

# PERCEPTION AND ATTITUDE OF PRACTICING DENTIST TOWARDS EYE IN PUNE

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## **Abstract-**

Dentistry is a visually demanding profession, yet often overlooked particularly by dental professionals. Dentists rely on their visual acuity and dexterity to perform intricate dental procedures, diagnose oral conditions, and ensure patient safety. Practicing dentists can experience various eye defects or conditions like myopia, hypermetropia, presbyopia, etc. that can significantly impact their work and overall, well-being. Impaired vision can lead to errors and complications during procedure.

**AIM:** This study aims at the importance of eyecare and its impact on regular clinical outcomes in Pune, India.

**MATERIALS AND METHODS:** A qualitative investigation was conducted among 200 practicing dentists in Pune. A questionnaire was circulated among them related to knowledge and perception of eye care practices and its relationship with dental practice. Data was collected and statistical analysis was performed using Statistical product and Service solution (SPSS) version 21 for Windows. The Chi square test was performed for calculation of chi square and p value.

**RESULTS:** 200 responses were collected with most of them being general dentists (41%). Many of them were suffering from eye strain (72.5%) followed by dry eyes (53.5%). Eye related symptoms experienced by them were mostly itching (68%) and watery eyes (67%). About 37.9% were experiencing these problems in the last 1 year or more. Most of them suffered from this while performing root canal procedure (59.5%). Almost 46% of the practicing dentist were somewhat concerned about the possibility of developing eye defect due to dental practice. To prevent eye defects, 78.5% were using protective eye wear and 70% were using face shields.

**CONCLUSION:** In this study, it can be concluded that based on the perception and attitude of the practicing dentists towards eye care, awareness related to eye care practices is not only essential for their well-being but also the safety and quality of care they provide to their patients.

**Keywords:** Visual acuity, myopia, hypermetropia, presbyopia, optometrist, dexterity, astigmatism.

## **Introduction:**

The field of dentistry requires precision, attention to detail, and constant focus, as dental professionals work persistently to provide optimal dental health services to their patients [1]. Eye care is an important aspect of health care yet often overlooked among dental professionals where visual clarity is important for precise diagnosis and treatment planning [2]. By examining their beliefs, habits, and the extent to which they prioritize eye care, we can shed light on the awareness and practices that may exist within the dental community.

Prolonged exposure to intense lighting, splatters of potentially infectious substances, and the use of dental instruments can pose substantial risks to eye health [3]. Practicing dentists can experience various eye defects or conditions which include eye fatigue and strain, Myopia (near sightedness), Hypermetropia (far sightedness), Presbyopia (age related condition), and others (cataract, glaucoma, astigmatism, etc.) [4].

Dentists should take regular breaks during long procedures to rest their eyes. Proper lightening, adjustable dental chairs and ergonomic instrument design can help reduce eye strain. Regular eye examinations with an optometrist to detect and monitor any vision problems are mandatory. Dentists with refractive errors such as myopia, hypermetropia, or astigmatism should wear corrective glasses (prescribed by optometrist) and for presbyopia, reading glasses can be used [5]. Protective eyecare and use of artificial eye drops during dental procedures can act as a crucial barrier against accidental injuries [6,7].

To address these divergent attitudes, there is an urgent need for awareness in eye care within dental school and continuing education programmes for the same [8].

## **Aim:**

This study aims at the importance of eyecare and its impact on regular clinical outcomes in Pune, India.

### Materials and Methods:

A qualitative study including dentists in practice from all around Pune city was carried out. Prior to administering the survey, each participant was made aware of their voluntary participation in the inquiry and assured that the confidentiality of their personal data would be maintained throughout.

Appropriate answers to a query about the connection between dental and eye care practices were provided. Certain sentences allowed them to select more than one alternative. The questionnaire addressed a wide range of symptoms, conditions, and after-dental care procedures pertaining to the eyes. The number of years that the dental practitioner has been in practice, the individual's present eye condition, and any associated symptoms were all noted along with demographic information. The dental procedures that resulted in ocular abnormalities were identified, and their attitudes toward preventive care were formed. Corrective measures for eye problems, including optical aids, were recognized.

There were 24 questions on the form overall. Using Cronbach's Alpha technique, the validity and reliability statistics value were determined to be 0.870.

The projected community prevalence of dentist confidence in their eyesight was assessed at 85% (0.85) for the purpose of calculating sample size. With a probability of alpha error ( $\alpha$ ) of 0.05, the confidence value ( $1-\alpha$ ) was determined to be 0.95. The confidence-related Z value was 1.96. In this investigation, the minimal sample size was approximately 196 participants, rounded to 200.

SPSS, a statistical software program, was used to conduct the analysis. Version 21 of SPSS for Windows was developed by SPSS Inc. in Chicago, IL. The correlation between different factors and dentists' knowledge and attitudes about eye care was investigated using the Chi square test.

Using the following formula, the chi square value was determined.

$$\chi^2 = \sum (\text{Value observed} - \text{Value expected})^2 / \text{Anticipated outcome}$$
 Calculations were done for the p value and chi square value.

Statistics were deemed significant when the P value was less than 0.05.

### Results:

A total of 200 responses were collected from the questionnaire distributed among practicing dentists in Pune. Most of the respondents were between the age group of 26 years to 30 years (33%) and with the least been between 61 to 65 years (1%). Out of which, majority were females [Table 1].

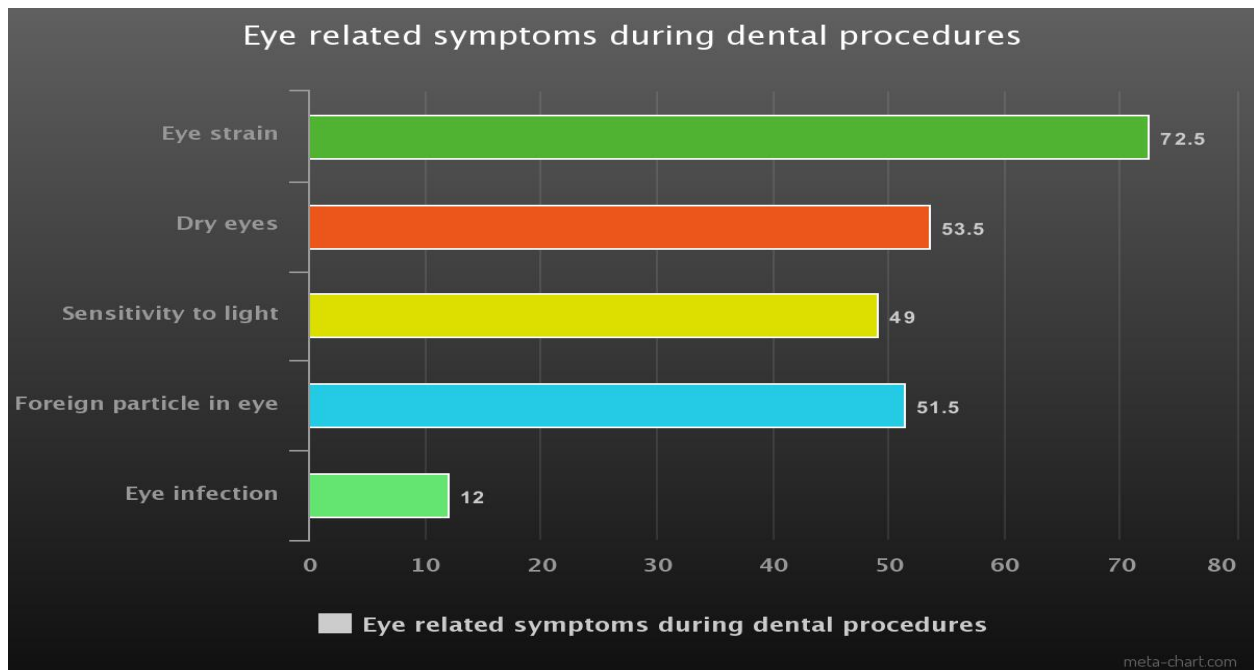
Table 1: Demographic Details

Age Responses	Frequency(n)	Percentage (%)
<b>Age group</b>	<b>Number of subjects</b>	
Less than 25	35	17.5%
26-50	144	72%
50 and above	21	10.5%
<b>Gender</b>		
Male	82	41%
Female	118	59%

General dentists were in great numbers and the least been oral radiologist. The eye related symptoms among majority of the dentists were eye strain (72.5%), followed by dry eyes (53.5%), foreign particle in eye (51.5%), sensitivity to light (49%), and eye infection (12%) [Graph 1]. About 74 dentists (37.9%) were suffering from these symptoms for more than a year, 70 dentists (35.7%) for less than a year and 51 dentists (26.2%) for less than 6 months [Table 2].

Table 2: Duration of eye related symptoms

Duration of eye related symptoms	FREQUENCY(n)	PERCENTAGE (%)
RESPONSES		
LESS THAN 6 MONTHS	51	26.2%
LESS THAN 1 YEAR	70	35.9%
MORE THAN YEAR	74	37.9%

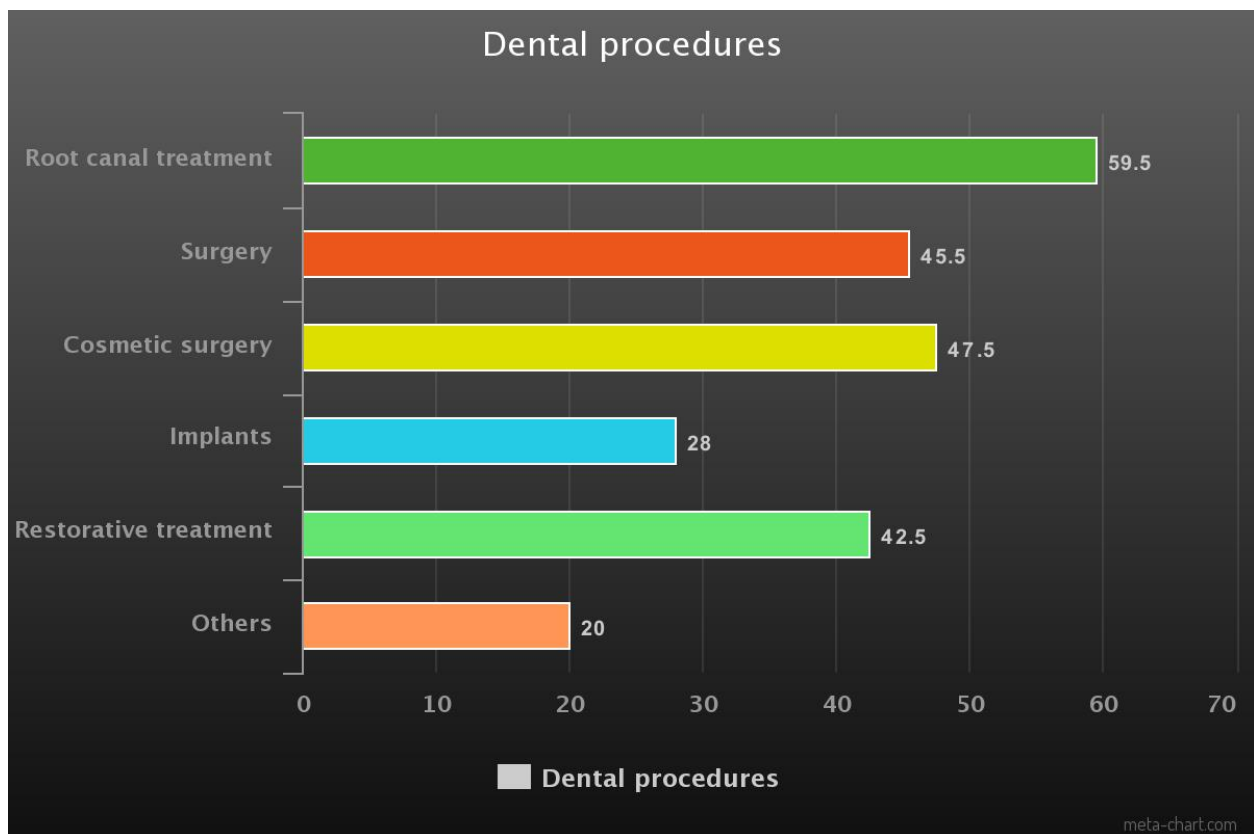


Graph 1: Eye related symptoms during dental procedure

Most common dental procedures to cause these eye related symptoms were root canal treatment according to 119 participants (59.5%) and cosmetic surgery according to 95 participants (47.5%). There was statistically significant difference noticed in association of the dental procedures and eye related symptoms [Graph 2]. Participants were aware that dental procedures over a period can develop an eye defect and 46% of them were concerned about it [Table 3].

Table 3: How concerned are you about the possibility of developing eye defect as a result of your dental practice?

RESPONSES	FREQUENCY(n)	PERCENTAGE (%)
NOT CONCERNED AT ALL	17	8.5%
SOME WHAT CONCERNED	92	46%
NEUTRAL	66	33%
VERY CONCERNED	25	12.5%

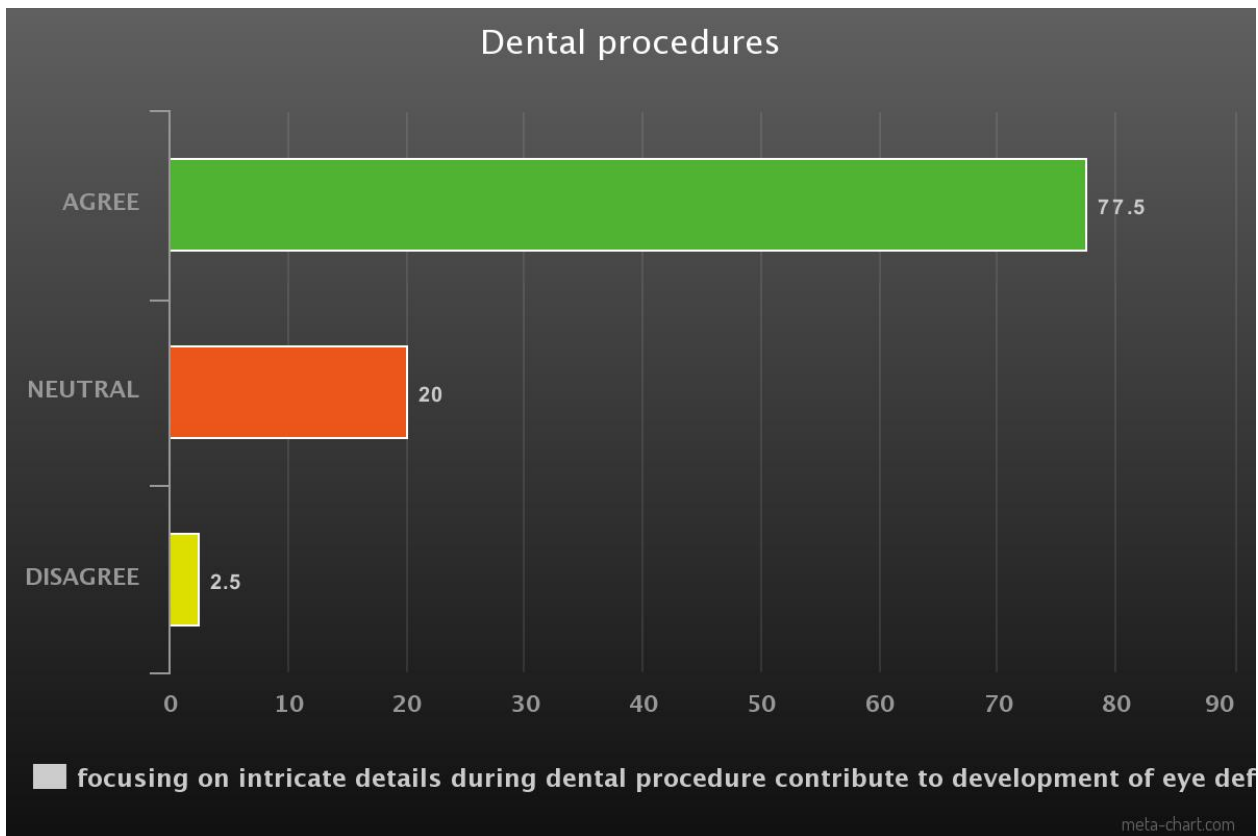


Graph 2: Dental procedures causing eye defects

Amongst all participants only 62 were aware to visit ophthalmologist twice/thrice a year and mostly they visited when needed only [Table 4]. Many of the dentists were diagnosed most with myopia, hypermetropia and presbyopia. Dental procedures including intricate details for long period of time was found associated with development of eye defects and statistically significant difference was noticed [Graph 3].

Table 4: Dentists visit to an ophthalmologist annually:

RESPONSES	FREQUENCY(n)	PERCENTAGE (%)
NOT AT ALL	14	7%
AS NEEDED	115	57.5%
TWICE/THRICE	62	31%
MORE OFTEN	09	4.5%



Graph 3: Focusing on intricate details during dental procedures contribute to development of eye defects

Dentists were aware of the eye related traumas during the dental procedures [Table 5]. Awareness of protocols in case of eye related trauma included being aware of immediate stoppage of activity, using eye drops, immediate medical attention and PPE kit. While performing dental procedures dentists used preventive/corrective measures in which majority used face shield followed by spectacles, magnification devices, laser surgery and least used lens [Table 6]. To avoid eye defect, dentists can take daily based practice preventive measures such as using protective eye care, adjusting proper amount of light, taking breaks in between 2 consecutive procedures, using eye drops and regular eye check-up [Table 7].

Table 5: Eye-related traumas one can experience during dental procedures?

RESPONSES	FREQUENCY(n)	PERCENTAGE (%)
EXPOSURE TO FOREIGN PARTICLES	171	85.5%
EXPOSURE TO CHEMICALS	164	(82%
EXPOSURE TO SHARP INSTRUMENTS	136	68%
OTHERS	39	19.5%

Table 6: Corrective or protective measures have you been using while performing dental procedures?

RESPONSES	FREQUENCY(n)	PERCENTAGE (%)
FACE SHIELD	140	70%
LENS	53	26.5%
SPECTACLES	110	55%
LASER SURGERY	67	33.5%
MAGNIFICATION DEVICE	92	46%
NONE	13	6.5%

Table 7: Daily based practice preventive measures to avoid eye defect:

Responses	Frequency(n)	Percentage (%)
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Using protective eye wear	157	78.5%
Adjusting light	111	55.5%
Taking breaks in between two consecutive procedures	122	61%
Using eye drops	98	49%
Regular eye checkup	108	54%
None	13	6.5%

### Discussion:

A target population of 200 dental professionals from Pune, was addressed with a structured set of questionnaires and the data recorded from general dental practitioners and specialty dentist was analyzed and 90% response rate was obtained. Participants between 24 to 70 years of age gave insight of a wide demographic sample.

Eye health is becoming an increasingly important subject both for the health care system and the society, A study was conducted by Nicholas P Chandler in 2017, where a sample of 90 dentally qualified teachers above the age of 40 were examined for a visual acuity test, it was noted that 62% suffered from short sightedness, 31% by astigmatism, hyperopia by 33% [9]. However, our survey revealed that in dental specialty of 82% of dental practitioners were found to be the most affected with eye related problems, 26.6% of dentists suffered from short sightedness, 32.9% experienced long sightedness, 28.8% experienced presbyopia.

A study by Chadwik revealed 16% of participants did not undergo eye examination annually [10][11] which also reflected in our study where 7% participants never underwent for an eye examination, and 57.5% got examined when needed. According to Association of Optometrists (2006) all dentists should undergo eyesight testing at intervals of 2 years until the age of 50 [12].

According to study by S L Farrier.et.al 87% of dental practitioner were using some form of eye protection devices of which they found personal glasses was commonest [13], In our survey we found 100% population was aware of using protective eye wear and 93.5% was using some form of the protective device out which face shield n personal glasses was most common.

Another survey revealed that 43% of orthodontists encountered eye related trauma (foreign particle) during debonding procedures [14]. A survey also stated Greek endodontist have suffered from eye traumas due to NaOCl and Amalgam and foreign particles associated with them. According to our survey 51.5% of dentists have experienced foreign particles in their eyes and 12% have experienced eye infection.

22% of Nigerian Dentists revealed ocular deterioration due to dental practice [15]. Our survey has concluded that 46% Of practicing dentist are concerned about their detoring visual impairment as part of profession. 26.6% of dentist have experienced myopia and 23.8% experienced presbyopia post commencement of dental practice.

A recent survey in 2022 by Matthew McHarg.et.al revealed that the most common ocular symptoms are sensitivity to light, itchy eyes, tearing, redness, eye pain, blurred vision [16]. Most common symptoms experienced by our survey population was itching, watery/tearing and redness of eye.

The current revealed contributory factors of study such as dental specialty, specific dental procedures, years of working, hours of performing procedures and unawareness of protective eye aids during treatment on overall eye health of the dentist.

After accounting the various components, the constant focus on micro detailing of root canals for longer span of time can make the eye more prone to developing problems and hence the General practitioners and Endodontists were marked as a leading specialty in the study.

Our results highlight opportunities for decreasing vulnerability of eye related issues through protective eye aids, usage of magnification devices, taking breaks in between procedures, using protectives eye drops, proper dental light adjustment and regular visits to the ophthalmologists for optimizing clinical results along with an enhanced delivery of the dental treatment.

### Conclusion:

After considering the overall study, a deteriorating eye health is noted in practicing dentists, hence to minimize the impact on treatment productivity. Our study highlights awareness about various eye problems, it's causes and various contributory factors amongst dentists it also makes an impact on various opportunities for decreasing vulnerability of eye related issues through protective eye aids, usage of magnification devices, etc. for optimizing clinical results along with enhanced delivery of dental treatment.

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