

# AWARENESS OF DENTISTS AND COMPLETE DENTURE WEARERS TOWARDS DENTURE ADHESIVES

<sup>1</sup>MUHAMMAD USMAN MUNEER, BDS, FCPS (Prosthodontics)

<sup>2</sup>ABDUL RAZZAQ AHMED, BDS, FCPS (Prosthodontics)

<sup>3</sup>MUHAMMAD FAROOQ KAMRAN, BDS, FCPS RESIDENT (Prosthodontics)

## ABSTRACT

*The objective of the study was to investigate the attitude of complete denture wearers and dentists towards denture adhesive. The use of denture adhesives and their role in prosthodontics deserve special emphasis because it benefits both the dental profession and patients. A total of 110 patients and 96 dentists participated in the study, which was conducted in three months and was carried out in two institutes, Lahore Medical and Dental College and Jinnah Medical and Dental College, Karachi. The awareness and attitude among dentists and denture wearers towards denture adhesive was checked through a questionnaire. Of 110 patients, 94% never used denture adhesives. Of 96 dentists, 56% have never prescribed denture adhesives. 44% had no knowledge regarding denture adhesives. The results suggest that complete denture wearers lack awareness regarding use of denture adhesives. Majority of dentists are also unfamiliar with their beneficial effects.*

**Key Words:** Denture adhesives, complete dentures.

## INTRODUCTION

Denture adhesive is a material used to bond and retain removable dentures in their designated denture bearing area.<sup>1</sup> Denture adhesives are also referred to as adherents or fixatives. These products have long been accepted by removable denture wearers as means to enhance retention, stability and function of their prosthesis.<sup>2</sup>

In 1980, 15% of denture wearers in United States used denture adhesive. In 1990, 30% denture wearers used or had used denture adhesive. The first use of denture adhesives was reported in 1935.<sup>3</sup> In 2000, Coates<sup>4</sup> reported that a significant number of individuals in his study were not aware that denture adhesive existed. Denture adhesives are usually composed of three components;<sup>5,6</sup>

One, basic adhesive substance such as methyl cellulose, sodium carboxy methyl cellulose, hydroxyl methyl cellulose and/or synthetic polymers such as polyethylene oxide, acrylamides and polyvinyl-methylether maleic anhydride.

Two, antimicrobial agents such as hexachlorophene, sodium borate, ethanol and sodium tetraborate.

Three, preservatives, plasticizers, binding agents, humectants and flavoring agents such as oil of wintergreen, oil of peppermint.

Modern adhesives are available in form of paste and composed of ingredients that provide bio-adhesion, through carboxyl groups, with the oral mucosa. Free carboxyl group form electrovalent bonds that provide stickiness.<sup>1</sup> Denture adhesives also act by increasing the viscosity of saliva. They occupy and eliminate space between denture and mucosa, thus assisting in peripheral sealing.<sup>7</sup> Indications of denture adhesives include;<sup>2,6</sup>

- Stabilization of trial denture for verification of jaw records and assessment of arrangement of teeth.
- Patients with compromised anatomic structures such as excessive ridge resorption, developmental abnormalities, elderly, surgical intervention, trauma.

<sup>1</sup> **Correspondence:** Dr. Muhammad Usman Muneer, Assistant professor, Department of Prosthodontics, Lahore Medical and Dental College, Lahore, Mailing Address: 112-GG, Phase 4, Defense Housing Authority (D.H.A.), Lahore.  
E-mail Address: usmuneer@hotmail.com  
Contact Number: +923004589893

<sup>2</sup> Assistant professor & HOD Prosthodontics, Jinnah Medical and Dental College, Karachi

<sup>3</sup> FCPS trainee, Department of Prosthodontics, Lahore Medical and Dental College, Lahore

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- Patients requiring extra psychological support with well-fitting dentures such as speakers, actors, musicians, executives.
- Patients with poor muscular control such as in Alzheimer's disease, Parkinson's disease, myasthenia gravis.
- Immediate dentures during soft tissue healing and bone resorption phase.
- Patients with gross maxillofacial defects to retain prosthesis.
- Patients with xerostomia because the amount of saliva necessary for adequate denture retention is diminished.
- For interim use with new dentures to overcome initial anxiety.

Adhesives can improve performance and provide enhanced comfort even with well-fitting complete dentures.<sup>8</sup> Despite such benefits in prosthetic dental treatment, many dental surgeons view the practice of denture adhesives as indication of poor clinical skill and lack of prosthetic expertise. Over the years a negative attitude towards these products has developed.<sup>1,2,7,9</sup>

The purpose of this study was to analyze the awareness of complete denture wearers and the professional attitude of dentists towards use of denture adhesives.

## METHODOLOGY

110 Edentulous patients (61 males and 49 females), wearing complete dentures for more than six months, were selected by consecutive non-probability sampling. Patient's consent and approval was obtained for their participation in the study. Demographic data and denture related history was obtained. Patient's attitude regarding usage of denture adhesives was checked using a prepared questionnaire. The following questions were asked;

- Did you ever try using denture adhesives?
- Why did you use denture adhesive?
- Why didn't you try using denture adhesive?

96 dentist's current knowledge and attitude towards use of denture adhesives was also assessed through a questionnaire. The following questions were asked;

- Did you ever prescribe denture adhesive to a patient?
- How frequently do you prescribe denture adhesive to a patient?
- What are the indications and contraindications of adhesives?

- What is the mechanism of action and different forms of denture adhesives?

Last two questions were used to assess the current knowledge of dentists and scored accordingly. They were categorized as having adequate, moderate and weak or no knowledge. Data were analyzed on computer program SPSS version 16. Mean and standard deviation was calculated for age. Percentage was calculated for other variables.

## RESULTS

A total of 110 patients were included in the study. There were 61 males and 49 females. The mean age of patients was 63 years. 103 (94%) patients reported that they had never tried denture adhesives. Of these 103 patients, 100 reported that they didn't even know that denture adhesive existed. Three denture wearers were previously advised use of adhesive but they couldn't due to lack of availability of the product. 7 (6%) denture wearers had used denture adhesives in the past for improving the retention and stability of their dentures but none of them was currently using it. They had tried a paste form adhesive. Patients stopped using adhesives because it didn't enhance the retention of their dentures to the desired level.

Of the 96 dentists who participated in the study, 57 were male and 39 were females. 54 (56%) had never prescribed denture adhesives. 42 (93%) advised infrequently. The knowledge of dentists regarding denture adhesives is presented in figure 1.

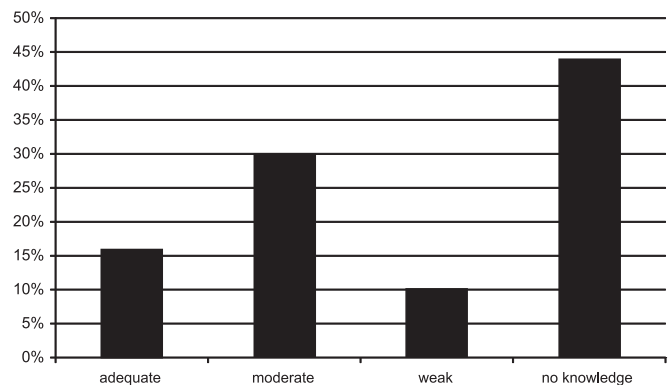


Fig 1: Knowledge of dentists about denture adhesives

## DISCUSSION

According to Zarb and Boucher<sup>10</sup>, there are several factors responsible for retention of complete dentures which include adhesion, cohesion, interfacial surface tension, capillary action, atmospheric tension, and facial musculature. These factors, along with proper fabrication of the complete denture, contribute to retain the prosthesis.

Denture adhesives act as an adjuvant to increase denture retention and stability, and various research studies suggest that its use significantly decreased displacement of mandibular and maxillary dentures during chewing, biting and speaking.<sup>3,5,7,11,12</sup>

In this study, a significant number of patients (94%) had never used denture adhesives. This indicates that most of the patients are not well informed regarding this useful treatment modality. In a study by Coates<sup>4</sup>, almost 33% of patients had tried denture adhesives but only 7% were currently using it. Wilson<sup>13</sup> reported that 30% of denture wearers used, or had used, denture adhesive. In another study conducted in Istanbul, 87% of patients didn't know denture adhesives existed, 8% had tried denture adhesives but none of them continued it on a regular basis<sup>14</sup>. Tarbet and Grossman<sup>15</sup> stated that about 12% of the patients who wore a denture also used an adhesive. The outcome of the current study suggests that the knowledge of the patients is not enough probably because it is still generally believed by the practitioners that the prescription of a denture adhesive is a sign of failure of the dentist.

A study conducted by Fakhri<sup>16</sup> in Tehran showed that 14%, 32% and 37% of the general dentists had, respectively, good, moderate and weak knowledge toward denture adhesive while 16.3% had no knowledge about this material. A survey by Grasso<sup>17</sup> reported that more than 5 million Americans use denture adhesives and approximately 75% of all dentists recommend its use to their patients. In current study, a significant number of dentists (56%) had never prescribed adhesives to any patient. 44% had no knowledge regarding use of adhesives as shown in fig 1. The result suggests that the dentists are not fully informed regarding the potential use of denture adhesives.

A study by Slaughter<sup>18</sup>, using the Delphi technique survey method, was conducted using a panel of 18 randomly selected prosthodontics program directors in the United States. The panel concluded that denture adhesives are an effective, adjunctive treatment option in removable prosthodontics. The panelists also pointed out the potential for misuse of denture adhesives, both by dental surgeons and patients. They also agreed that use of denture adhesive is a necessary part of patient education, with inclusion of both appropriate use and misuse of these products. It was also concluded that knowledge regarding denture adhesive should be an integral component of the undergraduate dental curriculum.

## CONCLUSION

Education about the use, abuse, indications, contraindications, options and selection of an adhesive

is necessary for dentists and patients. Unfortunately, dental professionals have been slow to accept the use of adhesives and to advise it to their patients.

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