

An Evaluation of Awareness and Attitude on Microsurgery among Dental Practitioners - A Survey

Running Title: Awareness and Attitude on Microsurgery among Dental Practitioners

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Abstract:

Background: Dentistry, dealing with teeth and supporting tissues in the oral cavity is not only an ever-evolving science but also an art combined with good eye-hand coordination. It not only encompasses clinical and theoretical skills which play a crucial role in the success of therapy but also a lot of intrinsic work is accomplished in dentistry. In a journey to fulfil the above accomplishments and for facilitating early diagnosis of pathologies, a clearer and magnified field of vision is essential.

Aim: The aim of this study was to assess the awareness and attitude on microsurgery among dental practitioners.

Materials and Methods: A cross-sectional survey was conducted to assess the awareness and attitude on microsurgery among 100 dental practitioners using a self-administered questionnaire. Data was then collected and analyzed.

Results: Among the dental practitioners participated in our study who accounted to 100 in total, 91.1% of them were aware of usage of magnification devices in dentistry. 60% of dental practitioners preferred loupes over operating microscope to work in efficiently on dental chair. Only 40% of dental practitioners were found to use magnification devices in everyday practice. Regarding the advantage of using magnification devices, 41.1% of them stated that there is comfort in vision and 61.5% of them stated that there is improvement in quality of treatment.

Conclusion: Among the selected group of participants, even though majority were aware about magnification in dentistry, its application in practice was very less.

Keywords: Ergonomics, Magnification, Magnification devices, Magnification Loupes

Introduction:

Microsurgery, this term is used when a surgical procedure is performed making use of the magnification. The instruments like loupes and microscopes which provides the magnification is made use of, in the fields of medicine since decades. Now the use of such magnification systems is a very popular practice in dentistry as well. Before adopting visual magnification systems such as microscopes and successfully applying it in the dental procedures, it is mandatory to understand the principles and the physics of such instruments. Microsurgery in dentistry has more advantages in terms of efficiency, improved ergonomics, minimally invasiveness and less fatigue. This review paper, highlights about the various magnification systems, its principles and the application of microsurgery in various fields of dentistry.⁽¹⁾

There are several major advantages in microsurgical techniques while compared with conventional macrosurgical procedures. Microsurgery offers advanced results in connection with passive wound closure and also significant reduction in tissue trauma, which results in rapid healing. This was not previously possible in traditional macrosurgical techniques.⁽²⁻³⁾

In this journey of enhancing improved vision and acuity of the dental practitioners, magnifying loupes were devised. As dental professionals spend a day working in a small oral cavity, clear vision plays a major role in producing accurate benefits. This led to the introduction of enhanced magnification devices wherein magnification was considered to be one of the greatest revolutions in science and more specifically in dentistry.⁽⁴⁾

Even though scientific evidence supporting the impact of magnification on the dentist's performance is weak, few studies in the literature do show predictable results when magnification was incorporated and integrated into the clinical scenario. Hence, the present questionnaire-based study was attempted to assess the awareness and attitude on usage of magnification devices among the dental practitioners.

Materials and Methods:

This questionnaire-based study was conducted among 100 dental practitioners. A prestructured questionnaire comprising of 10 questions was prepared, in which questions were related to awareness and attitude were formulated to assess the usage of magnification devices among the participants.

Dental practitioners practicing more than 5 years with a qualification of BDS or MDS were included in the study and practitioners who were not willing to participate in the study were excluded. All the participants were provided with the questionnaire and wherein, the answering is completely self-based.

Results:

The questionnaire employed comprised of 10 questions which focused on awareness and attitude on usage of magnification devices. Table 1 show the questions used in this study.

Among the dental practitioners participated in our study who accounted to 100 in total, 91.1% of them were aware of usage of magnification devices in dentistry. Out of that, 44.4% of them were aware during the course of pursuing their BDS/MDS degree, whereas 8.3% through colleagues and

friends, 8.3% through demonstrations, 16.8% through social network sites and 13.3% have gained awareness through attending workshops.

60% of dental practitioners preferred loupes over operating microscope to work in efficiently in dental chair. Only 40% of dental practitioners were found to use magnification devices in everyday practice. When the question on reason for not using microscope was asked, 33.5% of practitioners found it to be expensive, 50% found it difficult to use, 16.7% of dentists complained of health issues like pain in neck, shoulder, hand, wrist.

Regarding the advantage of using magnification devices, 41.1% of them stated that there is comfort in vision and 61.5% of them stated that there is improvement in quality of treatment. Most of the dental practitioners about 73.7% felt conventional treatment better for routine dental practice. Only 41% of dentists claimed magnification devices save time on dental chair.

When the opinion regarding the usage of magnification devices in various branches was asked, the majority of the participants (83.3%) agreed that magnification devices are worthy to be used in endodontics. 50% of dental practitioners use these magnification devices for diagnostic purposes.

Table 1: Questionnaire to assess the awareness and attitude on microsurgery

Sl.No	Questions	Answer Options
1	Are you aware of the usage of magnification devices in dentistry?	Yes/ No
2	Mode of awareness of magnification devices	During BDS or MDS degree/ Colleagues and friends/ Demonstrations/ Social network sites/ Workshops
3	What do you prefer to work efficiently for dental practice?	Loupes/ Operating microscope
4	Do you use magnification devices in everyday practice?	Yes/ No
5	What is the reason for not preferring magnification devices in everyday practice?	Expensive/ Difficult to use/ Health issues like pain in neck, shoulder, hand, wrist
6	What is the advantage of using magnification devices?	Comfort in vision/ Improvement in quality of treatment.
7	Do you think conventional treatment is better than using magnification devices in routine practice?	Yes/ No
8	Do you think magnification devices save time in dental practice?	Yes/ No
9	In which branch of dentistry, usage of magnification devices is advantageous?	Endodontics/ Periodontics/ Oral Pathology/ Prosthodontics/ Pedodontics

10	Do you use magnification devices for diagnostic purpose?	Yes/ No
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Discussion:

In dentistry, manual dexterity and skill are of extreme importance to achieve accurate results. Along with manual dexterity and skill, vision also plays a very important role. Magnification devices are indeed an evolution from the conventional method of macrodentistry to a high precision microdentistry. Modern-day dentists has numerous magnification systems to choose from, which range from simple to compound prismatic telescopic loupes and a vast variety of surgical microscopes. The use of magnification devices along with the microsurgical instruments and techniques can lead to improved surgical outcomes, thereby resulting in a higher quality of care. It is evident that the application of magnification to dentistry gives more predictable results with procedures being less invasive, reduced patient discomfort, superior approximation of wounds, more rapid healing, improved cosmetic results and greater patient acceptance compared to conventional macrosurgical approach.⁽⁵⁾

Magnification devices can be used in diagnosing the diseases such as lesions in the oral cavity and ulcers, analyzing the radiographs, endodontic treatments, surgical procedures, periodontal procedures from simple scaling to periodontal plastic procedures, crown preparation in prosthodontics and also in placement of brackets in orthodontics.⁽⁶⁾ Magnification devices, therefore, encompasses all disciplines in dentistry to visualize the minor details and smaller structures clearly and thereby helps to work accurately.

The main motto behind conducting this study was to analyze the awareness and attitude of the dentists towards the usage of dental magnification devices. In our study, we have identified that overall routine use of magnification devices is very less inspite of having awareness.

Regarding the source of knowledge about magnification in dentistry, majority of the participants gained their knowledge during pursuing their professional degree (44.4%), followed by suggestions from colleagues and friends (8.3%). These results were not in accordance with the previous studies,^(7,8) in which the decision to buy magnification aids was mainly influenced by colleagues.

When the reasons for avoiding the magnification in their work were elicited in the questionnaire, 40% of the participants do not use these devices in their regular practice and 33.5% thought that the magnification devices were too expensive which was in accordance with the studies done by Farook et al.,⁽⁹⁾ and Meraner et al.⁽¹⁰⁾

As ergonomics is one of the most important principles that need to be implicated in dental practice, the use of magnification devices definitely reduces the limitations encountered in performing the procedures in a conventional way. Apart from the various advantages elicited in the literature regarding the use of magnification devices, as ergonomics also plays a very important role in the day-to-day clinical practice, magnification devices should definitely be advocated in dental practice.

Conclusion:

This questionnaire based study was conducted in an attempt to assess the awareness and attitude of usage of magnification devices among dental practitioners and the results revealed that even though

majority of the practitioners were aware of the advantages of using magnification devices in dentistry, it is unfortunate to state that their application into clinical practice was not phenomenal. Hence, more awareness needs to be created in the field of dentistry about the advantages of microsurgery.

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