

INDICATORS OF SUCCESS FOR TRADITIONAL COMPLETE DENTURE TREATMENT

Octavian-Ionut Tunaru¹, Cosmin Bida^{2†}, Dragos Ioan Virvescu^{3†}, Roxana Vasluianu^{2*},
Dragos Nicolae Fratila^{5†}, Monica Mihaela Scutariu^{5†}, Zenovia Surlari^{3†}, Elena Raluca
Baciu^{6*}, Dana Gabriela Budala²

¹ orthodontic specialist, private practice, Iasi

²“Gr. T. Popa” U.M.Ph. - Iași, Romania, Faculty of Dentistry, Department of Dentures

³“Gr. T. Popa” U.M.Ph. - Iași, Romania, Faculty of Dentistry, Department of Fixed Dentures

⁴“Gr. T. Popa” U.M.Ph. - Iași, Romania, Faculty of Dentistry, Department of Oral Diagnosis

⁵“Gr. T. Popa” U.M.Ph. - Iași, Romania, Faculty of Dentistry, Department of Dental Materials

*Corresponding author:

e-mail: Roxana Vasluianu: roxanavasluianu@yahoo.com...

Raluca Baciu: raluca_baciu2002@yahoo.com...

†These authors contributed equally to the paper

ABSTRACT

The goal of this literature review is to assess the state of knowledge on conventional complete denture therapy prognostic aspects. Research papers examining traditional complete denture outcomes and patient satisfaction. Research in this field is still lacking. Based on the best available data, success indications for denture restoration include technically correct denture construction, a well-formed mandibular ridge, and accurate jaw relations. Indicators of failure include patient neuroticism and an inadequately developed mandibular ridge. There is no evidence that other prognostic indicators are useful. A small percentage of patients will always have trouble fitting into a traditional full denture. The mandible is where this issue is most noticeable, as opposed to the maxilla. Additional investigation into this topic is necessary.

Key words: dentures, dentures technology, dentures prognosis, patient satisfaction etc.

INTRODUCTION

Predicting the success of traditional complete denture treatment has become increasingly important in the last ten years. There is now an alternative to the mainly palliative therapy afforded by traditional dentures, thanks to the discovery of osseointegrated dental implants and the implant-supported mandibular overdenture [1,2].

Although total tooth loss isn't always an inevitable consequence of becoming older, age is certainly a major contributor. Biological processes including cavities, gum disease, trauma, and oral cancer are also widespread, as are nonbiological elements like dental procedures, healthcare searches, and cultural and socioeconomic considerations [3-5].

It is crucial for clinicians to make informed decisions about which patients require implants the most and then allocate resources

appropriately. The foundation of this decision-making process will most likely include prognostic indicators. In order to determine which prognostic signs are indicative of prosthodontic success or failure, this article endeavors to compile a narrative evaluation of the relevant research and draws conclusions from it [6,7].

Beginning in 1988, ScienceDirect Databases were used to look for papers. The following terms were used: dentures, prognosis, results, patient satisfaction, risk factors, and prognostic markers. Articles relevant to the topic were manually searched, including those dating back to the 1960s and beyond. All searches had to be conducted in English and made use of a variety of related keywords. We were unable to find enough relevant results for this review using searches that only included meta-analyses and RCTs. Conventional dentures were the focus of three

randomized controlled trials. Due to the absence of higher-ranking research in this field, seven non-experimental clinical studies and nineteen clinical experimental studies were also included. We have included all the studies that were found in this review.

POSSIBLE MARKERS OF PREDICTION

✓ *Patients' ages*

While most studies have included patient age in a broader analysis of denture satisfaction, one study has studied age alone; nonetheless, several studies have combined patient age with other variables to determine prosthodontic success [3]. Despite using diverse approaches, all of this research have demonstrated that age is not a predictive factor in determining the efficacy of denture therapy [8,9]. Patients older than sixty years of age had a more harder time adjusting to new dentures, according to one study [10]. Unfortunately, this result cannot be substantiated at this time due to the absence of corroborative data.

It should be stated that none of the aforementioned studies included patients who were currently missing teeth; rather, they all focused on individuals who had already lost all of their teeth. Some have speculated that, rather than adjusting to new dentures, this change would be the most challenging for elderly people. Unfortunately, the literature does not cover this facet of prosthodontic therapy.

One big study that tried to figure out what elements are significant in patients' usage of new dentures offers a somewhat different viewpoint. We used structural equation modeling to analyze the results. There was no correlation between age and the decision to utilize new dentures [11]. Although there is some evidence from experiments that shows the facial muscles become less adaptable with time [12–14], this data has never been used in clinical research to determine the effects of total denture therapy.

✓ *Patient demographics*

Numerous writers have sought to establish a correlation between conventional denture therapy's efficacy and demographic and social variables. This has covered an astonishingly broad spectrum of target factors, including but not limited to sex, marital status, socioeconomic status, employment, housing, interests and hobbies, social and neighborhood relations, and medical history [15,16]. There is little evidence, if any, linking these areas to happy patients, according to the majority of research. Denture dissatisfaction was more common among patients who reported higher levels of self-perceived socioeconomic class.

This is perhaps because the other studies mentioned above came to different conclusions since they employed traditional ways to determine social standing instead of the patient's own evaluation.

✓ *Personality characteristics and psychological variables*

Multiple study groups have focused on the correlation between psychological evaluations and patients' levels of satisfaction with their dentures. Psychological variables and personality traits, as measured by Wilde's Neurotic Liability Scale and the Health Locus of Control Scale, have been reported by some writers to have no influence on results; however, direct comparison between research is made difficult by the variety of psychological assessments used [17,18].

According to other research, there are strong correlations between psychological factors and results. Patients' persistent discontent with their dentures was highly correlated with higher levels of neuroticism, as measured by the Revised Personality Inventory [19].

Based on the information that is now available, it appears that a patient's neuroticism level may be correlated with their success in wearing dentures. Because of this, one author suggests counseling patients with high levels of neuroticism before making full dentures for them to prevent prosthodontic complications [19]. There is no research that has tested this idea at this time. Predicting the results of total denture therapy may benefit from the effective diagnosis of individuals with neuroticism.

✓ *Experience with wearing dentures*

A more seasoned denture user may be more accustomed to their prosthesis and, as a result, more capable of adjusting to new dentures. Nevertheless, there is a lack of consensus among the available research; whereas some studies have found strong links between prior denture wear experience and improved outcomes, others have found either moderate or no associations at all. Evidence suggests that patients who have worn dentures before are far more likely to be satisfied with their new set than those who have never worn dentures before [20,21].

A postal questionnaire was issued to patients sixty days following the insert to assess their new dentures across multiple dimensions, primarily focusing on function, comfort, and attractiveness.

The evaluation was conducted using a five-point scale that extended from extremely poor to exceptionally good [3]. There are a number of limitations to this study that make its findings less applicable to the real world. One example is the use of non-anatomical teeth in denture manufacturing and the exclusivity of male patients.

Though no one has followed up on this study's methodology, it lent credence to previous research that found a weak but non-significant correlation between the two variables [22].

Individuals with fewer tooth loss and who were using their initial denture set reported lower levels of satisfaction with their lower full dentures compared to individuals with prior experience wearing mandibular dentures, according to research by Celebic et al. A five-point scale was employed to measure satisfaction in this study [23].

Patients' responses to the questionnaire and the timing of denture insertion are muddled in the paper's methodology [16]. A randomized controlled trial found the same thing: regardless of the imprint technique employed, the first of three new mandibular dentures was ranked the lowest.

Another study using a questionnaire to evaluate patient satisfaction with outcomes, including a baseline questionnaire regarding their current denture, found that patients without prior experience wearing dentures were more satisfied overall.

They used telephone interviews to collect data at six- and eighteen-months post-insertion. It is unclear what kind of scale was utilized for this purpose, and the data provided regarding patients' ratings of their dentures is perplexing [10].

On the other hand, there is no correlation between the use of instant or partial dentures and positive results. Instead than gauging patients' levels of satisfaction, this study classified them as "normal" or "problem" based on whether or not they had three or more sets of dentures made in the previous five years. While it goes by the name "Shopping Bag Full of Dentures Syndrome," this idea—which is not grounded in evidence—is well-known to prosthodontists everywhere. The "problem" group was more prone to have worn instant or partial dentures and had more complaints about their dentures.

There is a lot of methodological heterogeneity among these publications, and the evidence base on this subject shows inconsistent findings. Since the evidence is inconsistent and there are weak correlations across the research that has been conducted, it is not possible to make any solid conclusions from it.

✓ *Beliefs and perspectives*

The dentistry profession sometimes faces challenges due to patient expectations. In addition to being subjective, they are hard to put a number on.

The most significant variables for success, according to patients, are a "good bite," the absence of pain and slackness, and the procedure itself [24]. Fiske gleaned some helpful information, such as the patient's wish for a thorough explanation of the procedure and the principle that one should not alter one's look without first providing an explanation [25]. Patients who reported a higher social position also tended to have higher expectations compared to those who reported a lower social class [16].

Attempts to standardize the quantification of patient expectations in complete denture therapy are hindered by its multi-factorial nature. Operator judgment, the estimate obtained through communication with the

patient, may continue to play a significant role in answering our queries about expectations. Naturally, this is highly tied to the patient-dentist connection and the development of trust, which will be addressed later in this review.

According to research, patients who have a poor perception of dentures are less likely to be satisfied with the results of their treatment. This suggests that patients' attitudes about dentures can impact the treatment outcomes [9]. This is related to research on those with disabilities, which has shown that rejection of prosthesis is often linked to negative attitudes toward them [26]. Patients who are missing teeth often experience a change in self-perception as well as feelings of guilt and humiliation due to their condition, as Trulsson has demonstrated in his extensive research on the topic of dentures. It will be difficult for the profession to overcome the problem of identifying and addressing these ideas [27].

Even more so than the patient's personal perspective, the opinions of others regarding the prosthesis can significantly impact the treatment's success or failure. This is one of the factors that Berg has found in connection to dentures [15]. It was the sole important predictive factor among many that Berg's series of publications examined for total denture success. Similar to what has been found with other prosthetic limbs, it's possible that our patients place a high value on the opinions of their loved ones and that favorable responses may increase their level of satisfaction [26]. Aside from Berg's research, there is very little evidence in this field. So, we can't say for sure that this is a significant determinant of prognosis.

✓ *Residual ridge form and anatomy*

A lot of research has tried to find a correlation between ridge morphology and good orthodontic outcomes. The likelihood of creating a secure, retention denture with adequate support that the patient will tolerate well increases in direct proportion to the quality of the ridge form. Nevertheless, research in this field is inconclusive. There is no correlation between residual ridge morphology and patient satisfaction, according to some research.

Other others have found positive and negative correlations between ridge shape and happiness. According to Celebic et al., patients who were deemed to have the best mandibular ridge forms reported the lowest levels of satisfaction with their new lower denture, whereas those whose maxillary ridge forms were deemed to be the best reported higher levels of satisfaction with their upper denture [16]. The "resilience" of the lower ridge was positively correlated with patient satisfaction in another investigation [28]. The study highlights the challenges in interpreting data on complete denture therapy. The ridge form was evaluated using Magnusson's subjective scale, rather than a standardized one like Cawood and Well's 1988 categorization [29].

This limits any direct comparison of the results to those of other studies that have shown the same correlation. Most research has shown no correlation, and there is a concern with that.

Once again, Fenlon's research on the use of modern dentures provides a slightly new angle.¹¹ Using structural equation modeling, this study found that positive lower ridge anatomy—as evaluated by Cawood and Howell's method—significantly affected lower stability and security, which in turn strongly affected jaw relations. There was a marked increase in both the use and contentment with the new dentures when this was considered.

✓ *Quality of dentures and changes over time*

The evidence that high-quality denture fabrication results in happy patients is mixed and inconsistent. Some writers have tried to figure out what percentage of patients' issues were caused by problems with their old dentures. Fewer than 20% of the dentures tested were considered to be in ideal condition, while the rest had various problems, according to the study [4]. Despite the fact that patients felt these dentures were flawed, no information was collected about their level of satisfaction with them in this study.

There is some evidence that patients will be more satisfied with their new dentures if they are well-made [9,34]. However, in a study conducted by van Waas et al., it was found that even though all three evaluators were experienced prosthodontists, they had trouble agreeing on a rating for the new dentures. Fenlon et al. aimed to address some of the methodological flaws in earlier studies on the subject by using statistical modeling, large samples, and standardized measurements.

It is impossible to draw direct parallels between these studies because they are all from different eras and use different methodologies and metrics to gauge patient satisfaction. Researchers use a broad range of scales and questionnaires to gauge denture quality and patient satisfaction, and sample sizes might vary widely depending on the study.

One intriguing part of Fenlon's group's work was tracking the evolution of patients' assessments of their prosthesis. At the time of insert, three months later, and again after two years, 38 patients were asked to score their dentures across different domains. To check for changes, these ratings were compared to the ratings at insert.

The patient's initial ratings upon implantation had no bearing on these statistically significant changes over time. No information was gathered regarding the clinical significance of these discrepancies because the evaluation method was a postal questionnaire.

Although the mandibular denture's chewing ability and comfort improved with time, patients may be less satisfied with their prosthesis as it deteriorates. To back up this claim, the authors point to how the adaptive capacity affected the outcomes.

✓ *Aesthetics*

Several research have looked into the significance of denture aesthetics. Assuming the prosthesis is well-made and comfortable, it stands to reason that the wearer will be more satisfied with it. But the data is not conclusive in this field. For many reasons, one of the earliest studies published on the issue is intriguing. Prior to surgery,

participants were given a choice between two options from a series of four images depicting different dental configurations. The next step was for some patients to get the tooth arrangement on their new dentures that they desired, while for others it was the opposite. Interestingly, there were no discernible variations in the groups' ratings of pleasure during the fit appointment.

Despite intentionally misleading some participants, the authors came to the conclusion that patient involvement in aesthetic choice, rather than aesthetics themselves, is the primary factor of satisfaction [40].

According to research, patients are more likely to be satisfied with their upper dentures if they think they look good [7]. Research has also shown that the aesthetic opinion of others, not the patients themselves, is the determining factor in the success or failure of denture treatment [15]. The construction of dentures is affected by this discovery.

During the try-in process, some prosthodontists advise patients to show off their new dentures to see how others react, or to bring a trusted friend or family member to help them feel more comfortable. Although this makes sense in principle, it presupposes that the patient's loved ones are aware of their edentation and will be understanding of their condition. According to other research, aesthetics don't matter much when it comes to happiness [4,24].

It has also been shown that patients often have a negative perception of the cosmetic quality of their dentures as time goes on. 38 It was also shown that there is no connection between how patients perceive the aesthetics of their dentures and how often they wear them [11].

Given the conflicting findings of the aforementioned research, it is difficult to draw any firm conclusions regarding this matter. Because it may be a predictor of outcome for some patients, the idea that how others perceive the aesthetics of their dentures affects pleasure deserves additional study.

✓ *Dental patient-doctor interactions*

Many believe that the quality of the connection between doctor and patient determines the success rate of treatment. This

was studied in the context of full dentures a long time ago. Before treatment began, 41 patients were shown photos to select the shade and shape of their ideal teeth. After this decision, a subset of students who had previously participated in behavioral analysis were given treatment based on whether they were classified as low or high authoritarian. Under the supervision of their instructors, the patients were given new dentures. Dissatisfaction with dentures was much higher among patients treated by students in the high authoritarian group compared to those treated by students in the low authoritarian group.

FUTURE PERSPECTIVES

There has never been a more pressing need for additional study in this field than now, as prognostic signs are expected to play a more significant role as a diagnostic tool for patient selection for implant administration. Information on how satisfied patients are with various steps in their prosthodontic treatment is especially needed.

The connection between patient-centered variables and the effective provision of prosthesis has recently been the subject of some research.

The dentistry literature still fails to adequately address the majority of these issues.

Additional research into these possible markers could lay the groundwork for future studies in prosthodontics.

CONCLUSIONS

1. Some research suggests that patients are more likely to utilize and even enjoy their dentures if they are well-constructed, as opposed to those that aren't.
2. Patients who score higher on the neuroticism scale are more likely to have difficulty adjusting to traditional full dentures.
3. A small percentage of people will have trouble adjusting to traditional full dentures. The severity of this issue is greater in the jaw than in the upper jaw.
4. While residual ridge shape in the mandible and precision of jaw connections have been highlighted as crucial prognostic markers for conventional denture therapy, further attempts to clarify these characteristics have failed.
5. There are probably a number of factors that contribute to effective prosthodontic therapy.

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