



The knowledge and Professional Attitudes Toward Denture Adhesives in Mosul

ABSTRACT

Aims: The aims of the present study is evaluate the dentist knowledge and believes toward denture adhesive through generation of discussion among dentist (in ministry of health and ministry of higher education) in Mosul city. **Materials and Methods:** In a dental meeting that held on April 2009 in College of Dentistry ,university of Mosul ,a questionnaire paper was given to 264 dentist which consist of two: part the first one evaluate dentist knowledge about denture adhesive, the second one evaluate the dentist attitude toward denture adhesive. **Result:** The findings of the present study showed that (9.8%, 67.8% and 22.4%) of dentists had respectively weak, moderate and good knowledge toward denture adhesive while(3.1%, 80.4% and 16.6%) had respectively negative, moderate and positive attitude toward denture adhesive materials. The χ^2 test showed non significant statistical relation between dentist knowledge about denture adhesives and their previous years of experience, place of work, sex and their degree of education. Statistical analysis methods used to analyze and asses the result of this study were SPSS version 13.0. **Conclusions:** The findings of the present study showed that dentist knowledge and attitude toward denture adhesive materials was moderate. Their information about denture adhesive indications, contraindications, advantages and disadvantages were very poor therefore prosthodontic specialist in College of Dentistry, University of Mosul should insist on denture adhesive in student's curriculum with increasing the credit hours.

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الخلاصة

الأهداف: تهدف هذه الدراسة إلى تقييم المعرفة والاعتقادات لطبيب الأسنان حول لاصق الطقم من خلال إحداث مناقشة بين أطباء الأسنان (في وزارتي الصحة، والتعليم العالي والبحث العلمي) في مدينة الموصل. **المواد والأساليب:** في اجتماع أطباء الأسنان الذي عقد في أبريل 2009 في كلية طب الأسنان، جامعة الموصل تم توزيع ورقة استبيان على 264 طبيب أسنان والتي تتكون من جزئين: الجزء الأول تقييم معرفة أطباء الأسنان حول لاصق الطقم، والجزء الثاني من ورقة الاستبيان هو تقييم توجه أطباء الأسنان حول لاصق الطقم. **النتائج:** أظهرت نتائج الدراسة أن (9.8%، 67.8%، 22.4%) من أطباء الأسنان لهم معرفة ضعيفة، معتدلة، وجيدة نحو لاصق الطقم على التوالي، بينما (3.1%، 80.4%، 16.6%) من أطباء الأسنان لهم توجيه سلبي، معتدل، وإيجابي على التوالي للمواد اللاصقة للطقم. وأظهر اختبار χ^2 عدم وجود علاقة ذات دلالة إحصائية بين معرفة أطباء الأسنان بالمواد اللاصقة للطقم، والسنوات السابقة من الخبرة، مكان العمل، والجنس، ومستوى تعليمهم. أساليب التحليل الإحصائية المستخدمة في تحليل وتقييم نتائج هذه الدراسة إحصائياً هو SPSS نسخة 13.0.

الاستنتاجات: أظهرت النتائج التي توصلت إليها الدراسة أن معرفة أطباء الأسنان، والموقف تجاه المواد اللاصقة للطقم كان معتدلاً. معلوماتهم عن لاصق الطقم، البيانات، المزاي، والعيوب كانت ضعيفة جداً. وبالتالي فإن على الاختصاصيين في التعويضات الصناعية في كلية طب الأسنان، جامعة الموصل، الإصرار على تدريس المواد اللاصقة للطقم في المناهج

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Key Words: knowledge, attitude, denture adhesive material.

Denture adhesive materials are widely used by many patients to improve the retention, stability and masticatory efficiency of their prosthesis⁽¹⁻⁵⁾. Therefore, dentists need to know about denture adhesives to educate all denture patients about the advantages, disadvantages and uses of the product, and to identify those patients for whom such a product is advisable and/or necessary for a satisfactory denture-wearing experience⁽⁶⁾.

Dental professionals have been slow to accept denture adhesives as a means to enhance denture retention, stability and function. Despite considerable documentation advocating patient's use of adhesives, many dentists view adhesive usage as a poor reflection of their clinical skills and prosthetic expertise⁽⁷⁾.

A growing body of supporting literature over the past 20 years is changing this view. Practitioners are beginning to accept that fixatives are a useful adjuncts to denture therapy⁽⁸⁾.

Many studies have been carried out to evaluate patients and dentist knowledge and attitude toward denture adhesive in America⁽⁹⁾, Australia⁽¹⁰⁾, Turkey^(11, 12) and Iran⁽¹³⁾. Therefore this study was conducted to evaluate the dentist knowledge and believes toward denture adhesive through generation of discussion among dentist in Ministry of health and Ministry of higher education in Mosul city.

MATERIALS AND METHODS

In a dental meeting that held on April 2009 in College of Dentistry, University of Mosul. A questionnaire papers was given to 264 dentist, 80 questionnaire papers were excluded because some questions were not answered completely so, only 183 questionnaire papers were included in this study.

The questionnaires were based on previously conducted study of (Slougher *et al*)⁽⁹⁾, (Koksal *et al.*)⁽¹²⁾ and (Fakhri *et al*)⁽¹³⁾ with some modifications.

The questionnaire include two parts, the first part evaluate the degree of knowledge of dentist in which the dentist knowledge was classified into (weak, moderate and good) according to their score (1-4, 5-8 and 9-12) respectively each correct answer was given a score of +1. Questions in the first part were as follows:

Questionnaire of Part one:

Note: please answer all questions.

Male Female

When did you receive your BDS, MSc, PhD, diploma degree?

BDS degree? Year _____

MSc, PhD, diploma degree? Year _____

Where did you work? Ministry of health

Ministry of higher education

(I) Questions regarding knowledge:

(A). select the most suitable answer from the following:

1. Denture adhesives:

- a. Could fix up broken acrylic bases
- b. Increase the strength of acryl during laboratory processes of denture preparation
- c. Increase retention and stability of dentures.

2. Denture adhesives are:

- a. Home re-liner kits
- b. Tissue conditioners
- c. None of the above

3. Which of the following statements is true?
 - a. Most denture adhesives are soluble in water
 - b. Most denture adhesives are insoluble in water
 4. Which of the following is applied to increase cohesion of denture adhesives?
 - a. Carboxyl Methyl Cellulose
 - b. Hexachlorophene
 - c. Oil
 - d. No opinion
 5. Denture adhesives are able to increase the retention of denture by:
 - a. Increasing the viscosity and eliminating the spaces between denture and oral mucosa
 - b. Decreasing the viscosity and eliminating the spaces between denture and oral mucosa
 6. Denture adhesives are available as
 - a. Powder
 - b. Paste
 - c. paper sheets
 - d. all of the above
 7. Which type of denture adhesive has more durable effects?
 - a. Powder
 - b. Paste
 8. Which of the following statements concerning using denture adhesives in denture of maxilla is not true?
 - a. Putting small pieces of paste in all mucosal surfaces of denture with 5 mm space from each other
 - b. Spreading powder in incisors and molars' areas of mucosal surfaces of denture
- (B) Denture adhesives are recommended for use in:**
9. Uncontrollable muscular dislodgment of movements of Tongue, lips and cheeks. Yes No
 10. Dentures with insufficient fitness and poor structure. Yes No
 11. Patients who do not want to attend recalling sessions for a long time. Yes No
 12. Patients suffering dry mouth (Xerostomia) due to side-effects of the drugs or record of radiotherapy. Yes No

The second part of the questionnaire evaluate the degree of attitude of dentists toward denture adhesive in which statements that mentioned negative views toward denture adhesive were scored in as the following (Disagreement = +2, Agreement = 0, No Opinion = +1.), while statements that mentioned positive views toward denture adhesive responses were scored in a reverse manner (Agreement =+2, Disagreement = 0, No Opinion = +1.) the dentists attitude was classified as (positive, moderate and negative) according to their score (0-11,12-23-24-32) respectively. Only the moderate and good knowledge groups were included for evaluation of dentist's attitude. Questions in the second part were as follows:

Questionnaire of Part two:

Denture adhesives can cause:	agree	Disagree	No opinion
Ieukoplakia		*	
Oral cancer		*	
Candidacies	*		
Denture stomatitis	*		
Alveolar bone resorption		*	
Imbalance in oral flora	*		

* : Means the correct answer

Questions	agree	Disagree	No opinion
DA Increase the fitness (retention and stability)	*		
DA Provide psychological comfort for patients	*		
DA Mask all underlying denture problems	*		
DA Contribute to avoiding dental visits	*		
DA Stabilize trial bases in early stages of dental fabrication	*		
DA Augment retention, function and comfort during interim Period after insertion of new denture.	*		
DA Provide additional retention and stability for patients who have inadequate oral anatomy	*		
Patient education on DA should be routine for all denture patients.	*		
Students should be competent in management of routine denture patient.	*		
Education on DA should be dealt in depth in Undergraduate curriculum in dental universities	*		

DA: denture adhesive * : Means the correct answer

Statistical analysis methods used to analyze and asses the result of this study were SPSS version 13.0, percentage, frequency and X²test.

RESULTS AND DISCUSSIONS

The results of the first part which related to the degree of knowledge of dentist were listed in Table(1) the higher degree of knowledge of dentist toward denture adhesive was moderate which is similar to that obtained by Fakhri *et al*⁽¹³⁾ in Tehran.

Table (1): Percentage of degree of knowledge of dentist

Degree of knowledge	Percentage
Week	9.8%(18)
moderate	67.8%(124)
good	22.4%(41)

Tables (2, 3, 4 and 5) demonstrates the relation (X^2 test) between dentist knowledge about denture adhesives and their sex, place of work, their degree of education and previous years of experience which was founded to be non significant.

Table (2): Frequency and X^2 between gender and degree of knowledge.

		Gender		Total
		Male	Female	
Quality	Good	19	22	41
	Moderate	61	63	124
	Weak	13	5	18
Total		93	90	183
PCS		$X^2 = 3.759, df = 2, P = 0.153$ ns		

Table (3): Frequency and X^2 between Job situation and degree of knowledge.

		Job Situation		
		Higher Education	Health	Total
Quality	Good	19	22	41
	Moderate	52	72	124
	Weak	6	12	18
Total		77	106	183
PCS		$X^2 = 0.872, df = 2, P = 0.647$ ns		

Table 4: Frequency and X^2 between degree of graduation and degree of knowledge.

		Degree			Total
		Bechalor	Master	PhD	
Quality	Good	23	17	1	41
	Moderate	75	48	1	124
	Weak	7	11	0	18
Total		105	76	2	183
PCS		$X^2 = 4.162, df = 4, P = 0.385$ ns			

Table (5): X^2 relation between dentist knowledge and previous years of experience

		New Date							Total
		1	2	3	4	5	6	7	
Quality	Good	1	9	5	7	3	0	3	41
	Moderate	3	31	22	18	6	2	6	124
	Weak	3	5	3	3	2	0	2	18
Total		5	45	30	28	11	2	11	183
PCS		$X^2 = 5.583, df = 12, P = 0.936$ ns							

Table (6) showed distribution of dentist answer for each question in which 96% of them agree with the statement (using denture adhesive to increase retention and stability) which is true and came in line with the findings of many researchers^(14- 20).

Table (6) showed that dentists knowledge was weak about denture adhesive solubility, composition and forms according to their answer on question number(3,4 and 6) about (57.4%) stated that most denture adhesive are insoluble in water while denture adhesive are soluble in water due to their component because most denture adhesive are consist of material responsible for the adhesive properties which are soluble in water either partly or totally such as: Karaya gum, tragacanth, acacia, pectin and gelatin^(21- 24). Also (13.1%) have no idea about the composition of methylcellulose, hydroxymethylcellulose, sodium carboxymethylcellulose denture adhesive while (0%) have never heard about the presence of denture adhesive in form of paper sheets.

Table (6) also showed that (84.2%) agree on statement (denture adhesive in past form has more durable effect) which is true and can be explained by the fact that Powder formulations, as a rule, do not confer the same degree of “hold” nor do their effects last as long, in comparison to comparable cream formulations, the cream adhesive when applied, spread laterally excluding air and saliva from the tissue surface of the denture, the increase of viscosity of the cream layer, compared with that of saliva is a factor for the increased retention^(6,22).

Table (6): Percentage of dentist opinion about denture adhesive

Question	A	B	C	d	Total
Q1	2.7%(5)	0.6%(1)	96.7%(177)	***	183
Q2	40.4%(74)	24.6%(45)	35% (64)	***	183
Q3	42.6%(78)	57.4%(105)	***	***	183
Q4	53.6%(98)	19.1%(35)	14.2%(26)	13.1%(24)	183
Q5	70.5%(129)	29.5%(54)	***	***	183
Q6	9.8%(18)	30.1%(55)	0%(0)	60.1%(110)	183
Q7	15.8%(29)	84.2% (154)	***	***	183
Q8	55.7%(102)	44.3%(81)	***	***	183

***:means no questions availability

Table (7) showed the distribution of dentists knowledge about indication and contraindication of denture adhesive in which about (49.7%) agreed that denture adhesive are not used in patient with uncontrollable muscular movements of tongue, lips and cheeks however denture adhesives are indicated in such a case as mentioned by many authors^(24- 26).

Table (7): Dentist opinion about indications of denture adhesive.

Question	YES	NO	Total
Q9	50.3%(92)	49.7%(91)	183
Q10	63.4%(116)	36.6%(67)	183
Q11	66.1%(121)	33.9%(62)	183
Q12	66.1%(121)	33.9%(62)	183

The most important finding of the present study demonstrate dentists agreement (63.4%) on statement of (using denture adhesive in a dentures with insufficient fitness and poor structure) which revealed a very weak knowledge about the indication of denture adhesive because the danger in this action is that patients may continue to wear this ill fitting denture on account of the

improvement in retention provided by adhesive which will lead to further bone resorption, damage to the oral mucosa and an increasing inability to maintain satisfactory oral hygiene due to continual presence of thick deposit of adhesive^(22, 24, 27).

The results of the second part which related to the degree of attitude of dentists were listed in Table (8) the higher degree of dentist attitude toward denture adhesive was moderate.

Table (8): Percentage of degree of dentist attitude toward denture adhesives.

Degree of attitude	Percentage
Negative	3%(5)
Moderate	80.4%(131)
Positive	16.6%(27)

Table (9) illustrated the dentists' opinion about side effect of denture adhesives in which (22.6% and 7.3%) agreed that denture adhesive can cause leukoplakia, Oral cancer respectively, while the fact that denture adhesive are safe, non toxic, non irritating materials that recommended for denture wearers with extremely sensitive oral mucosa⁽²⁸⁾. Denture adhesives could act as a soft liner and lead to prevention of strangulation of the blood supply to the oral mucosa by the pressure of a hard acrylic denture base in function⁽²⁹⁾. In addition to that commercially available formulations are almost free of carcinogenic agents and believed to be harmless⁽⁶⁾.

Table (9): Percentage of dentist opinion regarding side effect of denture adhesives

Denture adhesives can cause:	Agree	Disagree	No opinion
Leukoplakia	22.6%(37)	45.1%(74)	32.3%(53)
Oral cancer	7.3%(12)	61.6%(101)	31.1%(51)
Candidiasis	72.6%(119)	12.2%(20)	15.2%(25)
Denture stomatitis	64%(105)	18.9%(31)	17.1%(28)
Alveolar bone resorption	15.2%(25)	60.4%(99)	24.4%(40)
Imbalance in oral flora	50.6%(83)	23.2%(38)	26.2%(43)

Table (10) illustrated the dentists' opinion regarding denture adhesives from different points of view in which (93.3%) agreement that (Denture adhesives Increase the fitness {retention and stability}) which is near the result of Slougher *et al*⁽⁹⁾ who stated that prosthodontists agreed with 100% consensus that denture adhesives were useful to provide additional retention and stability.

Also Table (10) showed that About (88.4%) of dentists agreed that (Denture adhesives provide psychological comfort for patients) which agree with Adisman⁽²⁴⁾ who stated that denture patients who have vocations of high public visibility such as attorneys, executives, actors, public speakers, and vocalists need and use denture adhesives for the security of a retentive denture. The avoidance of an embarrassing incident due to an unstable, loose fitting denture is a dominant consideration in their denture experience.

In Table (10) just (43.3%) of dentists agreed that (Denture adhesives stabilize trial bases in early stages of dental fabrication) which revealed again poor knowledge of dentists about uses of these materials because poor retention of complete denture trial bases can interfere with jaw

relation record – making and clinical evaluation of tooth arrangement, therefore conventional denture adhesive is often used to alleviate these problems⁽³⁰⁾.

Table (10) illustrate the dentists' opinion regarding denture adhesives from different points of view

Questions	Agree	Disagree	No opinion
DA Increase the fitness (retention and stability)	93.3%(153)	4.9%(8)	1.8% (3)
DA Provide psychological comfort for patients	88.4%(145)	5.5%(9)	6.1%(10)
DA Mask all underlying denture problems	21.3%(35)	64.1%(105)	14.6%(24)
DA Contribute to avoiding dental visits	53.1%(87)	32.3%(53)	14.6%(24)
DA Stabilize trial bases in early stages of dental fabrication	43.3%(71)	30.5%(50)	26.2%(43)
DA Augment retention, function and comfort during interim Period after insertion of new denture.	67.7%(111)	11.6%(19)	20.7%(34)
DA Provide additional retention and stability for patients who have inadequate oral anatomy	57.3% (94)	28.7%(47)	14%(23)
Patient education on DA should be routine for all denture patients.	40.9%(67)	45.1%(74)	14%(23)
Students should be competent in management of routine denture patient.	61%(100)	17%(28)	22%(36)
Education on DA should be dealt in depth in Undergraduate curriculum in dental universities	61%(100)	16.5%(27)	22.5(37)

Sixty-one percent of dentist agreed that (Patient education on denture adhesives should be routine for all denture patients), and (Education on denture adhesives should be dealt in depth in Undergraduate curriculum in dental universities) which agree with Slougher *et al*⁽⁹⁾ who demonstrated that only through education, for dentists and patients, would the dual goals of maximizing the beneficial aspects of denture adhesive use, while minimizing the misuse of denture adhesives be achieved.

CONCLUSIONS

The findings of the present study showed that dentist knowledge and attitude toward denture adhesive materials was moderate. Their information about denture adhesive indications, contraindications, advantages and disadvantages were very poor therefore prosthodontic specialist in Collage of Dentistry, University of Mosul should insist on denture adhesive in student curriculum with increasing the credit hours.

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