Knowledge, Attitude, And Awareness Regarding Pulp Vitality Tests Among Dental Students And Interns

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Abstract

Background: Proper evaluation of pulp vitality is essential for accurate diagnosis and effective endodontic treatment planning. Dental students and interns must have sufficient knowledge and awareness of pulp vitality testing methods to ensure appropriate clinical decisions.

Aim: To evaluate the knowledge, attitude, and awareness related to pulp vitality tests among dental students and interns.

Materials and Methods: A cross-sectional survey was carried out among 262 dental students and interns, including third-year students, final-year students, and interns. A structured questionnaire consisting of demographic information and 15 multiple-choice questions was used to assess knowledge of pulp vitality tests. Each correct response was given a score of 1, and incorrect responses were scored as 0, with a maximum possible score of 15. Descriptive statistics were used to summarize the data, and a one-way Analysis of Variance (ANOVA) test was applied to compare knowledge scores among the three groups. A p-value of less than 0.05 was considered statistically significant.

Results: The overall findings indicated moderate to good knowledge among participants. Final-year students showed slightly higher average knowledge scores compared to third-year students and interns. However, the difference between the groups was not statistically significant ($F = 1.71$, $p = 0.183$).

Conclusion: The study demonstrated that dental students and interns possess an acceptable level of knowledge regarding pulp vitality tests, with no significant variation among the academic groups. Continued clinical training and educational programs are recommended to improve awareness and practical skills.

Keywords: Pulp vitality test, Dental students, Interns, Knowledge, Awareness, Attitude

Introduction

The dental pulp is the soft connective tissue present in the center of the tooth, containing blood vessels, nerves, lymphatics, and specialized cells. It plays a vital role in maintaining the health, function, and longevity of the tooth.The dental pulp is essential for the formation, nutrition, sensation, defense, and repair of the tooth. Maintaining pulpal health ensures long-term tooth survival and optimal oral function.

Clinician should identify the dental diseases at their early stage to avoid possible complication.For diagnosis and treatment plan dentist should know the state of dental pulp.It is achieved through complete intraoral and radiographic examination .If pulp gets damaged or infected it leads to pulpitis in severe case it may lead to extraction.

Maintaining the vitality of the dental pulp is a key objective in restorative and endodontic treatment. Accurate assessment of the pulpal condition is necessary for proper diagnosis and selection of suitable treatment procedures. Pulp vitality tests are commonly used to determine the functional status of the pulp by evaluating its sensory or vascular response.

Various methods, including thermal testing, electric pulp testing, and more advanced techniques such as pulse oximetry and laser Doppler flowmetry, are used in clinical practice.Pulse oximetry and laser Doppler flowmetry are non invasive diagnostic procedures.Traditional tests mainly assess the sensory reaction of the pulp rather than its true vascular vitality, which can sometimes result in inaccurate outcomes.

The thermal pulp vitality test plays an important role in endodontic diagnosis by assessing the sensory response of the dental pulp to thermal stimuli (cold or heat)

The Electric Pulp Vitality Test (EPT) is a procedure used to assess the sensory response of the dental pulp by applying a small electric current to the tooth. It helps determine whether the pulp is vital or non-vital.EPT works by stimulating the A-delta nerve fibers within the pulp using a gradually increasing electric current

Pulse oximetry is used to assess the true vitality of dental pulp by measuring the oxygen saturation (SpO_2) of pulpal blood flow.

Laser Doppler Flowmetry (LDF) is used to assess true pulp vitality by measuring blood flow within the dental pulp.

Dental students and interns receive training in pulp vitality testing during their undergraduate education and are expected to apply these techniques effectively in clinical settings. Their level of knowledge, awareness, and attitude toward these diagnostic tools plays a significant role in treatment success. Differences in clinical experience and understanding may influence their competence in performing these tests.

Therefore, this study was conducted to assess the knowledge, attitude, and awareness of pulp vitality tests among dental students and interns.

Aim and Objectives

Aim

To assess knowledge, attitude, and awareness regarding pulp vitality tests among dental students and interns.

Objectives

To determine the level of knowledge about pulp vitality tests.

To evaluate awareness of various pulp vitality testing methods.

To compare knowledge levels among third-year students, final-year students, and interns.

Materials and Methods

A cross-sectional questionnaire-based study was conducted in Adhiparasakthi dental college and hospitals. Target population of this study involves third year, final year and interns.The questionnaire were send to 300 students and out of 300 received 262 response. This study involved 262 dental students and interns from the institution.Sample distribution involves 59 third year students, 111 final year students, 92 interns. Inclusion Criteria are dental students and interns willing to participate.Exclusion Criteria incomplete questionnaire responses, postgraduate students.A structured, self-administered questionnaire was used. It consisted of two parts demographic details, including year of study.Fifteen multiple-choice questions assessing knowledge and awareness of pulp vitality tests.Each correct response was assigned a score of 1, while incorrect responses received a score of 0. The total knowledge score ranged from 0 to 15.

Statistical Methods

Data obtained from the questionnaire were entered into Microsoft Excel and checked for completeness and accuracy. Each correct response to the knowledge questions was scored as 1 and incorrect responses as 0. The total knowledge score for each participant was calculated by summing the scores of all 15 questions, giving a maximum possible score of 15.

Descriptive statistics such as frequency, percentage, mean, and variance were used to summarize demographic variables and knowledge scores. To compare mean knowledge scores among third-year students, final-year students, and interns, a one-way Analysis of Variance (ANOVA) test was applied. A p-value of less than 0.05 was considered statistically significant.

Results

1. Study Participants

A total of 262 dental students and interns participated in the study. Participants included third-year students, final-year students, and interns.

- Third year: 59 students

- Final year: 111 students

- Interns: 92 students

2. Knowledge Scores on Pulp Vitality Tests

Knowledge was assessed using 15 multiple-choice questions. Each correct answer was scored as 1 and incorrect answers as 0. The maximum possible score was 15. The overall knowledge scores showed moderate to good knowledge among participants. Final-year students showed slightly higher mean knowledge scores compared to other groups.

3. Comparison of Knowledge Scores by Year of Study

A one-way ANOVA was performed to compare knowledge scores among third-year students, final-year students, and interns. Although final-year students demonstrated slightly higher knowledge scores, the difference was not statistically significant. *(Table 1, 2)*

SUMMARY

Groups	Count	Sum	Average	Variance
Third year	59	574	9.728814	2.614845
Final year	111	1146	10.32432	4.384767
Intern	92	931	10.11957	4.414118

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	13.66194	2	6.830969	1.708286	0.183211	3.030651
Within Groups	1035.67	259	3.998726			
Total	1049.332	261				

Table 1: One-way ANOVA was used to compare knowledge scores among third-year students, final-year students, and interns. There was no statistically significant difference in knowledge scores between the three groups (F=1.71, p=0.183).

Year	N	Mean ± SD	P value
Third	59	9.73 ± 1.62	
Final	111	10.32 ± 2.09	
Intern	92	10.12 ± 2.10	0.183

Table 2. Comparison of mean knowledge scores among dental students and interns

Discussion

This study assessed the knowledge, attitude, and awareness of pulp vitality tests among dental students and interns. The findings revealed that participants had a satisfactory level of knowledge. Final-year students achieved slightly higher scores, which may be due to increased theoretical understanding and clinical exposure during advanced years of study.

However, the lack of a statistically significant difference among the groups suggests that basic knowledge regarding pulp vitality testing is introduced early and maintained throughout the course of training. Similar outcomes have been reported in other studies, highlighting the importance of continuous reinforcement of diagnostic concepts.

Although knowledge levels were acceptable, exposure to advanced vitality testing techniques appears limited during undergraduate education. Integrating modern diagnostic tools into the curriculum may help improve students' clinical competence and confidence.

Conclusion

The results of the present study indicate that dental students and interns possess a moderate to good level of knowledge about pulp vitality tests, with no significant differences among academic groups. Ongoing clinical education, workshops, and training programs are recommended to improve awareness and practical application of pulp vitality testing methods.

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