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Evaluation of Quality of Life and Propulsion in Coronary Artery Disease Patients Following Dental Extraction

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Abstract:

Regarding dental treatment, dental extractions are common procedures that are frequently required for a variety of problems, including impacted teeth, non-restorable caries, and chronic periodontal disease. But these procedures can be very difficult, especially for patients who have systemic diseases like coronary artery disease (CAD). The aim of this observational study, which was carried out in May 2024, was to assess how dental extractions affected the patient's quality of life (QoL). One hundred adult CAD patients, ages 20 to 75, who had tooth extractions were included in the study. Following extraction, participants answered questions about social interactions, work impairment, postoperative pain, and pronunciation. The findings showed that 53% of participants were men and 47% were women. The teeth that were extracted the most often were the molars (59%), with forceps being the most used technique (63%). Following extraction, speech problems were more common in women (34%) than in men (20%). Furthermore, compared to males, females reported higher degrees of postoperative discomfort (19% reporting moderate pain and 19% reporting severe pain). Significant gender disparities in social isolation attributed to physical appearance, discomfort, and swelling were also noted. The study emphasizes the significance of comprehensive preoperative counselling and tailored postoperative therapy for patients with CAD undergoing dental extractions. Enhancing communication and controlling discomfort are two potential barriers that might significantly raise patients' quality of life. The study's limitations include its limited sample size, potential subjective biases in the self-reported data, and its inability to assess long-term effects. Further research is needed in order to apply these findings to the broader population of CAD patients.

Introduction:

Dental extractions are among the most common procedures carried out in dental practices (1). They are often recommended for the treatment of conditions like non-restorable caries, impacted teeth, persistent periapical cysts or granulomas, fractured teeth, failed root canal treatments, chronic periodontal disease, periapical or periodontal abscesses, and orthodontic or prosthodontic treatment (2,3). Nevertheless, extractions can result in several

complications, such as postoperative bleeding, delayed wound healing, residual bony spicules, and nerve paresthesia (4).

Several variables can contribute to post-extraction challenges, including the condition of the patient, past medical history, lifestyle choices, and other systemic and local factors. For example, decreased angiogenesis and impaired collagen synthesis might impede the healing process in patients with systemic diseases like diabetes (5). In addition, diseases including Cushing's syndrome, HIV, chronic obstructive pulmonary disease, and malnutrition can all cause a delay in the healing process of wounds (6). Additionally, as cardiovascular disorders become more widespread, greater numbers of patients are being treated with long-term antiplatelet therapy, which makes dental procedures more difficult because of the increased risk of bleeding (7).

Materials and Methods:

An observational study was conducted in May 2024 by the Department of Oral Medicine, Radiology, and Special Care Dentistry. The study had one hundred adult participants who could speak English, needed tooth extractions, and had been diagnosed with coronary artery disease (CAD). The participants ranged in age from twenty to seventy-five. Patients with severe cognitive deficits, psychiatric illnesses, or serious systemic ailments were not included in the study.

Following a week post the tooth extraction, the subjects answered a set of questions that assessed four main areas: pronunciation variation, interactions with others, discomfort following the procedure, and impairment to work. The Visual Analog Scale (VAS) was used to quantify patients' pain levels.

Results:

There were 47% female patients and 53% male patients in the study (Fig 1). Tooth extractions were carried out for several reasons: 49% was due to tooth decay, 36% for periodontitis, 9% for root canal failure, and 6% for impacted teeth (Fig 2). The extraction techniques used were forceps 63%, elevators 7%, and a combination of the two 30% (Fig 3). Molars accounted for 59% of the excised teeth, followed by premolars 21%, canines 2%, and incisors 18% (Fig 4). According to the relationships between gender and speech differences following the removal of the tooth, 33% of men were able to talk and 20% had difficulty speaking. Of the female population, 13% could speak and 34% had difficulty to communicate (Fig 5). According to the correlations between gender and postoperative pain severity, 26% of males reported mild pain, 4% reported moderate pain, 1% reported severe pain, and 22% reported no pain. Among the female population, 3% reported mild discomfort, 19% reported moderate pain, 19% reported severe pain, and 6% reported no pain at all (Fig 6). Following the removal of teeth, the correlations between gender and the causes for isolation revealed that, among men, 2% experienced loneliness because of pain, 29% because of swelling, 1% because of their physical appearance, 5% because of poor mood, and 6% because they felt ill. and 10% were normal. In females, loneliness was prompted by pain in 10% of cases, swelling in 18%, physical appearance in 8% of cases, and feeling down in 4% of cases.7% were typical.

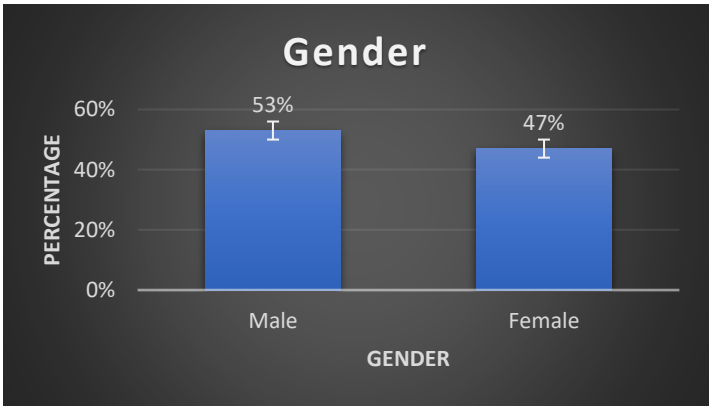

Figure 1 illustrates the gender distribution of the participants with 53% males and 47% females

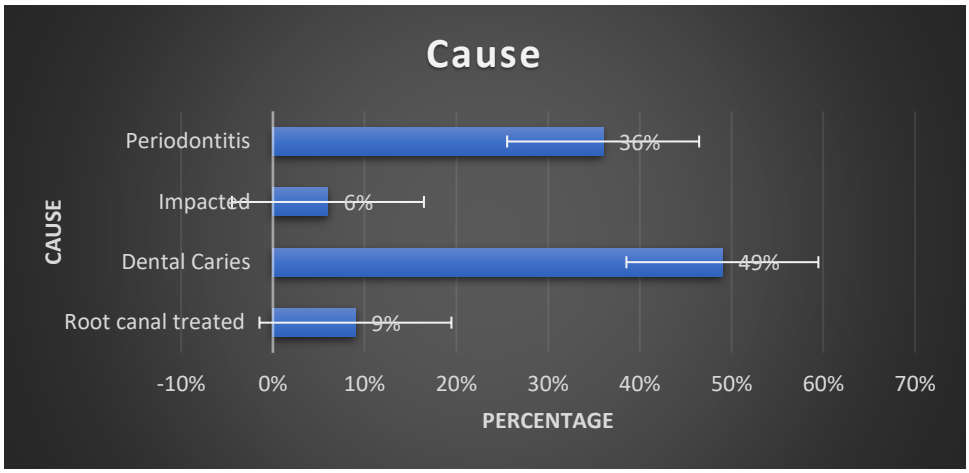

Figure 2 provides a clear breakdown of the cause of dental extraction

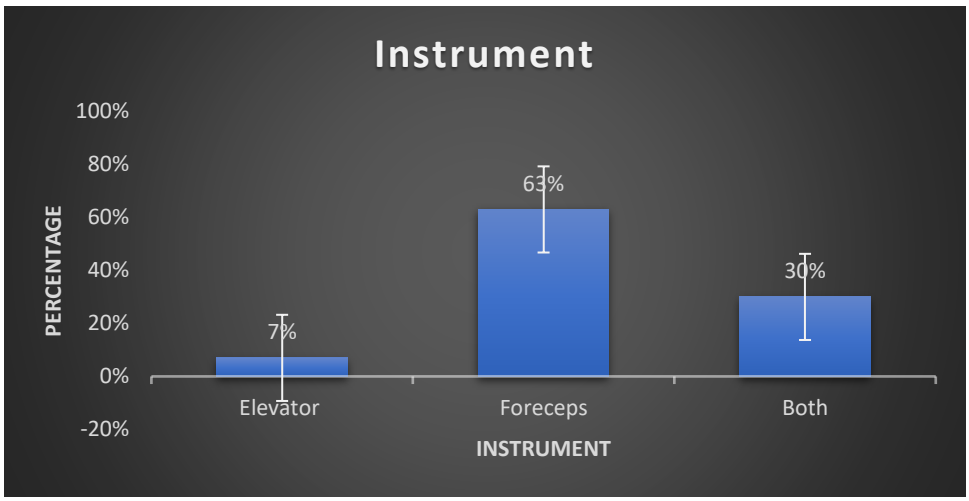

Figure 3 provides the type of instrument used for the extraction of teeth

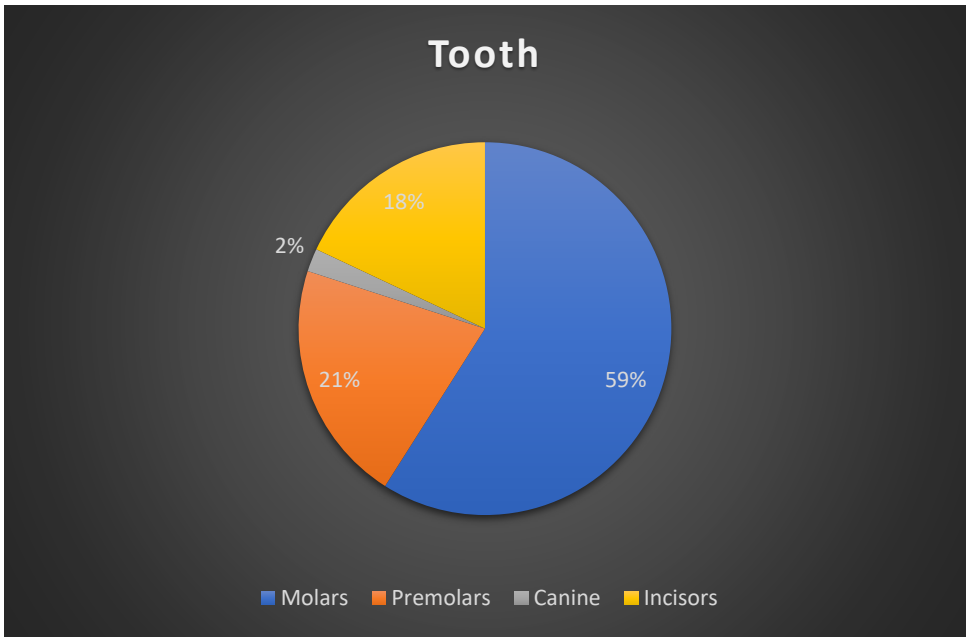

Figure 4 illustrates the teeth that were extracted

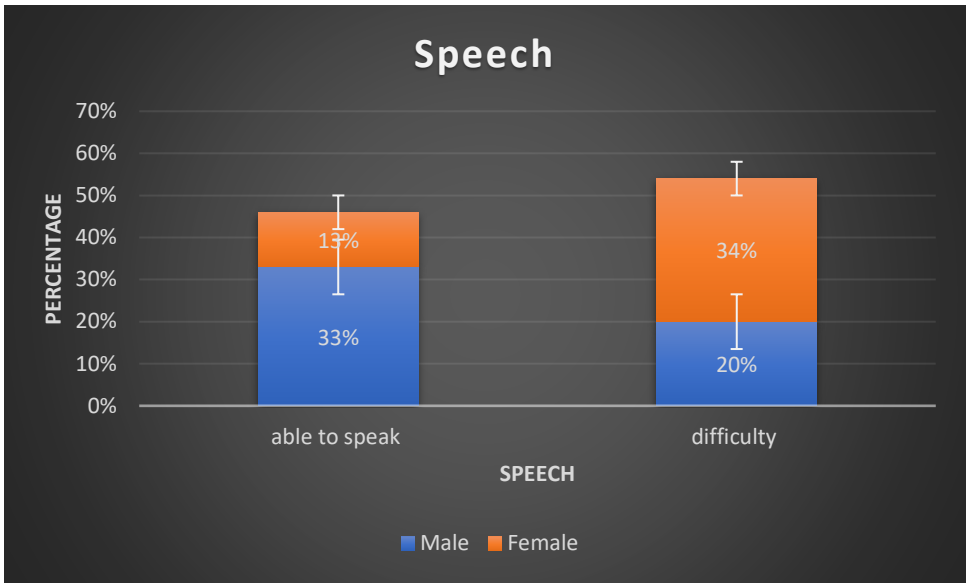

Figure 5 illustrates the speech disturbance the patient underwent post-extraction

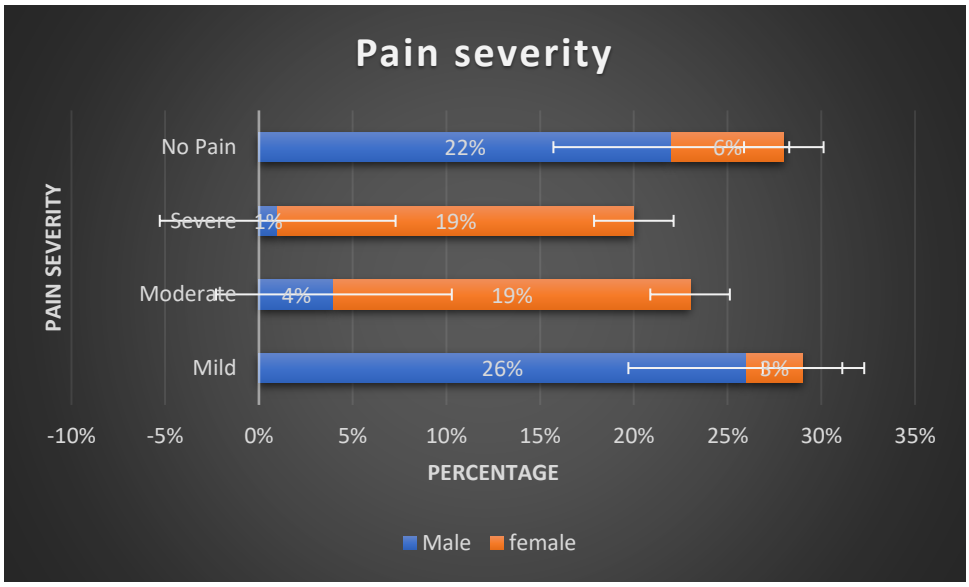

Figure 6 illustrates the pain severity following extraction

Discussion:

In a dentist's office, the extraction of teeth is a routine process. Patients must be properly educated before the surgical treatment about the rationale behind it as well as any possible complications (8). Compliance issues can be avoided by accurately recording interpersonal, wellness, and psychological impacts in a validated questionnaire that the patient signs before the treatment (9).

Based on several research, extractions of teeth can be carried out on antiplatelet patients without presenting any risks to their safety. According to the findings of a study by Savin and Ogden et. al(10), changes in diet were most commonly impacted between 24% and 32% of the time following dental extraction. The inability to enjoy the experience of eating food and difficulty masticating were the most common problems identified by the evaluation of the dietary adjustments (11). Consequently, following extractions of teeth, patients need to be advised about what to eat afterward and about any discomfort they may have when masticating and deglutition.

Therefore, following straightforward or complex surgical dental tooth extractions speech will not be impacted. However, following tooth extraction speech differences were noted by the patients in our research, and this had an impact on their quality-of-life (QoL) post tooth extraction. Few patients in some studies displayed a slight alteration in appearance. Third molar extraction treatments typically result in a transient, transitory swelling that may slightly alter one's appearance (12). Postoperative edema is rarely observed in cases of simple tooth extractions. Patients who had nonsurgical tooth extractions were thought to frequently have insomnia. Colorado-Bonnin states that patients having third molar surgery may experience insomnia as a result of an extended surgical procedure and early drowsiness brought on by postoperative medicines.

Limitation:

There are multiple restrictions on this study. First off, the sample size might not accurately reflect the larger population of CAD patients, even though it is large enough for initial analysis. The use of self-reported data raises the possibility of subjective biases that could skew reported symptoms and quality of life evaluations. Furthermore, the cross-sectional nature of the study makes it difficult to assess long-term results and the sustainability of QoL gains after extraction. The generalizability of the results may also be impacted by the exclusion of patients with significant systemic diseases or severe cognitive impairments.

Conclusion:

This study emphasizes how extractions of teeth have a considerable adverse effect on patients' quality of life (QoL) who have coronary artery disease (CAD). Many patients had significant difficulties following extraction, especially with speech variance, interaction with others, and perioperative unease; there was noticeable variation in these areas between male and female patients. Although the majority of patients were happy with the way their tooth extractions turned out, a significant number experienced transient impairments that interfered with their everyday activities, including their capacity to work.

The findings highlight how crucial complete preoperative counseling and postoperative care are while treating patients with CAD undergoing dental extractions. Patients' overall quality of life can be enhanced and these problems can be lessened by counseling them about possible challenges, including discomfort, speech difficulties, and the significance of adhering to post-extraction guidelines. Pain management should receive extra focus, and there should be explicit instructions on how to abstain from behaviors like smoking that could impede healing.

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