Original Article

Knowledge and Attitude of Nepalese Dental Interns towards Adhesives for Removal Dentures

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Abstract

Background: Denture adhesives play an important role in the retention of removal dentures. This research aimed to study the knowledge and attitude (K&A) of Nepalese dental interns in various Universities/ dental colleges towards adhesives for removal denture (ARDs).

Materials and Methods: A survey was conducted among the dental interns of various colleges in Nepal. Pearson's Chi-square test was carried out to compare the various variables among the Universities/ dental colleges. Rating scale was used for testing the K&A towards denture adhesives.

Results: It was found that 86.5% of the dental interns had adequate K&A on ARDs, 87.8% responded that ARD is beneficial for dentures and 95.5% agreed that dentists should regularly inform regarding ARDs to all denture patients.

Conclusion: Most of the Nepalese dental interns of various Universities/ dental colleges possessed acceptable K&A on ARDs.

Keywords: Attitude, denture adhesives, knowledge, questionnaire

Background

Adhesives for removal denture (ARDs) are used for the retention of a removal denture in the mouth. They are marketed in a variety of forms such as powder, creams, liquid, etc.[1] However, dentists and professionals often hesitate to recommend the ARDs.[2]

ARDs are generally utilized in the clinical scenario of inadequate retention and stability of removable dentures. The ARDs are believed to provide a considerable advantage of alleviating patients' fears by improving the fit of the new denture resulting in higher patient satisfaction and assisting the clinical procedures during jaw relationship record and the try-in appointment.[3,4] It seems imperative that dentists inform the complete denture wearers regarding the advantages and disadvantages of ARDs and their proper usage according to the manufacturer instructions to prevent potential misuse. Clinical demonstrations and instructions of correct application and removal of adhesives and patient education have been known to greatly affect the outcome of treatment.[5]

There are various studies on knowledge of denture wearers regarding ARDs,[6,7] the use of ARDs in patients.[2,8,9] On the other hand, little data have been obtained about the attitudes of dental professionals regarding ARDs[10–12] and dental students.[13,14] Thus, there is unclear information regarding the knowledge and attitude (K&A) of dental interns towards ARDs. Considering the worldwide use of ARDs, dental intern students should possess adequate knowledge of the ARDs usage. Hence, this study aimed to study the K&A of Nepalese dental interns of various Universities/ dental colleges towards adhesives for removal denture (ARDs).

Methods

A survey was conducted among dental interns of various colleges in Nepal. Out of 160 dental interns, 156 completed the responses (response

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rate= 97.5%). Three Universities/ dental college; People's Dental College and Hospital representing Tribhuvan University (TU), Kantipur Dental College Teaching Hospital and Research Center representing Kathmandu University (KU) and College of Dental Surgery from BP Koirala Institute of Health Sciences (BPKIHS) were randomly selected by cluster sampling method. Dental interns participating in this study filled the questionnaire using the knowledge they had gained during their undergraduate education.

The questionnaire comprised of 13 questions in 2 sections.[10] The first section included 6 questions to evaluate the knowledge of ARDs. The second section included 7 questions to evaluate the attitude toward ARDs. The interns were needed to select 1 response for each question. The data were analyzed using the SPSS 18 for Windows (SPSS, IBM Corporation, Armonk, NY, USA). Chi-square test was done to compare the various variables among the Universities/ dental colleges. A statistically significant level was set at *P* value 0.05.

Results

The gender-wise distribution of respondents from the selected universities is presented in Figure 1. The mean age of the participants was 24.26±1.02 years. Table 1 shows the distribution responses (Yes) of the dental interns for different questions about current knowledge towards denture adhesives. All interns (100% from TU and BPKIHS, 98.3% from KU) had heard about ARDs. A significantly higher number of interns from TU were taught about ARDs in their curriculum (*P* <0.001) compared to the interns from other universities. Overall, 86.5% of the respondents had been taught about ARDs in the dental curriculum. Books (89.1%) were primary source of information about ARDs followed by lectures (71.2%), visual media (28.8%) and conferences (6.4%) were also reported as the source of information by the participants. The majority of interns from TU responded as books being their primary source of information regarding ARDs which ARDs, which was significantly different from the interns from other universities (*P*= 0.005). However, conferences were not reported as the source of information by the interns from TU in contrast to other universities, which was also statistically significant (*P*= 0.012). Among the participants of this study, 92% had seen, 76.9% had used ARDs in clinical practice and 51.9% had recommended its use to their patients. Regarding the recommendation to patients, more interns from KU and less from TU were in its favor (*P*< 0.001). Statistically significant difference was not observed for the other questions among the universities (Table 1).

Table 1: Percentages of dental interns with "yes" responses in three Universities in Nepal

SN	Questions	Percentage of "Yes" response Count (%)				Pearson's chi-square statistic (*P*-value)
		TU (n= 52)	KU (n= 59)	BPKIHS (n= 45)	Total (N= 156)	
1	Have you heard about ARDs?	52 (100)	58 (98.3)	45 (100)	155 (99.4)	1.655 (0.437)
2	In your UG, have you ever been taught about ARDs?	52 (100)	53 (89.83)	30 (66.67)	135 (86.5)	23.892 (< 0.001)*
3	You know about DA from:					
	Books	52 (100)	51 (86.44)	36 (80.0)	139 (89.1)	10.630 (0.005)*

	Lectures	40 (76.92)	45 (76.27)	26 (57.78)	111 (71.2)	5.519 (0.063)
	Conferences	0 (0.0)	8 (13.56)	2 (4.44)	10 (6.4)	8.878 (0.012)*
	Visual media	14 (26.92)	13 (22.03)	18 (40.0)	45 (28.8)	4.155 (0.125)
4	Have you ever seen ARDs in the clinic?	48 (92.31)	55 (93.22)	39 (86.67)	142 (92.0)	1.499 (0.473)
5	Have you ever used ARDs in the clinic?	38 (73.08)	45 (76.27)	37 (82.22)	120 (76.9)	1.159 (0.56)
6	Have you ever let your patient use ARDs?	44 (84.62)	14 (23.73)	23 (51.11)	81 (51.9)	41.063 (<0.001)*

TU = People's Dental College and Hospital representing Tribhuvan university. KU = Kantipur Dental College Teaching Hospital and Research Center representing Kathmandu University, BPKIHS = College of Dental Surgery from BP Koirala Institute of Health Sciences, and ARDs = Adhesives for removable denture adhesive, UG = Undergraduate; *Significant difference at $P< 0.05$.

Table 2: Response towards the questions on attitude towards denture adhesives

SN	Questions	Response rate in percentage (N= 156)			
		Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
1	ARDs have either positive or negative potentials to the following:				
	Enhances the fit of the prosthesis	16.7	75.6	6.4	1.3
	Avoiding proper clinical practice.	16.02	53.8	30.1	0
	Providing psychological.	18.6	64.1	17.3	0
	Masking underlying denture problems.	12.2	58.3	28.2	1.3
	Contribute patients not seeing a dentist for recall and/or to avoid fees.	8.3	50.0	37.8	3.85
2	ARDs promotes development of following conditions:				
	Oral cancer.	0	25.6	69.2	5.13
	Denture stomatitis.	7.7	67.9	22.4	1.9
	Leukoplakia.	1.3	34.0	64.1	0.6
	Candidiasis.	17.9	67.9	11.5	2.56
	An imbalance in oral flora due to microbial contamination.	12.8	64.7	22.4	0
	Resorption of alveolar bone as a result of tissue irritation.	14.7	60.9	24.4	0
3	ARDs is useful for the following situations:				
	To stabilize denture in the early stage of denture fabrication.	57.1	38.5	3.8	0.6
	To allay the patient's fears at the trial appointment.	30.8	58.3	8.3	2.6
	To augment retention, comfort and function during interim period after insertion of immediate dentures.	17.3	69.9	12.8	0
	To overcome patient's anxiety for a short period (2- 3 weeks) after insertion of new ARDs.	8.3	62.2	26.9	2.6
	To provide additional retention for patients with inadequate anatomy	7.7	62.8	27.6	1.9
4	Patient education on the use of ARDs is an	31.4	55.8	12.2	0.6

	important part of denture service for the patients with ill-fitting dentures.				
5	Patient education regarding the use of ARDs is an important part for the patients with well-fitting dentures.	26.9	39.7	21.2	12.2
6	ARDs can be beneficial adjunct to the dentist when fabricating dentures.	23.7	64.1	11.5	0.6
7	The dentists should routinely inform patients of the proper use and misuse of ARDs.	42.3	53.2	4.5	0

ARDs = Adhesives for removable denture and CD = complete denture.

Regarding the attitude towards ARDs, majority of the interns thought it enhances the fit of prosthesis (strongly agree 16.7% and agree 75.6%) and provides psychological comfort (strongly agree 18.6% and agree 64.1%). Majority of the respondents also believed that ARDs did not contribute to oral cancer (strongly disagree 5.13% and disagree 69.2%). The association of ARDs use to candidiasis was also agreeable to the majority (agree 67.9% and strongly agree 17.9%). In terms of utility, majority of the respondents associated the utility of ARDs to the stabilization of trial bases during try-in appointment (Table 2). (Table 2 shows that the patient education regarding the use of ARDs is more important for the loose dentures in comparison to fitting dentures.

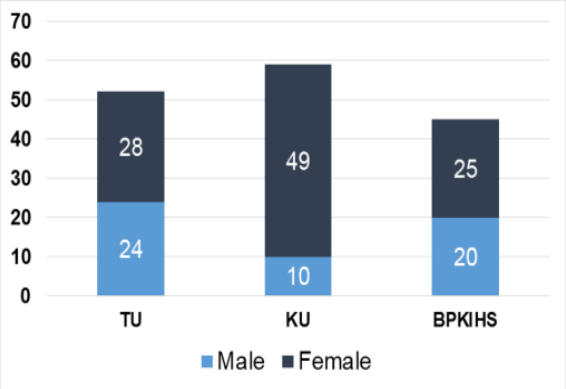

Figure 1: Distribution of dental interns according to gender and university (N= 156).

Discussion

Retention of denture is a decisive component in improving the quality of life of removable prosthesis wearers.[15] Various factors such as adhesion, cohesion, atmospheric pressure and interfacial surface tension play an important role in providing adequate retention to removable denture prosthesis. The adjunct use of ARDs have been associated with enhanced patient comfort and denture retention and stability.[9] ARDs also enhance the retention and stability of prosthesis while eating, swallowing and talking.[16–18]

This study assessed the K&A of dental interns regarding ARDs. Assessment of knowledge of the dental interns provides a hint regarding the adequacy of formal education about ARDs in university curriculum. The statistical data in the study indicate adequate knowledge and information among dental interns regarding the advantages and clinical usage of ARDs. As the primary source of information about ARDs for interns were mentioned as books and lectures, an implication can be drawn that formal education on ARDs in the undergraduate curriculum in Nepal seems adequate. Dental interns associated the use of ARDs to enhanced prosthesis retention and improved psychological comfort of patients while their responses also indicated that they believed its use may mask denture problems. A previous study of similar type also supports the findings of this study.[19] The participants of the study also associated the use of ARDs to denture stomatitis (75.6%), candidiasis (85.8%), and imbalance in the oral

flora (77.5%). The majority of the participants disagreed that the use of ARDs is associated with the risk of development of oral cancer (74.33 %) and leukoplakia (64.7%). Slaughter et al. have reported similar findings in their study.[10] As reported by Slaughter et al., majority of the respondents of this study also associated the long term use of ARDs to alveolar ridge resorption owing to tissue irritation.[10] The available scientific evidences on ARDs do not indicate that any of the aforementioned negative consequences are associated with long term adhesive use..[17,20,21] The dental interns also strongly agreed that the use of ARDs in the fabrication of dentures improves the clinical outcome (87.8%) and that the dentists should indulge in informing their denture patients regarding proper use of ARDs (95.5%).

The general contraindications of ARDs includes allergy to denture adhesive materials, severe inadequacies in denture retention and function, cases with excessive alveolar ridge resorption, and improper oral hygiene.[5,22]

Conclusions

The dental interns in Nepal have sufficient knowledge and attitude with regard to ARDs. Outlining the difference in the perspective of the use of ARDs between patient and doctors may provide a clearer picture regarding the adequacy of our understanding of ARDs. This is helpful in finding the gap of the education of the patients regarding their use. Further studies in the area should include a larger sample size as well as comparative studies between denture adhesives of different compositions.

List of abbreviations

ARDs = Adhesives for removable denture
TU = Tribhuvan University
KU = Kathmandu University
BPKIHS = Bishweshwar Prasad Koirala Institute of Health Sciences

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Declarations

Ethical approval and consent to participate: Ethical approval was taken from institutional review board of Kantipur Dental College, Kathmandu University.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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