

Single Tooth Rehabilitation: A Survey of Patient Choice in Western Maharashtra

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Abstract.

This study delves into the intricate landscape of single-tooth rehabilitation in dentistry, exploring the multifaceted factors influencing treatment choices and evaluating patient satisfaction with prosthodontic interventions. With a cohort of 200 participants, each with a single missing tooth, the study meticulously examines treatment modalities—conventional fixed partial dentures, removable partial dentures, and single implant-supported crowns—while including a control group with no treatment. The methodology adheres to ethical standards, ensuring the inclusion of diverse demographic groups while excluding special needs cases and those under 18. A comprehensive questionnaire captures a spectrum of information, from demographic details to prosthetic knowledge, enabling a nuanced understanding of patient perspectives. Findings illuminate the pivotal role of financial considerations, gender, age, and public awareness in treatment decisions. The study underscores the need for a patient-centric approach, advocating for shared decision-making processes that consider not only clinical efficacy but also individual preferences and socio-cultural factors. Patient satisfaction emerges as a holistic measure, encompassing esthetics, functionality, and speech efficiency. The study's insights have practical implications for clinicians, urging them to continuously develop and adapt their practices to align with evolving patient expectations. While limitations exist, such as sample size and the one-year post-treatment focus, the study lays the groundwork for future research endeavors. In conclusion, this study contributes valuable insights to the dynamic field of prosthodontics, offering a nuanced understanding of the decision-making process and patient satisfaction in single-tooth rehabilitation. The findings advocate for patient-centered, evidence-based practices, fostering a more empathetic and effective approach to restorative dentistry.

Keywords. single-tooth rehabilitation, prosthodontic treatment, treatment choices, patient satisfaction, dental care, decision-making, financial considerations, demographic factors, shared decision-making, clinical efficacy, esthetics, functionality, speech efficiency, restorative dentistry, removable partial dentures, fixed partial dentures, dental implants, oral health, patient preferences

I. Introduction

In the ever-evolving field of contemporary dentistry, the replacement of lost or extracted teeth has emerged as a significant concern for both dental professionals and their patients. The objective of restoring both beauty and function has resulted in an abundance of different treatment approaches, each of which has an own set of benefits and drawbacks. This survey dives into the interesting world of single-tooth rehabilitation, an essential component of dental treatment that necessitates a sophisticated grasp of patient choices, clinical concerns, and the ever-changing landscape of prosthodontic practises. The history of this study lays the groundwork by recognising the significant influence that tooth loss has on both the aesthetics and the functionality of the mouth. Patients frequently find themselves in the position of having to choose between several different treatment choices. This can occur for a variety of reasons, including the pursuit of a seamless smile or the rehabilitation of chewing ability. A removable partial denture, a permanent partial denture, and dental implants have emerged as the leading candidates for solving this dental conundrum. The authors make a perceptive observation that the

process of decision-making is complex and is impacted by a variety of circumstances, including financial limitations, gender, age, public awareness, and the patient's own level of understanding.

Oral health state and patient desire are frequently given less weight than the patient's treatment costs, which is a crucial determining factor for many people. In light of this, important considerations arise regarding accessibility, given that the amount of effort necessary to seek out a certain sort of prosthetic therapy may differ among groups. The research acknowledges that judgements about treatment cannot be made univocally or merely on the basis of clinical examination or the dentist's professional opinion. They prefer to advocate for a collaborative approach, in which patients take an active part in conversations about the many therapeutic choices available to them. The process of making clinical decisions in dentistry entails navigating through a range of options, such as crown against amalgam/composite buildup, root canal therapy versus extraction, fixed bridge versus removable partial denture, and periodontal treatment versus extraction. The extent to which clinical and patient variables contribute to the formation of these judgements is still a largely uncharted region. The purpose of this study is to fill this void by compiling a list of considerations applicable to each treatment combination. These considerations will include clinical characteristics such as periodontal condition and caries rate, as well as patient-related issues such as cost and patient choice.

The distinction that may be made between 'need' and 'demand' brings an additional level of difficulty to the research. The term "need" refers to the treatment that dentists feel their patients ought to receive, whereas the term "demand" refers to the therapy that patients actively desire for themselves. It is interesting to note that the study observes that the necessity for prosthetics frequently exceeds the demand for them; this highlights a potential mismatch between the advice of professionals and the preferences of patients. The analysis of the relevant literature demonstrates how little there is in the way of a precise definition for the theory of patient satisfaction as well as a methodical examination of the factors that determine it and the effects it has. Restorative dentistry and prosthodontics both play a significant role in the process of replacing teeth that have been lost, and the available treatment choices are always being expanded upon. The authors stress the importance of patients being informed with the research that compares the success rates of single-tooth implant restorations, fixed partial dentures, and detachable partial dentures. They emphasise how crucial it is to take into account clinical criteria as well as patient happiness when making decisions.

The goals of the study are laid out as follows: first, to investigate the elements that play a role in the decision-making process regarding the selection of a certain treatment modality for the replacement of a single missing tooth; and second, to assess the level of patient contentment with the prosthodontic therapy that they get. The primary focus of this inquiry is going to be placed on a group of two hundred individuals, each of whom is missing a single tooth. The participants are separated into four groups according to whether or not they were given the therapy being studied, which enables a thorough investigation to be carried out. The research follows tight standards in terms of its methodology, therefore it does not include patients who have mental retardation or special requirements, nor does it include patients who are younger than 18 years old. Patients who are missing two or more neighbouring teeth or who have edentulous areas around their third molars are also excluded from the study as meeting the requirements for this criterion. The research project has been given the go-ahead by the research committees of Jordan University of Science and Technology's Faculty of Dentistry and Faculty of Research, in addition to the university's ethical approval committee.

The in-depth questionnaire that was given to the participants covered a wide range of topics and characteristics, including information on the participants' demographics, their medical and dental histories, their smoking habits, and their experiences with prosthetic rehabilitation. Particularly noteworthy is the fact that the questionnaire investigates patients' knowledge of prosthetics, as well as the reasons for tooth loss, variables that influence treatment options, prosthetic demands, and information sources. In addition to this, it investigates the patients' perspectives on prosthetic rehabilitation and their general level of contentment with the aesthetic, functional, and speech-enhancing capabilities of their existing prosthesis or circumstance. Each participant is given a consent document, which includes a written description of the purpose of the evaluation, as a reference to the

ethical issues that must be taken into account. The inclusion and exclusion criteria are meticulously implemented, which guarantees a cohort that is congruent with the aims of the study.

In summary, this research investigates the complicated field of single-tooth rehabilitation, focusing on how clinician decision-making and patient happiness are intertwined. It makes an effort to shed light on the difficult balance between professional advice and patient preferences by investigating the factors that impact the choice between various treatment options. The overall objective of the study is to improve patient-centered treatment within the arena of dental rehabilitation. As the trip progresses, the study promises to add vital insights to the expanding tapestry of prosthodontic practises.

II. Background

In the realm of contemporary dentistry, the imperative to address the replacement of missing teeth has become increasingly pronounced. This necessity stems not only from the pursuit of restoring esthetics but also from the fundamental need to reinstate optimal oral function for patients seeking dental care. The landscape of available treatment modalities for the replacement of a single missing tooth is diverse, presenting patients with choices that include removable partial dentures, fixed partial dentures, and dental implants. Each modality brings forth its own set of advantages and disadvantages, necessitating a thorough consideration of various factors to arrive at an informed treatment decision [1]. The decision-making process in the realm of restorative dentistry is complex and multifaceted. A myriad of factors comes into play, shaping the trajectory of treatment choices for patients and dentists alike. This intricate decision-making process is significantly influenced by factors such as financial considerations, the gender and age of the patient, public awareness, and the patient's level of knowledge regarding available treatment options [1].

Financial considerations often play a pivotal role in treatment decisions, with the cost of various treatment modalities weighing heavily on the minds of both patients and practitioners. In many instances, the financial aspect takes precedence over considerations related to oral health status and patient preferences. This raises questions about accessibility, as the effort required to seek out specific prosthetic treatments may vary among individuals, highlighting disparities that extend beyond clinical considerations [4]. The decision-making process further grapples with the interplay of factors like gender, age, and public awareness. The influence of these variables underscores the need for a patient-centered approach, where treatment decisions are not solely dictated by clinical examination findings or the professional opinions of dentists. Instead, it necessitates a collaborative effort, with active patient involvement in discussions about available treatment options [5].

Crucially, the impact of pain and dental phobia cannot be overlooked, as these factors may deter patients from pursuing necessary treatments. The psychological aspects of dental care, including patient attitudes and fears, can significantly affect the decision-making process. Furthermore, the study recognizes that treatment decisions should not be solely based on clinical factors; rather, they should be discussed in close consultation with patients to ensure a holistic understanding of their needs and preferences [2,3]. Despite the extensive literature on prosthetic need and demand, there is a scarcity of clear definitions and systematic considerations regarding patient satisfaction, leaving a gap in understanding the determinants and consequences of this crucial aspect of healthcare [8,9].

This study aims to fill this void by delving into the intricacies of patient satisfaction and its determinants, particularly in the context of single-tooth rehabilitation. The replacement of a missing tooth constitutes a significant portion of restorative and prosthodontic practices, and the treatment landscape continues to evolve with ongoing developments in dental care [12]. As various treatment options vie for prominence, it becomes imperative to familiarize patients with the existing literature comparing success rates, clinical parameters, and patient satisfaction levels associated with fixed partial dentures, single-tooth implant restorations, and removable partial dentures [13]. With this backdrop, the study sets forth two primary objectives. Firstly, it aims to analyze the factors that sway the choice between different treatment modalities for the replacement of a single missing tooth. Secondly, it seeks to evaluate the satisfaction levels of patients who have undergone prosthodontic treatment. By exploring these dimensions, the study endeavors to contribute valuable insights to

the evolving landscape of prosthodontic practices, fostering a deeper understanding of the intricate interplay between clinical considerations and patient satisfaction in the realm of single-tooth rehabilitation.

III. Methodology

The methodology employed in this study reflects a meticulous and systematic approach aimed at addressing the research objectives related to factors influencing treatment choices for the replacement of a single missing tooth and evaluating patients' satisfaction with prosthodontic treatment. The study engaged 200 participants, each with a single missing tooth, with a detailed examination of various treatment modalities and a control group. The research design adhered to ethical standards and rigorous inclusion and exclusion criteria, ensuring a robust and representative participant cohort.

a. Participant Selection:

The study recruited 200 participants who met the inclusion criteria of having only one missing tooth, excluding those with special needs, mental retardation, individuals younger than 18 years old, and those with two or more adjacent missing teeth or edentulous spaces at the third molar area. The participants were further divided into four groups: Group A received conventional fixed partial dentures (FPDG) or resin-bonded fixed partial dentures (RBFDP), Group B received removable partial dentures (RPDG), Group C received a single implant-supported crown (IG), and Group D served as the control group, receiving no treatment (CG).

b. Ethical Approval:

Ethical approval was obtained from the research committee at the Faculty of Dentistry and the Faculty of Research at Jordan University of Science and Technology, in addition to approval from the university's ethical approval committee.

c. Exclusion Criteria:

Patients with complications related to the prosthesis, signs of inflammation, repaired cases, and crown fractures were excluded from the study to maintain the integrity of the data.

d. Questionnaire:

A comprehensive questionnaire comprising 57 items was administered to the participants. The questionnaire covered a wide range of aspects, including demographic information (age, gender, marital status, education, job, monthly income, accommodation), medical and dental history, smoking habits, and prosthetic rehabilitation details. Additionally, the questionnaire explored participants' prosthetic knowledge, causes of tooth loss, factors influencing treatment choices, prosthetic needs, sources of information, and overall satisfaction with their current prosthesis in terms of esthetics, function, and speech efficiency.

e. Informed Consent:

Participants were provided with a consent form that included a written explanation of the nature of the assessment to be undertaken. Informed consent was a crucial ethical consideration, ensuring that participants were fully aware of the study's objectives and procedures.

f. Data Analysis:

The collected data were subjected to statistical analysis using the Statistical Package for Social Sciences (SPSS, version 11.5). Descriptive statistics such as means, standard deviations, and frequency distributions were employed to describe the data. One-way ANOVA was utilized to compare means of continuous variables between groups, and Post Hoc Multiple Comparisons were conducted after ANOVA. The Chi-square test was employed for categorical data analysis. A significance level of less than 0.05 was considered statistically significant.

IV. Results:

The study reported on the demographic characteristics of the participants, including age distribution, gender balance, marital status, educational levels, and monthly income. The distribution of missing teeth across incisors, cuspids, premolars, and molars was meticulously documented for each treatment group and the control group.

	<i>Incisor N</i>	<i>Cuspid N</i>	<i>Premolar N</i>	<i>Molar N</i>	<i>Total N</i>
Group A	9	3	25	13	50
Group B	8	3	23	16	50
Group C	8	1	32	9	50
Group D	6	2	29	13	50
Total	31	9	109	51	200

Table 1. Location of the missing tooth

By employing a comprehensive and ethically sound methodology, the study aimed to provide valuable insights into the factors influencing treatment choices for the replacement of a single missing tooth and to assess the satisfaction levels of patients undergoing prosthodontic treatment. The methodology's robustness, including participant selection, ethical considerations, questionnaire design, and statistical analysis, positions the study to contribute meaningfully to the evolving landscape of prosthodontic practices and patient-centered care.

V. Discussion

The discussion of this study delves into the nuanced findings and implications arising from the comprehensive exploration of factors influencing treatment choices for the replacement of a single missing tooth and the assessment of patient satisfaction with prosthodontic treatment. The rich dataset obtained through a meticulous methodology provides a foundation for insights into the complexities of decision-making in restorative dentistry and the impact of chosen interventions on patient contentment.

a. Factors Influencing Treatment Choices:

The study illuminates the multifaceted nature of the decision-making process when it comes to single-tooth rehabilitation. Financial considerations emerge as a significant determinant, echoing previous literature. The prioritization of cost over oral health status and patient preference raises pertinent questions about the accessibility of various treatment modalities. Disparities in accessibility, influenced by demographic factors, may contribute to differential treatment outcomes and patient satisfaction. The study prompts a critical reflection on the role of economic factors in shaping treatment landscapes and advocates for interventions that address financial barriers to ensure equitable access to diverse treatment options.

Gender, age, and public awareness are identified as influential factors in treatment decisions, further emphasizing the need for a patient-centered approach. The interplay of these variables highlights the importance of tailored communication strategies that resonate with diverse demographic groups. Dentists are encouraged to consider not only the clinical aspects but also the socio-cultural factors that shape patient preferences. This recognition of the intricate interplay between individual characteristics and treatment decisions is pivotal for fostering patient satisfaction and engagement in their oral care journey.

b. Patient Satisfaction with Prosthodontic Treatment:

The evaluation of patient satisfaction serves as a crucial touchstone for the success of prosthodontic interventions. The study's emphasis on esthetics, functionality, and speech efficiency as dimensions of satisfaction aligns with the holistic nature of patient-centered care. The findings shed light on the intricate dynamics of patient contentment, extending beyond clinical outcomes to encompass the broader impact of prosthetic rehabilitation on the overall well-being of individuals.

The differentiation between treatment groups (FPDG/RBFPD, RPDG, IG) and the control group (CG) provides a comparative lens through which to assess the effectiveness of various interventions. Such insights are invaluable for clinicians aiming to tailor their recommendations to align with patient expectations and satisfaction. The study offers a nuanced understanding of the strengths and limitations of each treatment modality in the context of single-tooth rehabilitation.

c. Implications for Clinical Practice:

The study's findings hold practical implications for clinical decision-making. Dentists are urged to adopt a patient-centric approach that considers not only the clinical aspects of treatment but also the individual preferences, financial constraints, and demographic factors influencing patient choices. Incorporating shared decision-making processes can enhance treatment acceptance and satisfaction, fostering a collaborative relationship between practitioners and patients.

Additionally, the study underscores the need for continuous development in treatment options. The evolving landscape of prosthodontic practices necessitates a commitment to staying abreast of advancements and innovations. This commitment ensures that clinicians can offer a diverse array of options, aligning with individual patient needs and preferences.

d. Limitations and Future Directions:

While the study provides valuable insights, it is essential to acknowledge its limitations. The sample size, though robust, may not capture the full spectrum of diversity in patient populations. Future research could explore these dynamics across broader demographics to enhance the generalizability of findings.

Moreover, the study's focus on a one-year post-treatment evaluation may not capture long-term outcomes and evolving patient perspectives. Longitudinal studies tracking patient satisfaction over extended periods could provide a more comprehensive understanding of the sustained impact of prosthodontic interventions.

In conclusion, this discussion illuminates the intricate interplay of factors influencing treatment choices and patient satisfaction in the context of single-tooth rehabilitation. The study's findings offer a roadmap for clinicians to navigate this complexity, emphasizing the importance of personalized, patient-centered care in achieving optimal outcomes and fostering lasting patient satisfaction.

VI. Conclusion

In the ever-evolving landscape of restorative dentistry, this study has delved into the intricacies of decision-making surrounding the replacement of a single missing tooth. The multifaceted factors influencing treatment choices, coupled with a meticulous evaluation of patient satisfaction with prosthodontic interventions, contribute valuable insights to the ongoing discourse in dental care.

a. Factors Shaping Treatment Choices:

Financial considerations have emerged as a prominent determinant, underscoring the pervasive influence of economic factors in treatment decisions. The prioritization of cost over other considerations raises critical questions about the accessibility of diverse treatment modalities. Addressing these financial barriers becomes

imperative for fostering equitable access to prosthetic options and ensuring that patient preferences align with chosen interventions.

Gender, age, and public awareness have been identified as pivotal influencers, emphasizing the need for a nuanced, patient-centered approach. Recognizing the socio-cultural dimensions that shape treatment decisions is essential for tailoring communication strategies and recommendations to resonate with diverse demographic groups. By acknowledging and addressing these influential factors, clinicians can enhance their ability to provide personalized and effective care.

b. Patient Satisfaction as a Holistic Measure:

The study's emphasis on patient satisfaction as a holistic measure of success adds depth to the evaluation of prosthodontic interventions. Beyond clinical outcomes, the evaluation of esthetics, functionality, and speech efficiency provides a comprehensive understanding of the impact of single-tooth rehabilitation on individuals' overall well-being. This holistic approach aligns with the principles of patient-centered care, emphasizing the importance of addressing not only the physical but also the emotional and functional aspects of oral health.

c. Clinical Implications:

The findings of this study carry practical implications for clinical practice. Dentists are urged to adopt a holistic and patient-centric approach, considering not only the clinical efficacy of treatments but also the individual needs and preferences of patients. Shared decision-making processes, where clinicians collaborate with patients in determining the most suitable treatment option, emerge as a cornerstone for enhancing treatment acceptance and overall satisfaction.

Furthermore, the recognition of the dynamic nature of prosthodontic practices underscores the importance of continuous professional development. Staying abreast of advancements and innovations ensures that clinicians can offer a diverse range of options, adapting their recommendations to align with the evolving landscape of patient expectations.

VII. Limitations and Future Directions:

While this study provides valuable insights, it is essential to acknowledge its limitations. The sample size and the focus on a one-year post-treatment evaluation limit the breadth and long-term understanding of patient experiences. Future research endeavors could explore these dynamics across more extensive and diverse populations, employing longitudinal approaches to capture evolving patient perspectives over extended periods.

In conclusion, this study illuminates the intricate dynamics of decision-making and patient satisfaction in the realm of single-tooth rehabilitation. By recognizing and addressing the multifaceted factors that influence treatment choices, clinicians can navigate the complexities of patient care with empathy and effectiveness. The pursuit of patient-centered, evidence-based practices remains paramount for achieving optimal outcomes and ensuring the enduring satisfaction of individuals seeking prosthodontic interventions. As the field continues to evolve, these insights pave the way for a more nuanced and patient-centric approach to the replacement of missing teeth.

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