

# Satisfaction with Dental Implants: A Literature Review

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Dentists and patients have been seeking the optimum treatment outcome following the replacement of missing teeth. Dentists have worked to achieve this target using different treatment protocols, including conventional removable prostheses, overdentures, and fixed prostheses. Accordingly, patients have provided their dentists with feedback regarding their perception of the type of supplied treatment. This kind of relationship has helped both the clinicians and patients in their attempts to achieve the best form of prosthetic outcomes.

One of the treatment options for edentulous individuals is the conventional complete denture. According to Zarb,<sup>1</sup> the successful use of complete dentures is a demanding procedure for both the dentist, who should have clinical skill, and the patient, who must learn to control the dentures. Some studies reported that a number of denture wearers were dissatisfied with their complete dentures regardless of how clinically perfect they were.<sup>2,3</sup>

The new era of dental implants in clinical practice emerged and gained credit to satisfy the patient's needs in terms of comfort, aesthetics, prosthesis stability and retention, phonetics, and masticatory performance. A question may occur: "Why dental implants in particular?" The rationale behind this approach reflects why many pa-

*Recent years have witnessed a consistent trend toward the introduction of patient assessment of different treatment outcomes in dental practice. Patient satisfaction with dental implants was considered among these treatment modalities. Few literature reviews have been published on this topic. This article critically analyzes the concerned topics related to patient satisfaction with dental implant. A MEDLINE*

*search was completed from 1983 to 2004, along with a manual search, to locate related articles on the topic. Dental implants provided promising and predictable results regarding patient satisfaction and various aspects of life assessment. (Implant Dent 2005;14:399–408)*  
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tients do seek such kind of treatment modality.

The major interest in implant research has been investigated on the basis of success and failure from a biologic point of view, while relatively little has been focused on prosthodontic factors and patient perception and evaluation of the treatment outcome.<sup>4,5</sup> This article reviews the literature on patient satisfaction with dental implants to clarify many aspects related to this topic. Emphasis will be focused on why dental implants emerged in the dental field, the effect of various treatment designs on patient satisfaction with dental implants, and the influence of individual factors on satisfaction with dental implants.

## WHY DENTAL IMPLANTS EMERGED IN THE DENTAL FIELD

Weaver *et al*<sup>6</sup> mentioned, "Patient satisfaction with therapy is likely to be the distinguishing outcome of many treatments for chronic diseases for which living with treatment is a more realistic objective than cure." Patients are more interested in enjoying suit-

able levels of comfort, aesthetics, and function; the factors that are difficult for the practitioners to measure.<sup>7-9</sup> To satisfy the patient, clinicians have to administer a treatment paradigm that is clinically achievable, while at the same time acceptable by the patient. Subsequently, dental implants were introduced in the late 1960s as well as 1970s as a treatment option for edentulous patients who had difficulties with wearing conventional complete dentures.<sup>10-14</sup> In addition, patients were significantly more satisfied with the implant-supported prosthodontic treatments in terms of comfort, stability, and aesthetics when compared with conventional dentures.<sup>15-17</sup>

Patients considered implant-supported prostheses an integral part of their body that clearly enhanced their daily lives.<sup>10</sup> Indeed, significant improvements were not only attributed to the teeth but also conveyed to the mouth, face, and overall self-image.<sup>11</sup> It is evident from this discussion that dental implants do improve the quality of a patient's life. The following sections will address the various treatment designs of oral implants and their association with a patient's satisfaction.

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## PATIENT SATISFACTION WITH IMPLANT-ANCHORED OVERDENTURE

It is understandable that a patient's satisfaction with dentures is affected by various factors, including denture quality, the available denture bearing area, the quality of dentist-patient interaction, previous experience with dentures, patient's personality, and psychologic well-being.<sup>18</sup> Patient satisfaction with implant-supported mandibular overdentures was the subject for research in many previous studies.<sup>9,11,15-17,19-38</sup> Most of these studies revealed that a mandibular implant retained overdenture significantly enhanced overall patient satisfaction. However, Kapur *et al*<sup>32</sup> found no differences in satisfaction when conventional and implant retained prostheses were compared. This finding could be because of the fact that the study populations had a debilitating disease (*i.e.*, diabetes).<sup>38</sup> Similarly, a randomized clinical study<sup>39</sup> found that limited benefits could be gained from implant-supported prostheses regarding chewing ability.

Grogono *et al*<sup>19</sup> performed a retrospective study on patients who received implant-supported prostheses for nearly 2 years, and showed that patients' attitudes toward their dental health was enhanced. In a similar study, Clancy *et al*<sup>21</sup> reported that most patients were significantly satisfied with the provided treatment. Accordingly, Cune *et al*<sup>26</sup> showed high levels of satisfaction after implant treatment and a favorable modality outcome.

In a crossover experimental design, Burns *et al*<sup>27</sup> performed a prospective clinical study on patients with existing complete dentures that were modified into implant-supported overdentures using different attachment systems. It was concluded that patient satisfaction was significantly improved following the transformation of the conventional dentures into implant-supported overdentures.

In a controlled clinical trial, Boerigter *et al*<sup>29</sup> investigated 90 patients who were randomly assigned into 3 groups: implant retained overdenture, preprosthetic surgery modality, and

conventional complete denture. One year later, satisfaction assessment showed higher levels of satisfaction among patients from the dental implant group. Another randomized controlled study<sup>28</sup> showed that for patients with severely resorbed mandibular alveolar ridges, implant retained overdentures appeared to provide a more satisfactory solution for their conventional denture-related problems.

Similar findings were confirmed by Geertman *et al*<sup>40</sup> in their randomized clinical trial. Patients with severely resorbed ridges were divided into 2 groups, 1 of them treated with implant-retained overdenture, while the other was provided with conventional complete prostheses. A conclusion was drawn that after 1 year, the implant-retained overdenture group was satisfied with its new treatment, whereas only one third of those patients who received the conventional treatment modality were satisfied.

The previous studies faced problems with the study design that might reduce the assurance with their findings (*e.g.*, the use of retrospective ratings).<sup>19,21,27</sup> While, for the same previous studies, it was difficult to generalize the findings to the general population of the edentulous patients because the study subjects were having severe problems with their conventional dentures at assessment.<sup>28,29,40</sup> Patients treated with mandibular overdentures supported by 2 implants had higher satisfaction scores than patients with complete dentures.<sup>34</sup> This finding was revealed in another randomized trial, even with patients with complete dentures who had undergone preprosthetic surgery.<sup>35</sup>

Pera *et al*<sup>31</sup> investigated edentulous individuals who received 2 fixtures in the mandibular symphysis region and had their complete dentures transformed into an implant-anchored overdentures using ball attachments. A visual analog scale (VAS) was used to evaluate patient satisfaction with the rehabilitation. The degree of satisfaction was significantly higher following the implant treatment.

In their longitudinal clinical trial, Allen and McMillan<sup>37</sup> investigated and compared the following groups: (1) patients who requested and received implants to retain a prosthesis,

(2) patients who requested implant treatment but received conventional prostheses, (3) edentulous patients who requested the replacement of their old dentures with conventional ones, and (4) dentate subjects who needed a routine checkup. The data were collected both before and after treatment using a validated Oral Health Impact Profile,<sup>41</sup> the 36-item short form health survey health status measures,<sup>42</sup> and a satisfaction VAS.<sup>16,25</sup> After 3 years, patients who received implant-supported overdentures had significant improvement in satisfaction.

Awad *et al*<sup>38</sup> performed a randomized controlled trial to assess patient satisfactions after receiving either a mandibular conventional denture or an overdenture retained by 2 dental implants. Patient ratings were recorded on 100-mm VAS, and it was found that the 2-implant-supported overdenture provided the edentulous patients with a more satisfactory therapeutic paradigm than conventional dentures.

Hedydecke *et al*<sup>43</sup> conducted a study on patients who randomly received both mandibular overdentures supported by 2 implants and conventional mandibular complete dentures. The patients, as well as the treating prosthodontists, were asked to score their general satisfaction with the provided treatment, as well as their satisfaction with stability, speech, and aesthetics before and after treatment. The investigators reported that patients and treating clinicians scored higher levels of satisfaction with implant-supported prostheses than the conventional ones. Furthermore, they found no significant relationship between clinician and patient ratings.

The literature showed no positive effect of the type of attachments on patient satisfaction with implant-supported overdentures. Burns *et al*<sup>27</sup> suggested no difference in patient satisfaction with mandibular implant-supported overdentures when 2 types of attachments (*i.e.*, magnets and O-rings) were used. In addition, Wismeijer *et al*<sup>23</sup> reported no difference in the levels of patient satisfaction with either ball or bar attachments when they were used to anchor the implant-supported overdentures. Similarly, in a randomized study, Naert *et al*<sup>33</sup> assessed patient satisfaction 5 years fol-

lowing the provision of overdentures that were anchored to implants *via* 3 different attachment systems and found similar levels of satisfaction regardless of the type of the attachment used. Accordingly, Ambard *et al*<sup>44</sup> reported a similar conclusion when they compared direct ERA (Sterngold, Attleboro, MA) attachments and Hader bars that were used to anchor implant-supported overdentures.

### **SATISFACTION WITH FIXED PARTIAL DENTURES SUPPORTED BY DENTAL IMPLANTS**

Most studies that focused on implant-supported fixed partial dentures showed results that were favorable in terms of overall satisfaction with the treatment.<sup>11-12,19,45-47</sup> Blomberg and Lindquist<sup>45</sup> surveyed patients who received implant-supported fixed partial dentures and patients with traditional complete dentures. The patients in the implant treatment group considered the prostheses as part of their body, while many of those who received conventional prostheses did not. Albrektsson *et al*<sup>46</sup> reported similar positive findings in their retrospective study.

Hoogstraten and Lamers<sup>47</sup> assessed satisfaction in patients who received implant fixed partial dentures that were supplied to replace complete conventional dentures. Satisfaction with conventional prostheses was assessed retrospectively, while satisfaction with implant treatment was reported for 2 years after placement. It was found that patients were more satisfied with implant treatment than dentures. Tavares *et al*<sup>12</sup> studied patient satisfaction following the provision of fixed implant-supported prostheses and found that most patients were very or moderately satisfied with their implant treatment.

In patients who lost all molars, Yi *et al*<sup>48</sup> showed that patients preferred implant-supported prostheses over other options, such as no prosthodontic treatment, a fixed partial denture with bilateral cantilever design, and a conventional removable partial denture. Such patients were very satisfied with the implant treatment.

### **FIXED VERSUS REMOVABLE IMPLANT-SUPPORTED PROSTHESIS**

The literature showed contradictory findings regarding the differences between fixed and removable implant-supported prostheses in terms of patient general satisfaction with the provided treatment modalities. Feine *et al*<sup>16</sup> conducted a study to compare fixed implant prostheses with a long-bar, removable, implant-anchored mandibular prosthesis. The investigators used the VAS, and reported that 50% of the patients chose the removable design because of the ease of cleaning and aesthetics, while those who chose the fixed treatment option rated stability and ability to chew most important. Older subjects (>50 years) had a trend to choose the removable option.

de Grandmont *et al*<sup>15</sup> compared psychometric and functional measurements of edentulous patients who wore both a fixed implant prosthesis and a long-bar implant-supported overdenture, and they reported contradictory opinions to those reported in the aforementioned study. Although the patients found the fixed implant-supported prostheses more effective for chewing harder foods, there was no difference in general satisfaction. A similar finding was advocated by Zitzmann and Marinello<sup>49</sup> in a prospective clinical study that compared the treatment outcomes of fixed and removable implant-supported dentures in the edentulous maxilla. Patient ratings were recorded using the VAS, and patients in both groups were satisfied with their implant treatment, regardless of whether the denture was fixed or removable.

Using electromyographic recordings in completely edentulous patients, Feine *et al*<sup>25</sup> compared the efficiency of the function of fixed and removable implant-supported prostheses, and found no difference between the 2 treatment modalities. Heydecke *et al*<sup>50</sup> conducted a study to compare maxillary implant-retained fixed prostheses with removable implant-supported overdentures opposed by mandibular implant-supported overdentures. After 2 months, the prostheses were exchanged, and the second one was also allowed to function for 2 months. Psychometric parameters

of comfort, phonetics, stability, aesthetics, ease of cleaning, and occlusion were then measured. Heydecke *et al*<sup>50</sup> suggested that long-bar overdentures seemed to provide the patients with better speech function and were easier to clean than the fixed counterpart.

### **IMPLANT-SUPPORTED PROSTHESIS AND RESIN-BONDED FIXED PROSTHESIS**

It is understandable that the advantage of resin bonded fixed prostheses lies in the presence of relatively minimal abutment tooth reduction.<sup>51</sup> The literature lacks studies that can show the differences in the quality of life and general satisfaction when the bounded edentulous spaces are restored using either implant retained prostheses or resin bonded fixed prostheses. To our knowledge, only 1 investigation was performed to explore this issue and was conducted by Sonoyama *et al*.<sup>52</sup> These investigators conducted a cross-sectional pilot study based on 2 groups, the first one consisted of 11 patients treated with implant-retained fixed prostheses, and the other included 33 patients treated with resin bonded prostheses. A quality of life questionnaire with 2 major subscales, oral condition and general condition, was used. It was concluded that there were no significant differences in the quality of life between the treatment groups. However, the outcomes of the previous study do not represent the general population because of the cross-sectional study design that could not establish the temporal relationship between the treatment modality and its outcomes.

### **IMPACT OF DENTAL IMPLANT ON QUALITY OF LIFE**

Many researchers assessed the quality of life in patients treated with implant-supported prostheses.<sup>9,16,17,29,31,32,37,38,40,48,50,51-69</sup> In reported studies,<sup>15,16,25</sup> the psychometric methods used to evaluate the quality of life variables (*i.e.*, phonetics, aesthetics, and ability to perform chewing cycle) were VAS and category scales. Implant-retained prostheses substantially enhance the quality of life and self-confidence of the individuals by enhancing their masticatory ability.<sup>53</sup>



Many investigators<sup>66-68</sup> advocated that oral function was significantly improved after implant placement in the edentulous patients. Abu Hantash<sup>69</sup> conducted a study using the Dental Impact on Daily Living test, and he found that implant-supported prostheses provided patients with enhanced quality of life in terms of appearance, pain, oral comfort, general performance, and chewing ability. Boerrigter *et al*<sup>29</sup> speculated that after 1 year, chewing ability was most favorable in the implant-treated group when compared with the conventional complete denture and preprosthetic surgery group. In their study, they used a validated self-administered questionnaire consisting of specific features related to aesthetics, retention, functional comfort, and chewing performance. Similar findings were achieved in a randomized clinical trial by Geertman *et al*,<sup>40</sup> who assessed the chewing ability using a questionnaire measured on a 3-point scale and revealed distinct treatment benefit after the placement of implant-supported prostheses.

In a study surveying patient satisfaction after implant therapy, implant-supported rehabilitations were clearly superior to conventional removable prostheses in terms of aesthetics, chewing ability, and phonetics.<sup>55</sup> Cibirka *et al*<sup>9</sup> reported improvement in the quality of life experienced by their patients after dental implant treatment. This prospective evaluation of subjective patient responses was performed using 2 health-related quality of life questionnaires: one dealing with patient feelings toward their conventional complete prostheses, and the other dealing with implant treatment. The first questionnaire was administered before implant treatment, while the second was used within 1 year after completion of prosthetic rehabilitation. A significant improvement in comfort, function, aesthetics, self-image, and dental health was reported. This result led the investigators<sup>9</sup> to postulate that dental implant therapy might have allowed patients to reduce their anxiety related to conventional prostheses, while improving the personal behavior and psychosocial interactions.

It is noteworthy that some functional aspects of the prosthesis might

affect general satisfaction with the treatment. Awad and Feine<sup>17</sup> suggested that among the functional aspects studied, chewing and speech ability contributed positively to general satisfaction with implant treatment. Perra *et al*<sup>31</sup> suggested an opposite opinion because they found that the degree of satisfaction was not associated with the masticatory efficacy or oral function. Still, masticatory performance increased significantly when implants were provided to support the prostheses.

Kuboki *et al*<sup>56</sup> compared the quality of life among 3 groups of patients: implant-supported prostheses group, removable partial prostheses, and no restoration group. Quality of life was assessed using a self-administered questionnaire based on quality of life questionnaires (*i.e.*, Oral Health Impact Profile,<sup>42</sup> Nottingham Health Profile,<sup>70</sup> and Arthritis Impact Profile<sup>71</sup>). Results showed that the level of oral condition related quality of life was significantly higher in patients with implant-supported prostheses than the other 2 study groups. This study failed to show the causal relationship from the data collected in this cross-sectional time, which was based on a relatively small sample size.

In this context, Allen *et al*<sup>57</sup> compared the validity of the Oral Health Impact Profile with the 36-item short form health survey questionnaire (a short form generic health status measure). It was advocated that the Oral Health Impact Profile had good validity, including criterion, concurrent, and predictive validity. However, a randomized clinical investigation<sup>39</sup> was performed to compare the benefits obtained by patients with diabetes who received conventional dentures and implant-supported overdentures. The study showed surprising findings that "limited advantages," in terms of the perceived chewing performance, chewing comfort, and food selection, were gained from implant-retained prostheses when compared with conventional prostheses. Such findings did not confirm the previous studies. According to Kapur *et al*,<sup>39</sup> these findings might be related to the design of the previous studies that depended on a homogenous population or because of the fact that most previous studies

used categoric scales to rate a long list of variables pertaining to assessments of maxillary and mandibular dentures independently and combined them later to some common measures for treatment comparisons, although this study included a list of outcomes resulting from the functioning of both dentures together. Thus, meticulous case selection criteria are still needed to integrate such conclusions.

Bouma *et al*<sup>54</sup> attempted a randomized clinical trial to compare quality of life among patients according to the treatment protocol. They studied 3 treatment protocols: conventional dentures, implant-supported overdentures, and preprosthetic surgery. Groningen Activity Restriction Scale-Dentistry was used to assess the impact of the provided treatment. After 1 year, the researchers found no significant differences in quality of life between the treatment groups. However, the time lag between providing treatment and its assessment might account for such results, in addition to that, the questionable validity of the assessment measures.<sup>59</sup>

Awad *et al*<sup>59</sup> used the Oral Health Impact Profile to assess oral health-related quality of life of patients who received either mandibular implant-anchored prostheses or conventional dentures. After 2 months, the implant treatment group gained a better quality of life. Accordingly, in a retrospective Swedish survey,<sup>58</sup> long-term satisfaction measurements were rated 10 years after implant treatment. It was shown that 97% of the patients were generally satisfied with masticatory performance and speech ability, and were more self-confident.

Hamada *et al*<sup>60</sup> have shown that the replacement of old dentures with new dentures that were either conventional or implant-supported did not alter the patient's diet. Yi *et al*<sup>48</sup> used a questionnaire based on a VAS to assess mastication, phonetics, oral hygiene, aesthetics, and chewing comfort in patients who received implant-supported prosthesis. A control group of dentate patients was used, and both groups completed the questionnaire before the treatment and at 2-year follow-up. The results showed that all functional parameters in patients with implants were higher after as

compared to before treatment. The improvement was significant for mastication and chewing comfort, but it did not reach a significant level for aesthetics and speech facilities. Results also showed that patients with the implant-supported restorations had more difficulty performing oral hygiene procedures than those with only natural teeth. It should be considered that these findings could not be generalized as a result of the study design and short trial time.<sup>48</sup>

A prospective, comparative study performed by Stellingsma *et al*<sup>63</sup> tested 3 treatment paradigms to support an overdenture: transmandibular implant system, augmentation of the mandible followed by 4 endosseous implants, and insertion of 4 short endosseous implants. The psychosocial effects were assessed using the "Groningen Activity Restriction Scale-Dentistry" (University of Groningen, The Netherlands) and "Psychological well-being" questionnaires. The study showed that implant therapy had significant improvement in oral and social functioning. However, the 3 treatment modalities were not significantly different 1 year after treatment.

Allen and McMillan<sup>62</sup> speculated that patients who had problems with dentures and who received implant prostheses had improved chewing ability and food selection. However, a number of patients in their study who received implant prostheses did not alter their food selection. It was concluded that the provision of successful prosthetic rehabilitation did not necessarily end up with a satisfactory diet.

Subsequently, a longitudinal clinical trial was undertaken by Allen and McMillan<sup>37</sup> to compare the impact of the oral implant on the psychosocial well-being of subjects with problems related to their conventional prostheses. It was revealed that patients who received implant-retained prostheses had a profound improvement in health-related quality of life. In addition, subjects who wore implant-supported mandibular overdentures had significantly increased ease of chewing, stability, and comfort with their prostheses than patients with conventional prostheses<sup>38</sup> and better oral health quality of life.<sup>64</sup>

## THE INFLUENCE OF INDIVIDUAL FACTORS ON SATISFACTION WITH ORAL IMPLANTS

At first glance, what the public thinks about dental implants has clearly been neglected.<sup>65</sup> Do the personal factors seem to be crucial in the determination of the level of satisfaction with dental therapy? The following sections will provide the answer to this question, according to the literature.

### The Effect of Age and Gender

Müller *et al*<sup>53</sup> elucidated that oral implants were not linked to be age-dependent. This belief contrasts with Tepper *et al*,<sup>65</sup> who found that the acceptance rate of implant therapy differed considerably by gender (65% of the males vs 58% of the females) and age (75% of those younger than 30 years vs 51% of those older than 50 years). This study showed that males and younger age norms (younger than 30 years) were more satisfied than females and older aged individuals. Similarly, Awad and Feine<sup>17</sup> studied the effect of gender and age on the patient's general satisfaction with the prostheses. They conducted a randomized clinical trial on patients who were asked to rate their satisfaction using VAS and found that gender contributed significantly to the general satisfaction. In their study, females were significantly more satisfied with their treatment than males. However, Allen *et al*<sup>57</sup> did not find a significant association between the Oral Health Impact Profile score and gender, age, and denture wearing history. Similarly, Abu Hantash<sup>69</sup> did not find any relationship between age and gender, and patient satisfaction with dental implants.

### The Effect of Occupational Status and Socioeconomic Class

Berge<sup>72</sup> found that younger age, high educational level, high income, and urban residents correlated significantly with the readiness to undergo implant treatment. This finding agreed well with Tepper *et al*,<sup>65</sup> who showed that 55% of the patients with the lowest income were satisfied with implants, whereas 74% of those with the highest income were satisfied. Similarly, low socioeconomic level and

poor oral health were correlated with a lack of concern in implants.<sup>73-75</sup> Salonen<sup>76</sup> reported that despite having very poor function, only 15% of patients with dentures were interested in implant-supported prostheses. Regarding the rate of implant distribution among urban and rural areas, Tepper *et al*<sup>65</sup> showed that urban communities had more patients with dental implants than rural communities.

### The Cost of Implant Therapy

Previous studies<sup>74,77,78</sup> showed that approximately 30% of the surveyed Swedish, Japanese, and American patients reported that they rejected implants because of financial reasons. Tepper *et al*<sup>65</sup> showed that 61% of the Austrian participants were convinced that implants were only for the rich. However, cost was not a major problem for the patients in a German study.<sup>53</sup>

### Perception of Dental Implants: Patient Versus Observer Opinions

Many previous studies<sup>19,55,65,79</sup> showed very high satisfaction rates among patients who received dental implants. In their study, Grogono *et al*<sup>19</sup> reported that 97% of the patients with implants were satisfied. Other studies<sup>55,79</sup> showed that 90% to 93% of the patients with implants were happy with their implants and would request implant treatment again. Tepper *et al*<sup>65</sup> reported that among the patients with implants, 62% were very satisfied with their implants from an aesthetic point of view, and 51% were satisfied from a functional point of view. When the participants were asked about the satisfaction of other patients with implants they knew, such as family members, neighbors, or friends, 29% of the participants reported that the patients with implants they knew were very satisfied.

Previous studies<sup>65,78</sup> showed that actual satisfaction with dental implants after treatment was higher than perceived satisfaction before dental implants. Zimmer *et al*<sup>78</sup> reported that 10% of the interviewees without implants thought their friends with implants and relatives were satisfied. Tepper *et al*<sup>65</sup> concluded that satisfaction among patients with implants was significantly higher than satisfaction

rates perceived by them as to what they were informed about implants by others. This result might be attributable to the first impressions gathered during the immediate or prosthodontic treatment rather than the positive attitudes gained later, with the fully functional prostheses that the patients became used to. It might also be explained as related to the possible complications and problems associated with this kind of treatment modality.<sup>65</sup>

Eli *et al*<sup>80</sup> investigated the relationship between anxiety and pain perception under the effect of the surgical procedure in implant treatment. They reported a significant difference in the patient's anxieties and pain perception before and immediately after the surgical procedure. They suggested that the patient's anxieties could be used as a marker for the evaluation of the patient's pain.

## CONCLUSIONS

Patient perception of dental implant therapy is of paramount importance for the successful outcome of such treatment modality. Satisfaction and quality of life assessments are among the most critical factors that govern such success. After reviewing the literature, most of the related studies showed that dental implants provided promising and predictable results regarding patient satisfaction and various aspects of life assessment. However, the cause-effect relationship remains unclear, and some investigators failed to find any differences in terms of improved quality of life when conventional and implant-supported prostheses were compared. Therefore, case selection and reliable study designs are still needed to integrate and clarify this kind of relationship. Using invalid and unreliable tests to evaluate such aspects of patient satisfaction, as well as the time factor, may be the main reasons behind the contradiction in previous studies of satisfaction with dental implants.

Fixed prostheses and removable overdentures retained by dental implants do enhance patient satisfaction. However, determining the prosthodontic protocol that has a better impact on the quality of life and satisfaction is still considered to be a

controversial issue. Many factors might influence patient satisfaction with dental implants. These factors include age, gender, occupational status, and socioeconomic class. The literature lacks valid studies of the relationship between satisfaction and personality profiles, and their impact on the success of this treatment modality. Further evaluation and careful scientifically based evidence are required to explore the association of patient satisfaction and psychological aspects in implant-related treatment protocols.

## Disclosure

The authors claim to have no financial interest in any company or any of the products mentioned in this article.

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### *Zufriedenheit mit Zahnimplantaten: eine literarische Studie*

**ZUSAMMENFASSUNG:** In den vergangenen Jahren wurden zunehmend Beurteilungen durch Patienten zu den Ergebnissen verschiedener Behandlungsansätze durchgeführt und berücksichtigt. Hierzu gehört auch die Zufriedenheit der Patienten mit den eingesetzten Zahnimplantaten. Bislang gibt es nur wenige literarische Überblicksstudien zu diesem Thema. Der vorliegende Artikel setzt sich kritisch mit der Analyse der mit der Zufriedenheit der Patienten mit den eingesetzten Zahnimplantaten in Verbindung stehenden Themenschwerpunkten auseinander. Eine MEDLINE-Untersuchung wurde im Zeitraum von 1983 bis 2004 vollständig durchgeführt und wird zusätzlich von einer manuellen Suche unterstützt, um mit der Thematik in Verbindung stehende Artikel aufzufinden. Zahnimplantate warten mit viel versprechenden und zuverlässigen Ergebnissen bezüglich Patientenzufriedenheit und Beurteilung in verschiedensten Lebensbereichen auf.

**SCHLÜSSELWÖRTER:** Implantatgestützte Prothesen, Lebensqualität, Behandlungsergebnisse



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### ***La satisfacción con los implantes dentales: Una revisión de publicaciones***

**ABSTRACTO:** En años recientes se ha comprobado una tendencia consistente hacia la introducción de evaluaciones de pacientes de los diferentes resultados de tratamiento en las prácticas dentales. La satisfacción del cliente con los implantes dentales fue considerada entre estas modalidades de tratamiento. Se han publicado pocas revisiones de publicaciones sobre este tema. Este artículo analiza críticamente los temas relacionados con la satisfacción de los pacientes con los implantes dentales. Se realizó una búsqueda en MEDLINE (desde 1983 a 2004), junto con una búsqueda manual, para ubicar artículos relacionados sobre el tema. Los implantes dentales proporcionaron resultados prometedores y predecibles sobre la satisfacción de los pacientes y distintos aspectos de la evaluación de la vida.

**PALABRAS CLAVES:** prótesis apoyados por implantes, calidad de vida, resultados de tratamiento

### ***Satisfação com Implantes Dentários: revisão da literatura***

**RESUMO:** Os anos recentes testemunharam uma tendência constante em direção à introdução de avaliação de pacientes de diferentes resultados de tratamento na prática dentária. A satisfação dos pacientes com os implantes dentários foi considerada entre estas modalidades de tratamento. Poucas resenhas de literatura foram publicadas sobre este tópico. Este artigo analisa criticamente os tópicos em questão relacionados à satisfação dos pacientes com o implante dentário. Um busca da MEDLINE foi completada (de 1983 a 2004), junto com uma busca manual, para localizar artigos relacionados sobre o tópico. Os implantes dentários forneceram resultados promissores e previsíveis com relação à satisfação dos pacientes e vários aspectos da avaliação da vida.

**PALAVRAS-CHAVE:** próteses apoiadas por implantes, qualidade de vida, resultados do tratamento

## デンタルインプラントの満足度：文献報告

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**概要：**歯科診療において異なる治療法の結果の患者による評価が考慮の対象として導入されるトレンドは、ここ数年続いているものである。そこでは患者のデンタルインプラントによる満足度が、治療モダリティーの中で考慮される。この題材について報告する文献は、これまでごく少数あったにすぎない。本論文は、患者のデンタルインプラントに対する満足度に関連する問題について、批判的に分析する。本題材についての記事文献を探すために、マニュアルサーチとMEDLINEサーチ（1983年～2004年）が行われた。デンタルインプラントは、患者の満足度とその生活に関わる各種の側面の双方において、一律に高い評価を受けていることがわかった。

**キーワード：**インプラント支持補綴、生活の質、治療結果

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