INTRODUCTION

The loss of remaining teeth could be a disturbing emotional experience for many people. Some people always associate the loss of teeth with growing old, which may be emotionally depressing. However, it has been pointed out that the retention of some teeth as overdenture abutments prevents this negative feeling of total loss and allows the patient to adjust more easily to the acceptance of denture wearing.

Apart from anecdotal reports there is very little evidence to support this hypothesis. The only study is by Toolson and Smith, using a patient satisfaction (PDS) questionnaire developed by Guckes et al. in all their recall appointments over a period of five years. No significant changes in satisfaction are found in their population at two years of overdenture wearing or after five years.

Additionally, the impact of oral disorders and interventions on an individual's perceived oral health state and oral-health-related quality of life (OHRQoL) is increasingly recognized as an important component of health. Demands for prosthodontic treatments are expected to rise in developed countries, due to a rapid increase in their elderly population. Because various treatment options to replace missing teeth exist, the choice of treatment option needs to take the multidimensional nature of health and the option's possible outcomes into consideration. Since the limitations of the “biomedical” paradigm of health have been recognized, and the importance of quality of life in elderly persons has been emphasized, Allen declared that it is clearly need to understand the impact of therapeutic intervention on OHRQoL, which is impaired due to tooth loss.

Several OHRQoL instruments have been used to assess the impact of prosthodontic treatments. These OHRQoL instruments have been shown to work well in describing the impact of edentulism and of treatment on several domains. However, these studies investigated edentulous individuals or those with implant-supported dentures exclusively, and little is known about OHRQoL in partially edentulous individuals who use removable partial dentures (RPDs). Because of the higher cost of treatment with, and lack of insurance

A COMPARISON OF PATIENT SATISFACTION AND DENTIST EVALUATION OF REMOVABLE PARTIAL DENTURES THERAPY AMONG SAUDI FEMALE PATIENTS

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OBJECTIVE: This study set out to evaluate the satisfaction for a group of patients were with some independent variables and criteria of conventional Removable Partial Dentures (RPDS) and to compare their subjective evaluations with those of a dentist using objective criteria to examine the quality of the prostheses.

METHODOLOGY: A questionnaire was developed into three sections using questions adapted from previous studies. The first part included the personal data, medical history, denture experience, age of prosthesis, opposing denture, and Kennedy classification. The second part had questions related to patient satisfaction, and the third part had a criteria to be evaluated by the dentist.

RESULTS: Sixty-one (61) female patients who received ninety four (94) new RPDS in the college of Dentistry, KSU were recalled. The mean age of the patients was 45.4 years with an age ranged from 22 to 65 years. Results showed that 85% of patients were satisfied with their dentures. However, 50.8% of patients appeared unhappy about food remains under RPDs. A significant relationship between patient satisfaction and the quality of the removable partial dentures that were evaluated by the dentist for retention, stability, extension and occlusion (P ranged from 0.000 to 0.026), except for oral hygiene, where the patient's satisfaction was non-significant (P= 0.609).

CONCLUSION: There was a significant patient's satisfaction with the age of prosthesis (n ranged from 50% to 89.1%, P= 0.010). On the contrary, non-significant association was found in regard to patient’s age, medical history, experience, opposing dentition, and Kennedy classification and location (P ranged from 0.092 to 0.940), although there were high percentages of patient's satisfaction (n ranged from 75% to 100%).

KEY WORDS: Dentist evaluation, Patient's satisfaction, Removable partial denture quality, Saudi female patients.

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coverage for, dental implants, RPDs continue to be widely provided as a treatment option for replacing missing teeth. A review of a US database indicated that, in spite of a decline in tooth loss, RPDs are still used in all age cohorts, including young adults. However, an analysis of RPDs showed that the quality of RPDs is not consistent, and that two-thirds of the investigated RPDs had defects of various types.

On the contrary, satisfaction of patients with removable partial denture (RPD) therapy has become an increasingly important factor in prosthetic treatment. A number of studies have reported on the relationship between RPDs and patient’s satisfaction with their dentures quality. The results of these investigations are to some extent contradictory.

Therefore, the purpose of this study was to evaluate how satisfied a group of Saudi female patients were with some variables and criteria of the conventional removable partial dentures (RPDs), and to compare their subjective evaluations with those of a dentist using objective criteria to examine the prostheses.

METHODOLOGY

The present study was carried out at the department of Prosthetic Dental Science, College of Dentistry, King Saud University (KSU). A total of 150 Saudi female patients ranged from 22 to 65 years of age, with a mean of 45.44 years and who received conventional RPDs (CO-RPDs) for a period ranged from less than one year to more than one year, were selected for this study from the records of the College. The patients were treated by prosthodontist and undergraduate dental students supervised by experienced prosthodontist. The subjects were contacted by telephone for interviewing, after obtaining the approval from the college of dentistry research centre (CDRC) Ethical sub-committee (1596/2009). Of the 150 patients, only 61 (40.7%) were responded for this study.

A modified questionnaire was designed after Ettinger and Jakobsen and Zani et al. The questionnaire was developed into three main parts; the first part was concerned with the personal data, medical history, dentures experience, age of the prosthesis, opposing dentition, and Kennedy classification (Table 1). The second part included questions about some denture characteristics, for example, about overall satisfaction, appearance, retention, comfort, ability to speech and chew, food under RPDs, discomfort, cleaning, and wearing time, while the third part was concerned with some criteria to be evaluated by the dentist such as retention, stability, extension, occlusion, and oral hygiene (OH).

Retention:

evaluate the quality of the denture to resist the vertical forces of dislodgment, fingers placed on the direct retainers (clasps) to dislodge the denture.

Stability:

Evaluate the quality of the denture to be firm when tissue word forces applied, fingers placed on denture teeth and assist the stability of the denture to the supporting ridge.

Extensions:

A visual inspection of the dentures bases in and out the mouth, to cover the anatomical landmarks properly and no under or overextension.

Occlusion:

Intraoral evaluation for maximum intercuspation without occlusal interferences between the teeth.

Oral hygiene (OH):

A visual inspection for the RPDs in and out the mouth for food debris on or under the denture bases. A scale of ranging from 1 to 5 used to assess general satisfaction with RPDs (1 = unsatisfactory, 5 = excellent).

The relationship between the independent variables and satisfaction was analyzed by means of chi square test and Pearson's correlation coefficient using the Statistical Package for the Social Science (SPSS Inc., Chicago, IL, USA, 1999). In all statistical tests a significance level of 0.05 was chosen.

RESULTS

A total of 61 Saudi female patients obeying the inclusion criteria were referred in the period of study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total number of patients (n)</th>
<th>Satisfaction percentage (%) and (number of patients)</th>
<th>Unsatatisfaction percentage (%) and (number of patients)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>22</td>
<td>91.4% (32)</td>
<td>8.6% (3)</td>
<td>0.114</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>76.9% (20)</td>
<td>23.1% (6)</td>
<td></td>
</tr>
<tr>
<td>Medical history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>21</td>
<td>85.1% (18)</td>
<td>14.9% (3)</td>
<td>0.940</td>
</tr>
<tr>
<td>Not Present</td>
<td>40</td>
<td>80.5% (34)</td>
<td>15% (6)</td>
<td></td>
</tr>
<tr>
<td>First experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40</td>
<td>85.0% (34)</td>
<td>15.0% (6)</td>
<td>0.092</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>88.0% (18)</td>
<td>11.9% (3)</td>
<td></td>
</tr>
<tr>
<td>Age of prosthesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>6</td>
<td>50.0% (3)</td>
<td>50.0% (3)</td>
<td>0.010</td>
</tr>
<tr>
<td>1+ years</td>
<td>55</td>
<td>89.1% (49)</td>
<td>10.9% (6)</td>
<td></td>
</tr>
<tr>
<td>Opposing dentition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural dentition</td>
<td>13</td>
<td>92.3% (12)</td>
<td>7.7% (1)</td>
<td>0.353</td>
</tr>
<tr>
<td>RPD</td>
<td>38</td>
<td>84.2% (32)</td>
<td>15.8% (6)</td>
<td></td>
</tr>
<tr>
<td>CD</td>
<td>5</td>
<td>100.0% (5)</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Table 1- Correlation between patient's satisfaction and some independent variables

1Significant value (P < 0.05). 2RPD= removable partial denture; CD= complete denture; 4FPD= fixed partial denture.
Table 1 shows the correlation between patient's satisfaction and some independent variables. As regards, there was no significant relation between patient's satisfaction with RPDs and the age range surveyed, where 32 (91.4%) out of 35 patients were satisfied for the age ≥ 22 years, while 20 (76.9%) out of 26 patients were satisfactory for the age ≤ 65 years (P = 0.114). The number of patients who had a medical history and satisfied with RPDs was 18 (85.1%) out of 21 patients, while those with no medical history were 34 (85.0%) out of 40 patients (P = 0.940).

In addition, the number of patients who showed the first experience and satisfaction with RPDs was also not significant (n = 34; 85.0%) out of 40 patients; P = 0.092), compared to 18 (88.0%) out of 21 patients who showed previous experience. However, patients who received a prosthesis for more than one year demonstrated a significant satisfaction with RPDs (n = 49; 89.1%) out of 55 patients (P = 0.01) in comparison with only 3 (50.0%) patients who had a prosthesis for one year or less. Moreover, 12 (92.3%) out of 13 patients with opposing natural dentition were satisfactory with RPDs, compared to 32 (84.2%) out of 38 patients having opposing RPDs and 100% (5 patients) and 60% (3 out of 5 patients) of those patients having complete denture (CD) and fixed partial denture (FPD), respectively (P = 0.353). According to Kennedy classification and location, the number of patients who showed satisfaction with their maxillary RPDs (class I, II, and III) was 11 (91.7%) out of 12, 16 (80.0%) out of 20, and 15 (88.2%) out of 17 patients, respectively, compared to 12 (75.0%) out of 16, 15 (93.8%) out of 16, and 10 (83.3%) out of 12 patients, respectively, for those with mandibular RPDs (P = 0.506). In addition, a single patient (100%) was fully satisfied with her mandibular RPD (class IV).

characteristics, there was a high satisfaction of patients with the majority of RPDs characteristics examined (the distribution percentage ranged from 72.1% to 91.8%), with an overall satisfaction percentage of 85.2% (52 out of the 61 patients). The only exception scored in this context was concerned with the food under RPDs character, where 49.2% (30 patients) were satisfied, compared to 50.8% (31 patients) who showed unsatisfactory with their RPDs. However, there was a high satisfaction percentage with some RPDs criteria evaluated by the dentist (Table 3), where the distribution percentage ranged from 83.6% (n = 51 out of the 61 patients) to 95.1% (n = 58 out of 61 patients). The highest dentist satisfaction percentage was concerned with RPDs extension, while the lowest percentage was related to oral hygiene (OH). In between, 56 (91.8%) out of 61 patients were satisfactory with RPDs occlusion, compared to only 54 patients (88.5%) for both retention and stability.

Table 3- Distribution percentage of dentist satisfaction with denture evaluation

Table 4- Correlation analysis between patient and dentist evaluation of RPD

In addition, Table 4 shows the correlation analysis between patient's and dentist satisfaction related to patients and dentist evaluation of some RPDs criteria. As regards, there was a significant relation (P ranged from 0.000 to 0.026) between patient's satisfaction and RPDs criteria evaluated by the dentist, except for oral hygiene where the relation was not significant (P = 0.609). About RPD's retention and stability, the dentist evaluation showed that 54 (88.5%) out of the 61 patients were
satisfactory, while 7 (11.5%) only were unsatisfactory. Of the 54 patients evaluated as satisfactory by the dentist, 48 (88.9%) patients were satisfactory and 6 (11.1%) were unsatisfactory based upon patient’s evaluation. For RPD's extension, the dentist evaluation was that 58 (95.1%) patients were satisfactory and only 3 (4.9%) were unsatisfactory, compared to 56 (91.8%) and 5 (8.2%), respectively, for occlusion and 51 (83.6%) and 10 (16.4%), respectively, for oral hygiene. However, for extension 51 (87.9%) out of the 58 patients were satisfied depending on patient’s evaluation, compared to 51 (91.1%) out of the 56 for occlusion and 44 (86.3%) out of the 51 patients for oral hygiene.

Nevertheless, based on patient's evaluation 7 (12.1%) out of the 58 patients were unsatisfied for RPD's extension, compared to 5 (5.9%) out of the 56 patients and 7 (13.7%) out of the 51 for RPD's occlusion and oral hygiene, respectively.

**DISCUSSION**

It is noteworthy to mention that the results of this study cannot be generalized to all of the Saudi female's population because of the limitation of the type and size of the samples surveyed. However, it can give an insight onto RPDs patients' satisfaction treated in an academic setting. It should be noted that the treated patient sample by a non-experienced prosthodontist and undergraduate dental students may not necessarily apply to other government institutions or to private dental practice due to variations in patient's population, quality control and treatment planning criteria.

The results of this study revealed that there were no statistically significant association \((P>0.05)\) between patient's satisfaction and some RPDs variables such as patient's age, medical history, and denture experience, although there was apparent patient's satisfaction with RPDs usage based on patient's age, medical history and experience. Non-significant association between patient's satisfaction and age are recorded by Akeel \(^{35}\) (2009). Nevertheless, Ettinger and Jakobsen \(^{48}\) (1997) declared that at the end of 9 months of RPDs perception in patients with an age ranged from 35 to 88 years, 94.1% are satisfied depending on the wearing time. In regard to previous denture experience, Frank et al. \(^{45}\) (1998) expected that patients with previous denture experience would tolerate the RPDs better than no experienced patients. In the present study, denture experience did not show significant association with patient's RPDs usage, although 85.0% of patients were satisfied. Similar results were reported by Akeel \(^{44,35}\) (2009, 2010) and Zlataric et al. \(^{46}\) (2003).

Similarly, no significant association was found in relation to opposing dentition, even thought there were a high RPDs patient's satisfaction when they are opposed either by natural teeth, complete dentures (CD) or fixed partial denture (FPD). This is in agreement with the findings of Frank et al. \(^{45}\) but inconsistent with the results of Akeel \(^{35}\) who pointed out that there is more RPDs rejection when they are opposed by natural teeth or complete dentures. In addition, Akeel \(^{35}\) mentioned that patients treated by RPDs in each jaw showed less RPDs rejection than patients treated by a single RPD in one jaw and there is no obvious explanation for this observation. Moreover, non-significant relation was recognized based upon Kennedy classification and location \((P=0.616\) for maxillary arch and 0.506 for mandibular arch). This is consistent with Van Waas et al. \(^{42}\), Frank et al. \(^{45}\), Yeung et al. \(^{42}\) and Akeel \(^{35}\).

On the contrary, a significant association was only found with respect to the age of prosthesis \((P=0.010)\). This suggests that patient's satisfaction with their RPDs use gradually increases as the age of prosthesis increases. The patients surveyed in this study were interviewed at least one year or less after RPDs insertion which is considered a short period. Nonetheless, over three-fourth \((78.7\%)\) of the interviewed patients were satisfied, while under one-fourth \((21.3\%)\) were dissatisfied with their RPDs depending on the wearing time. This is considered a high rate of RPDs rejection, compared to more than 50% reported by Cosme et al. \(^{36}\) after five years of RPDs service, 17.3% by Akeel \(^{35}\) and 24% by Wetherell and Smales \(^{47}\) for a year follow up period and 11% reported by Cowan et al. \(^{44}\) for two years after insertion. However, in the latter study, one-third of the sample could not be contacted, which could cause underestimation of dissatisfied patients. Other investigators have reported a higher rate of RPDs non-use than this study but after longer follow-up periods. Yeung et al. \(^{42}\) found that the average period of RPDs usage was 12 months for the unsatisfied patients. Accordingly, Akeel \(^{35}\) reported that it is expected that more patients will discard their RPDs after longer follow-up periods.

Regarding the association between patient’s satisfaction and evaluation of some dentures criteria, high patient’s satisfaction percentages were recorded in respect of the overall satisfaction, appearance, retention, comfort, ability to speech and chew, discomfort, cleaning, and wearing time. However, a low percentage of satisfaction was scored only in relation to food remains under RPDs. Akeel \(^{35}\) mentioned that he could not determine the main causes of dissatisfaction of patients, whether due to denture or patient factors, with their dentures, although there is an apparent correlation between dentures quality and satisfaction. However, Akeel \(^{35}\) reported that the main reasons are due to the pain and discomfort and this is in accordance with the results of Yeung et al. \(^{42}\) (2002) as well as Koyama et al. \(^{47}\) (2008) who have shown that pain was among the few factors significantly related to RPDs patients' satisfaction.
Concerning the correlation between patient's satisfaction and dentist evaluation of some RPDs criteria, unfortunately, very few studies are dealt with evaluating this association (Inukai et al. 2008). In this study dentist evaluation showed that 95.1% of patients satisfied with RPDs' extension compared to 91.8% for occlusion, 88.5% for both of retention and stability and 83.6% for oral hygiene. Nonetheless, there was a significant correlation (P value ranged from 0.000 to 0.026) between patient's satisfaction and dentist's evaluation of RPD's criteria, particularly retention, stability, extension, and occlusion. On the contrary, there was non-significant correlation for oral hygiene (P> 0.05). Similar results are reported by both Cosme et al. and Ettinger and Jakobsen. based upon evaluation by the patient and by the clinician. Cosme et al. (2006) mentioned that more than 50% of patients classified their RPDs as excellent regarding retention, mastication, esthetics, comfort, and hygiene. Nevertheless, in the professional evaluation, retention and stability are considered excellent in more than 66% of cases, and hygiene of teeth and prostheses is considered good in 52% and 46%, respectively. Furthermore, retention and mastication/comfort evaluated by the patient have moderate positive correlation with retention and stability measured by the clinician. Therefore, they concluded that there is no association of hygiene evaluation by the patient and by the clinician. Additionally, Ettinger and Jakobsen (2006) described that the most frequent complaints are the loss of retention (65.4%) and discomfort (62.2%) of the mandibular dentures. The best predictor of patient satisfaction with denture wearing, however, is the patient's perception of retention and appearance. In the maxilla the patient's ability to chew and the dentist's evaluation of occlusion are also significant predictors. Similarly, Hassel et al. (2007) and Inukai (2008) investigated the relationship between oral-health-related quality of life (OHRQoL) and RPDs quality, they found statistically significant correlation between Oral Health Impact Profile-Japanese version (OHIP-J) summary scores' correlation with self-ratings of denture-quality-related RPD characteristics (chewing function, esthetics, speech, retention, and fit) in 55- to 75-year-old individuals.

In conclusion, the present study was the best of the very few studies concerned with investigating the association between patient's and dentist's evaluation of RPDs for Saudi patients. Results showed significant relationships between patient satisfaction and the quality of the removable partial dentures that were evaluated by the dentist. This underlines the importance of high technical quality as a cornerstone for prosthetic dentistry.

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