

Subjective assessment of adhesives usage by complete denture wearers in a Brazilian population

Avaliação subjetiva do uso de adesivos por usuários de próteses totais bimaxilares em uma população brasileira

Ana Carolina PERO^a, André Gustavo PALEARI^a, Larissa Santana RODRIGUEZ^a,
Andressa Rosa Perin LEITE^a, Andréia Alonso ROCCIA^a, Marco Antonio COMPAGNONI^a

^aDepartamento de Materiais Odontológicos e Prótese, Faculdade de Odontologia,
UNESP – Univ Estadual Paulista, 14801-903 Araraquara, SP, Brasil

Resumo

Introdução: Estudos subjetivos sobre o conhecimento e uso de adesivos para prótese ainda são limitados, especialmente em populações brasileiras. **Objetivo:** O objetivo deste estudo foi investigar os aspectos relacionados ao uso ou não de adesivos para prótese por usuários de próteses totais. **Material e método:** Foram aplicados a 100 usuários de próteses totais bimaxilares questionários relativos à utilização de adesivos para prótese. A pesquisa foi realizada de acordo com três categorias: aqueles que nunca tinham utilizado o adesivo, aqueles que já tinham utilizado o adesivo pelo menos uma vez e que já não utilizavam mais, e aqueles que utilizam regularmente. **Resultado:** Dos 100 participantes, 80% nunca haviam utilizados adesivos, 16% já haviam experimentado pelo menos uma vez, mas já não utilizavam mais e 4% utilizavam regularmente. **Conclusão:** Dentro das limitações deste estudo, os resultados desta avaliação subjetiva sugerem que entre os participantes que nunca haviam experimentado adesivos, 77,5% informaram que o adesivo não era necessário, e todos os participantes que utilizam regularmente informaram a sua eficiência.

Descritores: Prótese total; adesivos; questionários.

Abstract

Introduction: The information about the knowledge and usage of denture adhesives is still limited, particularly in Brazilian populations. **Objective:** The purpose of this study was to investigate the aspects related to the use or nonuse of denture adhesives by complete denture wearers. **Material and method:** Questionnaires were applied to 100 bimaxillary complete denture wearers concerning their usage of denture adhesives. The survey was carried out according to three categories: those who had never tried adhesive, those who had tried adhesive at least once but no longer used it, and those who currently used it. **Result:** Of the 100 participants, 80% had never tried adhesives, 16% had tried at least once but no longer used it and 4% had used on a regular basis. **Conclusion:** Within the limitations of this study, the results of this subjective assessment suggest that within the participants that had never tried adhesives, 77.5% inform that the adhesive is not needed, and all participants who regularly use it inform its efficiency.

Descriptors: Denture, complete; adhesives; questionnaires.

INTRODUCTION

According to a recent publication¹, the prevalence of edentulism in a Brazilian population of people aged ≥ 60 years was 63%. For the majority of these patients, the oral rehabilitation with conventional complete dentures still remains the only treatment option².

Previous studies have reported that the great majority of patients are satisfied with their dentures²⁻⁴ while some others are unable to adapt². Lack of retention and stability, inability to

comminute foods, social disability, decreased self-confidence and satisfaction are the major problems related by denture wearers⁵⁻⁷, which impact on their quality of life⁸.

Denture adhesives can improve the retention and stability of dentures^{6,9-12} and help seal out the accumulation of food particles beneath the dentures¹³, even in well-fitting dentures¹⁴. These products, when properly used, may provide psychological benefits to their users¹⁵, increase biting force^{12,16}, improving maximum

incisal force of complete maxillary dentures¹⁷, and improve subjective chewing ability¹⁸. Additionally, denture adhesives are useful in clinical procedures to stabilize trial bases for accurate jaw relations, improve accuracy of denture try-in stages¹⁹.

For many dentists the adhesive usage still represents a poor reflection of their clinical skills and prosthetic expertise^{10,11,20,21}, or a potential cause of damaging effects, including alveolar ridge resorption²². Nowadays, it is well established that neither dentists nor patients should use denture adhesives as a substitute for either good clinical practice or proper maintenance routine¹⁹.

Despite the use of denture adhesives and their role in prosthodontics produce a conflicting topic both in clinical practice and dental education, these facts have not impeded million of denture wearers buying and using these products around the world¹⁹. Thus, this study aimed to investigate through a questionnaire the aspects related to the use or nonuse of denture adhesives by complete denture wearers in a Brazilian population.

MATERIAL AND METHOD

The sample was composed of 100 participants (39 male, mean age 66 years old, range 44 to 89 years old), randomly selected from a database of Araraquara Dental School - UNESP, Univ Estadual Paulista, Araraquara, São Paulo, Brazil. The inclusion criteria were: (a) bimaxillary complete dentures wearers, (b) complete dentures fabricated at least 3 years according to the standardized protocol used in Araraquara Dental School, including functional impressions with individual trays and establishment of bilateral balanced occlusion, (c) healthy oral tissues, and (d) mentally receptive individuals.

The participants involved in this study had their complete dentures fabrication supervised by the Araraquara Dental School faculty and the same dental technician performed the laboratorial procedures. A methacrylate based resin (Lucitone 550 - Dentsply Ind. e Com. Ltda, Petrópolis, RJ, Brazil) and 33 degree acrylic resin teeth (Trubyte Biotone - Dentsply Ind. e Com. Ltd., Rio Janeiro, RJ, Brazil) were used. Participants who had debilitating systemic diseases were excluded of the study. This experimental protocol was approved by the Research Ethics Committee of Araraquara Dental School, Univ Estadual Paulista, Brazil (Process 0014.0.199.000-10), and all subjects volunteered to participate and signed an informed consent form.

The surveyed group was divided into three categories, based on the criteria used by Özcan et al.²² and Coates²³- Category 1: those who had never tried adhesive, Category 2: those who had tried adhesive at least once but no longer used it, and category 3: those who currently used it. Questionnaires were prepared and applied to the participants, according to each category (Tables 1 and 2).

RESULT

The results related to use or nonuse of adhesives are shown on Figure 1. Among the 100 participants, 80% had never tried adhesives, 16% had tried at least once but no longer used it and 4% had used on a regular basis

Within the 80% that have never used adhesives, 77.5% have informed no need, 11.25% did not know that denture adhesives existed, 3.75% related no money for buying the product and 7.5% have informed another reason (Figure 2). Considering the 20% that have used or regularly use adhesives, 35% informed it was indicated by a dentist, 50% have used by themselves, 10% informed it was indicated by a friend, and 5% informed another answer. Among the participants that have ever used adhesives but no longer used it (16%), taste and consistence were the most cited complaints, but difficulty of removal from oral tissues and dentures was also mentioned.

The adhesives usage on a regular basis was related by 4% of the participants, who informed improvement in their dentures performance. Powder and cream were the most used kind of denture adhesives. The frequency of those who have used or regularly use adhesives responses are shown in Table 3.

DISCUSSION

It has been shown that a substantial proportion of denture wearers had tried or currently used denture adhesives^{16,17}. Douglass et al.²⁴ stated that 22% of complete denture wearers in USA regularly use adhesives. However, there has been no previously published evaluation regarding adhesive usage among complete denture wearers in a Brazilian population. Thus, the findings of this study revealed important aspects related to adhesives usage among this population, which can be useful for future approaches.

In this study, it was observed that the majority of the participants surveyed (80%) had never tried denture adhesives. In a previous report, Özcan et al.²² surveyed 115 patients attending in Marmara University, Istanbul, Turkey, and observed that 92% had never tried denture adhesives. Coates²³ surveyed 146 patients from the Adelaide Dental Hospital, Australia, and 67.1% had never tried adhesives. Our results showed that the reason given by the most of the participants (77.5%) for the nonuse was no need, in accordance with Özcan et al.¹⁶, whom observed that 73% of the patients that had never tried adhesives managed their dentures well.

Another important aspect observed in this survey was that 11.2% of the respondents did not know that denture adhesives existed. It might be suggest either that these patients manage their dentures well or the dentist did not prescribe these products even when it indicated, since many dentists view adhesive usage

Table 1. Questionnaire applied to participants of category 1

Bimaxillary complete denture wearers that had never tried adhesives.
1.1- Why have you never tried use adhesives?
<input type="checkbox"/> did not know that adhesives existed
<input type="checkbox"/> it did not have necessity
<input type="checkbox"/> it did not have money to buy
<input type="checkbox"/> another answer

Table 2. Questionnaire applied to participants of categories 2 and 3

Bimaxillary complete denture wearers that had tried adhesives at least once but no longer used it or currently used it.			
2.1- Which way have you taken knowledge about denture adhesives?			
<input type="checkbox"/> publicity	<input type="checkbox"/> dentist	<input type="checkbox"/> friend	<input type="checkbox"/> another answer
2.2- Who have you indicated adhesives?			
<input type="checkbox"/> dentist	<input type="checkbox"/> by myself	<input type="checkbox"/> friend	<input type="checkbox"/> another answer
2.3- Why have you tried denture adhesive?			
<input type="checkbox"/> poor retention of the denture	<input type="checkbox"/> difficulty to chew	<input type="checkbox"/> difficulty to speaking	<input type="checkbox"/> another answer
2.4- What kind of denture adhesives have you ever tried?			
<input type="checkbox"/> powder	<input type="checkbox"/> cream	<input type="checkbox"/> pads/ strips	
2.5- How long have you used denture adhesive?			
<input type="checkbox"/> until 1 month	<input type="checkbox"/> 1 to 6 months	<input type="checkbox"/> 6 months to 1 year	<input type="checkbox"/> another answer
2.6- How do you evaluate the performance of your dentures while you were using adhesive?			
<input type="checkbox"/> it improved a lot	<input type="checkbox"/> it improved little	<input type="checkbox"/> it didn't improve	
*2.7- Why have you abandoned adhesive usage?			
<input type="checkbox"/> it did not get the desired effect	<input type="checkbox"/> it was expensive	<input type="checkbox"/> another answer	
*2.8- What was most unpleasant while you were using adhesive?			
<input type="checkbox"/> taste	<input type="checkbox"/> consistence	<input type="checkbox"/> difficulty of removal	<input type="checkbox"/> another answer

*Questions applied only for participants of category 2.

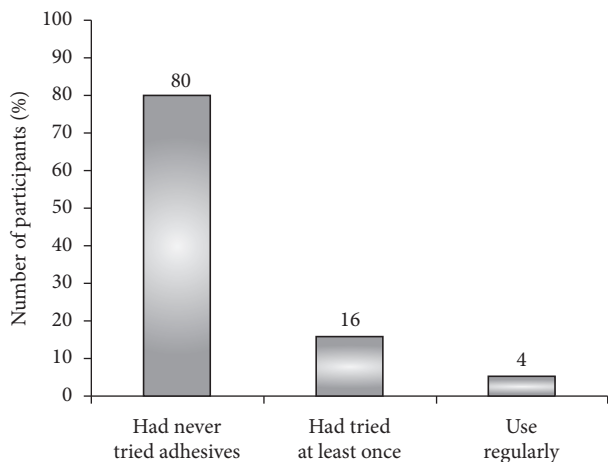


Figure 1. Participants distribution according to use or nonuse of denture adhesives.

as poor reflection of their prosthetic treatment²¹. Moreover, of the participants that have used or regularly use adhesives, 33.3% informed it was indicated by a dentist, and 47.6% have used by themselves. Considering that denture adhesives prescription should be conducted by a dentist, our findings that 47.6% have used adhesives by themselves possibly indicate the dentist did not intervene on this indication. It emphasizes the importance of periodic recalls for oral examination and, in these cases, to investigate the need of adhesive usage.

Within the 20% participants that have used adhesives but no longer used it or regularly use it, 85% informed that have used or have been used these products to improve retention. Among

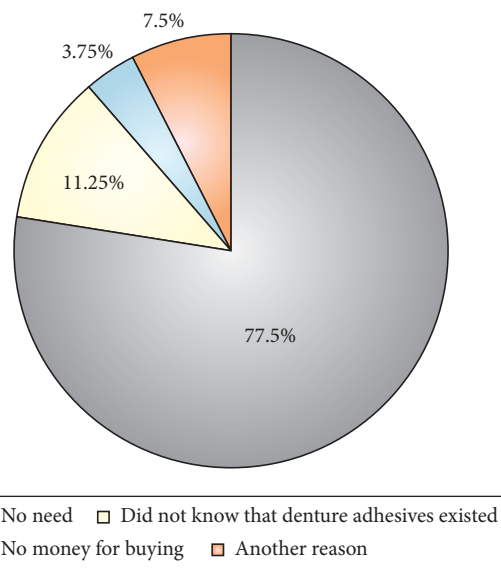


Figure 2. Reasons for the participants have never tried use adhesives.

those who have used adhesives but abandoned, 56.2% did not get the desired effect and 6.2% said that the high cost was the reason to ceasing its usage. Similarly, Coates²³ also observed that few patients thought that denture adhesive was too expensive.

There have been several reasons concerning the ceasing of adhesives usage among the patients that have used adhesives but no longer used it. Our findings are in accordance with previous studies, which also observed that the majority of the patients abandoned the use of adhesives because it did not perform to their satisfaction, particularly related to fit, chewing ability, comfort and confidence^{16,23}.

Table 3. Frequency of participants' answers that have used or regularly use adhesives

Question	Response	Number and % of respondents	
		Category 2 (n = 16)	Category 3 (n = 4)
Which way have you taken knowledge about denture adhesives?	() publicity	8 (50%)	2 (50%)
	() dentist	3 (18.7%)	2 (50%)
	() friend	3 (18.7%)	0 (0%)
	() another answer	2 (12.5%)	0 (0%)
Who have you indicated adhesives?	() dentist	5 (31.2%)	2 (50%)
	() by myself	9 (56.2%)	1 (25%)
	() friend	1 (6.2%)	1 (25%)
	() another answer	1 (6.2%)	0 (0%)
Why have you tried denture adhesive?	() poor retention of the denture	14 (87.5%)	3 (75%)
	() difficulty to chew	1 (6.25%)	1 (25%)
	() difficulty to speaking	1 (6.25%)	0 (0%)
	() another answer	0 (0%)	0 (0%)
What kind of denture adhesives have you ever tried?	() powder	8 (50%)	2 (50%)
	() cream	6 (37.5%)	1 (25%)
	() pads/ strips	2 (12.5%)	1 (25%)
How long have you used/ been used denture adhesive?	() until 1 month	8 (50%)	2 (50%)
	() 1 to 6 months	2 (12.5%)	0 (0%)
	() 6 months to 1 year	4 (25%)	2 (50%)
	() another answer	2 (12.5%)	0 (0%)
How do you evaluate the performance of your dentures while you were using adhesive?	() it improves a lot	3 (18.7%)	3 (75%)
	() it improves little	7 (43.7%)	1 (25%)
	() it didn't improve	6 (37.5%)	0 (0%)
Why have you abandoned adhesive usage?	() it did not get the desired effect	9 (56.2%)	---
	() it was expensive	1 (6.2%)	---
	() another answer	6 (37.5%)	---
What was most unpleasant while you were using adhesive?	() taste	7 (43.7%)	---
	() consistence	6 (37.5%)	---
	() difficulty of removal	2 (12.5%)	---
	() another answer	1 (6.2%)	---

In this study, the most participants that regularly use adhesives were satisfied with its performance, in accordance with previous reports^{7,10,23}. Among those who have used adhesives but abandoned¹⁶, 43.7% informed it improves little their dentures performance, and 37.5% that it didn't improve. The most unpleasant factors concerning adhesives usage were taste and consistence, but difficulty of removal from oral tissues and dentures was also mentioned, in accordance with previous studies^{7,23}.

From the results of this study, it appears that denture adhesives are not considered a need among denture wearers. However, their properly indications must be highlighted, since denture adhesives

can act as an adjunct of denture treatment²⁵. The concept about denture adhesives among dental professionals is progressively changing^{16,23}. Thus, the results of this study indicate that "denture adhesives" should be taught more intensively at Brazilian dental schools to reinforce the proper use of these products.

CONCLUSION

In conclusion and based on the limitations of this subjective study, it could be shown that the majority of the participants that had never tried adhesives related no need for the use of denture adhesives and the participants that used denture adhesives on a regular basis do inform its efficacy.

REFERENCES

1. Moreira RAS, Nico LS, Tomita NE. Oral health conditions among the elderly in Southeastern São Paulo State. *J Appl Oral Sci.* 2009;17:170-8. <http://dx.doi.org/10.1590/S1678-77572009000300008>
2. Carlsson GE, Omar R. The future of complete dentures in oral rehabilitation. A critical review. *J Oral Rehabil.* 2010;37:143-56. PMID:20002536. <http://dx.doi.org/10.1111/j.1365-2842.2009.02039.x>
3. Celebić A, Knezović-Zlatarić D. A comparison of patient's satisfaction between complete and partial removable denture wearers. *J Dent.* 2003;31:445-51. [http://dx.doi.org/10.1016/S0300-5712\(03\)00094-0](http://dx.doi.org/10.1016/S0300-5712(03)00094-0)
4. Berg E. Acceptance of full dentures. *Int Dent J.* 1993;43:299-306. PMID:8406961.

5. Mañes JF, Selva EJ, De-Barutell A, Bouazza K. Comparison of the retention strengths of three complete denture adhesives: an in vivo study. *Med Oral Patol Oral Cir Bucal*. 2011;16:e132-6. PMID:20526270.
6. Kulak Y, Ozcan M, Arikan A. Subjective assessment by patients of the efficiency of two denture adhesive pastes. *J Prosthodont*. 2005;14:248-52. PMID:16359481. <http://dx.doi.org/10.1111/j.1532-849X.2005.00049.x>
7. Emami E, Heydecke G, Rompré PH, de Grandmont P, Feine JS. Impact of implant support for mandibular dentures on satisfaction, oral and general health-related quality of life: a meta-analysis of randomized-controlled trials. *Clin Oral Implants Res*. 2009;20:533-44. PMID:19515032.
8. Ellis JS, Pelekis ND, Thomason JM. Conventional rehabilitation of edentulous patients: the impact on oral health-related quality of life and patient satisfaction. *J Prosthodont*. 2007;16:37-42. PMID:17244306. <http://dx.doi.org/10.1111/j.1532-849X.2006.00152.x>
9. Pradiés G, Sanz I, Evans O, Martínez F, Sanz M. Clinical study comparing the efficacy of two denture adhesives in complete denture patients. *Int J Prosthodont*. 2009;22:361-7. PMID:19639073.
10. Koronis S, Pizatos E, Polyzois G, Lagouvardos P. Clinical evaluation of three denture cushion adhesives by complete denture wearers. *Gerodontology*. 2010. Nov 17. doi: 10.1111/j.1741-2358.2010.436.x. [Epub ahead of print]. PMID:21083736. <http://dx.doi.org/10.1111/j.1741-2358.2010.436.x>
11. Figueiral MH, Fonseca PA, Pereira-Leite C, Scully C. The effect of different adhesive materials on retention of maxillary complete dentures. *Int J Prosthodont*. 2011;24:175-7. PMID:21479288.
12. Grasso JE, Rendell J, Gay T. Effect of denture adhesive on the retention and stability of maxillary dentures. *J Prosthet Dent*. 1994;72:399-405. [http://dx.doi.org/10.1016/0022-3913\(94\)90560-6](http://dx.doi.org/10.1016/0022-3913(94)90560-6)
13. Ekstrand K, Hensten-Pettersen A, Kullmann A. Denture adhesives: cytotoxicity, microbial contamination, and formaldehyde content. *J Prosthet Dent*. 1993; 69:314-7. [http://dx.doi.org/10.1016/0022-3913\(93\)90112-2](http://dx.doi.org/10.1016/0022-3913(93)90112-2)
14. Felton D, Cooper L, Duqum I, Minsley G, Guckes A, Haug S, et al. Evidence-based guidelines for the care and maintenance of complete dentures: a publication of the American College of Prosthodontists. *J Am Dent Assoc*. 2011;142:1S-20S. PMID:21282672.
15. Nicolas E, Veyrune JL, Lassauzay C. A six-month assessment of oral health-related quality of life of complete denture wearers using denture adhesive: a pilot study. *J Prosthodont*. 2010;19:443-8. PMID:20456031. <http://dx.doi.org/10.1111/j.1532-849X.2010.00601.x>
16. Ozcan M, Kulak Y, de Baat C, Arikan A, Ucankale M. The effect of a new denture adhesive on bite force until denture dislodgement. *J Prosthodont*. 2005;14:122-6. PMID:16011623. <http://dx.doi.org/10.1111/j.1532-849X.2005.00020.x>
17. De Baat C, van't Hof M, van Zeghbroeck L, Ozcan M, Kalk W. An international multicenter study on the effectiveness of a denture adhesive in maxillary dentures using disposable gnathometers. *Clin Oral Investig*. 2007;11:237-43. PMID:17431692. <http://dx.doi.org/10.1007/s00784-007-0109-0>
18. Shay K. Denture adhesives. Choosing the right powders and pastes. *J Am Dent Assoc*. 1991;122:70-6.
19. Slaughter A, Katz RV, Grasso JE. Professional attitudes toward denture adhesives: A Delphi technique survey of academic prosthodontists. *J Prosthet Dent*. 1999;82:80-9. [http://dx.doi.org/10.1016/S0022-3913\(99\)70131-9](http://dx.doi.org/10.1016/S0022-3913(99)70131-9)
20. Fakhri H, Fayaz A, Faramarzi F, Javaheri HH. The knowledge and attitude of general dentists toward denture adhesives in Tehran. *Indian J Dent Res*. 2009;20:164-8. PMID:19553716. <http://dx.doi.org/10.4103/0970-9290.52892>
21. Grasso JE. Denture adhesives: changing attitudes. *J Am Dent Assoc*. 1996;127:90-6. PMID:8568103.
22. Ozcan M, Kulak Y, Arikan A, Silahtar E. The attitude of complete denture wearers towards denture adhesives in Istanbul. *J Oral Rehabil*. 2004;31:131-4. <http://dx.doi.org/10.1046/j.0305-182X.2003.01224.x>
23. Coates AJ. Usage of denture adhesives. *J Dent*. 2000;28:137-40. [http://dx.doi.org/10.1016/S0300-5712\(99\)00046-9](http://dx.doi.org/10.1016/S0300-5712(99)00046-9)
24. Douglass CW, Shih A, Ostry L. Will there be a need for complete dentures in the United States in 2020? *J Prosthet Dent*. 2002;87:5-8. PMID:11807476. <http://dx.doi.org/10.1067/mpr.2002.121203>
25. Shigli K. Aftercare of the complete denture patient. *J Prosthodont*. 2009;18:688-93. PMID:19682212. <http://dx.doi.org/10.1111/j.1532-849X.2009.00500.x>

CONFLICTS OF INTERESTS

The authors declare no conflicts of interests.

CORRESPONDING AUTHOR

Profª Drª Ana Carolina Pero

Departamento de Materiais Odontológicos e Prótese, Faculdade de Odontologia, UNESP – Univ Estadual Paulista

Rua Humaitá 1680, 14801-903 Araraquara, SP, Brasil

e-mail: anacarolpero@foar.unesp.br

Recebido: 02/02/2012

Aprovado: 27/02/2012