample frame such as the directory of Dentists practicing in Edo which can be collated and stored electronically by Edo state NDA is advocated as this will facilitate future surveys. Knowledge shapes our attitude and practice on a subject matter especially in patient management. A knowledgeable Dentist can pass a balanced information to the patient thus aiding the patient make informed decisions. Though there are two schools of thought on the use of denture adhesives, there is need to teach denture adhesives as a therapeutic adjunct to management with complete dentures at the undergraduate curriculum and re-emphasise its applications at postgraduate level through continuing medical education.

CONCLUSION

The knowledge of denture adhesive was good among dentist in Edo state. However, the practice and attitude towards it was poor.

REFERENCES

- Adisman, K. (1989) 'The use of denture adhesives as an aid to denture treatment', *Journal of Prosthetic Dentistry*, 62(6), pp. 711–715.
- Bhochhibhoya, A., Rana, S. and Sharma, R. (2020) 'Professional attitudes toward the use of denture adhesives: A survey among Nepalese prosthodontists', *Nepal Medical College Journal*, 22(4), pp. 211–216.
- Coates, A.J. (1999) 'Usage of denture adhesives', *Journal of Dentistry*, 28, pp. 137–140.
- Enabulele, J., Anago, O. and Omo, J. (2015) 'Perception of clinical dental students and interns towards prosthodontics and factors influencing its choice as a future career', *Nigerian Dental Journal*, 23(2), pp. 155–160.
- Fallahi, A., Khadivi, N., Roohpour, N. et al. (2018) 'Characterization, mechanistic analysis and improving the properties of denture adhesives', *Dental Materials*, 34(1), pp. 120–131. doi.org/10.1016/j.dental.2017.09.015
- Fegueiral, M., Pereira-Leite, C. and Scully, C. (2011) 'The effect of different adhesive materials on retention of maxillary complete dentures', *Int J Prosthodont* 24, pp. 175–177.
- Grasso, J.E. (1996) 'Denture adhesives: changing attitudes. *J Am Dent Assoc*, 127(1):90–96.
- Koksall, T., Dikbas, I., Ozkurt, Z., Bal, B. and Kazaoglu, E. (2007) 'A survey of dentists' attitudes toward denture adhesives', *OHDMBSC*, 6(1), pp. 33–39.
- Kumar, P.R., Shajahan, P.A., Jyothis, M., Koruthu, A., Aravind, P. and Ahammed, M.F. (2015) 'Denture adhesives in prosthodontics: An overview', *J Int Oral Health*, 7(1), pp. 93–95.
- McKevitt, F.H. (1951) 'The measured vertical dimension and denture adhesive powders', *Journal of Prosthetic Dentistry*, 1, pp. 393–401.
- Papadiochou, S., Emmanouil, I. and Papadiochos, I. (2015) 'Denture adhesives: A systematic review', *Journal of Prosthetic Dentistry*, 113(5), pp. 391–397.
- Polyzois, G., Lagouvardos, P., Omar, R. and Brunton, P. (2017) 'Attitudes of dentists toward denture adhesives: A questionnaire survey in Greece', *Journal of Prosthetic Dentistry*, 118(5), pp. 643–649.
- Shah, R.J., Lagdive, S.B., Talkal, A.K., Agrawal, H. and Darji, B. (2015) 'Knowledge and attitude toward denture adhesives: A survey on dentists and complete denture wearers', *International Journal of Prosthodontics and Restorative Dentistry*, 5(3), pp. 74–80.
- Slaughter, A., Katz, R.V. and Grasso, J. (1999) 'Professional attitudes toward denture adhesives: A Delphi technique of academic prosthodontists', *Journal of Prosthetic Dentistry*, 82(1), pp. 80–89.
- Taweel, S. and Shehri, H. (2016) 'Knowledge and attitudes of dental interns toward denture adhesives in King Saud University, Riyadh, Saudi Arabia', *European Journal of Dentistry*, 10(4), pp. 536–540.
- Yadav, A. and Yadav, S. (2005) 'Denture adhesives – their stand in prosthodontics', *Journal of Indian Prosthodontic Society*, 5(2), pp. 62–