Asian Journal of Pharmaceutical and Health Sciences
www.ajphs.com

Survey on Availability and Usage of Denture Adhesives in Malaysia: A Preliminary Study

Priya Ahlawat[1]*, H A Darki[2], Y Zahir[2], Deepti Saini[1]

[1]School of Dentistry, International Medical University, Bukit Jalil, 57000 KL, Malaysia.
[2]Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

ARTICLE HISTORY

Received: 18-Jul-2011

Accepted: 25-Jul-2011

Available online: 10-Feb-2012

Keywords:

Denture adhesives, Availability, Usage, Survey

***Corresponding author:**

E-mail: ahlawatpriya5@yahoo.com
Phone: +6012 2053564

ABSTRACT

Performance of dentures can be improved by making use of adjuncts like denture adhesives (DA), which act by enhancing the retentive and stabilizing properties of a denture. DA have been a subject of controversy despite the advantages associated with their use. If used appropriately, they could provide additional benefit to denture wearers especially in terms of comfort, better chewing ability as well as boost their confidence level and could also be a benefit to the clinicians prescribing them. The objective of this study was to look into the types and forms of DA commonly available in the markets and the response of people towards using them in two cities of Malaysia. This was a cross sectional study where two surveys were conducted using a standardized questionnaire. The first survey was to enquire from the pharmacies regarding the availability and sales of DA in the cities of Johore Bahru and Klang Valley. In the second survey the denture wearers were questioned regarding usage including the frequency of use, and their approach towards DA. From the first survey, 98% of the pharmacies were found to be selling denture adhesives which were available in cream, powder and cushion form. Polident Complete Comfort DA, Protefix, Fittydent and Steradent were the most commonly sold DA among these pharmacies, with sales of Polident being upto 98%. In the second survey, where all denture wearing patients were in the range of 40-85 years age, it was inferred that only 5.8% of all denture wearers were using DA. All DA users preferred to use cream form and frequency of placement was once (44.4%), or twice (22.2%) a day. Denture Adhesives are commonly available in Malaysian markets. However, usage and awareness regarding these products is relatively low among the population in Malaysia.

INTRODUCTION

Well made dentures could be a disappointment to a patient if deficient in retention and/or stability and could contribute to a sense of social anxiety and lack of confidence in themselves. Mainly it is a consolidation of 3 factors, retention, stability and support that determines the overall performance of a denture. These factors can be augmented by using denture adhesives (DA), which on absorbing saliva, swell up and create a strong hold between dentures and the underlying tissues[1-5]. DA is a commercially available, non-toxic, soluble material applied on tissue surface of dentures, to aid in stabilization and retention. It has been in use since the 18th century [5,6]. Even though many dentists and denture wearers find DA a useful adjunct, there are still a few who consider it as a compromise to using an improperly fitting prostheses.[3,7,8] Using these products was regarded as a poor reflection on clinical skills and prosthetic expertise of the practioner and dental students were also not taught much about this subject for fear they might misuse it. However, within the last few years, a positive attitude is being exhibited towards the use of DA.[3,9,10] This could be attributed to recognizing some of its advantages, like its cushioning effect that assists in distributing the occlusal forces, thus minimizing local irritations and pressure spots. It also significantly reduces the collection of food particles under the denture surface. DA has been found to be a useful retentive aid in patients with anatomical limitations like severe ridge resorption [3,5] retention of larger and heavier maxillofacial prosthesis and obturators in maxillary and mandibular jaw defects.[11] Also, recently it has been used as a vehicle to administer topical medication to oral tissues [12, 13] especially in cases like denture stomatitis and pemphigus.[14, 15] This increases the effectiveness of the drug as higher concentrations can be maintained at the site of the lesion for longer periods[3]. Studies on DA have been seen to improve masticatory efficiency, retention and confidence in their denture for both new and experienced denture wearers,[11,16,17] by allowing patient to increase the bite force and use fewer chewing strokes during deglutition and swallowing.[16] However, it is crucial to consider the adverse effects with DA usage which could end up in more damage than help to the patient. Thus, its use is contraindicated in patients with ill fitting or very old dentures as it could camouflage the negative effects and in turn result in greater bone resorption of the denture bearing area.[13] Few studies have been done on the attitude of denture-wearers towards using DA. [9,12] Results of a study done in US population found 22% of the denture-wearers

using DA[18,19] In another study by Wilson et al it was found that among the patients using dentures, 30% used DA. [20] There have been no studies so far, on the usage of DA in Southeast Asia. The purpose of this study was to investigate the availability of DA and the attitude of complete denture-wearers towards their usage in two states of Malaysia.

METHODOLOGY

Population sample and survey

This cross sectional study was carried out in the form of surveys in the cities of Kuala Lumpur and Johore Bahru. The survey consisted of two sections. The first section was carried out in 50 pharmacies in Kuala Lumpur and Johor Bahru. Only pharmacies selling dental medicaments were included in this study.

A questionnaire was used to inquire from the pharmacist regarding types and forms of DA available, frequency of sale and popularity as well as the cost effectiveness of the products. The questionnaire used in this study was in both Bahasa Melayu (the local language) and English and, which was approved by the human ethics committee of University of Malaya.

The second section of our survey was performed at Faculty of Dentistry, University of Malaya and comprised of a telephonic interview with 153 denture wearers. These patients were selected randomly from the past treatment file records in the Faculty. The Malaysian citizens aged 40 and above attending the dental clinics were included in this study. The patients who had already attended any previous programme were excluded from the study. Each patient was asked regarding their awareness and usage of DA, the level of comfort and satisfaction on use as well as any problems or allergies noted with these products. The interview was performed by a single calibrated interviewer to avoid inter-examiner variability. A verbal consent was taken before proceeding for interview with the subjects. Any doubts arising from the questions were explained clearly to the patient.

Statistical Analysis

SPSS version 12.0 (SPSS Inc, Chicago, IL, USA) statistical software was used for data entry and data analysis. Descriptive statistics such as mean and standard deviation (SD) for continuous variables, and frequency and percentage for categorical variables were calculated for all the subjects.

RESULTS AND DISCUSSION

From the two surveys, Pharmacy and Telephonic interview, it was seen that DA were available in cream, powder and cushion form as seen in Table 1. It has been found from the two surveys that among the various forms of denture adhesives available, cream was the most popular one. It could be due to the fact that cream is easier to apply, and also it was cheaper and resulted in less wastage. The powder, on the other hand, was more expensive though less messy and easier to clean, maybe due to more even distribution of the powder than with creams. In another study [12] it was shown that cream and powder were found to be equally popular as use of one over the other could be just a matter of personal preference. It was also seen that there was an equal balance of sales for the two. This was based on personal communication with a manufacturer, during that study[21].

In our study, out of the 153 denture wearers interviewed, only 5.8% were found to be using DA. This usage of DA amongst Malaysians was found to be relatively low when compared with

Table No.1: Showing availability and usage of various forms of denture adhesives

Forms of DA	Frequency of form of DA	Percent of form of DA
Cream	73	60.8
Cushion	24	20.0
Powder	23	19.2
Total	**120**	**100.0**

the results seen from studies done in other countries. In a study done in Wales, it was found that 10–12% of denture wearers used DA[.22] Similarly, a study done in a residential home for the elderly in Cardiff found 9% of the denture patients to be using DA.[23] Also, in a study by Wilson, the results for percentage of DA users was as high as 30% of the total denture patients.[20] Another study done in Australia, on incidence of usage of DA showed still higher results, where out of total 146 denture wearers, 32.9% used DA[12]. The reasons for this relatively low percentage of DA usage among our patients could be due to cost factor which affected its usage, or the quality of well fitting dentures made was high which did not necessitate the use of DA. More likely the reason appears to be a low level of awareness among denture wearers, regarding the existence of such products. Also, this could be partly attributed to the dentists themselves as they resist prescribing these products to the patients for fear of it reflecting negatively towards their own dental skill [3].

In our study, out of the 153 denture wearers surveyed 56.9% were females and 43.1% were males. All the patients were in the age range of 40-85 years. There was a higher tendency for males to use DA as shown in figure 1. As seen in this study, majority of the denture wearers applied DA on their denture only once a day while 22.2% applied it twice a day. There was an even lower percentage of those who used as and when needed only, Figure 2. The reasons for this variation could be due to the form of DA being used by the patient, as cream has a reduced tendency to be washed away [24] or because patient might want to use it sparingly (44% used it once a day) to reduce the long term cost factor of buying this product. In the case of patients using DA more than once, the reason could be that patients were of a more socializing nature or someone who had a more public interactive

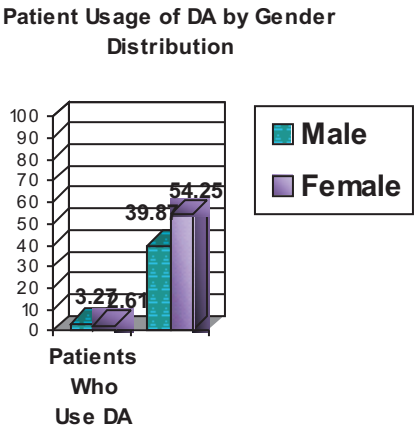
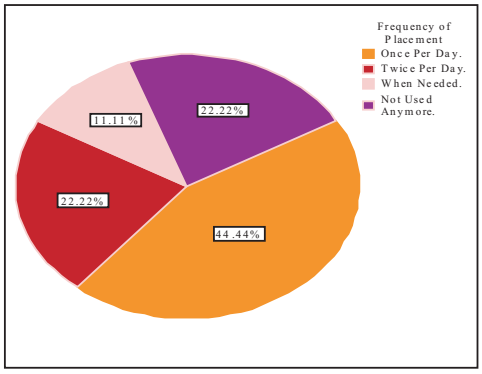


Fig. 1. Graph showing usage of denture adhesives based on gender distribution



- - - - - - - - - - - -**Fig. 2:** Graph showing frequency (percentage) of application of denture adhesives

occupation who would need the extra security of a tight fitting denture to avoid any embarrassing situation. Only 1 patient out of a total of 9 using DA, complained of an unpleasant taste of DA and difficulty in removal of DA from the oral tissues. In comparison to this in a study among 48 patients using DA it was found 10 patients complaining of unpleasant taste and 8 complaining of difficulty in removal.[12]

Out of the 9 denture wearers using DA, 67% of them were generally quite satisfied with using DA while reasons given for dissatisfaction by the remaining 33% was a feeling of stickiness, denture not sitting properly and still loose, and a vague statement like not feeling comfortable.

Even though DA have been around for a long time with the first patent being in 1913, [25] there are still conflicting and often negative views regarding use of this product. Some dentists and denture wearers feel DA can enhance denture retention, function, and stability, at the same time other dental professionals see this product as a compromise for a poorly fitting prosthesis. Moreover, there is concern that DA should not be used in old and ill fitting dentures but instead be used only in clearly indicated cases otherwise may camouflage the negative effects and result in adverse tissue changes and increased residual bone resorption of the underlying denture bearing area.[8, 21]

There is a slowly mounting evidence now to show that these products can be beneficial as part of denture care. With appropriate information and instruction, DA can be used in certain cases, to improve denture retention and stability, without causing detrimental effects on the mucosa.[8,16,25-27] These products may be used by xerostomia patients, provided they are taking salivary substitutes as saliva is a crucial factor in the effective mechanism of action of DA.[21]

It is not advisable to use DA with immediate dentures as the adhesive may get pushed into the site of extraction and result in disturbing the process of clot formation.[21] Also, it could cause firm adherence to underlying 'wound' area and sutures, thus making the removal of dentures traumatic. This could even affect the hygiene of the dentures[10].

CONCLUSION

It is concluded from our results, that despite DA being known worldwide, there is still not much awareness regarding their use in Malaysia. This could be due the clinician's perspective that prescribing DA depicts their failure to make a good fitting denture. Although, DA are of importance but a common disadvantage associated with their use is the danger of extending the shelf life of a poorly fitting denture. Thus, keeping in mind the appropriate indications for DA, their usage could be considered in denture wearers.

Questionnaire for Pharmacy survey

A) Name of the Pharmacy — Location

B) Brand Available — Composition

C) Frequency of sale (Approx.Range) — Per day

Per month

D) Most popular in your view

Brand Name:

Form: (Cream/powder/cushion)

E) Do you have detailed Pamphlet with each product

F) i)Why do customers only buy this type?

ii)Why not the other types?

iii)Are you aware of any herbal / local / homemade remedy for adhesive?

Questionaire for Patient Survey

1) Do you use adhesive? — Sex:

Yes / No/Why — Race:

2) What brand do you commonly use?

What Form?

Cream/Powder/Cushion

3) Are you satisfied with your denture fit after using adhesive?

Yes/No

If not, why?

4) Are you comfortable using an adhesive?

Your comments regarding:

Taste

Irritation / allergy

Smell

Ease of removal

5) How often per day do you need to replace the adhesive?

6) Are you aware of any herbal/local preparation?

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