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Kap survey on usage of microscopes in endodontics among postgraduate dental students

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Abstract--Introduction: Endodontists have often bragged they can accomplish a lot of their work blindfolded basically in light of the fact that there "isn't anything to see." The reality of the situation is that there is an incredible arrangement Over the most recent fifteen years for both non-careful and careful endodontics, there has been a blast of new innovations, new instruments and new materials(1). These advancements have improved the accuracy with which endodontics can be performed. Materials and method: Self administered questionnaire of close-ended questions was prepared and it was distributed among dental students from February to April 2021 through the online survey "google forms". The collected data were checked regularly for clarity, competence, consistency, accuracy and validity. Demographic details were also included in the questionnaire.Results: 63% of the population were aware of the usage of microscopy in endodontics,whereas the remaining 37% of the population were not aware of usage of microscopy in endodontics, suggesting that the majority of the population were aware of the usage of microscope in endodontics. 2ndyear students strongly say that they use a dental operating microscope in their practice, however, it is

statistically significant (p value = 0.000 (< 0.05)). Discussion: Microscope in endodontics was reported by Baumann, the use of dental operating microscope. Dental operating microscopy, showed improvement in results as it helps in managing the calcified canals, location of two mesiobuccal canals, In the previous study by Mines et al, had a significantly higher acceptance as well increased daily usage in most of endodontics treatment. Conclusion: The knowledge, awareness and practice of the microscope was good. The present study reveals that the 3rd year post graduate students had a very good knowledge when compared to others, but they lacked knowledge about the usage of microscopes in surgical endodontic therapies.

Keywords---microscopy, endodontics, awareness, knowledge, practice.

Introduction

Endodontists have often bragged they can accomplish a lot of their work blindfolded basically in light of the fact that there "isn't anything to see" (2). The reality of the situation is that there is an incredible arrangement Over the most recent fifteen years for both non-careful and careful endodontics, there has been a blast of new innovations, new instruments and new materials (1). These advancements have improved the accuracy with which endodontics can be performed. These advances have empowered clinicians to finish systems which were once viewed as outlandish or which could be performed exclusively by incredibly skilled or fortunate clinicians (3). The main upset has been the presentation and afterward the far and wide appropriation of the working magnifying lens (4). Working magnifying lenses have been utilized for quite a long time in numerous other clinical orders: ophthalmology, neurosurgery, reconstructive medical procedure, otorhinolaryngology, and vascular medical procedure. Its presentation into dentistry over the most recent fifteen years, especially in endodontics, has altered how endodontics is drilled around the world (5).

Oral medicine in Endodontics was introduced in the early 1990s by Gary Carr , and their study was the basis for several other authors to deepen research on its use in Odontology (6). Its incorporation in that specialty had profound effects on how to work the endodontist; For this reason, in 1998 the American Dental Association has requested that all graduate programs in the United States should teach the use of the microscope in nonsurgical and surgical endodontics (7). Considering this scenario, the OM emerges as a tool that offers many benefits such as better lighting, magnification and visualization of the operative field (8). The high magnification helps coronary access and the location of channels to identify isthmuses, to interpret the complexities of RCS anatomy, the removal of intracoronary nuclei and fractured instruments, to minimize trauma of surgeries in soft and hard tissues, and detect fractures and microfractures (9). In addition, their use gives the dental surgeon a working position more comfortable and ergonomic, reducing fatigue and stress, and consequently, increasing work efficiency.

The aim of this study is to create knowledge, awareness and practice on usage of microscopes in endodontics.

Materials and Methods

Study design

A cross sectional study was conducted through an online survey from February to April 2021 among postgraduates.

Study subjects

A simple random sampling was used to select the study participants. All the dental students who were willing to participate were included.

Ethical considerations

Returning the filled questionnaire was considered as implicit consent as a part of the survey. Ethical approval for the study was obtained from the Institutional Review Board (IRB), Saveetha Dental College.

Study methods

Self administered questionnaire of close-ended questions was prepared and it was distributed among dental students from February to April 2021 through the online survey "google forms". The collected data were checked regularly for clarity, competence, consistency, accuracy and validity. Demographic details were also included in the questionnaire.

Statistical analysis

Data was analysed with the SPSS version (22.0). Descriptive statistics as percent were calculated to summarise qualitative data. Chi square test was used to analyze.

Results

- Almost 63% of the population were aware of the usage of microscopy in endodontics, whereas the remaining 37% of the population were not aware of usage of microscopy in endodontics, suggesting that the majority of the population were of the usage of microscopy in endodontics. P value is $0.000 < 0.005$, which is statistically significant. Fig:1
- Around 77% of the population said the green filter in the microscopy is preferably used for Endodontic procedure, 9% of the population said green filter in the microscopy is preferably used for surgical procedure. P value is $0.000 < 0.005$, which is statistically significant. Around 4% of the population said green filters in microscopy are preferably used for conservative procedures and 10 % of the population said none of the above. P value is $0.000 < 0.005$, which is statistically significant. Fig:3

- Around 82% of the population said that microscopy helps in the early detection/diagnosis of the dental caries. 18% of the population said that microscopy does not help in the early detection/diagnosis of the dental caries. P value is $0.000 < 0.005$, which is statistically significant. Fig:4
- Around 42% of the population said that they use microscopes as often as anticipated. 58% of the population said that they do not use microscopes as often as anticipated. P value is $0.000 < 0.005$, which is statistically significant. Fig:5
- Around 40% of the population said that microscope lenses are cleaned once in a day, 31% of the population said once in a week, 9% of the population said after every procedure a microscope is cleaned and 20% of the population said microscope lenses are never cleaned. P value is $0.000 < 0.005$, which is statistically significant. Fig:6
- Around 56% of the population said that surgical loops were relatively ineffective when compared to the microscope in Endodontic procedure and only 44% of them said that surgical loops were relatively effective when compared to the microscope in Endodontic procedure. 69% of the population said that microscopes are discouraged by the operators due to the increase in the treatment time, and 31% of them said that microscopes are not being discouraged by the operators due to the increase in the treatment time. P value is $0.000 < 0.005$, which is statistically significant. Fig:7

Discussion

Endodontic treatment in teeth that have been recently reestablished with broad intracoronal or extracoronal rebuilding efforts are regularly hard to treat. The direction of the root channels to the crown of the tooth might be lost, and this may frequently be compounded by the affidavit of reparative dentin in the mash chamber. The working magnifying instrument permits better perception of the functioning field, guaranteeing that the life structures of the tooth is all the more promptly examined. This significantly improves the clinician's capacity to find additional root trenches and thus improve the probability of an effective result. It ought not be missed to remember that the working magnifying lens additionally has a spot in different fields of dentistry, particularly therapeutic dentistry, and is a resource for both the subject matter expert and the generalist.

The careful magnifying instrument has been utilized in Endodontics to limit the haziness of the careful field, since it gives a high amplification and iridescence, consequently upgrading the methodology performed and giving an eventual outcome of better caliber. Microscope arises as an apparatus that offers numerous advantages like better lighting, magnification and representation of the usable field. The high amplification assists coronary with getting to and the location of channels to recognize isthmuses, to decipher the intricacies of RCS life systems, the evacuation of intracoronal cores and cracked instruments, to limit trauma of medical procedures in delicate and hard tissues, and distinguish fractures and microfractures.

Microscope in endodontics was reported by Baumann, the use of dental operating microscope(10). Dental operating microscopy, showed improvement in results as it

helps in managing the calcified canals, location of two mesiobuccal canals, In the previous study by Mines et al, had a significantly higher acceptance as well increased daily usage in most of endodontics treatment(11). Dental operating microscopy has increased the results of non surgical treatment of the calcified canals. Increased frequency of microscopes usage especially in endodontics procedures among both endodontist and non endodontists. Finally I conclude that the majority of the population were aware of the use of microscopes in endodontists(12).

Conclusion

The knowledge, awareness and practice of the microscopy was really good. The present study reveals that the 3rd year post graduate students had a very good knowledge when compared to others, but they lacked knowledge about the usage of microscopes in surgical and non surgical endodontic therapies.

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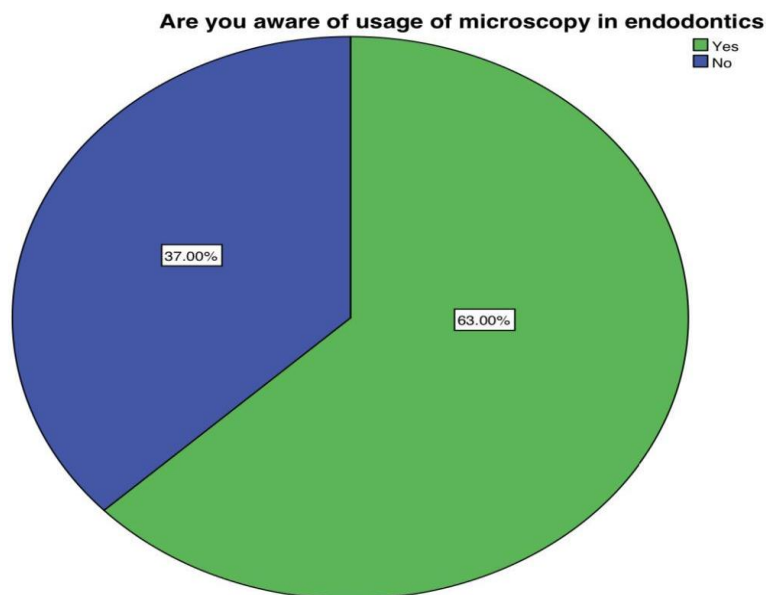


Figure 1: Pie chart representing the percentage distribution of awareness of usage of microscopy in endodontics. Majority of participants 63% responded yes(green), and 37% of the participants responded no(blue).

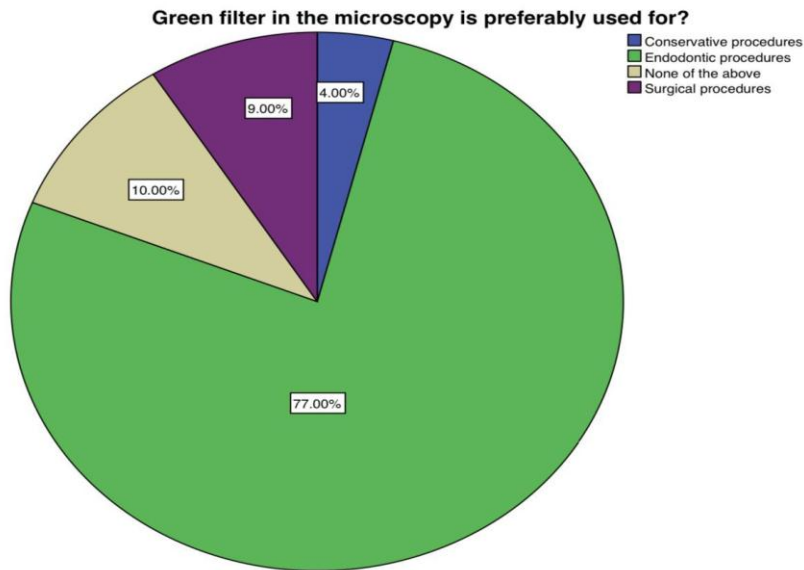


Figure 2: Pie chart representing the percentage distribution of usage of green filter in the microscopy . Majority of participants 77% responded to the Endodontic procedure(green), and 9% of the participants responded to the surgical procedure(purple), and 4% of the participants responded to the conservative procedure(blue), and 10% of the population responded none of the above(yellow).

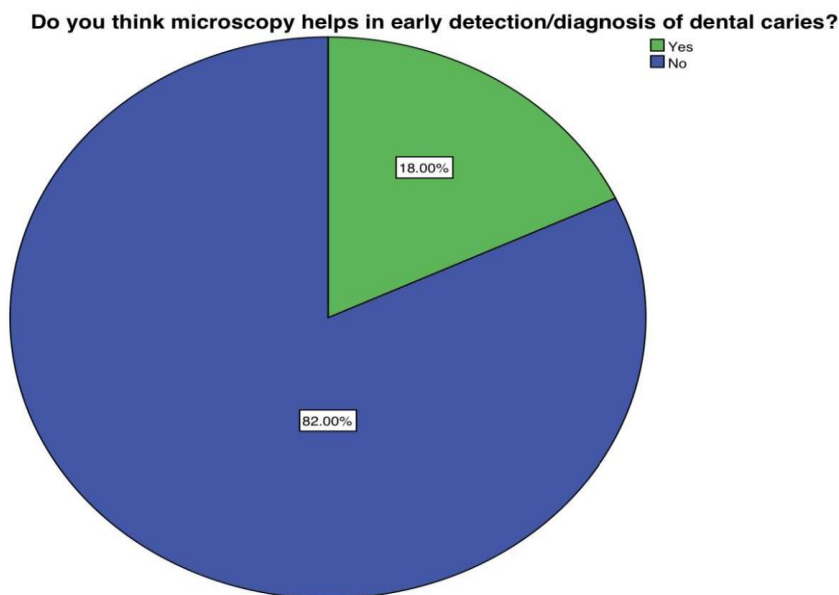


Figure 3: Pie chart representing the percentage distribution of microscopy helping in early detection/diagnosis of dental caries. Majority of participants 82% responded no(blue), and 18% of the participants responded yes(green).

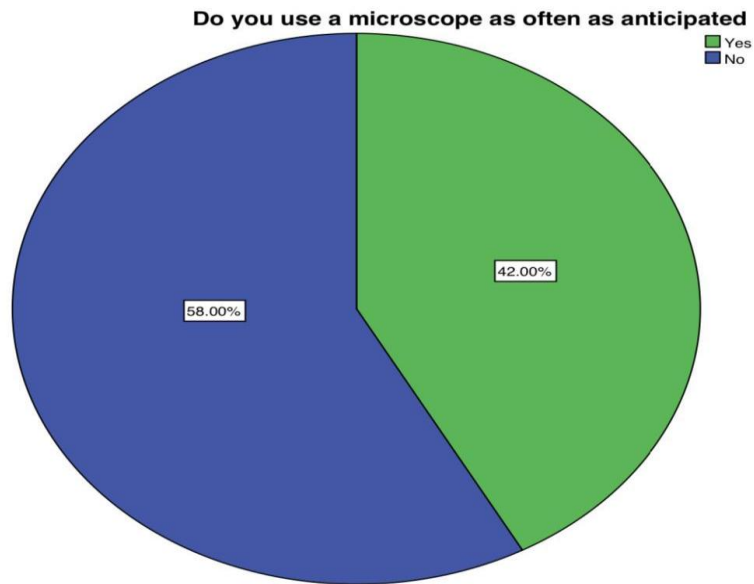


Figure 4: Pie chart representing the percentage distribution of usage of microscope. Majority of participants 58% responded no(blue), and 42% of the participants responded yes(green).

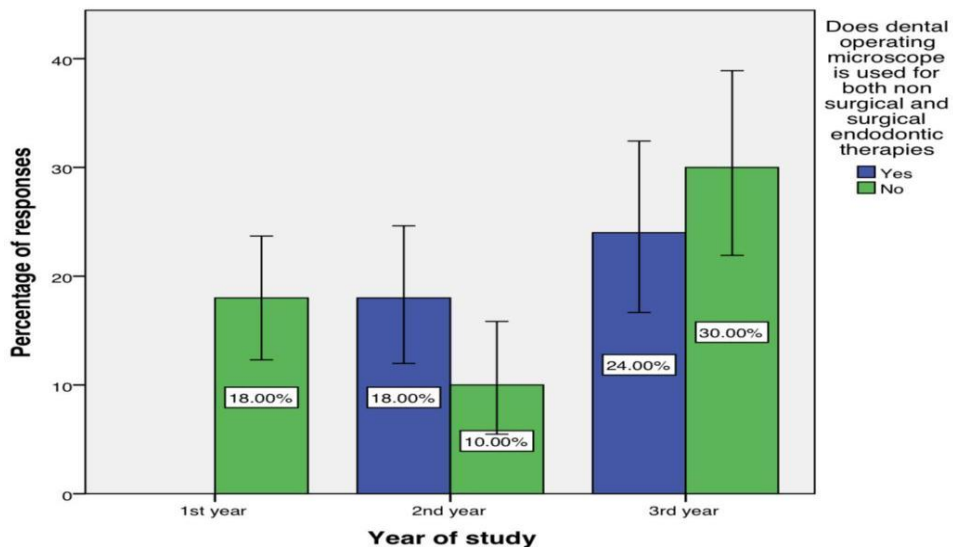


Figure 5: Bar charts representing association between postgraduate students and dental operating microscope. X axis represents postgraduate students and y axis represents the percentage of participants who responded to yes(green), no (blue) .3rd year students strongly believe that a dental operating microscope is not used for both non surgical and surgical Endodontic therapies when compared to other years, however, it is statistically significant(p value =0.000(<0.05)).

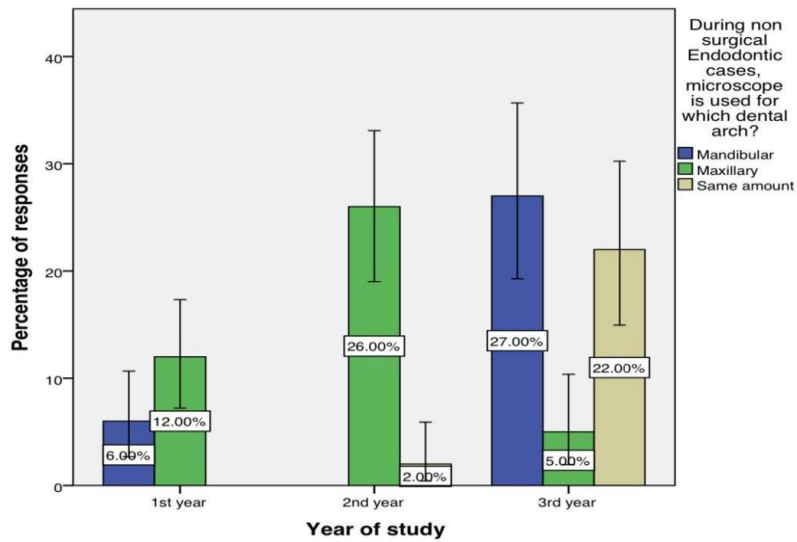


Figure 6: Bar charts representing association between postgraduate students and usage of microscope during non surgical Endodontic cases. The X axis represents postgraduate students and the Y axis represents the percentage of participants who responded to maxillary (green), mandible (blue) and the same amount (yellow). 3rd year students strongly believe that during non surgical endodontic cases, the microscope is used for the mandibular dental arch, however, it is statistically significant (p value = 0.000 (< 0.05)).

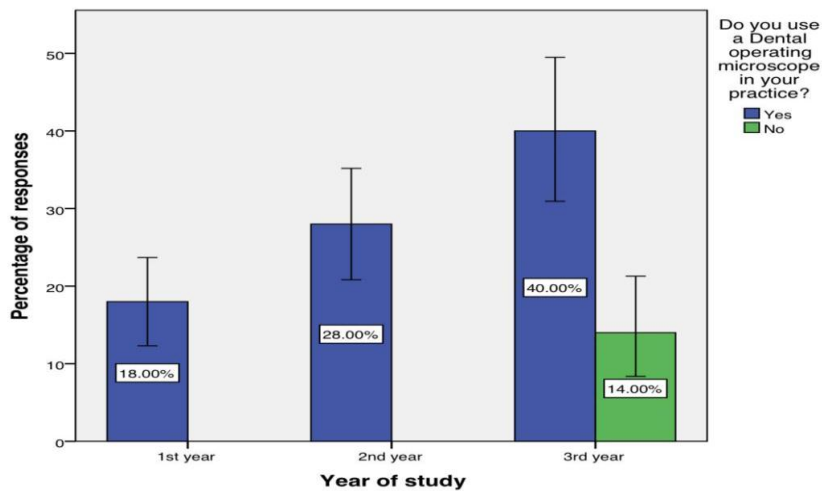


Figure 7: Bar charts representing association between postgraduate students and usage of dental operating microscopes in our practice. The X axis represents postgraduate students and the Y axis represents the percentage of participants who responded to yes (green), no (blue). 3rd year students strongly say that they use a dental operating microscope in their practice, however, it is statistically significant (p value = 0.000 (< 0.05)).

Table1: Depicts percentage of responses of the survey on usage of microscopes in endodontics among postgraduate dental students.

S.no	Questionnaire	Choices	Responses
1.	Are you aware of usage of microscope in endodontics	Yes No	63% 37%
2.	Green filter in the microscope is preferable used for	Conservative procedures Endodontic procedures Surgical procedures None of the above	3% 77% 9% 10%
3.	Do you use a dental operating microscope in your practice	yes No	86% 14%
4.	During non surgical Endodontic cases,microscope is used for which dental arch	Maxilla Mandible Same amount	43% 33% 24%
5.	Do you use a microscope as often as anticipated	Yes No	42% 58%
6.	How often microscope lenses are being cleaned	After every procedure Once in a day Once in a week Never	31% 40% 9% 20%
7.	Do you think microscope helps in early detection/diagnosis of dental caries	yes No	18% 82%
8.	Do you agree that these surgical loops were relatively ineffective when compared with microscope in endodontic	yes No	56% 44%

	procedures		
9.	Do you think microscope is discouraged by operators due to its increased treatment time	yes No	31% 69%
10.	Does dental operating microscope is used for both non surgical and surgical Endodontic therapies	yes No	42% 58%