

## Awareness and Attitude of Using Magnification While Working on Pediatric Dental Patients by Post Graduates and Pedodontists of Ahmedabad City

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### Abstract

**Introduction:** Seeing is believing and if you can see it, you can do it. Magnification is now becoming an integral part of modern dentistry, but there is little concern regarding its implementation and use in pediatric dentistry.

**Aim:** To measure the awareness and attitude among pedodontists and post graduate (PG) students of pediatric dentistry towards using dental magnification.

**Method:** A closed ended questionnaire was designed to collect the information required and was handed out to pedodontists and post graduates in Ahmedabad city. It included 11 questions that will assess the knowledge and attitude regarding the use of dental magnification.

**Result:** Of 80% response rate, 64% PGs and 76.66% pedodontists preferred the use of magnification. 70% pedodontists used loupes among which 66.6% preferred for endodontic procedures. 90% PGs and 96% pedodontists stated that the quality of their work under magnification was improved. 60% PGs didn't use any magnification due to insufficient training and opportunities to try and most of them experienced headache while working under magnification.

**Conclusion:** Reinforcement is needed for using dental magnification in pediatric dentistry through conducting more conferences and meetings regarding use of dental magnification.

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## 1. Introduction

In dentistry, magnification is considered as one of the great revolutions in science. The various magnification tools used in dentistry are magnification loupes, dental operating microscope and magnifying glass.<sup>1</sup> Dental operating microscope is used regularly for early recognition of caries.<sup>2</sup> It is also used in preparation of prosthetic full coronal restorations and post and core placement.<sup>3</sup> Also it is helpful in surgical procedures and furcation perforation repairs.<sup>4</sup>

Before it was thought that only individuals with failing sight or visually impaired practitioners gains maximum benefit from the use of magnification. But there are many advantages of using dental microscope. Advantages of using magnification in dental practice is that it improves the quality of treatment done, helps to achieve proper posture while working on patients, reduces stress to eyes, and decreases negative impact on musculoskeletal system. Use of dental magnification should be incorporated despite of its high cost value and prolonged learning curve.<sup>5</sup>

Magnification tools are routinely used by dental practitioners and students in various dental fields, but still its implementation and use in pediatric dentistry is limited. So the need of the current study is to measure

the awareness and attitude among pedodontists and post graduate (PG) students of pediatric dentistry of Ahmedabad city towards using dental magnification.

## 2. Material and Methodology

It was a descriptive cross-sectional questionnaire-based study. The study was conducted among 100 Post graduates of pediatric and preventive dentistry and pedodontists practicing in Ahmedabad city. Ethical approval from the ethical committee of the Karnavati university, Gandhinagar was taken. Then a self-administered closed ended questionnaire was prepared to collect the information required. This questionnaire was then handed out to PGs and pedodontists in Ahmedabad city which comprised of 11 questions. It included the questions that measured the awareness, attitude and knowledge of how to use dental magnification in pediatric dentistry.

### STATISTICAL ANALYSIS

Statistical Package for Social Sciences (SPSS version 20.0, IBM Corporation, USA) was used for statistical analysis. 95% was considered as the confidence interval.  $P < 0.05$  was assigned as the Statistical significance value to determine significance of various responses. The chi-square test was used to know the relationships between categorical variables.

**Table 1:** Demographic data of the participants

Demographics	Count (N%)	
Total	80%	
Post graduates	50%	
Pedodontists	30%	
Gender	Male	25%
	Female	55%

**Table 2:** Preference for use of magnification in dental work

	Post graduates		Pedodontists		P value
	Count	Percentage	Count	Percentage	
<b>Diagnosis</b>	8	16%	1	3.33%	

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Conservative procedure	6	12%	9	30%	0.214
Endodontic procedure	35	70%	20	66.66%	
All	1	2%	0	0%	
None	0	0%	0	0%	

**Table 3:** Magnification tool used

Magnification tool	Post graduates		Pedodontists		P value
	Count	Percentage	Count	Percentage	
Loupes	11	22%	21	70%	0.012
Microscope	0	0%	2	6.66%	
Both loupes and microscope	3	6%	1	3.33%	
None	36	72%	6	20%	

**Table 4:** Frequency of use of magnification

Frequency	Post graduates		Pedodontists		P value
	Count	Percentage	Count	Percentage	
Everyday	0	0%	2	6.66%	0.016
In special cases	5	10%	20	66.6%	
Very rare	45	90%	8	26.6%	

**Table 5:** Discomfort experienced during or after working under magnification

	Post graduates		Pedodontists		P value
	Count	Percentage	Count	Percentage	
Headache	28	56%	24	80%	
Muscular pain	0	0%	0	0%	
Back/neck pain	1	2%	1	3.3%	

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All of the above	17	34%	1	3.3%	0.089
None	4	8%	4	13.3%	

**Table 6:** Reason for not wearing loupes

	Post graduates		Pedodontists		P value
	Count	Percentage	Count	Percentage	
Expensive	14	28%	26	86.6%	0.011
Discomfort	5	10%	3	10%	
Insufficient training or opportunities to try	30	60%	0	0%	
Not interested	1	2%	1	3.3%	

**Table 7:** Overall attitude of residents and pedodontists toward using dental magnification

	Post graduates		Pedodontists		P value
	Count	Percentage	Count	Percentage	
Believing that dental loupes can improve the quality of their work	45	90%	29	96%	0.158
If attended any workshops or meetings regarding use of dental magnification	1	2%	5	16.66%	

### 3. Results

The response rate was 80% (n = 80) (Table 1). Of those, 64% PGs and 76.66% pedodontists preferred use of magnification in pediatric dentistry. Most pedodontists (66.6%) and PGs (70%) thought it would be useful in endodontic procedures followed by conservative procedures (Table 2). 70% Pedodontists preferred

mostly dental loupes as a tool of magnification while 72% PGs didn't use any magnification tool which was statistically significant (p=0.012) (Table 3). Only 10% of PGs used magnification in special cases and 90% of them use it very rarely which was again statistically significant (p=0.016) (Table 4). When asked about the discomfort caused while using magnification devices, 80% of pedodontists and 56% of PGs believed that use

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of magnification causes headache (Table 5). The reason for not wearing dental loupes was 86.6% pedodontists felt discomfort while 60% PGs responded insufficient training or opportunities to try which was statistically significant ( $p=0.011$ ) (Table 6). However, 90% PGs and 96% pedodontists stated that magnification in dentistry could help them to improve quality of work related to dentistry. (Table 7).

## 4. Discussion

Till date very limited studies have been conducted regarding the use of magnification in dentistry among pediatric dentists and post graduates. So this study was conducted to determine the level of use of loupes and microscope among pedodontists and PGs and to identify the factors that influence their choice of selection of magnification.

In terms of magnification device, many respondents preferred dental loupes without LED light which might be due to their affordability as majority of pedodontists thought the use of magnification tools to be expensive. The magnification provided by loupes is adequate for mainstream dental practise. Most of the respondents preferred use of magnification only for specific endodontic procedures, which is in accordance of the study by Alhazzazi TY<sup>1</sup>. Respondents in this study stated that dental magnification is utmost effective in procedures related to root canal work, then conservative procedures and then diagnosis. On the contrary in study done by Forgie et al., they concluded that it was most helpful in prosthodontic procedure, then dental diagnostic procedures.<sup>6</sup>

Hayes et al. in their study found the most significant disadvantages of wearing loupes among dental therapist to be that more adjustment period is required, a limited depth of vision, headaches and dizziness.<sup>7</sup> In our study also most of the respondents complained about headaches after the use of dental loupes.

According to Gorter et al., amongst ten dental practitioners at least one has poor overall health, and three has bad general health.<sup>8</sup> These issues can be avoided by creating awareness about ergonomics in dental practises.<sup>9,10</sup> All pediatric dentists should consider using appropriate visual magnification for more accurate and pleasurable dentistry performance. This may reduce the likelihood of musculoskeletal injury. Furthermore, adopting loupes early in field of dentistry and education programmes can greatly help in

maintaining posture of students during dental procedures.<sup>11</sup> Unfortunately, the dental schools are not properly imparting education and knowledge regarding the use of magnification in dentistry. In our study also majority of the PGs avoided using dental loupes due to insufficient training or opportunities to try. This principle, however, should be promoted throughout the academic year during continuing education classes.

## 5. Conclusion

The majority of the postgraduates had never used magnification in dentistry and had never taken dental magnification classes. The majority of the students were having knowledge of the importance of magnification in dentistry. They were aware that magnification increases the accuracy and quality of their work. As a result, students must be reminded to use dental magnification throughout dental operations. This study provides evidence to incorporate magnification in dentistry as an intrinsic component of postgraduate education and reinforcement is needed for using dental magnification in pediatric dentistry through conducting more conferences and meetings regarding use of dental magnification.

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