



Research Article

The Level of Satisfaction Among Patients with Dental Bridges

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Abstract

Dental bridges are one of the treatments for tooth loss cases. Dental profession students at the Faculty of Dentistry of Universitas Padjadjaran (Unpad) conducted their first dental bridge treatment on patients. Evaluating patient satisfaction is essential to measure the success of treatments provided by dental students. This study aims to determine patient satisfaction with the dental bridges treatment provided by dental professional students at the Prosthodontics Polyclinic in terms of chewing, aesthetics and phonetics function, maintenance of the denture, and psychological aspects. This type of research is descriptive cross-sectional. Eighty-two dental bridges users were selected using total sampling at the Prosthodontic Polyclinic from September 2022 to February 2023 out of a total population of 86 users. The inclusion criteria included male or female patients using PFM or full metal dental bridges in the upper or lower jaw, worn for at least seven days to 6 months after definitive cementation, and made a control visit after the insertion of dental bridges. The instrument used was a modified questionnaire called the Patient Denture Assessment (PDA) and an Indonesian version of PDA (PDA-ID), with 12 modified Likert scale questions given online. The results of the study showed that 86,6% of the respondents were satisfied with masticatory function, 97,6% were satisfied with aesthetics and phonetics, 82,9% were satisfied with the maintenance of the denture, and 93,9% were satisfied with the psychological aspects of the use of dental bridges. Most patients were satisfied with dental bridges regarding chewing, aesthetics and phonetics function, denture maintenance, and psychological aspects.

Keywords: patient satisfaction; dental bridges; prosthodontic polyclinic

INTRODUCTION

Dental bridge treatment is one of the treatments that can be given in cases of tooth loss. A bridge denture is a dental prosthesis that is bonded chemically or mechanically to natural teeth, tooth roots, and implants to restore one or several missing teeth and cannot be removed by the patient.¹ Cases of tooth loss that are not treated for long will cause pathological migration of the remaining teeth, decreased alveolar bone in the edentulous area, decreased masticatory function, speech disorders, and can affect the temporomandibular joint.² The type of prosthesis often used is a conventional

fixed denture, typically made of metal with a layer of porcelain, and is called porcelain fused to metal (PFM).³

Based on national health research data contained in the 2018 Primary Health Research/Riset Kesehatan Dasar (RISKESDAS) results, Indonesia has a 19% proportion of missing teeth due to extraction or self-knockout, while the proportion of using partial dentures is 3.5%, using complete dentures is 1.2%, and using fixed dentures is 0.8%.⁴ The data shows that many people have lost their teeth and do not use dentures. Silviana⁵ and Abdumajeed⁶ research showed that clinical problems with bridge dentures are more common than

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with crown dentures. Clinical problems that occur in dentures can affect the level of patient satisfaction with their dentures.⁷

Patient satisfaction is an important indicator in evaluating the success of healthcare services.⁸ Individual satisfaction is achieved when the performance of a product or service meets expectations. There has not been much research on patient satisfaction with bridge dentures reported. The research conducted by Amalia et al.⁹ reviewed patient satisfaction with bridge dentures from one aspect only, namely masticatory function. Patient satisfaction cannot be based on mastication function alone, but other aspects need to be considered, such as aesthetics, phonetics, and comfort when used.^{10,11}

Bridge denture treatment is one of the clinical requirements for students of the Professional Education Program at the Faculty of Dentistry, Universitas Padjadjaran, who carry out co-assistance activities at the Prosthodontic Polyclinic, Dental and Oral Hospital (RSGM). Dental professional students perform bridge denture treatment for the first time on a patient and are supervised by a dentist/prosthodontist. Patient satisfaction must be evaluated to determine the success rate of treatment performed by dental professional students. Research on patient satisfaction using bridge dentures has never been conducted at the Dental Hospital of Padjajaran University (RSGM Unpad). Understanding the level of patient satisfaction with bridge denture treatment is important in evaluating the results of treatment performed by dental profession students based on the patient's subjective perspective. This study aims to determine patient satisfaction treated by students of the Profession Program at the Prosthodontic Polyclinic RSGM Unpad with dental bridges regarding masticatory, aesthetic, and phonetic functions, denture maintenance, and psychological aspects.

MATERIALS AND METHODS

This type of research is a cross-sectional descriptive study with survey techniques. The research was carried out online, accompanied by interviews via telephone calls. Data collection comes from primary data. Primary data was obtained from an online questionnaire in Google Forms containing questions given to the selected sample. The research procedure was done by distributing the Google form link to patients treated with dental bridges at the Prosthodontic Polyclinic, Dental Hospital of Universitas Padjadjaran (RSGM Unpad).

The population of this study was patients using bridge dentures who were treated by Professional Program students at the Prosthodontic Polyclinic RSGM Unpad. Period of treatment done from September 2022 to February 2023. The total population recorded was 86 patients. The sample inclusion criteria were female or male patients who were treated by Professional Program students at the Prosthodontic Polyclinic RSGM Unpad, patients who received PFM or full metal bridge denture treatment on the maxilla or mandible and had worn bridge dentures for at least 7 days until 6 months after fixed cementation and had made a control visit after the insertion of dental bridges. The sample exclusion criteria were patients with more than one dental bridge and those with a damaged one. The research sample was obtained using a saturation sampling technique. The samples obtained from this study were 82 out of 86 patients because some patients could not be contacted.

The research variable was patient satisfaction with bridge dentures at the Prosthodontic Polyclinic, RSGM Unpad. The variable assessment in this study used a modification of the Patient Denture Assessment (PDA) and an Indonesian version of PDA (PDA-ID) questionnaires that fulfilled the validity and reliability tests. The validity results using the Spearman Rank test showed that the instrument was valid with a correlation

value of more than 0.3. The instrument reliability test showed that the instrument was reliable with a Cronbach's alpha value of more than 0.6, namely 0.895. The software used in this research was IBM SPSS Statistics 29.0. The questionnaire contained twelve questions to evaluate patient satisfaction wearing dental bridges based on indicators, including: masticatory function (questions 1 to 3), aesthetic function and phonetic function (questions 4

to 7), denture maintenance or home care (questions 8 to 10), and psychological aspects (questions 11 and 12). Satisfaction levels were categorized into 2, namely satisfied and dissatisfied. The measurement scale in this study was a modified Likert scale; the satisfied category received a score of 3-4, and the dissatisfied category received a score of 1-2 (Table 1). Table 2 shows the satisfaction level category score based on variable indicators.

Table 1. Satisfaction level category

Category	Satisfaction Statement	Score
Dissatisfied	Very dissatisfied	1
	Dissatisfied	2
Satisfied	Satisfied	3
	Very satisfied	4

Table 2. Interval of patient satisfaction categories using dental bridges based on indicators

Indicator	Satisfied	Dissatisfied
Masticatory function	≥ 9	< 9
Aesthetic function and phonetic function	≥ 12	< 12
Denture maintenance	≥ 9	< 9
Psychological aspects	≥ 6	< 6

Data collected from the questionnaire was processed by adding the respondents who stated they were satisfied and very satisfied to become the satisfied category. Meanwhile, the number of respondents who stated they were dissatisfied and very dissatisfied was added to the dissatisfied category. Research data were collected and processed based on frequency distribution and percentage in tabular form. This research has received

permission from the Research Ethics Commission of Padjadjaran University, with number 742/UN6.KEP/EC/2023.

RESULT

The total number of respondents in this study was 82 people. All respondents have three unit of bridges with the type of PFM bridges.

Table 3. Frequency distribution of the characteristics of patients who perform dental bridges treatment at the Prosthodontic Polyclinic of RSGM UNPAD (n=82)

Characteristic		Frequency (n)	Percentage (%)
Gender	Male	40	48.8
	Female	42	51.2
Age	<35 years	50	61
	35 – 65 years	31	37.8
	>65 years	1	1.2
Education	Low education (primary – junior high school)	3	3.5
	Higher education (High school – higher education)	79	96.5
Duration of wearing dentures	<3 months	12	14.6
	3 -6 months	70	85.4
Type of dental bridges	PFM	82	100
Location of dental bridges	Anterior	7	8.5
	Posterior	75	91.5

Table 3 shows that most of the respondents were female (51.2%), aged less than 35 years (61%), and had higher education, namely from high school to university (96.5%). Most respondents had

used dental bridges for 3 to 6 months (85.4%). Most respondents had dental bridges in the posterior jaw (91.5%).

Table 4. Frequency distribution of patient satisfaction using dental bridges at the RSGM Unpad Prosthodontic Polyclinic based on each question

			Level of satisfaction				Total	
Indicator	Question		Dissatisfied		Satisfied		N	%
			n	%	n	%		
	No							
Masticatory function	1	Dental bridge do not cause pain to the gums, jaws, or natural teeth	7	8.5	75	91.5	82	100
	2	Comfortable dental bridges for chewing/biting food	8	9.8	74	90.2	82	100
	3	The jaw joint does not feel tired after being used for eating	9	11	73	89	82	100
Aesthetic function and phonetic function	4	Teeth color, size, and shape as expected	3	3.7	79	96.3	82	100
	5	Dental arch as expected	2	2.4	80	97.6	82	100
	6	Other people do not realize you are wearing dentures	1	1.2	81	98.8	82	100
Denture maintenance	7	Comfortable dental bridges for speech	0	0	82	100	82	100
	8	Food scraps are not trapped under the dental bridges	15	18.3	67	81.7	82	100
	9	Dental bridges are easy to clean	7	8.5	75	91.5	82	100
Psychological aspects	10	Gums around the dental bridges are not easily irritated	4	4.9	78	95.1	82	100
	11	In general, dental bridges are satisfactory	3	3.7	79	96.3	82	100
	12	Dental bridges boost self-confidence	2	2.4	80	97.6	82	100

The patients were categorized as satisfied if the answer score was >3 and dissatisfied if the answer score was < 3 .

Table 4 shows that most respondents were satisfied with the bridge denture used.

Table 5. Distribution of patient satisfaction using dental bridges at the RSGM Unpad Prosthodontic Polyclinic based on indicators

No	Indicator	Satisfaction Level				Total	
		Dissatisfied		Satisfied		N	%
		n	%	n	%		
1	Masticatory function	11	13.4	71	86.6	82	100
2	Aesthetic function and phonetic function	2	2.4	80	97.6	82	100
3	Denture maintenance	14	17.1	68	82.9	82	100
4	Psychological aspects	5	6.1	77	93.9	82	100

Table 5 shows that the majority of patients using dental bridges were satisfied with the masticatory function (86.6%), aesthetic and phonetic functions (97.6%), maintenance dentures (82.9%), and psychological aspects (93.9%). The aesthetic and phonetic functions are the highest indicators of patient satisfaction with dental bridge use, totaling 97.6% of the respondents.

DISCUSSION

According to the Minister of Health of the Republic of Indonesia, patient satisfaction is the patient's perception of the performance of services provided by healthcare facilities.¹² Patient satisfaction is essential to dental care because it can affect patient trust in dentists. Patient evaluation is an inexpensive and economical method of measuring denture success and can generate large amounts of data quickly. Satisfaction of bridge denture patients is generally not based on one factor but on many factors, such as aesthetics, masticatory function, phonetics, psychology, and patient compliance with oral hygiene.¹¹

This study assessed patient satisfaction using dental bridges based on four indicator criteria: masticatory function, aesthetic and phonetic functions, denture maintenance (home care), and psychological aspects. Patients who wear dentures will feel an improvement in their masticatory function because the chewing

pressure will be evenly distributed throughout the supporting tissues, thus maintaining and increasing chewing efficiency. Aesthetically, dentures will restore lip support to the face so that problems arising from tooth loss can be resolved. Dentures function to improve speech/phonetic functions because teeth are one of the speech tools.¹³ Dentures improve the appearance and give patients confidence to interact with others.¹⁴ Maintaining denture cleanliness is very important because plaque accumulates on teeth, and prosthetic restorations may be a major predisposing factor to poor oral health. Many patients have difficulty caring for their dentures and lack awareness of how to clean them. Instructions on maintaining fixed dentures are very important to avoid problems that will arise if not done properly.¹⁵

Objectively, masticatory ability can be assessed by chewing gum and assessing the color change from a score of 1 to 11.¹⁶ The study results from the aspect of masticatory function showed that most respondents were satisfied (86.6%). These results align with research conducted by Amalia et al.⁹ who stated that the satisfaction level of patients using dental bridges was quite high regarding masticatory function. The main reason patients undergo prosthodontic treatment, besides improving aesthetics, is to improve masticatory function.^{17,18} Patients want their dentures to be able to restore the

function of missing teeth. The masticatory function was assessed by the dentures being comfortable and painless when chewing.¹⁹ Up to 13.4% were dissatisfied with the masticatory function. Most dissatisfied patients stated that the jaw joint felt tired after chewing. Premature contact in dental bridges can increase masticatory muscle tension and pain in the temporomandibular joint.²⁰ Patients with such concerns need to undergo follow-up appointments for a premature contact assessment and occlusion adjustment in their dental prostheses.²¹

Aesthetic success in dental bridge treatment depends on determining the appropriate design, such as through smile analysis, dentofacial orientation, and consideration of shape, color, position, and materials used, as well as establishing good communication between patients, dentists, and laboratory technicians.¹⁸ Phonetic examination in the form of clarity of word pronunciation is carried out by directing the patient to clearly mention the letters f, s, d, o, m, a, r, t without distractions.²² Table 3 shows that the aesthetic and phonetic indicators of the patient feel satisfied as much as 97.6% of respondents. Based on this, it can be concluded that most dental bridge patients are satisfied with their dentures in terms of aesthetics and phonetics. It is supported by the results of a study conducted by Alma et al.²³ which showed that most patients stated that they were very satisfied with their dentures from an aesthetic and functional perspective. The item of the question that makes the respondent feel satisfied is that the dental bridges are comfortable to talk to. Dentures play a role in restoring phonetic function. Sound is produced through interactions between the tongue, palate, lips, teeth, and jaw.¹⁴ As many as 2.4% of respondents were dissatisfied with the aesthetic and phonetic functions. Most dissatisfied patients stated that the dental bridges' color, shape, and size did not meet the patient's expectations. Based on the interview results, the patient revealed that they did not

dare to express his dissatisfaction with professional students and felt reluctant to make additional visits if his dentures had to be repaired. Communication between dentists and patients affects patient satisfaction and the fulfillment of patient expectations for their dentures.²⁴

Based on indicators of denture maintenance, 82.9% of respondents who use dental bridges are known to be satisfied. These results indicate that most respondents were satisfied with the dental bridges in terms of denture maintenance. It is in line with a study by Geiballa et al. (11), which stated that most patients were satisfied with their dentures. The question item that makes the respondent feel satisfied is that the dental bridges do not irritate. Up to 17.1% of the respondents said they were dissatisfied with the denture maintenance indicators. Most respondents who expressed dissatisfaction revealed that food often gets trapped under the dentures. Based on the interview results, the patient stated that he did not maintain good oral hygiene. When designing bridge dentures, it is important to consider the factors related to pontic design. The pontic design not attached to the mucosa will provide space between the pontic surface and the mucosal tissue. The goal is to avoid mucosal inflammation. However, this room can become a place for food residue and plaque to stick.²⁵ Maintaining denture hygiene can reduce the accumulation of food debris and plaque as well as bacterial attachment to the denture surface.²⁶ Patient awareness is needed to maintain oral hygiene and dentures. Routine visits can be made to educate about oral hygiene and motivate patients to maintain oral hygiene.¹⁵ Patients should be informed that a pontic design that provides a space between the pontic surface and the mucosal tissue serves to avoid irritation due to dentures, but patients should maintain additional oral hygiene. Thus, the room does not become a place for plaque accumulation.

Patients who are satisfied with using dental bridges regarding psychological

aspects, namely 93.9% of respondents. It is supported by research conducted by Alma et al.²³ which stated that most patients were satisfied with their dentures. The question item that made the respondents feel the most satisfied was that dental bridges can increase self-confidence. Dentures provide comfort when used so that users feel confident and satisfied with their dentures. The quality of the dentures affects the comfort of using them. Good-quality dentures can restore missing teeth function.²⁷ Patients who expressed dissatisfaction with psychological aspects were 6.1% of the respondents. Based on the results of interviews with patients who were dissatisfied, patients stated that they felt uncomfortable and afraid when chewing hard food. Discomfort when chewing can be caused by psychological factors or premature contact. Premature contact can cause discomfort in the jaw and pain in the area of the tooth experiencing premature contact. Patients with this case require a control visit for further examination and repair of their dentures.²⁸

Satisfaction is an essential element in the evaluation of treatment. Patient satisfaction data is an important source of information that can guide dentists in providing prosthodontic treatment according to patient expectations. Understanding the patient's perception and level of satisfaction regarding the desired aesthetic and functional aspects to improve these parameters can assist in designing strategies to plan and develop prosthetic devices.²³

The limitations of this study were the limited number of samples and the short period of use of dental bridges due to the difficulty of contacting patients who had used dental bridges for more than six months. Further research must be conducted to evaluate patient satisfaction with bridge dentures used for more than six months. This research can be used as input for the Prosthodontics department, namely the need for follow-up control visits for long-term evaluation of the results of dental

bridge treatment and additional education for dental bridge patients regarding bridge denture maintenance.

CONCLUSION

The majority of respondents were satisfied with the dental bridges in terms of masticatory function, aesthetic and phonetic functions, denture maintenance, and psychological aspects.

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