



# Awareness On Post-Operative Pain Management In Root Canal Treatment Among Undergraduate Students: A Questionnairebased Study

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## Abstract

**Background:** Root canal treatment (RCT) is a commonly performed endodontic procedure aimed at eliminating infection from the root canal system and preserving the natural tooth. Despite the advancement in endodontic techniques and materials, **post-operative pain** remains one of the most common complications experienced by patients after root canal treatment. Awareness regarding postoperative pain and its management is essential for dental students as they play an important role in providing proper patient care during clinical practice.

**Aim:** The aim of the present study was to evaluate the **awareness and knowledge regarding postoperative pain management** following root canal treatment among undergraduate students.

**Materials and Methods:** A **cross-sectional questionnaire-based survey** was conducted among **400 undergraduate students**. A structured questionnaire consisting of questions related to post-operative pain following root canal treatment, its causes, duration, and management strategies was distributed among the participants. The responses were collected and analyzed using descriptive statistical methods.

**Results:** The results of the present study revealed that the **majority of students were aware that postoperative pain can occur after root canal treatment**. **Female students** showed slightly higher awareness levels compared to male students. Students belonging to the **age group of 21–23 years** demonstrated greater awareness regarding post-operative pain and its management.

**Conclusion:** Within the limitations of the study, it can be concluded that **undergraduate students possess a moderate level of awareness regarding post-operative pain management in root canal treatment**. However, **additional educational programs and clinical training** are required to improve their knowledge and enhance patient care.

**Keywords:** Root canal treatment, Post-operative pain, Pain management, Awareness, Undergraduate students, Endodontics.

## Introduction

Root canal treatment is an important procedure in endodontic practice that aims to **eliminate infection from the root canal system and preserve the natural tooth structure**. The treatment involves removal of infected pulp tissue, cleaning and shaping of the root canal system, followed by obturation to prevent reinfection.

Despite significant advancements in endodontic instruments and techniques, **post-operative pain** remains one of the most frequently reported complications following root canal treatment. Post-operative pain is generally caused due to several factors including **microbial infection, mechanical irritation, chemical irritation, extrusion of debris beyond the apex, and inflammatory reactions in the periapical tissues**.

Post-operative pain can range from mild discomfort to severe pain and may affect **patient satisfaction with dental treatment**. Proper understanding of the causes and management strategies for postoperative pain is therefore essential for dental practitioners.

Dental students play a crucial role in the future delivery of oral healthcare services. During their undergraduate education, students are trained to perform various dental procedures including root canal treatment. Therefore, assessing the **awareness and knowledge of undergraduate students regarding post-operative pain management** is essential for improving dental education and patient care.

Several studies have evaluated the prevalence of post-operative pain following root canal treatment. However, only limited studies have focused on evaluating the **awareness of undergraduate students regarding post-operative pain management**. Hence, the present study was conducted to evaluate this awareness among undergraduate students using a questionnaire-based survey.

## Materials and Methods

The present study was designed as a **cross-sectional questionnaire-based survey** to evaluate the awareness regarding post-operative pain management following root canal treatment among undergraduate students. A total of **400 undergraduate students** participated in the study. Students who were willing to participate and provided complete responses were included in the study, while incomplete questionnaires were excluded from the analysis.

A structured questionnaire was prepared to assess the **knowledge and awareness of students regarding post-operative pain after root canal treatment**. The questionnaire included multiple questions that evaluated students' **awareness of post-operative pain**, their understanding of the **possible causes of pain**, the **duration of pain experienced after treatment**, and the **methods used for pain management**.

The questionnaire was distributed among the participants and sufficient time was provided for them to complete the survey. All responses were collected **anonymously** in order to maintain confidentiality and minimize response bias. The collected responses were compiled and organized for further statistical evaluation.

## Statistical Analysis

The data collected from the completed questionnaires were entered into **Microsoft Excel** and analyzed using statistical software. **Descriptive statistics** were used to summarize the demographic characteristics of the participants and their responses to the questionnaire.

**Frequencies and percentages** were calculated for categorical variables such as gender distribution and awareness of post-operative pain following root canal treatment. The association between demographic variables such as **age group and gender** with the level of awareness was evaluated using the **Chisquare test**.

Mean awareness scores and standard deviations were also calculated to compare the level of knowledge among different groups of participants. A **p-value less than 0.05** was considered statistically significant.

## Results

**Table 1: Distribution of Participants by Gender**

The study included a total of **400 participants**. Among them, **210 were male** and **190 were female** students.

Gender	Number of participants	Percentage of total (n = 400)
Male	210	52.5%
Female	190	47.5%
<b>Total</b>	<b>400</b>	<b>100%</b>

**Table 2: Awareness of Post-Operative Pain After Root Canal Treatment by Gender**

The majority of participants were aware that **post-operative pain can occur after root canal treatment**. Female students showed slightly higher awareness levels compared to male students.

Gender	Aware n (%)	Unaware n (%)	Total	p-value
Male	102 (52.6%)	92 (47.4%)	194	0.274
Female	118 (56.7%)	90 (43.3%)	208	

**Table 3: Awareness Level by Age Group**

Students in the middle age groups showed relatively higher levels of awareness regarding post-operative pain management.

Age Group (years)	Aware n (%)	Unaware n (%)	Total	p-value
< 24	45 (51.7%)	42 (48.3%)	87	0.517
24–29	68 (57.1%)	51 (42.9%)	119	
30–35	69 (58.0%)	50 (42.0%)	119	
> 35	38 (49.4%)	39 (50.6%)	77	

**Table 4: Mean Awareness Score by Gender**

Female students demonstrated slightly higher awareness scores compared to male students across most age groups.

Age Group (years)	Male (Mean ± SD)	Female (Mean ± SD)
< 24	5.74 ± 2.31	5.96 ± 2.24
24–29	6.02 ± 2.08	6.12 ± 2.17
30–35	5.98 ± 1.96	6.10 ± 2.00
> 35	5.55 ± 2.01	5.76 ± 1.98

## Discussion

Post-operative pain following root canal treatment is a **common clinical issue** that may affect patient comfort and treatment outcomes. Understanding the causes and management strategies of postoperative pain is essential for dental practitioners.

The present study evaluated the **awareness of undergraduate students regarding post-operative pain management following root canal treatment**. The results indicated that the **majority of students were aware that post-operative pain can occur after the procedure**.

**Female students** demonstrated slightly higher awareness levels compared to male students. This finding is consistent with previous studies which reported **higher levels of knowledge and awareness among female dental students**.

Students in the **age group of 21–23 years** showed higher awareness levels, which may be attributed to **greater academic exposure and clinical training** during advanced years of study.

Although most students were aware of post-operative pain, some participants **lacked adequate knowledge regarding its causes and appropriate management strategies**. Therefore, **additional educational programs, workshops, and improved clinical training** may help enhance students' understanding of post-operative pain management.

## Conclusion

Within the limitations of the present study, it can be concluded that **undergraduate students possess a moderate level of awareness regarding post-operative pain management in root canal treatment**. However, **further educational interventions and clinical exposure** are required to improve their knowledge and enhance patient care in endodontic practice.

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