

# Ethical Considerations in Prosthodontic Treatments Balancing Cost and Patient Care – A Review

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**Abstract:-** Prosthodontics, a specialty focused on restoring oral function and aesthetics, encounters ethical challenges in balancing patient care, cost, and accessibility. Emphasis is placed on ensuring informed patient decisions, delivering beneficial treatments, avoiding harm, and addressing disparities in care access. The integration of evidence-based practices, technological advancements, and financial management is discussed, highlighting their impact on treatment quality and affordability. Challenges such as high material costs, limited insurance coverage, and patient expectations are examined alongside strategies for ethical decision-making, including transparent communication, phased treatments, and advocacy for policy changes. Financial management practices like cost analysis and revenue optimization are vital for sustainable care. By balancing ethical imperatives with economic realities, prosthodontists can uphold professional standards while ensuring equitable, patient-centered care.

**Keywords:-** Prosthodontics, Ethics, Autonomy, Beneficence, Non-maleficence, Justice, Evidence-Based Practice.

## I. INTRODUCTION

Prosthodontics, as a specialty focused on restoring oral function and aesthetics, often involves intricate treatments requiring significant financial, technical, and professional resources. The field presents numerous ethical challenges, particularly in balancing patient care with the cost and accessibility of treatment.<sup>1</sup> Ethical considerations in prosthodontic treatments require a careful balance between cost and patient care, guided by the principles of autonomy, beneficence, and non-maleficence. Practitioners must ensure that patients are fully informed and actively involved in treatment decisions, respecting their preferences and autonomy.<sup>2</sup> At the same time, the obligations of beneficence and non-maleficence compel clinicians to provide treatments that benefit patients while minimizing harm, emphasizing thorough treatment planning and careful examination to prevent complications. Professionalism and ethical sensitivity are also critical, as evidenced by studies showing that a majority of newly graduated dentists demonstrate awareness of ethical principles in prosthodontic practice.<sup>3</sup> From a cost perspective, economic analyses are vital in evaluating the financial implications of various prosthodontic interventions, weighing initial and maintenance costs against

patient outcomes to achieve a balance between affordability and effectiveness.<sup>4</sup> Despite the clinical success of treatments like implant-supported prostheses, economic barriers often limit access for many patients, highlighting the importance of developing equitable solutions. However, the increasing emphasis on cost-effectiveness raises concerns that financial constraints may compromise the quality of patient care, leading to suboptimal treatment choices.<sup>5</sup> This article gives an overview on ethical considerations in prosthodontic treatments focusing on balancing cost and patient care

### ➤ *Beneficence in Prosthodontics*

Beneficence, rooted in the Hippocratic Oath, obligates healthcare providers to act in the best interest of their patients. In prosthodontics, this principle encompasses ensuring that treatments improve oral health, aesthetics, and function while considering the patient's unique circumstances. Specific beneficence focuses on individual patients, such as recommending personalized prosthetic solutions based on their oral health needs, financial constraints, and lifestyle.<sup>6</sup> General beneficence involves contributing to broader societal well-being, such as advancing prosthodontic research or providing community-based services to underserved populations. Prosthodontists must stay updated on advancements in materials, techniques, and technologies to ensure treatments align with current standards and deliver optimal outcomes. For example, mastering CAD/CAM technology enables clinicians to offer precise and durable prosthetics, directly benefiting patients. Delegating complex procedures, such as full-mouth rehabilitation or implant-supported prostheses, to less experienced trainees or auxiliary staff without proper supervision may compromise care quality. Ethical practice demands that prosthodontists oversee critical aspects of treatment to ensure safety and effectiveness.<sup>7</sup>

### ➤ *Non-Maleficence in Prosthodontics*

The principle of non-maleficence, meaning "First do no harm," underpins the responsibility of healthcare providers to avoid causing harm to patients through their actions or omissions. Non-maleficence in prosthodontics involves avoiding complications such as ill-fitting dentures, poorly integrated implants, or prosthetics that cause undue discomfort or harm. Meticulous planning, accurate diagnostics, and adherence to evidence-based practices are crucial to mitigating these risks. For example, recommending a full-mouth implant reconstruction to a medically

compromised patient without considering alternative solutions like removable dentures may pose unnecessary risks. A responsible approach would involve evaluating the patient's health, preferences, and financial constraints to minimize harm while ensuring satisfactory outcomes. Ensuring patients fully understand the potential risks and benefits of procedures, such as implant surgery or maxillofacial prosthetics, helps align clinical decisions with ethical standards. Inadequate disclosure of risks may lead to emotional distress, financial burdens, or litigation if adverse outcomes occur.<sup>7,8</sup>

#### ➤ *Autonomy in Prosthodontics*

Autonomy emphasizes the patient's right to make informed and voluntary decisions regarding their healthcare. In prosthodontics, respecting autonomy requires transparent communication and a participatory approach to treatment planning. Autonomy extends beyond obtaining a patient's signature on a consent form. It involves educating patients about the nature of prosthodontic treatments, such as fixed prostheses, implant-supported restorations, or full-mouth rehabilitations. Patients should understand the risks, benefits, alternatives, and costs associated with each option. Providing patients with visual aids, mock-ups, or models of proposed prosthetics can enhance their understanding, allowing them to make confident decisions. For instance, showing patients digital renderings of their planned restorations helps them visualize outcomes. A paternalistic approach, where clinicians override patient preferences in favor of what they believe is best, undermines autonomy. Modern prosthodontic practice advocates for shared decision-making, ensuring patients feel respected and involved in their care.<sup>9</sup>

#### ➤ *Justice in Prosthodontics*

The principle of justice in prosthodontics emphasizes fairness in the distribution of healthcare resources and equitable access to treatment, addressing disparities in access to high-quality prosthetic care. Prosthodontic treatments, such as implant-supported prostheses or full-mouth rehabilitations, are often expensive and inaccessible to marginalized populations, necessitating the exploration of options to make care more affordable. Clinicians can adopt strategies such as phased treatment plans or offering low-cost alternatives like resin-based removable partial dentures to ensure inclusivity. Addressing socioeconomic inequities is critical, and ethical prosthodontists can bridge these gaps by providing sliding-scale fees, participating in community outreach programs, and advocating for broader access to care. Justice in prosthodontics can be understood through various theoretical lenses: utilitarianism focuses on maximizing benefits for the greatest number by developing affordable, scalable prosthetic solutions; egalitarianism emphasizes creating policies that ensure basic prosthetic care for all individuals, regardless of financial status; and libertarianism highlights the importance of patient autonomy in allocating resources for elective treatments. By adhering to the principle of justice, prosthodontists contribute to a fair and equitable healthcare system, ensuring no patient is disadvantaged due to financial or societal constraints, and fostering trust and integrity in the practice.<sup>10</sup>

#### ➤ *Implant Related - Outcomes*

The ethical considerations surrounding dental implants are diverse and intricate, involving key aspects such as patient autonomy, informed consent, professional responsibility, and the long-term implications of treatment decisions. With the rapid advancements in dental implantology, practitioners are tasked with addressing these ethical dilemmas to provide responsible care and ensure the best possible patient outcomes. Respecting patient autonomy remains paramount, requiring open, transparent communication that enables patients to understand their treatment options fully and participate in shared decision-making. Informed consent must be comprehensive, detailing not only the potential benefits of dental implants but also the associated risks, complications, and limitations of the treatment. Professional responsibility extends to staying well-versed in ethical standards and legal requirements, as studies indicate that a significant number of dental professionals lack adequate knowledge of current legislation. Ethical practice also demands meticulous documentation and an obligation to inform patients about all viable treatment options. The longevity of dental implants presents unique ethical challenges, particularly when recommending them for younger patients, given the limited long-term success data currently available. Dentists must carefully weigh the potential benefits against the uncertainties, ensuring decisions are made in the patient's best interest. Another critical consideration is the balance between treatment costs and patient benefits. Practitioners must manage financial discussions with transparency to maintain trust, avoiding scenarios where costs overshadow the potential advantages of implants. While the emphasis on ethical considerations is essential, there is an ongoing debate that excessive caution driven by ethical concerns may inadvertently restrict access to implants for patients who could significantly benefit from them. Thus, achieving an equilibrium between ethical rigor and practical accessibility is vital to advancing implantology while upholding patient-centered care.<sup>7,10</sup>

A multidisciplinary approach in dental implantology is essential for addressing the diverse needs of patients and managing potential complications effectively. Dental implant treatment often involves complex clinical scenarios that extend beyond the expertise of a single practitioner, requiring collaboration among various specialists, including prosthodontists, oral and maxillofacial surgeons, periodontists, orthodontists, and sometimes medical professionals. Complications can arise at any stage of treatment, making a team-based approach invaluable. Early complications, such as surgical site infections or implant failure due to inadequate osseointegration, benefit from input from surgeons and periodontists to manage tissue health and healing. Prosthetic complications, including improper load distribution or misalignment, require the expertise of prosthodontists to refine and adjust the prosthesis. Long-term complications, such as peri-implantitis, necessitate regular maintenance and intervention by periodontists to prevent implant loss. By adopting a multidisciplinary approach, clinicians ensure a holistic treatment plan that minimizes risks, addresses complications proactively, and provides patients with optimal functional and aesthetic outcomes. This

approach not only improves the success rate of dental implants but also enhances patient satisfaction and trust in the care process.

#### ➤ *Informed Consent*

Informed consent is a cornerstone of prosthodontic care, ensuring that patients fully understand their treatment options, including risks, benefits, alternatives, and potential outcomes, before proceeding with interventions such as removable partial dentures (RPD), fixed partial dentures (FPD), implants, complete dentures (CD), or maxillofacial prostheses. The process involves assessing the patient's mental capacity to make informed decisions, providing clear and thorough explanations, and documenting the consent either in writing or verbally. Explicit consent is necessary for complex or high-risk procedures, while implied consent may suffice for routine treatments, though less common in surgical settings.<sup>3</sup>

Prosthodontists must clearly communicate the cost of treatment, specifying whether the amount is fixed or an estimate. For example, if the cost is approximate, practitioners should inform patients about factors that could influence the final expense, such as unforeseen complications or additional procedures. This transparency ensures patients can make informed financial decisions, safeguarding their autonomy and maintaining trust.<sup>1,4</sup>

#### ➤ *Evidence-Based Prosthodontics*

Prosthodontics relies increasingly on evidence-based practices (EBP) despite challenges unique to the field. Unlike other medical and dental specialties, prosthodontics often deals with studies of limited duration, small sample sizes, and inconsistent clinical outcomes, which complicates the generation of high-quality evidence.<sup>11</sup> Evidence-based dentistry is defined as the judicious integration of scientific

evidence with clinical expertise and patient needs. However, the assessment of prosthodontic treatment success, such as the longevity of prostheses, requires long-term observation, and many studies rely on weaker evidence such as case reports or cross-sectional studies. The hierarchy of evidence in traditional medicine places randomized controlled trials (RCTs) at the top, offering minimal bias, while case reports and expert opinions are at the bottom due to higher susceptibility to bias.<sup>12</sup> However, lower-level studies can still provide valid evidence, especially when RCTs are not feasible for certain procedures. Evidence-based prosthodontics aims to compile and critically analyze existing scientific data, seeking improvements and adherence to robust research protocols. For fixed partial dentures (FPDs), evidence suggests an 89% survival rate over 10 years for tooth-supported FPDs, with digital impressions outperforming conventional methods in marginal and internal fit. Longitudinal studies have reported high survival rates for porcelain-fused metal (PFM) and zirconia restorations. Similarly, advancements in removable denture fabrication techniques have been scrutinized, though significant scientific evidence is still lacking for single-impression methods, face-bow registrations, or balanced occlusion models. Evidence-based research in prosthodontics is implemented through frameworks like CONSORT, PRISMA, and TREND, and the focus is shifting towards knowledge translation, ensuring research findings are effectively incorporated into clinical practice. Strategies like designing relevant hypotheses, presenting findings, and emphasizing evidence-based protocols are essential for maintaining clinical relevance and improving patient care. Prosthodontics continues to evolve by applying evidence-based frameworks to refine treatment protocols, validate innovative techniques, and ensure that practices are scientifically justified and aligned with patient-centered care.<sup>13,14</sup>

| Challenges in Balancing Cost and Care   | Strategies for Ethical Decision-Making   |
|---|--|
| <p><b>High Material Costs:</b> Advanced materials like zirconia and titanium increase treatment expenses. Balancing these costs with ethical care involves considering alternative materials or staged treatment plans.</p> <p><b>Technological Advancements:</b> Digital dentistry, including CAD/CAM technology, enhances precision but raises costs. Clinicians must weigh the benefits against the patient's financial constraints.</p> <p><b>Insurance and Reimbursement Issues:</b> Limited coverage for prosthodontic treatments restricts accessibility. Educating patients on insurance options or collaborating with policymakers can address these issues.</p> <p><b>Patient Expectations:</b> Patients often expect affordable yet premium-quality care. Ethical considerations demand realistic discussions about treatment outcomes and costs.<sup>15</sup></p> | <p><b>Transparent Communication:</b> Discuss treatment options, including lower-cost alternatives, without compromising essential care standards.</p> <p><b>Tailored Treatment Planning:</b> Design plans that align with patient needs and financial capacity, such as phased treatments.</p> <p><b>Advocacy for Policy Changes:</b> Work towards insurance reforms to include prosthodontic procedures, improving access for underprivileged populations.</p> <p><b>Interprofessional Collaboration:</b> Coordinate with dental technicians, insurance providers, and other professionals to optimize care delivery.<sup>16,17</sup></p> |

#### ➤ *Financial Management in Prosthodontics*

Financial management is paramount in prosthodontics, as it directly impacts practice profitability and sustainability. A comprehensive cost analysis is essential, encompassing materials, labor, and overhead to establish a robust financial foundation. This analysis informs strategic pricing, balancing competitive rates with the need for profitability. Insurance coordination is crucial, optimizing revenue while ensuring patient access to care. Regular financial monitoring,

including key performance indicators (KPIs) and financial ratios, provides valuable insights into practice health. Implementing comprehensive budgeting strategies aligns revenue with expenses, facilitating growth and asset accumulation. Revenue optimization can be achieved through effective fee structuring and diversifying income streams, such as membership plans or advanced technologies. Standardized financial processes enhance operational efficiency and overall financial health. However, challenges

like patient variability and treatment complexity can impact revenue consistency and forecasting. By addressing these key aspects, prosthodontic practices can effectively manage financial resources, ensuring long-term success and patient care.<sup>18,19,20</sup>

## II. CONCLUSION

Prosthodontists must balance ethical principles with practical challenges when providing high-quality care. Transparent communication, individualized treatment planning, and advocacy for systemic improvements are crucial in addressing cost-related ethical dilemmas. By prioritizing patient well-being while considering financial realities, prosthodontists can uphold the profession's ethical standards and ensure equitable care.

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